

Annual Tips Issue: 101 Power Tips for DOS and Windows

PC WORLD

INCORPORATING PC RESOURCE

JANUARY 1991 \$2.95 CANADA \$3.95

PS/2 XP 486

IBM's NEW SUPER PC

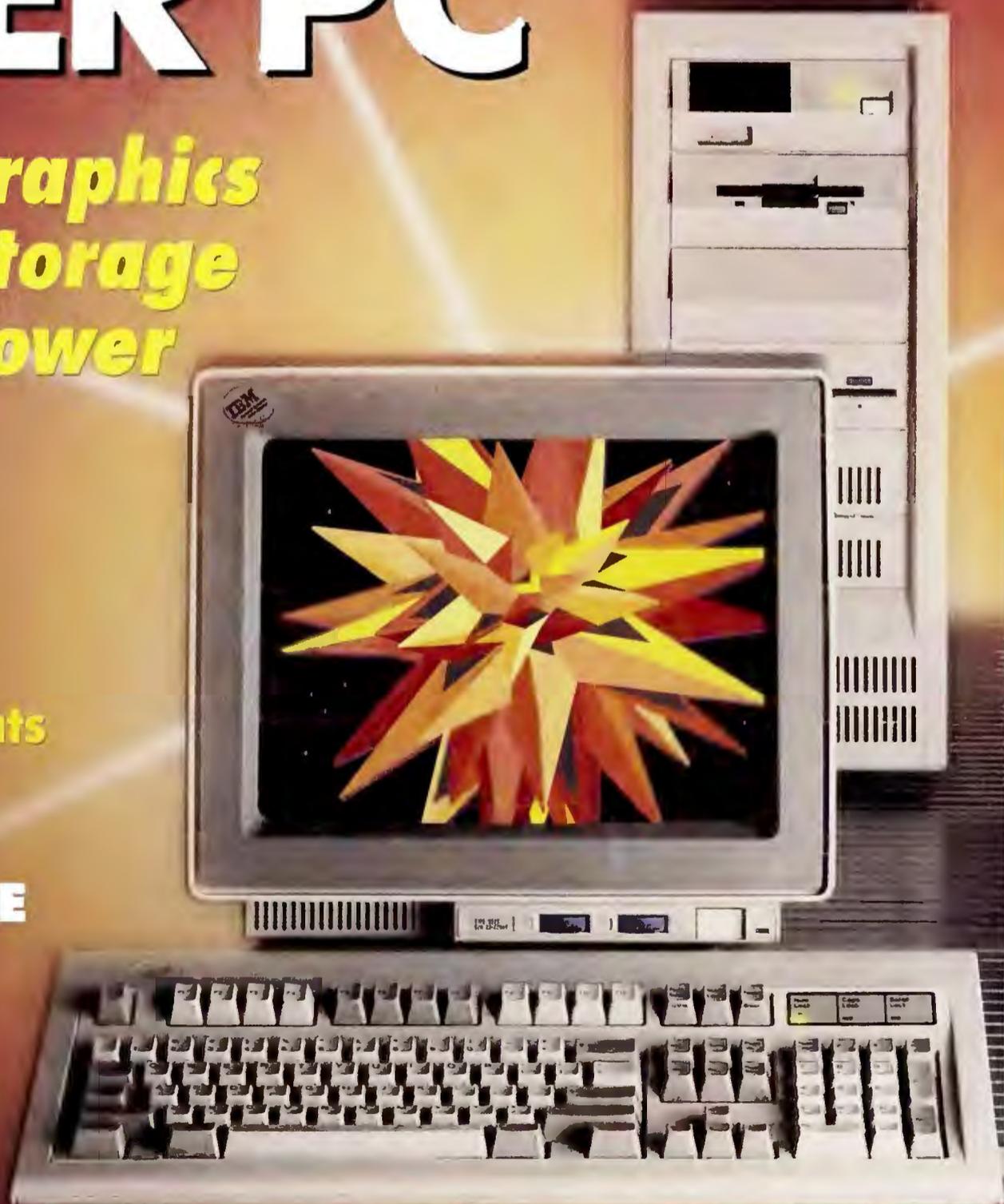
SUPER XGA Graphics
SUPER 9GB Storage
SUPER 486 Power

**SOFT FONTS
SIMPLIFIED**

**7 Cheap Programs
for Dazzling Documents**

**1991 TAX
SOFTWARE GUIDE**

**We Audit 12 Top
Packages**



With our Windows applications, it soars.

You already know that the Microsoft® Windows™ environment can enhance the way you work with your PC. And now you can achieve even greater heights. With Microsoft Windows applications.

They're specifically designed to get the most out of the Windows environment. Saving you considerable time. And effort.

Which is exactly what computers are supposed to do anyway. To start with, every Microsoft Windows application shares similar, friendly icons, menus, and dialog boxes. So as soon as you get to know one, you'll be well on your way to knowing them all.

You'll even enjoy the process. In fact, once you see what you're capable of doing, you'll actually find it liberating. Especially after you realize that any changes you make will show up directly on-screen. Instantly.

So go ahead and do a little experimenting. With different type faces. And sizes. And formats. Then try something really gutsy.

Cut a chart out of Microsoft Excel and paste it into Microsoft Word for Windows. Click and you're done. And that's just one example of how smoothly Microsoft Windows applications work together.

Here's another one. The ability

to establish links between our applications. Which means if you change numbers in Excel, the chart you just pasted into your Word document will be automatically updated. This helps keep errors to a minimum, and you free from tedious repetition.

Of course a change for the better is still a change. So we've made sure our applications read common file formats. Everything from Lotus® 1-2-3® to WordPerfect®. That way you can bring the work you're doing along with you. Making the move to Windows applications even smoother.

Try it yourself. Call (800) 541-1261, Dept. N04, for the free fully functional Working Model* of your choice.

Before long, you'll be focusing your attention on what you're doing. Instead of how to do it.

Which is the best way to get great ideas off the ground.



Microsoft
Making it all make sense®

With Windows,
the future
takes shape.





"Day and Night," by M.C. Escher. Woodblock printed from two blocks, 1938. © 1990 M.C. Escher Heirs/Cordon Art—Baarn—Holland.

PC WORLD



Cover story: Move over, VGA! IBM's new PS/2 systems offer breakthrough graphics plus 486 power, monster storage, and more. How much more? See page 74.

Cover photograph by John Greenleigh

PREVIEWS

- 74 **IBM's Visionary New XPs** *Eric Bender*
Vision and real-world innovation from IBM? Absolutely! Big Blue's super new 486 PS/2 systems feature breakthrough graphics, blazing speed, and storage galore.
- 85 **Easy Persuasion** *John Walkenbach*
The new *Windows* version of *Aldus Persuasion* delivers impressive graphic design tools for business users who aren't design professionals.

REVIEWS

- 122 **Easy Fonts for Great-Looking Documents** *George Campbell*
You can spend a bundle on a PostScript printer. But if it's fonts you're after, take a look at the seven low-cost font generators reviewed here.
- 126 **Buying Smart: Font Shopping Tips**
Interested in soft fonts? Consider these four factors first.
- 128 **Exercising Your Font Options**
There are dozens of ways to acquire new typefaces. Your choices, in brief.

FEATURES

- 138 **Tax Relief for the Rest of Us** *Roberta Furger*
More and more PC-savvy taxpayers are buying tax software. Should you?
- 140 **Own a Home Business? The IRS Is Watching**
Home-business owners: Don't say goodbye to your accountant.
- 141 **In a Hurry for That Refund Check?**
Who isn't? Try filing electronically, and speed up your rebate.
- 143 **Do-It-Yourself Taxes** *Susan Lusty*
A step-by-step buyers' guide to a dozen personal tax packages.
- 147 **Rating the Returns** *Suzanne M. Colvin*
World Class winner *TurboTax* goes head-to-head with *Andrew Tobias' TaxCut*.

NEWS

- 13 **Top of the News**
Mike Hogan
Late-breaking news you can use.
- 61 **Industry Outlook**
Edited by Eric Bender
- IBM's Extended Graphics Array (XGA) blasts past VGA
 - PC makers stress service and support as sales decline
 - New PC software environment on the horizon from IBM
 - More companies hop aboard virus-protection bandwagon
 - Mail-order hardware and software gain in popularity

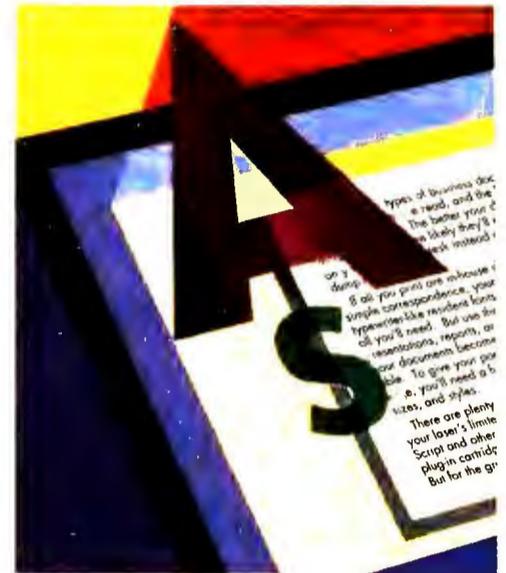
- 91 **Product Outlook**
Edited by Mike Hogan
- New models from Next Computer add pep, color, and improved value
 - *TurboTax*, *TaxCut*, and *MacInTax for Windows* beefed up for 1991
 - The Wyse Decision 486/33E tower system offers room to grow
 - *PrinTools*: hot utilities for LaserJets and compatibles
 - *Express Publisher 2.0* boosts appeal with text-handling power
 - IBM PS/1 printer: snazzy dot matrix output for the home
 - Free up memory in PS/2s with *Qualitas's BlueMax*

- Remote control by mouse with *Triton's Co/Session 5.0*
- Great strides in programming from Borland's *Turbo Pascal 6.0*
- Jazz up your old LaserJet with Pacific Data upgrades
- Send faxes from within applications with the *SatisFAXtion* board
- Investment tracking and a link to *CheckFree* with *Quicken 4.0*
- *CompuAdd* introduces two 33-MHz 386 PCs with "hot slots"
- AST's Premium II 386SX/20: downsized and upgradable
- *Sanyo MBC-17NB* offers a winning combination of laptop features

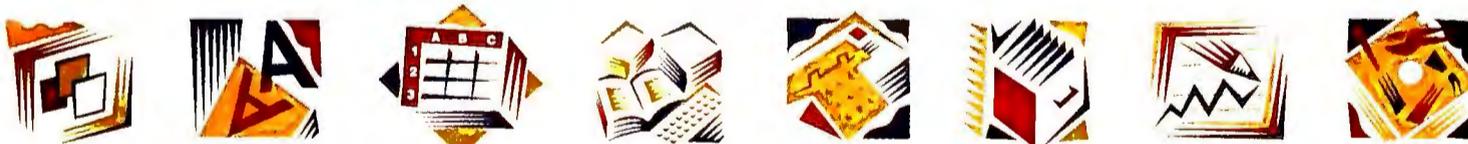
191 **1990 PC World Annual Index**

HOW TO

- 151 **101 Secret Tips**
A *PC World* exclusive! 101 secrets, shortcuts, and insider tips about DOS, *Windows*, and 25 key applications guaranteed to make you instantly more productive.
- 152 Operating System and Environments: *Windows 3.0*, DOS, *Desqview*.
- 156 Word Processing: *WordPerfect*, *Microsoft Word*, *WordStar*.
- 159 Spreadsheets: *1-2-3*, *Quattro Pro*, *Microsoft Excel*.
- 165 Data Management: *dBASE*, *Paradox*, *Q&A*, *R:base*, *DataEase*.
- 170 Communications: *CompuServe*, *Procomm Plus*, *Crosstalk XVI*, *Crosstalk Mk.4*.
- 177 Desktop Publishing: *Ventura Publisher*, *PageMaker 3.x*.
- 180 Presentations: *Harvard Graphics*.
- 182 Draw and Paint Programs: *Corel Draw*, *Micrografx Designer 3.0*, *PC Paintbrush IV Plus*.
- 185 Utilities: *Norton Utilities 4.5*, *PC Tools Deluxe 6.0*, *Magellan*.
- 189 **User Group Tips**
Hands-on advice from users across the nation.
- 213 **Instant Reference Card**
Ventura Publisher 2.0 and *3.0*: Keyboard shortcuts to advanced formatting.



If you want great fonts on your screen and your hard copy, this new generation of font software is the way to go. Seven reviews (and two Best Buys) begin on page 122.



Eureka! You've found it! 101 insider power tips for DOS, *Windows*, and key applications, page 151.

DEPARTMENTS

- 9 **In This Issue**
Jeff Glines, *PC World's* Mr. Infographics.
- 19 **Richard Landry**
Just watch: Your display will become more important than ever.
- 25 **Letters**
Readers champion the little guy and defend their laptops.
- 35 **The Help Screen**
Karl Koessel
How to run shareware programs; partitioning your hard disk.
- 41 **Network Q&A**
Running *Windows* with *NetWare*.

- 43 **Consumer Watch**
Roberta Furger
PC World's secret shopper stalks the system bazaars.
- 46 **Rate Your Satisfaction**
Most Compaq desktop machines earn high marks from users.
- 207 **Star-Dot-Star**
Edited by Tom Swan
Tips on *1-2-3*, batch files, *WordPerfect*, and DOS 3.3.
- 215 **Developer's Toolbox**
How to create bootable floppies without DOS.

- 254 **Taking It Home**
Steve Bass
Discourage burglars from making off with your hardware.

INFORMATION

- 217 **PC World Catalog**
A convenient buying guide to PC products and services.
- 234 **Advertiser Index**
- 236 **Products Featured in Editorial**
- 237 **PC World Mail-Order Shopping Guide**

FREE INFORMATION!

With *PC World's* handy Reader Service Card, you can request detailed information about products you see advertised or reviewed in this magazine.

It's easy.

Just find the product's Reader Service number in the ad or our product indexes, circle the number on your Reader Service Card, and drop the card in the mail.

It's that simple.

We've even paid the postage. Your FREE information will arrive soon.

PC WORLD

Richard Landry
Editor in Chief

Eric Knorr
Editor

Senior Editors
Reviews Eric Brown
Features Robert Luhn
News Mike Hogan

East Coast Editor
Eric Bender

Editorial
Managing Editor Steve Fox
Assistant Managing Editor Cynthia Brown
Technical Editor Karl Koessel
Associate Editors Roberta Furger, Michael Goodwin, Daniel Tynan
Assistant Editors Rex Farrance, Susan Lusty, Lincoln Spector

Copy Chief Barbara Lewis
Copy Editors Peggy Nauts (Senior), Margaret Berg, Marla Miyashiro
Production Editor Janet Walden
Editorial Assistant Cathy Smith
Editorial Manager Gina Vanlue
Assistant to the Editor in Chief Melissa R. Riofrio
Administrative Assistant John Goddard

Typesetting Manager Mark L. Duran
Typesetter Henry Pham

Art & Design
Art Director Claudia Steenberg
Associate Art Directors Robert Kanes, Greg Silva
Designer Emily Wollenweber
Senior Design Associates Barbara Adamson, Laura Pannbacker
Design Associate Jeffrey S. Glines
Assistant Design Associate Hope Winslow
Production Artist Marlene Tobias

Contributing Editors
Anita Amirrezvani, Steve Bass, TJ Byers, George Campbell, Judy Heim, Mark Henricks, Richard Jantz, Robert Lauriston, Barry Owen, Alan Schwartz, Richard Scoville, Ralph Soucie, Scott Spanbauer, Tom Swan, John Walkenbach

David Bunnell
Founder
Andrew Fluegelman 1943-1985
Founding Editor

User Group Advisory Board
Dan Lavin (Ombudsman) 617/969-6555; Tony Barcellos, Sacramento PC Users Group; Steve Bass, Pasadena IBM Users Group; Roger Bender, Microcomputer Managers Association (MMA); Jack Bolton, Atlanta PC User's Group; Brian Camenker, Boston Computer Society; Mary Dolce, Chicago Computer Society; Al Harrison, Houston Area League PC Users; David Hoffman, NYPC; Brian Livingston, MMA; Joseph Rigo, NYPC; Irving Samuels, Capital PC User Group; Jerry Schneider, Association of PC User Groups

Patrick Kenealy
President and Publisher

HOW TO CONTACT PC WORLD

Unless otherwise indicated below, please direct all correspondence and inquiries as follows:

Mail: PC World Editorial
501 Second St. #600
San Francisco, CA 94107
CompuServe: 74055,412
MCI Mail: PC World Editorial
Phone: 415/243-0500
Fax: 415/442-1891

Subscriber Services

Call toll-free 800/234-3498 (303/447-9330 in Colorado), or write Subscriber Services, P.O. Box 55029, Boulder, CO 80322-5029. To place new orders, call 800/825-7595.

Letters to the Editor

PC World welcomes your comments and opinions. Address editorial correspondence to *Letters to the Editor*. Letters intended for publication should not exceed one double-spaced page. Be sure to include your name, city, and state. We reserve the right to edit all letters published.

Help With Your PC Hardware or Software

If you have a problem, *PC World* may have the answer. Send questions about PC products and procedures to *The Help Screen*, network-related questions to *Network Q&A*, and consumer-related questions and complaints to Roberta Furger, *Consumer Watch*.

Reader Submissions

PC World encourages readers to share technical solutions. We pay \$25 for each *Power Tip* published in the magazine, \$50 for *User Group Tips*, and \$25 to \$200 for *Star-Dot-Star* items. Keep submissions brief (*Power Tips* and *User Group Tips* to 100 words or less). We cannot acknowledge unpublished submissions; accepted submissions will be acknowledged by payment.

New Product Information

Send hardware press releases to Cathy Smith, Editorial Assistant, or call her at 415/978-3179. Send software product announcements to Susan Lusty, Assistant Editor, or call her at 415/978-3321.

Reprints and Permissions

You must have permission before reproducing any material from *PC World*. If you want to quote from or reprint any portion of any article or use artwork or photographs from the magazine, send a written request to *PC World*, Reprints and Permissions, 501 Second St. #600, San Francisco, CA 94107; include a phone number to ensure a fast response. To order reprints of features or departments, call 415/978-3162.

Editorial Calendars

To receive a copy of *PC World's* Editorial Calendar, call your nearest regional *PC World* advertising sales office. See the Advertiser Index for phone numbers.

PC World™ (ISSN 0737-8939) is published monthly at \$29.90 for one year (12 issues), \$59.80 for two years (24 issues), \$89.70 for three years (36 issues) by PC World Communications, Inc., 501 Second St. #600, San Francisco, CA 94107. Foreign orders must be prepaid in U.S. funds with additional postage. Add \$18 per year for Canada and Mexico; add \$46 per year for airmail for all other countries. Second-class postage paid at San Francisco and additional mailing offices. POSTMASTER: Send address changes to *PC World*, Subscription Dept., P.O. Box 55029, Boulder, CO 80322-5029. Editorial and business offices: 501 Second St. #600, San Francisco, CA 94107, 415/243-0500; CompuServe 74055,412; MCI Mail PC World Editorial. *PC World*™ is an independent journal, not affiliated in any way with International Business Machines Corporation. IBM is a registered trademark of International Business Machines Corp. Copyright © 1991, PC World Communications, Inc. All rights reserved. The following are trademarks of PC World Communications, Inc.: Consumer Watch, PC World View, *, *, PC World.



Curtis Universal Printer Legs
Saves space, stores paper underneath. Lifetime Warranty. #PS-2
Retail . . . \$12.95



Curtis Files
Organize and protect diskettes. Lifetime Warranty. #DB-1 (5 1/4) and #DB-2 (3 1/2)
Retail . . . \$9.95



Curtis Trim Trak Margin Remover
Zip off perf margins quickly, easily. Lifetime Warranty. #TR-2
Retail . . . \$9.95

Perfect Gift Ideas



Curtis Computer Tool Kit
11 demagnetized tools to repair, maintain computers. Lifetime Warranty. #TK-1
Retail . . . \$29.95



Curtis Keyboard Calculator
Calculate without interrupting computer programs. 1-Year Warranty. #KC-1
Retail . . . \$9.95



Curtis Mouse Pad
Improve mouse accuracy and control, reduce roller ball wear. Lifetime Warranty. #MP-1
Retail . . . \$6.95



Curtis Safe-Fax
Surge protection for FAX/Telephone/Modem. UL 1449 TVSS Listed. 1-Year Warranty. #SF-1
Retail . . . \$29.95



Curtis Clip
New, improved design! Positions copy perfectly, fits all monitors. Lifetime Warranty. #CC-1
Retail . . . \$6.95

Curtis Has Just What You've Been Looking For.

When you give Curtis during the Holidays, you're giving more than just high quality computer accessories. You're giving gifts that please. Gifts that make life a little easier for the people on your list. Gifts that are used and appreciated not just once or twice, but every day of the year. And on top of all that, they're affordable!

The eight products above range in price from \$6.95-29.95. So this year, give them something you can both smile about—functional, affordable gifts by Curtis.

For the Curtis dealer nearest you call (603) 532-4123 Ext. 40

TWO REASONS WHY TOSHIBA SELLS

At Toshiba, we think that designing a portable computer to fit real live human beings can make the difference between a computer you

love and a computer you merely tolerate.

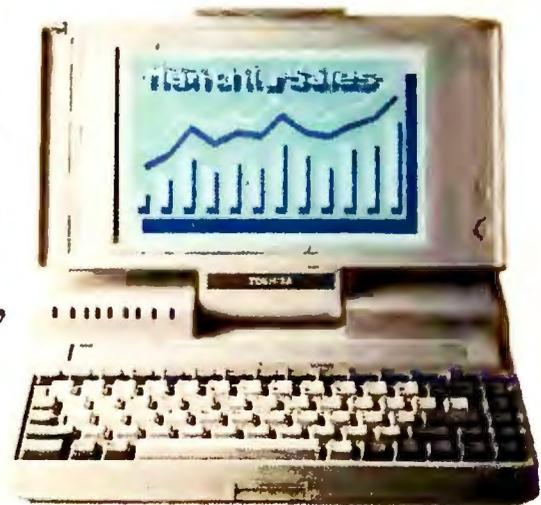
So that's exactly what we think about when we design our portable PCs.



Chances are, you're already used to our comfortable, full-function keyboard. That's because the keys are the exact size and shape you expect them to be.

And the public has told us we were right in our thinking. In fact, according to PC Magazine, Toshiba portables rank number one in customer satisfaction.

Take our T1200XE notebook PC, for example. You'll notice how our unique screen technology makes it easy to read under virtually all lighting conditions, no matter where you decide to get your work done.



The T1200XE takes up about one square foot of desk space (or lap space) so there's always room to work.

For a free brochure or the name of your nearest Toshiba dealer, call 1-800-457-7777.

MORE PORTABLES THAN ANYONE ELSE.

Next, you'll find the keyboard to be immediately familiar, since it's what you're already used to. All of the key spacing and sizes are standard.

You'll also discover plenty of processing power packed into the 286-based T1200XE.

And the 20MB hard drive means you can keep all your programs and files right where you need them. With you.

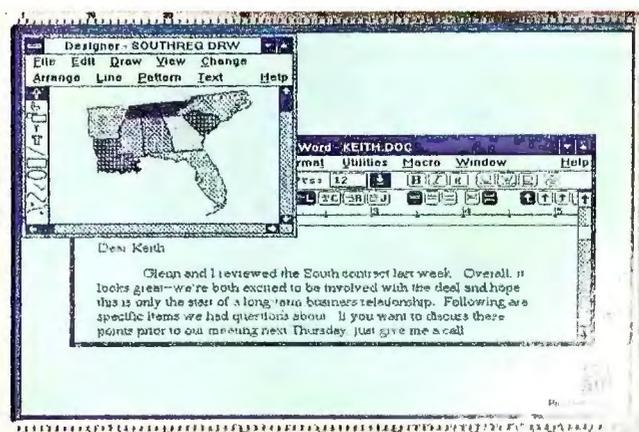
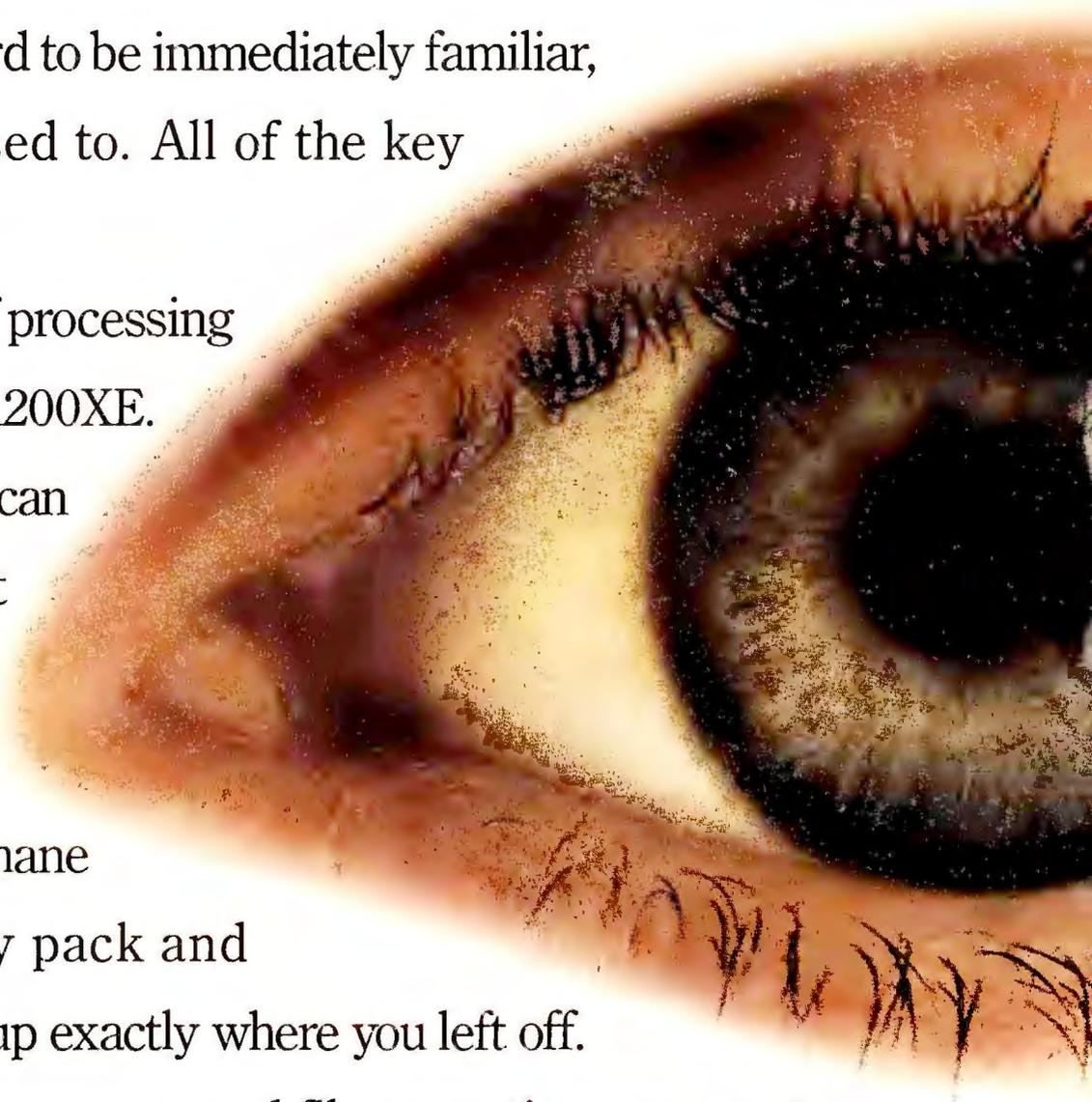
Plus, you'll undoubtedly appreciate the T1200XE's other humane features like a slim line battery pack and AutoResume™, which lets you pick up exactly where you left off.

No grand reopening of the system, program and file every time you want to start work again.

The only thing you'll notice we've skimped on is size and weight. After all, what good is a portable if you can't take it with you?

With notebooks like the T1200XE it should come as no surprise that Toshiba sells

more portable PCs than any other company in the world. After all, you're not the only one who recognizes a good thing when they see it.



Toshiba designed the large, easy-to-read display with real, live humans in mind. So now you can work without a lot of eyestrain, neckstrain or backstrain.

In Touch with Tomorrow
TOSHIBA

Circle 257 on reader service card



**WE BRING
THE HIGH COST
OF NEW-TECH
DOWN FAST.**

Every time some hot new CPU comes along, up pops a host of new monitors to go with it. Expensive ones.

Then in a couple of years, prices come down. Way down. You know the cycle.

At Samtron, we specialize in speeding up this process.

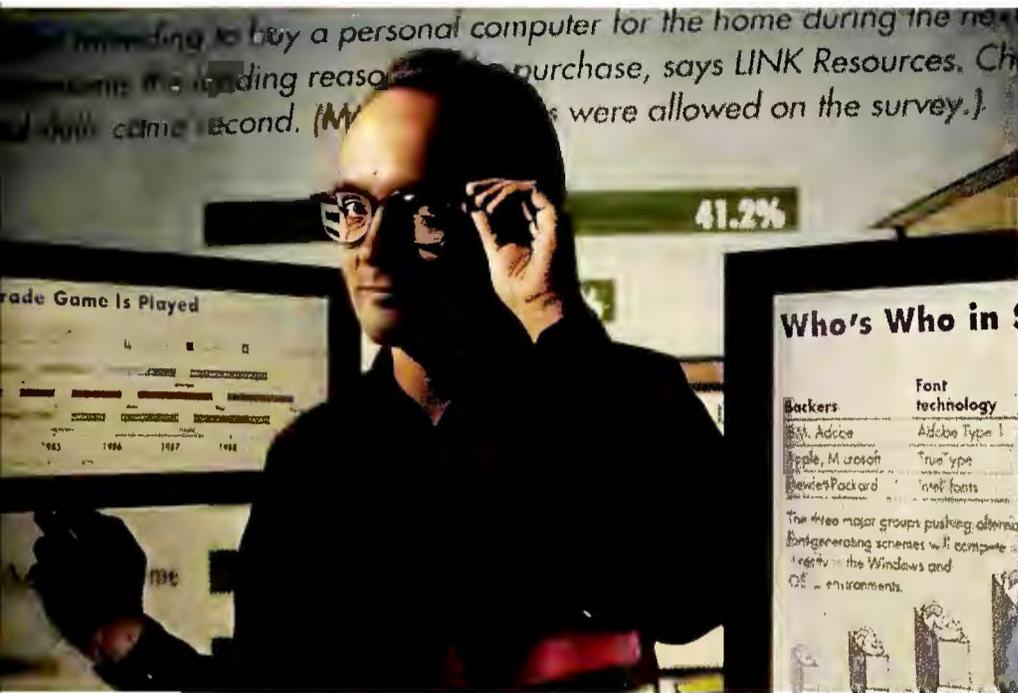
Our Sedai design team takes the latest monitor technology and refines it. Designs it for easy production as well as high performance and reliability.

And since we are the world's largest CRT manufacturer, we're able to produce most of it in our own facilities. Which brings costs down even more.

That's how we can offer you color monitors to go with whatever you have that's new. Be it PC or PC/AT or IBM 8514 or MAC II. At prices that are way ahead of their time.

New Super Series has .31 or .28 dot pitch, and 800 x 600 or 1024 x 768 resolutions. Even 8514/MAC II compatibility.

SAMTRON
WE'RE WORTH WATCHING



Design associate
Jeff Glines in typical
graphic attire.

There's nothing quite like an "aha!" experience, when something you feel you *should* understand suddenly turns crystal clear. If you've ever gotten that flash from the pages of *PC World*, chances are that Design Associate Jeff Glines had something to do with it.

Around here, the flamboyant Mr. Glines is affectionately known as Mr. Infographics. His mission: to design tables, flowcharts, and technical illustrations that convey key information in an instant.

Jeff's latest achievement was directing the design of *PC World*'s new "Know Your Options" page, a monthly decision tree that leads you to the best hardware or software solutions for specific needs. "I found it challenging to take a jumble of questions and answers and turn it into a path," says Jeff, "especially since the format must stay consistent, while the content will change from month to month." The result, found in "Tax Relief for the Rest of Us" in this issue, speaks for itself.

How does Mr. Infographics bridge the gulf between art and technology? Well, it helps to have a creative background and a long association with PCs. A self-described hack musician, Jeff bought an original 64K IBM PC in 1983. "I was disappointed," he says, "to discover I couldn't use it to create pictures or music. So I decided to start a word processing service."

With the idea of gaining more technical knowledge, Jeff began freelancing for *PC World* in 1983, and was quickly promoted to full-time special projects associate. He was a tireless Renaissance man, setting up industry events, producing videos, managing marketing projects,

ROBERT CARDIN

Meet Mr. Infographics

even writing *dBASE* applications. In 1988, Jeff moved into the heart of *PC World*'s art department.

All this doesn't begin to describe the flair, generosity, and humor that Jeff brings to his job, from writing ingenious (and unprintable) fake captions, to sweating the details of electronic color separations, to helping the rest of the art department get more comfortable with PCs. According to Jeff, "people shouldn't ignore the possibilities for fun and exploration that computers hold. Set aside the time to play, and you'll become more relaxed, intuitive, and productive with your machine."

Jeff's attitude furthers *PC World*'s main goal: to sift through fields of technical data and present you with nuggets of information vital to buying and using PCs.

As this month's cover attests, we're not the only ones concerned about graphics. IBM's new PS/2 XP 486 offers top speed and multi-gigabytes of storage, but the real story lies in three little letters: XGA. This graphics technology comes with every XP system, heralding at last the birth of a successor to VGA—one with two-and-a-half times the resolution and as many as 65,536 colors.

Those of you with smaller equipment budgets, take heart. The most valuable part of this issue won't cost you anything at all. A special 24-page section serves up 101 secret tips for 25 top environments and applications, from *Windows* to *DOS* to *WordPerfect* to 1-2-3.

Our review of software font generators examines the best alternative to a PostScript printer. For that day in April we all dread, Associate Editor Roberta Furger and Assistant Editor Susan Lusty take a close look at personal tax software and whether it's right for you.

So follow Mr. Infographics' advice. Sit back and enjoy computing—and this issue. ☺

Eric Knorr

Eric Knorr
Editor

Great price.

Dot matrix printer \$549.



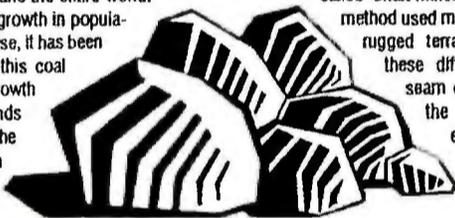
Everything you need to know about every mineral known to man.

THE FACTS ABOUT COAL

Coal is derived from the tissues of plants that flourished several hundred million years ago in swamps. As generations of plants grew and died, their debris accumulated as peat until in many areas it was several feet thick. Such areas sometimes subsided for long periods beneath shallow seas. Sediments settling on the sea bottom formed sandstones and other sedimentary rocks; their weight compressed the peat and converted it into coal. This cycle might be repeated several times, forming layer upon layer of fresh peat material.

Coal is by far the most abundant fossil fuel, both in the U.S. and the entire world.

With continuing growth in population and energy use, it has been speculated that this coal could meet the growth in energy demands all the way until the year 2000, with reserves for 150 years.



A continuing service from David Morgan

Coal has been used frequently by man since prehistoric times, but coal mining itself did not become a major industry until the late eighteenth century and the industrial revolution. Today, there are four types of coal mining procedures mainly used within the U.S. and other countries.

Coal that lies sufficiently near the surface is simply Surface Mined by removing the overlying layers of rock. A Slope Mine is utilized when the coal seam lies at moderate depths. An opening that slopes gently permits easy haulage from the mine. Coal that lies deep beneath the ground is reached by steeply sloping or vertical openings

called Shaft Mines. Drift Mining is a method used mostly in tough and rugged terrain. In many of these difficult cases, the seam of coal lies along the surface of the earth, completely out in the open, and can thus be mined directly.

Great looking.

Laser printer \$1495.*

WHAT YOU NEED TO KNOW ABOUT DIAMONDS

Diamonds are universally recognized as chief among precious stones; they are the hardest, most imperishable and also the most brilliant of minerals. These qualities alone have made them supreme as a jewel since early times.



DISTRIBUTION

The most important localities for diamonds have been in India, where they were mined from the earliest times until the close of the 19th century; South America, where they have been mined since the middle of the 18th century; and South Africa, to which almost the whole diamond-mining industry has been transferred since 1870.

CHARACTERISTICS

A diamond is almost always found in single crystals, which show no signs of previous attachment to any matrix; the stones were, until the discovery of South American mines, almost entirely derived from sands or gravels, but owing to the hardness of the mineral it is rarely, if ever, waterworn.

Some famous diamonds



Florientee

This pale yellow diamond was acquired in the early 17th century by the Duke of Tuscany and later became one of the Austrian crown jewels.



Koh-i-noor

The "Mountain of Light" gem has the oldest verifiable history of all diamonds and has been traced back to 1304. Purchased by the British in 1849, it now is in the Queen Mother's crown.



Jubilee

Discovered in 1895, the diamond was named in honor of Queen Victoria's jubilee of 1897.

With the new HP DeskJet 500, every page will always look valuable.

You want to have that crisp, clean 300 dpi look of the laser printer. To say nothing of its quiet, reliable operation.

But you don't know there is an alternative to the loud dot matrix arena. Which

means your documents don't look as good as they deserve to look.



Enter the new, improved HP DeskJet 500 printer. At just \$729, it's a gem. The 300 dpi inkjet technology makes your output look beautiful. Sharp and compelling. And our new water-resistant ink makes sure it stays beautiful.

As you'd expect, the economical HP DeskJet 500

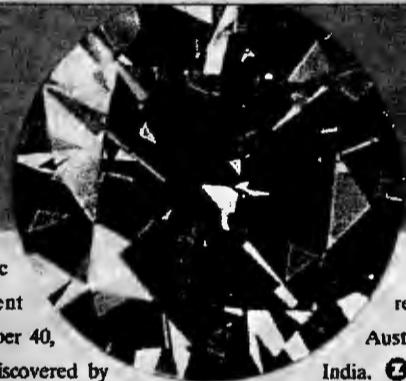
Great looking price.

New HP DeskJet 500 printer \$729.*

MODERN GEMS
OF THE WORLD SERIES

THE GEM INSTITUTE
OF SOUTHERN CALIFORNIA

CUBIC ZIRCONIUM



② A metallic chemical element with atomic number 40, Zirconium was discovered by Martin Heinrich Klaproth in 1789.

② It has an atomic weight of 91.22 and is made up of five isotopes of atomic mass numbers 90, 91, 92, 94, and 96.

② Along with three unstable isotopes, 93, 95, and 97. ② In the United States deposits occur in Florida, California, Oregon, and Idaho.

② Some large reserves are found in Australia, Brazil, and India. ② As well as a substitute for diamonds, Zirconium is used for new surgical instruments, pins, screws for bone repairs, and ammunition primer.

② Zircon, the chief ore of zirconium, is an extremely inert chemical and is stable up to about 1,500 degrees centigrade, above which it disassociates into different compounds. ②

comes with a lot of high-end features. Multiple fonts. Scalable type up to 127 points through Windows support. Portrait for letters or landscape for spreadsheets.

A 10-year MTBF allows us to deliver each DeskJet 500 with a no-nonsense 3-year warranty. And industry-standard compatibility that

lets you plug in and start printing.

So call 1-800-752-0900, Ext. 1910 for your nearest authorized HP dealer.

You'll like the looks you'll get.



This Christmas, we're sending cards to 50 different countries.

It's easy to see why our LANtastic PC Network is cutting the U.S. trade deficit.



Thousands of Japanese, Swedes, Aussies, Rwandans, Parisiens, Rogatongans and 44 other nationalities get highly sophisticated disk, file, program and printer sharing for as little as \$252* per PC — hardware and software.

So they spend more time using information and less time getting information. Which ultimately means they get their products to the world market faster.



And while we designed LANtastic to reduce budgets, we didn't reduce the heavy artillery: Like disk caching to boost network speed. E-mail to cut paper trails. Audit trails to track network activity.

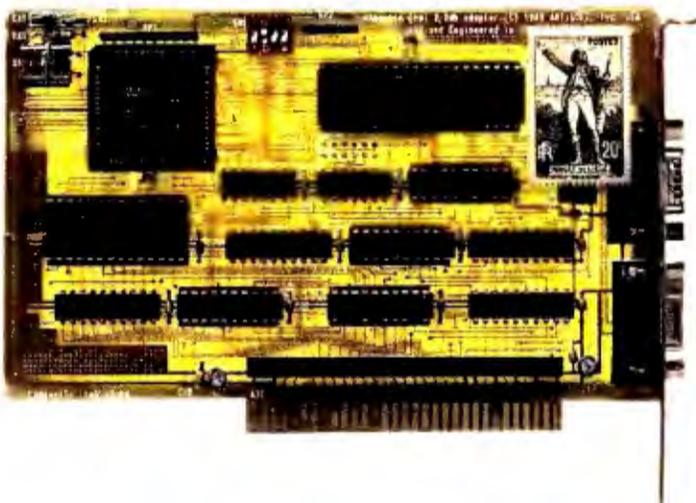
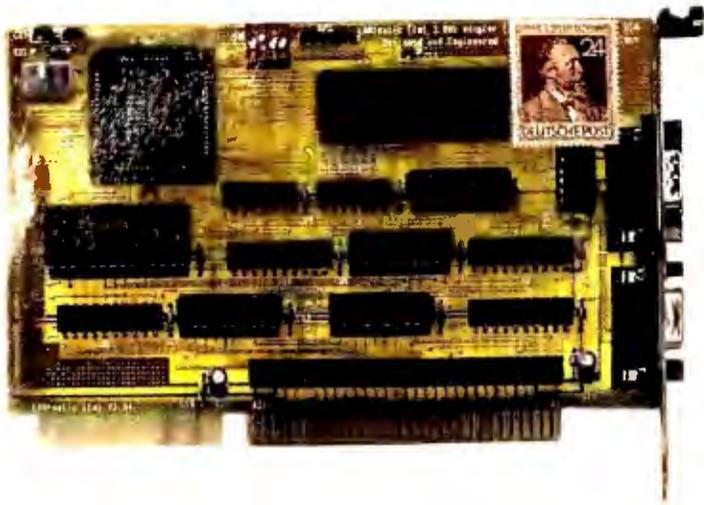
Security to defend against invaders. Voice Mail and modem options. Just to name a few.

And to make matters even more diplomatic, our interface is uncommonly clear and intuitive. Installation is fast and easy, whether you run LANtastic 2Mbps, LANtastic AE-2 Ethernet or other adapters.

To receive your very own LANtastic cards this Christmas, call

602-293-6363

Install the LAN that's linking the world.



 ARTISOFT

*Based on manufacturer's suggested retail price for a 10-computer LAN using LANtastic 2Mbps adapters. Cost is slightly higher for smaller networks. ©1990 ARTISOFT. LANtastic is a trademark of Artisoft.

Circle 18 on reader service card

ACTIVE COLOR ARRIVES

Sharp, Toshiba Target Laptops for Q1

At COMDEX Fall, both Sharp Electronics and Toshiba America showed aggressively priced laptops with crisp active-matrix color screens that are planned for March shipment. Sharp's

Colorstar and Toshiba's T3200SXC include 10-inch, VGA-quality thin-film transistor displays. The former offers a choice of 256 colors from a palette of 262,144, while the latter displays 256 colors from 185,000. The Colorstar is powered by a 20-MHz 386, while the T3200SXC has a 386SX running at the same speed.

Although both companies have been demonstrating this



high-resolution LCD technology for more than a year, the problem of manufacturing enough quality screens per batch to reach an affordable price has delayed their introduction. Toshiba product marketing director Tom Sherrard says that active-matrix color requires a \$3000 to \$4000 price premium, while users are unlikely to pay more than \$10,000 for color laptops.

It will take until March for Toshiba to boost its screen yields sufficiently to offer the T3200SXC for \$8999. Sharp national sales manager Rich Acerra says the Colorstar will sell for somewhere between \$10,000 and \$15,000 despite Sharp's efforts to bring it in under \$10,000.

Both companies offer passive-matrix color laptops. The Sharp can display 8 colors, while the Toshiba offers 16 colors. Both are subject to color shift at some angles. With active-matrix technology, each pixel on a screen is driven independently by a transistor for greater color variation and contrast, and clear viewing from any angle. Sherrard claims that these flat panels offer better resolution than rounded CRTs, eliminating the last major advantage of desktops over portables. Current models are AC powered.

LOTUS BUYS SAMNA

Ami Pro, 1-2-3 Become Potent Windows Combo



Lotus should be able to match Microsoft's *Excel* and

Word graphical spreadsheet-word processor combo by mid-year, thanks to its purchase of Samna Corporation, maker of *Ami* and *Ami Professional*. Lotus's marketing muscle should dramatically boost sales of the well-reviewed line, which currently accounts for about one-sixth of *Windows* word processor sales.

Samna products will be teamed with *Windows* versions of *1-2-3* and other Lotus programs expected by summer. As corporate demand for *Windows* soars, "the biggest priority we have now is to get out our *Windows* products," asserts Lotus chairman Jim Manzi.

Manzi observes that word processor sales in the U.S. are second only to those of spreadsheets, with a \$700 million market growing 8 to 10 percent annually. "We're going to invest very aggressively in this business," he promises.

Under a definitive agreement scheduled at press time to be completed in December 1990, the Atlanta-based Samna becomes Lotus's word processing division.

"This gives Lotus really strong counterparts to Microsoft's *Excel* and *Word*," comments *Soft-letter* publisher Jeffrey Tarter. But the \$65 million purchase price struck many as high for a company with \$14 million in annual sales that has mostly been in the red during the two years since *Ami* debuted.

VGA IN THE FAST LANE

Products Boost Performance, Bolster Standard



Unintimidated by the recent debut of IBM's XGA high-end graphics offering, component makers have developed chip sets that dramatically increase the performance of VGA and breathe new life into the 640 by 480 or better standard.

Headland Technologies/Video Seven is showing its HT216 VGA chip set, which utilizes the high processor speed of the CPU bus to transfer video information rather than being limited by the 8-MHz Industry Standard Architecture I/O bus.

"VGA has always been the bottleneck in high-end PCs," says Jim Anderson, graphics

director for Headland Technologies. "This eliminates that bottleneck." Because the chip set was optimized for *Windows 3.0*, users of that environment will see the greatest speed improvement, particularly when opening and closing windows and moving between applications, says Anderson.

Similarly, Chips and Technologies has announced the PUMA coprocessor chip set, designed to at least treble the speed of graphics-intensive applications. Unlike the HT216, which is intended for motherboards, PUMA will be built into a separate coprocessor card that will offload the compute-intensive functions of both VGA and 8514/A graph-

ics from the central processor. Integrated Information Technologies takes a similar approach with its Integrated Graphics Array offering. With all these new chips, the result is improved performance, particularly when running *Windows* software.

Given the confusion likely to be caused by IBM's XGA announcement, the introductions come at a good time for VGA users, says Dataquest analyst Michel Castro. "When a new standard is introduced, users are afraid [that their] systems will be obsolete. This further solidifies VGA's position as a standard."

IIT says its products will appear in boards early in 1991. The other two suppliers will begin sampling their chip sets after the first of the year, with products expected around summer.

BORLAND DOES WINDOWS

Forms Processor, Turbo Pascal, SideKick II Unveiled



Borland International gave form and substance to its *Windows* and groupware strategies at COMDEX Fall by rolling out a forms/application generator and *Turbo Pascal*—both for *Windows*—as well as a network version of its *SideKick* utility. All are scheduled for first

quarter 1991 release.

Expresso marries *Windows* to the *Paradox* data base engine, enabling in-house developers to generate both intelligent forms and more sophisticated applications that employ those forms as front ends. *Expresso's* visual programming mechanism uses decision trees to aid in programming alternatives that

depend on data input. Forms can link and control other *Windows* applications through Dynamic Data Exchange. With *Expresso* and *Turbo Pascal for Windows*, Borland hopes to become the leading provider of tools for the *Windows* environment.

The DOS-only *SideKick II* also utilizes the *Paradox* engine to drive network-based personnel and resource scheduling and data sharing, as well as to connect to other Borland applications that share the engine. *SideKick II* has a character-based graphical interface and prints out phone lists in all popular address book, in-

dex card, and time planner formats, says Borland vice president Rob Dickerson.

In addition to the familiar utilities—calculator, notepad, calendar, and phone book—*SideKick II* gains a full thesaurus and spelling checker and will run as a TSR in 40K of memory, taking advantage of expanded memory or disk space as available.

Borland expects to be at the forefront of mainstream *Windows* applications. But “we have to sell DOS products—because that is where our bread is buttered—then *Windows*, then Presentation Manager,” remarks Dickerson.

MULTIMEDIA PCS ARRIVING

Windows, Cheap CD ROMs Set Stage



Reasonably priced multimedia PCs that marry high-quality images with audio will arrive by midyear, although business applications are more distant, say Microsoft and Tandy. One important piece of the picture is Microsoft's just-announced *Windows* multimedia architecture, which should become the first consistent, widely supported environment for PC multimedia applications.

“We're working with Microsoft to create an industry-standard, affordable delivery platform for multimedia,” says one senior Tandy executive. IBM, Fujitsu, and other suppliers also will sign on to this standard, although none wants to show its cards yet. The minimal platform will be a *Windows*-capable 286 with 2MB of memory, a 30MB hard disk, VGA, audio and music interfaces, and CD ROM storage, says Rob Glaser, Microsoft's head of multimedia systems software.

In the long run, “the home market is really the Holy Grail,” says another Microsoft executive, who reports that nu-

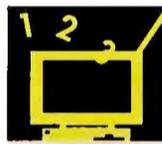
merous developers are creating home reference, entertainment, and education packages. The first multimedia systems will sell for under \$3000. More than 9 million U.S. PCs could be upgraded with kits costing less than \$1000. If sold separately, CD ROM players should cost as little as \$200 at retail by 1992. Additionally, IBM expects to market a low-cost rewritable optical drive in 1991.

Multimedia will dramatically recast business software, adding such things as voice-annotated spreadsheets and voice electronic mail, predicts Michael Braun, vice president for IBM's multimedia group. Braun emphasizes, however, that a suitable base of multimedia machines is needed first.

Meanwhile, Intel's second-generation Digital Video Interactive (DVI) chip set will add full-motion digital video to the desktop by year-end for \$1000 (excluding storage and other peripherals). Broad use of this technology is years away, says Lotus multimedia head Rob Lippincott. “But if you like GUI, you'll love VUI [video user interface].”

TRY BEFORE YOU BUY

Lotus Tests New Slant on Shareware



Lotus Development is running a pilot program with ComputerLand Canada that lets customers of the 70-location chain try three of Lotus's most popular applications before buying. Called Lotus Choice, the shareware-like program puts fully functional copies of *1-2-3*, *Freelance*, and *Magellan* on the hard disks of new computers.

Users who want to participate can try each program as many as seven times, use the on-disk tutorials, and receive free telephone support from an 800 number. If they decide to buy, users call that same number to get a password that gives them unlimited use of the software. A shrink-wrapped copy with full documentation is then mailed to them.

The program, which began in October 1990, will run through January 1991 or until a statistically significant sample of 1500 users is achieved. “We think it's a great success, and the feedback from our

customers is very positive,” enthuses Ron Mitchell, director of marketing operations at ComputerLand Canada. “It's my guess that [Lotus] will want to do this on a much broader scale.” Although it has invested heavily, Lotus is taking a wait-and-see approach, says manager of marketing programs Margo Boulanger.

But Lotus hopes the program will yield a greater acceptance of its products among small and medium-sized businesses, home businesses, and individual users, many of whom are taking advantage of the aggressive price promotions of other vendors—particularly in the case of *1-2-3*. Users don't get a price break through Lotus Choice, says Boulanger, but their software is professionally configured and installed by ComputerLand so that their computers are ready to go out of the box. Both companies make follow-up calls to sell the software and additional training and support programs. “This is the shareware of the nineties,” concludes Mitchell. ☺



How to send messages without spinning your wheels.

Introducing WordPerfect Office™ 3.0. With services such as E-mail,

WordPerfect Office is an easy yet powerful solution for companies who want their network to keep up to speed with the way they work.

WordPerfect Office Mail (Office

Mail) puts simplicity at your fingertips. The Office Mail screen shows you everything you need to compose and circulate messages to an individual, a group, or the entire corporation. Since Office Mail is so easy to use, you'll spend less time managing messages and more time doing what you do best.

Office Mail brings you and your company face to face with the

power to send messages and up to 100 attached files of any format. You can send carbon and blind copies and keep your messages confidential by using password protection and encryption. With unique tracking capabilities, Office Mail even gives

you control over messages that have already been sent. It can notify you immediately when a message has been delivered, opened or deleted. If your mail message hasn't been read, it can be retracted and deleted; or edited and then resent.

WordPerfect Office includes scheduler, calendar and powerful desktop utilities. These combined with our gateway services make it easier than ever to send messages around the world. For more information about WordPerfect Office 3.0 call us at 1 (800) 526-5161.

WordPerfect CORPORATION

1555 North Technology Way Orem, Utah, 84057
Tel: (801) 225-5000 Fax: (801) 222-5077

WordPerfect is a registered trademark of WordPerfect Corporation in the United States. WordPerfect Office is a trademark of WordPerfect Corporation. ©1990 WordPerfect Corporation.

In Box		
• Dave Clare	08/23 09:17	Office 3.0 Slides
• Mandy Muirbrook	08/23 09:18	Printer Manual Deadline
• Dave Clare	08/23 09:18	Office Publications Meeting
• Dave Clare	08/23 09:19	** CONCEALED SUBJECT **
• Steve Knudsen	08/23 09:21	Slides for Comdex
• Steve Knudsen	08/23 09:22	Comdex
		CC BC

Out Box		
Mail message	MCKAY	401K Question
Forwarded mail	stsvnk	tunes.nb -Reply -Forwarded
Mail message	devec	Office 3.0 screens
Forwarded mail	sbins	tunes.nb -Reply -Forwarded

Tab Out Box: F1 Undelstar; Shift-F1 Setup; F3 Help; F7 Exit;
1 Read; 2 Delete; 3 Save; 4 Info; 5 Group; 6 Mail Mag; 7 Phone Mag; 1

WordPerfect Office Mail

On the left, the best-selling VGA monitor. On

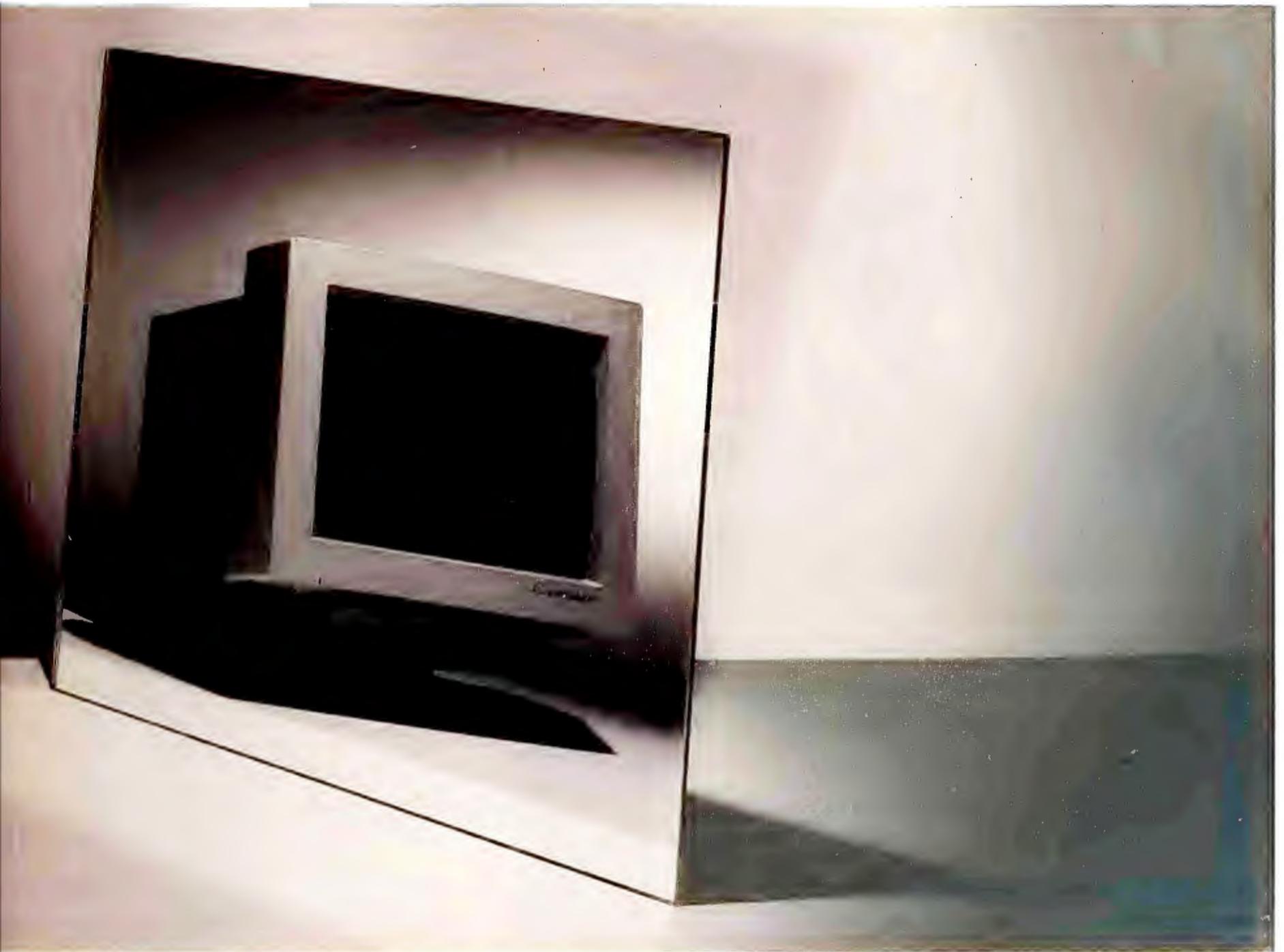


The MultiSync® 2A is one monitor that performs like two. On one hand, it's an uncompromised VGA monitor that works so well, VGA users have made it the best-selling 14" VGA color monitor in America.

On the other hand, the MultiSync 2A is also an equally uncompromised SuperVGA monitor, providing the perfect upgrade path to a standard that, at 800 x 600, gives you 56% more resolution than VGA.



the right, the best-selling SuperVGA monitor.



It's even available in a gray-scale version—the MultiSync GS2A—
which delivers everything the 2A does, in glorious shades of gray.

The MultiSync 2A. It's two of the best monitors you've ever seen.

For technical information or for the location of the dealer nearest
you, call 1-800-FONE-NEC. For product literature, call 1-800-826-2255.

In Canada, call 1-800-268-3997.

MultiSync is a registered trademark of NEC Technologies Inc. © 1990 NEC Technologies Inc.

NEC

Circle 187 on reader service card



MAKE YOUR NEXT
DOG AND PONY SHOW
EVEN BETTER.
EVEN FASTER.

INTRODUCING NEW
HARVARD
GRAPHICS® 2.3

Harvard Graphics 2.3 from Software Publishing Corporation is packed with new features for even more effective presentations.

For starters, we've added a gallery of pre-designed charts. Pick one that looks good, enter your data, and there's your chart, with the colors and layout you'd expect from a graphics professional.

We've also fully integrated Draw Partner™, our advanced drawing package, so you can modify your chart with tools like rotate, skew and zoom—without losing the tie to your charting

data. What's more, you can build a whole new type of ScreenShow®—HyperShow™. Create hot buttons in any chart for instant access to backup information. And tailor the flow of your presentation as you give it.

Harvard Graphics has always been the quickest way to great-looking presentations. That's why it's the best-selling business graphics software. Now, you can do more than ever. Faster than ever.

SPC SOFTWARE
PUBLISHING
CORPORATION

FOR UPGRADE INFORMATION, CALL 1-303-799-4900. FOR A FREE DEMO DISK, CALL 1-800-345-2888, OPERATOR 305.

For upgrade information in Canada, call 1-416-566-0566. Harvard Graphics is a registered trademark of Software Publishing Corporation. Draw Partner, ScreenShow and HyperShow are trademarks of Software Publishing Corporation. ©1990 Software Publishing Corporation, 1901 Landings Dr., Mountain View, CA 94039-7210



The Display's the Thing

Wondering where you should spend your next upgrade dollars? Take a hint from IBM's new super systems.

Buzzwords come and go in the PC industry like rainstorms in the desert—first a deluge, then an eerie calm. That's why it pays not to get too worked up over the latest PC fashion trends. You never know if they're going to last.

One buzzword that looks increasingly like a survivor, however, is *multimedia*. And it's a buzzword worth getting excited about, too. Why? By adding sound, animation, and TV-quality video capabilities to the basic *Windows* computer, multimedia transforms a PC from a fan-cooled calculator into the ultimate information machine.

Imagine trying to justify a new equipment purchase to your boss. Instead of wooing him with spreadsheet tables, bar charts, and written text, you build a multimedia presentation that shows the new piece of equipment in action, relates testimonials from satisfied customers, and presents financial and technical details in response to a voice command. And that's only one multimedia scenario—in a few years, multimedia's destined to find its way into virtually every existing PC application and to spawn some new ones that we can't even envision yet.

There's only one problem with this rosy scenario—your PC probably isn't ready for it. Multimedia requires a fast

system with a big-screen, high-resolution monitor; the ability to capture and play back sound; and adapters to attach a variety of peripherals like CD ROM drives, video recorders, and musical keyboards. By this measure, only Apple, with its Mac II line, has been in the business of creating multimedia-ready systems. That is, until now.

Multimedia: PC Power Redefined

Enter Big Blue. After years of lagging Compaq in performance and Apple in inspiration, IBM is finally fighting back

The XP systems bring IBM up to snuff for the first time in quite a while.

with its new PS/2 XP product line (see "IBM's Visionary New XPs" in this issue). According to IBM's multimedia chief Bill Spaller, the XPs represent an early effort to design multimedia capabilities directly into the PS/2 line, rather than slap them into a plain-vanilla system via a plethora of add-in boards. Big Blue started with the single component that matters the most in a high-powered multimedia PC: the display.

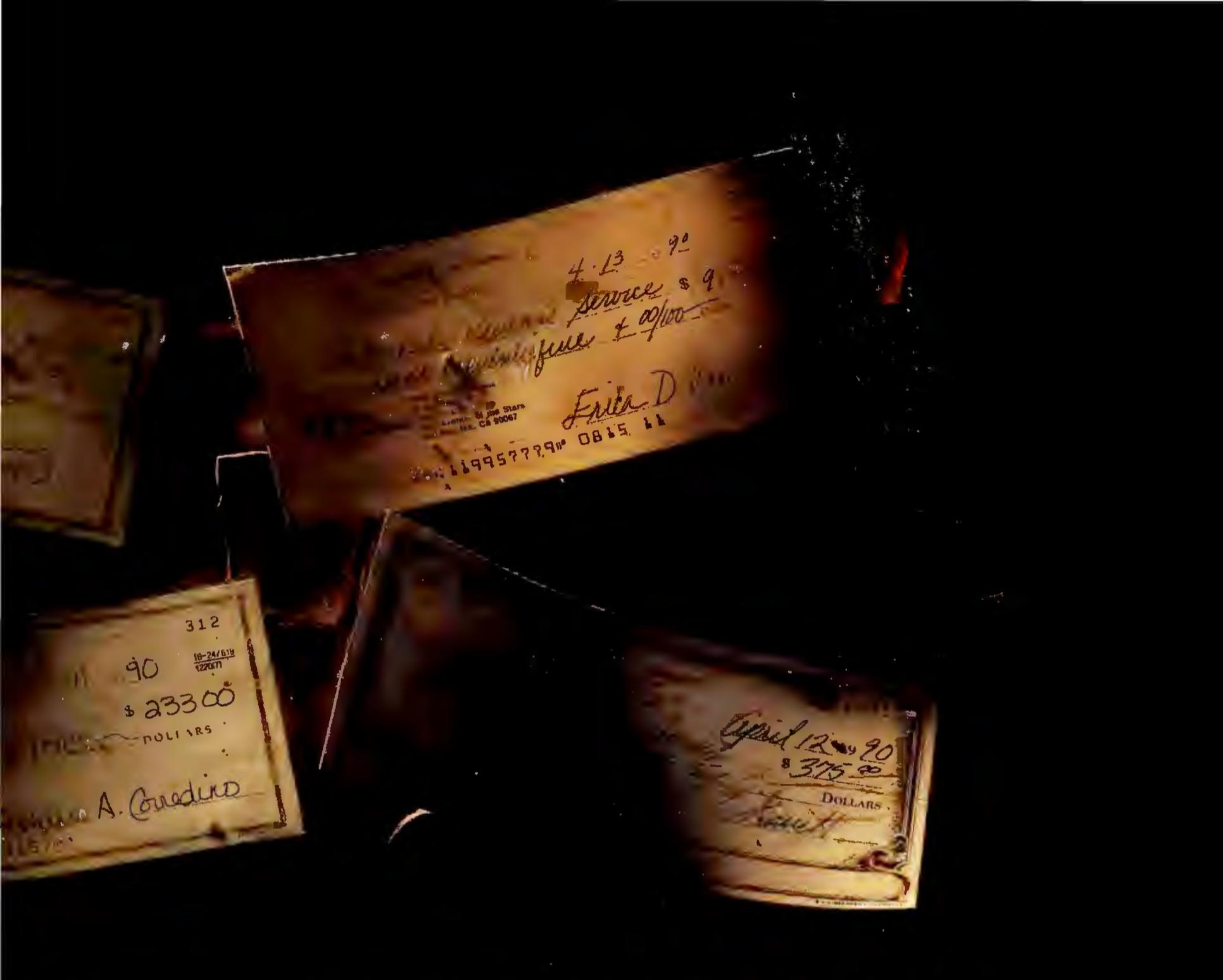
Normally, we think of computing power in terms of the components that make for fast data processing: a 386 or 486 chip, a math coprocessor, a blazing

hard disk. In this arena, the XP systems bring IBM up to snuff for the first time in quite a while. But in a multimedia system, what's outside the box is most important of all. The XP systems' new XGA graphics standard puts a premium on the rich colors and high resolution that a PC needs to convey lifelike, moving pictures. Without powerful graphics and a display that can let them shine, multimedia communications are likely to be as effective as talking under water.

Wanted: Big-Screen Computing

Ironically, IBM seems to have learned this lesson first with its PS/1 home computer, which comes with built-in VGA graphics and some basic audio talents. As a bare-bones multimedia system, it has all the features needed to take advantage of a graphical, interactive information service like Prodigy or to play any number of sound-capable games. But as a full-fledged multimedia PC, it simply lacks the graphics quality and scale that the new software ultimately requires.

Multimedia just doesn't mean sound, text, and pictures—it also means a style of computing that presents the user with many forms of communication simultaneously. That's of course a pretty natural condition for human beings—we're always processing several kinds of information at the same time. The problem with today's PC software is that it treats us like single-tasking ma-
(continues)



IT'S BETTER TO GIVE THAN NOT GIVING TO THE IRS.

calculations are done for you in under 5 seconds. TurboTax can print out graphics quality forms on most dot matrix and laser printers. Then, just sign your return and mail it in right off your computer.

And when you buy our software for around \$75 the first year, you can update TurboTax every year after at half price.

So, if you're happy giving away more money than you have to, go to the next ad. But if the idea of keeping

more of your hard-earned cash sounds good call us at (800) 786-8829. Or stop by your software store, and pick up a copy of TurboTax.

Ask about the family of ChipSoft products including 44 Interfaceable State Programs and our Electronic Filing Software.

You'll find out why more than 3 million returns were prepared with TurboTax last year alone. Or, for that matter, why more PC users use TurboTax than any other tax software.

Then next time taxes roll around you'll have something completely new to give the IRS.

A run for your money.

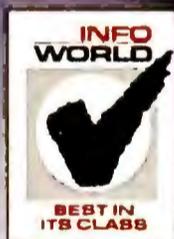
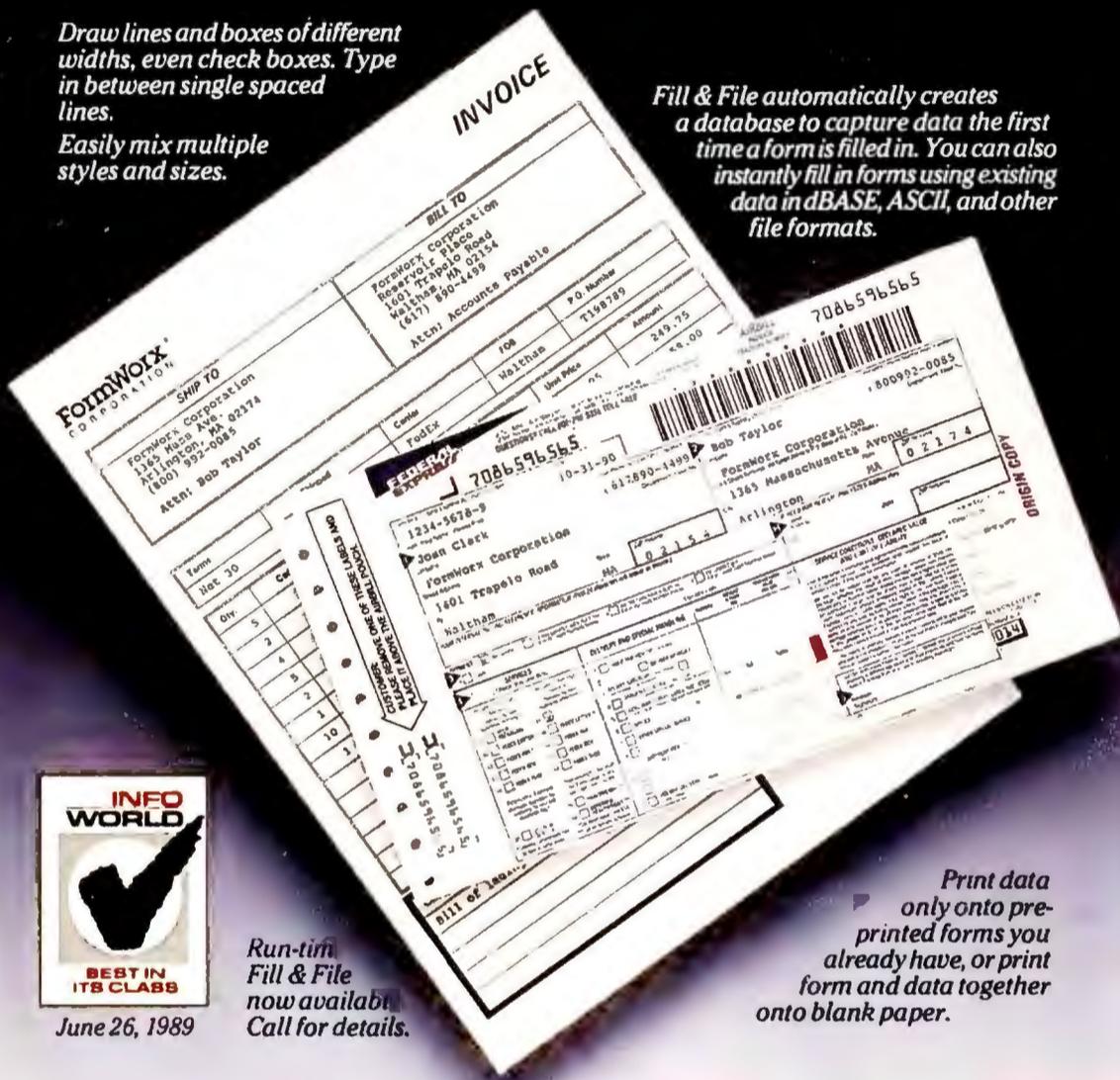


Circle 44 on reader service card

Make and fill in forms... All in one package!

Draw lines and boxes of different widths, even check boxes. Type in between single spaced lines. Easily mix multiple styles and sizes.

Fill & File automatically creates a database to capture data the first time a form is filled in. You can also instantly fill in forms using existing data in dBASE, ASCII, and other file formats.



June 26, 1989

Run-time Fill & File now available. Call for details.

Print data only onto pre-printed forms you already have, or print form and data together onto blank paper.

FormWorx with Fill & File™ combines an easy-to-use form design tool with a powerful form filler...all in one complete package! And it works with virtually any PC, dot matrix, daisy wheel and laser printer. With direct read/write dBASE compatibility, you can quickly fill out the same form again and again—or different forms that require the same information. It even does math! For just \$149, you get the complete package, including 70 sample forms, pop-up calendar and calculator...and FREE telephone support!

FormWorx®

Reservoir Place, 1601 Trapelo Road, Waltham, MA 02154



FREE DEMO DISK! Call today for a free demo disk to see how FormWorx with Fill & File is the easiest way to collect, store, and communicate your vital information!
800-992-0085 or 617-890-4499 Ext. 2301

Form shown was created and printed using version 2.5 on an HP LaserJet III printer. Some features shown not available on all printers. 30-day money back guarantee on direct purchases. When ordering by mail, include \$6.75 for shipping in U.S. and Canada. Air mail overseas—\$18. In Mass., add 5% sales tax. Purchase orders accepted from government agencies, institutions, and rated corporations. FormWorx is a registered trademark and Fill & File is a trademark of FormWorx Corporation. All other trademarks acknowledged.

chines capable of understanding information only by reading it, instead of as the multitasking organisms we are, designed to understand the world through all of our five senses. Similarly, VGA systems with 14-inch displays are like blinders on our vision of the PC world. Before we can really see the future of personal computing, we have to take those blinders off.

IBM's new XGA standard isn't just a good idea—it's a necessary building block for future multimedia systems. With a big-screen monitor, it's an ideal window onto a new era in personal computing. Make sure your buying plans for tomorrow include the big picture being unveiled today.

As always, I'm interested in your opinions on this or any other subject. Write to me at *PC World*, 501 Second St. #600, San Francisco, CA 94107; fax 415/442-1891; MCI Mail Richard Landry/301-3685. ☉

POWER TIP NO. 159

Making It Easy to Save

Data stored in RAM is never safe. Get into the habit of saving your work to disk every few minutes. Most applications offer a single-keystroke save-and-continue feature, or you can use your applications' macro capabilities or a macro utility program to create a one-keystroke macro. You can use this last method to standardize your save command across all your applications. If you assign the same keystroke combination to the macros for all the programs you work with, you're more likely to save your data frequently.

Lincoln Spector
Assistant Editor

Introducing the best partner for the mobile professional...



- 10" VGA, CCFT display
- Full-size, full-travel 80-key keyboard
- 80C286, 12MHz, 1MB RAM, 40MB HDD, 1.44MB 3 1/2" FDD
- Compact and portable

S3600 Laptop

and a support staff to back it up.

Samsung's new S3600 laptop is the ideal traveling companion for anyone who wants to make the most of time away from the office without compromising computing power or display quality.

Impressive as it is, the S3600 barely scratches the surface. Fact is,

Samsung brings you a full line of affordable PCs for company-wide solutions. Your choices include everything from desktop and laptop PCs to powerful workstations and LAN products that rate among the industry's best. Like our popular 12MHz PCterminal/286 diskless workstation, named Product of the Year by *LAN Times*. And *Computer Buyer's Guide* called the Samsung 386A3 "among the fastest" file servers on the market. This powerful 33MHz 80386-based server features eight expansion slots and BIOS that's been fine-tuned for network operating systems.

Samsung Product Name	Computer Category	Micro-Processor	Clock Speed in MHz	Total RAM in MB	Data Storage			
					Hard Disk	5 1/4" Floppy	3 1/2" Floppy	Additional Bays
S5200	Laptop PC	80286	8/12	1 up to 4	32MB	-	1.44MB	-
S3600	Laptop PC	80C286	8/12	1 up to 4	40MB	-	1.44MB	-
NoteMaster 386S/16	Notebook PC	80386SX	16	1 up to 5	20MB	-	1.44MB	-
S550	Desktop PC	80286	8/12	1	Optional	1.2MB	-	2
SD630	Desktop PC	80286	8/12	.64 up to 1	Optional	1.2MB	Optional	2
DeskMaster 286/12	Desktop PC	80286	6/12	1 up to 2	Optional	1.2MB	Optional	2
SD700	Desktop PC	80386SX	8/12	2 up to 8	Optional	1.2MB	Optional	2
DeskMaster 386S/16	Desktop PC	80386SX	8/16	2 up to 8	Optional	1.2MB	Optional	2
PowerMaster 386/25	Desktop PC	80386	8/25	4 up to 8	Optional	1.2MB	1.44MB	3
SystemMaster 386/33T	Tower PC System	80386	8/33	4 up to 24	Optional	1.2MB	1.44MB	5
SystemMaster 486/25TE	Tower PC System	80486	8/25	4 up to 32	Optional	1.2MB	1.44MB	5
386AE	Fileserver	80386	8/16	4 up to 8	Optional	1.2MB	Optional	4
386A3	Fileserver	80386	8/33	4 up to 8	Optional	1.2MB	Optional	4
PCterminal 286	LAN Workstation	80286	6/12	.64 up to 1	Optional	Optional	Optional	2
PCterminal 386SX	LAN Workstation	80386SX	8/16	2 up to 8	Optional	Optional	Optional	2

In addition to delivering all the product solutions you need, we provide the support you deserve. Samsung, one of the world's top twenty corporations, backs its products with a toll-free support hot line. And our file servers are backed by an

impressive free six month on-site support program.

See why Samsung is rapidly becoming a preferred choice for America's PC purchasers. For more information and the name of your nearest dealer call 1/800/624-8999, extension 85J. Or write: Samsung, 3655 North First Street, San Jose, CA 95234.

All brand and product names are trademarks or registered trademarks of their respective owners. © Samsung Electronics Co., Ltd. 1991



Technology that works for all of us.

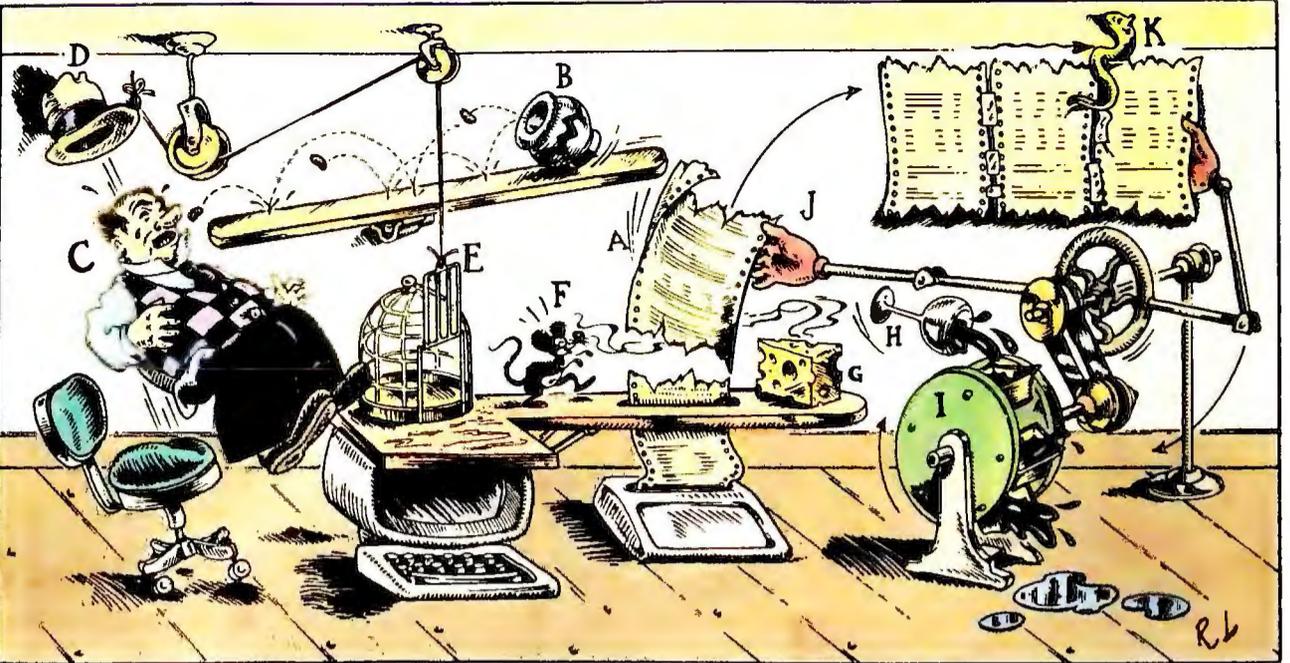
Circle 266 on reader service card

RISING SPREADSHEET (A) KNOCKS MEXICAN JUMPING BEANS (B) INTO MOUTH OF NEUROTIC MAN (C) WHO IS SO DISCOMBODULATED THAT HIS HAIR STANDS ON END, DISLODGING HAT (D) WHICH OPENS CAGE (E) AND RELEASES EPICUREAN MOUSE (F).

MOUSE, INSPIRED BY SCENT OF PERFECTLY AGED CAMEMBERT CHEESE, GNAWS THROUGH SPREADSHEET, ONLY TO DISCOVER HE HAS BEEN FOOLED BY AROMA OF OVER-RIPE GORGONZOLA (G).

IN A FIT OF PIQUE HE SPILLS VINTAGE WINE (H) INTO WATER-WHEEL (I) WHICH TURNS PULLEY THAT CAUSES GLOVE (J) TO GRASP SPREADSHEET AND MOVE IT TO TAPING AREA.

SHEET IS TAPED SECURELY IN PLACE BY TRAINED ADHESIVE TAPE WORM (K).



New Sideways takes all the fun out of printing your 1-2-3 spreadsheets.

Introducing new Sideways version 3.3.

What do you do when your spreadsheet's too wide for your printer?

Simple. Just get out your scissors. Get out your stapler. Get out your glue and tape.

Or simpler yet, get Sideways.[®] It's everyone's favorite way to make high-quality, one-piece printouts with no assembly required.

Nothing's as straightforward as Sideways.

Sideways runs as an add-in to 1-2-3 Releases 2 and 3. As well as Symphony. So printing is fast and easy.

Done creating your spreadsheet? Just pop up Sideways from your 1-2-3 menu, highlight a range and print. With a wide range of printing options.

Mix bold, underlined, and expanded type, all on the same page. Print through or skip over perforations. Add borders, change page size, adjust margins just the way you want. With Sideways, it's simple.

Add just the right twist to your other printing, too.

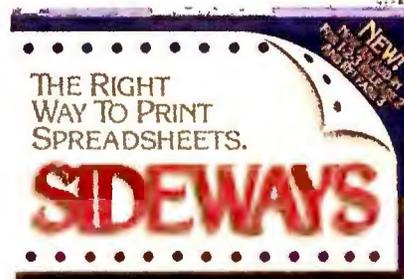
Sideways is the right way to print with other spreadsheets, too. Like Quattro, Twin, Microsoft Works and LotusWorks. As well as databases, word processors, and project planners.

You get nine different typestyles to choose from. Plus bold, underlined or expanded type. Even foreign language and line drawing characters. If your software can create it, Sideways can print it. All in one piece.

New Sideways version 3.3 for the IBM PC and all popular printers. Available for just \$89.95 at software dealers worldwide, or directly from Funk Software with your check, Visa or MasterCard.

So stop fooling around with your wide spreadsheets. And get down to business with Sideways.

Now
Runs as an
Add-In to 1-2-3
Release
3.0/3.1



**FUNK
SOFTWARE**

Funk Software, Inc., 222 Third Street, Cambridge, MA 02142

© 1990 Funk Software, Inc. Sideways is a trademark of Funk Software, Inc. Other product names are trademarks of their respective owners. Sideways version 3.3 works with all releases of 1-2-3 as well as other software. Add-in capability requires 1-2-3 Release 2, Release 3, or Symphony.

To order call 1-800-822-3865, Ext. 228
(617-497-6339 in MA)



LETTERS

Reactions and responses from the PC World community



GORDON STUDER

The Last Frontier

Richard Landry hit the mark again with his October column. I was particularly taken with his frontier analogy. The most successful companies of today were pioneers yesterday. They developed winning products out of hard work and innovation. And along the way they built on the ideas and efforts of others. But now that they're on top, some of these companies are ramrodding the courts into fencing off the open range of software development.

*Randall W. Higgins
Tampa, Florida*

I wonder what it will be like from now on for the small developer. I suspect that

the men and women who improve and innovate without a team of lawyers at their back will continue their efforts. As long as their activities remain obscure and unprofitable, they'll probably be left alone. But when their efforts become successful, don't be surprised to see the fat cats attempt to snatch away the fruits of their labors.

*Bill Crane
Waseca, Minnesota*

It's good to see that at least some of the market leaders can stay out of the courtrooms. I expect software companies to provide good service and a fair deal, not fancy legal maneuvers.

*James Kostnan
Crescent City, California*

World Class Reader

Every October, I look forward to your World Class Awards. I enjoy comparing my choices with the other readers'. The contest has grown up with the products—I can remember when 1-2-3 was the winner in the business graphics category! This year, I particularly liked the service and support supplement—especially the handy comparison of the policies of top mail-order firms.

*Morris Yardley
New York, New York*

Thanks for the Swap

Many thanks for October's *Step-by-Step Guide* in *The Help Screen*. I have an odd PC with one parallel port that works just fine with all my printers except my Epson LQ-800. So I bought an add-on LPT-2, but I couldn't switch ports until you showed me how to create the SWAPLPTS.COM utility. At first I had a problem creating it, but a quick response from one of your staff mem-

bers helped me find an error I'd introduced and get the utility to work.

*Joe Feustle
Toledo, Ohio*

Supporting Our Readers

Roberta Furger's October reports on technical support [*Consumer Watch* and "Who Pays for Tech Support?"] were first-rate. What other computer publication offers this kind of consumer assistance? With my business's investment in software and hardware growing yearly, this sort of information is invaluable. Most businesses are tied to upgrading software they already have, but purchase decisions need to take vendor support into account as well. Otherwise, we could wind up paying for each new package several times over.

*Leland Clark
Grand Rapids, Michigan*

Keeping a Good Outlook

You've done a lot to improve *Industry Outlook* over the last few years. Lately, the articles seem more relevant. October's effort was outstanding. Your articles on *Windows* graphics packages ["Graphics Packages See New Competition"] and the dot matrix market ["Dot Matrix Printers Regroup Under Fire From Lasers"] were particularly good.

*Evelyn Nesbit
Walden, Massachusetts*

Sharing the Wealth

I was happy to see "The Best of Shareware 1990" Buyers' Guide in October. *PC World* is the only leading magazine I've seen give shareware its due. In my consulting work, I will frequently advocate a shareware solution—it's often the best and most economical way to go. (continues)

ANTHONY RUSSO



The original AnthroCart. Mobile.
Incredibly strong. So many ways to solve
your space and equipment problems.
Choose different sizes. Move
shelves around. Add space saving
options.

AnthroCart. Well designed
Technology Furniture.

Look for our name.

AnthroCart®

Call us for more information: 800-325-3841
6:30AM to 5:00PM PST



Available for OEM applications.
Made in U S A
All steel frame construction.
Easily holds up to 150 lbs
Prices start from \$299
Whip within 48 hours


ANTHRO

AnthroCart and Technology Furniture
are registered trademarks of Anthro.

**Anthro®
Technology Furniture®**
3221 N.W. Yeon St.
Portland, OR 97210
503-241-7113
Fax: 503-241-1619

LETTERS

Among my clients, the newer users are often the most receptive, but they are also the least informed. So a piece like this is really helpful.

*Charles Everest
Kansas City, Kansas*

Light Stuff Is the Right Stuff

I appreciated your notebooks review in October ["Laptops With the Light Stuff"]. Just a year ago, it was logical to buy a Compaq LTE/286, and I don't regret the decision—I was able to fill an immediate need with a product that is still serving me well. But if I were buying today, I'd take a look at the Best Buys from Sharp and Texas Instruments before I made my purchase.

*John B. Lee
Chattanooga, Tennessee*

One thing that my own LTE/286 has that your Best Buy notebooks lack is the Compaq name and reputation for consistent quality. I've been toting my laptop back and forth across the country for over a year, and I've yet to have a problem. As far as I'm concerned, the LTE/286 is a proven winner.

*Matthew Braun, Jr.
Washington, D.C.*

Although I bought my Toshiba T1200XE before I read your notebooks review, I felt confident that I was making a good choice. It was reassuring to have you validate my selection—even though you didn't rate the Toshiba a Best Buy. I wanted the comfortable 5MB RAM capacity, and I've had good luck with Toshiba products.

*B. T. Sullivan
Monroe, Wisconsin*

Waiting for the Sequel

Your October SQL data base review interested me, as I had years of experience with mainframes before I took a position where I deal almost entirely with PCs. The informational graphics in your article were an effective aid in explaining some of the main issues, and I
(continues)



Now \$4.95 Stops The Clock On Over 100 GENie Services.



Get top news and weather reports

Learn from our online encyclopedia



Send and receive electronic mail

Play single player games



WALL ST.



Check current stock closings

Dozens of informative bulletin boards.



Book flights with EAAasy Sabre



Shop over 25 popular stores



JUST \$4.95

Moneyback guarantee
Sign up now. If you're not satisfied after using GENie for one month, we'll refund your \$4.95.

Now enjoy unlimited non-prime time usage of over 100 popular GENie Service features. For just \$4.95 a month.* You get everything from electronic mail to exciting games and bulletin boards. Nobody else gives you so much for so little.

Plus enjoy access to software libraries, computer bulletin boards, multi-player games and more for just \$6 per non-prime hour for all baud rates up to 2400. And with GENie there's no sign-up fee.

Sign-up today.

Just follow these simple steps.

1. Set your communication software for half duplex (local echo), up to 2400 baud.
2. Dial toll free 1-800-638-8369. Upon connection, enter HHH

3. At the U#=prompt, enter XTX99492,GENIE then press RETURN.
4. Have a major credit card or your checking account number ready.

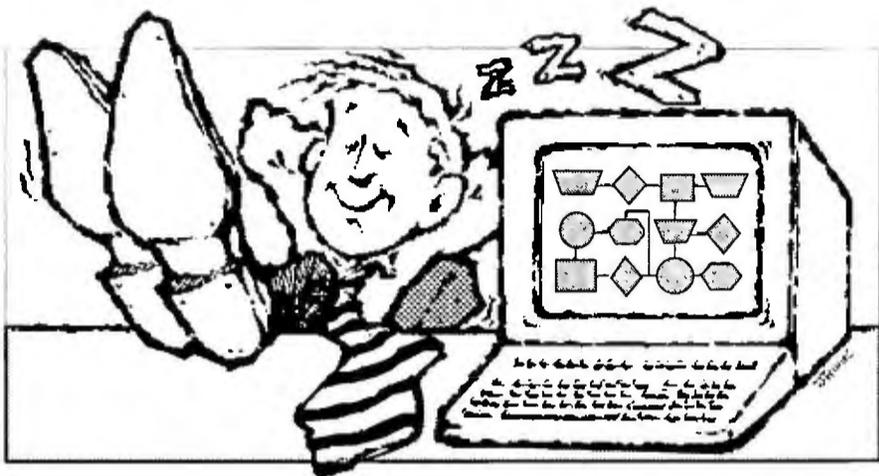
For more information in the U.S. or Canada, call 1-800-638-9636.



GE Information Services

*Applies only in U.S. Mon.-Fri., 6PM-8AM local time and all day Sat., Sun., and select holidays. Prime time hourly rate \$18 up to 2400 baud. Some features subject to surcharge and may not be available outside U.S. Prices and products listed as of Oct. 1, 1990 subject to change. Telecommunication surcharges may apply. Guarantee limited to one per customer and applies only to first month of use.

Shh!



Don't tell your boss about EasyFlow!

Don't say how much time you saved on flowcharts and data flow diagrams. **EasyFlow**, unlike most "screen draw" programs, is dedicated to fast composition and modification of flowcharts and data flow diagrams.

Don't breathe a word about the automatic line routing, automatic text centering, the slick cut & paste or how you created charts and then cleanly moved them into a desktop publishing program. Tell your boss you had to sweat bullets to come up with these amazing results.

Don't point out that **EasyFlow** works with most matrix printers, laser printers and plotters.

Keep the 200 page manual out of sight. Don't get caught with one of the 350 context sensitive help messages on your screen.

Don't let the boss know that **EasyFlow** only costs \$149.95 and that RUSH delivery is available.

Do tell the boss you are a hard working genius but don't mention the other 80,000 geniuses whose bosses don't know either.



Flowcharting Made Easy.
HavenTree Software Limited

P.O. Box 1093 - M Thousand Island Park, NY 13692
 Order Desk: 1-800-267-0668 Info: (613) 544-6035 ext.47
 Fax: (613) 544-9632

From our fax to yours... Info Fax: (613) 544-2049

Circle 79 on reader service card

think you did a good job overall. The ability to emulate mainframe capabilities and tap into the largest data bases is desirable, and I don't doubt we'll get to it. But like you, I think we have a while to wait. The situation seems not unlike the case of OS/2, which I fear has yet to deliver on its early promises.

B. B. Tunney

Stamford, Connecticut

A Changeless Look

Alan Schwartz's September *Data Basics* column on data base lookups discusses the use of the BROWSE command for creating a scrollable list of valid keys. He correctly points out that "it's far too easy to change data inadvertently while BROWSEing." It's also far too easy to add unedited keys to the lookup data base with BROWSE unless the NOAPPEND option is used. NOAPPEND suppresses the 'Add new records?' prompt that normally appears when the end of the file is reached.

Roger W. Sauer

Fairfield, California

Corrections and Clarifications

An October *Update* item states that WordPerfect Corporation's *WordPerfect Office Editor 3.0* is available as a separate program. The program is now available only with *WordPerfect Office 3.0*, which lists at \$149 for the stand-alone version.

Here are some further updates and additions to our annual nationwide guide to user groups, which appeared in the August *Consumer Watch*. As always, we invite user groups to keep us up-to-date.

ABBREVIATIONS KEY: NL—newsletter; SIG—special interest group; TS—technical support; TE—training and education; BBS—bulletin board service; SL—software library.

(User groups are listed alphabetically by state and city, not by user group name.)

MICRO, 3311 W. 92nd Pl., Westminster, CO 80030; 303/286-7455; \$25/yr. (continues)

BusinessWorks[®]

Manages Your Books



While You Manage Your BusinessSM



Let's face it — you want to concentrate on building your business, not managing your books. That's why we designed BusinessWorks Integrated Accounting System to deliver accounting solutions, not problems.

BusinessWorks is easy to learn and use, and we made it flexible to grow with your business. You'll find all the reports a business needs. Plus BusinessWorks' outstanding on-screen reporting features let you quickly check them from any PC on your network. No need to spend hours every time you need a report. Result: the critics love it!

- *PC World* - Best Buy 1989
- *Info World* - Best in Its Class 1988
- *Software Digest* - #1 Overall 1988

Now the best just got better. BusinessWorks version 7.1 has full inventory control, easily transfers accounting data to and from other applications, and adds dozens of other features requested by businesses like yours.

If you plan to computerize your books, or need to replace that "bargain" system that limits you at every turn, test drive BusinessWorks for just \$19.95. Take a complete BusinessWorks system home. Install it at the office, use the sample data or enter your own. Show your accountant! And check out our unlimited toll-free support. See for yourself why the critics have given BusinessWorks their highest marks — and get a full refund when you buy a regular system from your dealer.

Call our toll-free number for the name of the dealer nearest you. Let BusinessWorks manage your books so you can manage your business.

Circle 169 on reader service card

BusinessWorks[®]

Integrated Accounting System



800/447-5700
Take a Test Drive today!

Münzai

(renewal \$20); NL, 2 SIGs, TS, TE, BBS, SL

Manatee PC Users Group, 411 67th St. NW, Bradenton, FL 34209; 812/792-3437; \$15/yr.; NL, 8 SIGs, TS, TE, BBS

Ft. Walton Beach CUG, c/o Donald Richardson, P.O. Box 3, Shalimar, FL 32579; 904/862-2380; \$20/yr.; NL, 10

SIGs, TS, TE, BBS, SL

Communal Computing (nonprofit/religious organizational support), 20 W. Gude Dr., Rockville, MD 20850-1150; 301/598-9062, 301/294-1007 (fax); \$36/yr.; NL, TS, TE, BBS

National Epson Users Group, P.O. Box 1076, Lemont, PA 16851; 814/237-5511 (4-7 p.m. except Saturday); \$25/

yr.; NL, TS, BBS, SL

Greater Cleveland PC Users Group, c/o Dan Hanson, 3150 Payne Ave., Cleveland, OH 44114; 216/944-5173; \$25/yr.; NL, 6 SIGs, TS, TE, BBS, SL

Upstate IBM PC User Group, P.O. Box 5521, Greenville, SC 29606; 803/281-7096; \$25/yr. (renewal \$15); NL, 4 SIGs, TS, TE, BBS, SL

Central Texas PC Users Group, c/o Robert Owen, P.O. Box 10169, Austin, TX 78766; 512/343-7284; \$36/yr.; NL, 26 SIGs, TS, TE, BBS, SL

Red River Personal Computer Club, c/o Jerry Simpson, P.O. Box 1662, Wichita Falls, TX 76307; 817/761-7784 (day); \$12/yr.; NL, TS, TE, SL

Madison PC Users Group, c/o Roger Glass, P.O. Box 2598, Madison, WI 53701-2598; 608/255-1205; \$20/yr.; NL, 8 SIGs, TS, TE, BBS

Send your reactions, responses, and ideas to Letters, PC World, 501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI MAIL PC World Editorial; or 415/442-1891 (fax). Include your name and the name of your city and state. We reserve the right to edit letters. ☺



Simply Your Best Buy Company...

Don't settle for less than you need. Get the most system for your money!

<p>BLK 486 ISA 25 MHz</p> <ul style="list-style-type: none"> 80486-25 MHz CPU 64K Cache 4 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB FD 158 MB, 14 ms ESDI HD 101 Enhanced Keyboard VGA Card 16-Bit, 512K RAM 14" Super VGA 1024x768 Color Monitor ESDI Controller with 32K Cache 220W Power Supply <p>\$4,995.00</p>	<p>BLK 486 EISA 25 MHz</p> <ul style="list-style-type: none"> 80486-25 MHz CPU 64K Cache 4 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB FD 158 MB, 14 ms ESDI HD 101 Enhanced Keyboard VGA Card 16-Bit, 512K RAM 14" Super VGA 1024x768 Color Monitor ESDI Controller with 32K Cache 220W Power Supply <p>\$5,395.00 Available Mid-Nov.</p>	<p>BLK 486 EISA 33 MHz</p> <ul style="list-style-type: none"> 80486-25 MHz CPU 64K Cache 4 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB Floppy Drive 158 MB, 14 ms ESDI HD 101 Enhanced Keyboard VGA Card 16-Bit, 512K RAM 14" Super VGA 1024x768 Color Monitor ESDI Controller with 32K Cache 220W Power Supply <p>\$6,995.00 Available Mid-Nov.</p>
<p>BLK 386 33 MHz</p> <ul style="list-style-type: none"> 80386-33 MHz CPU 4 MB of RAM 2 Serial, 1 Parallel Port 5.25" 1.2 MB FD 158 MB, 14 ms ESDI HD 220W Power Supply 101 Enhanced Keyboard 14" Super VGA 1024x768 Color Monitor VGA Card 16-Bit, 512K RAM ESDI Controller with 32K Cache <p>\$3,595.00 With 64K Cache \$3695.00</p>	<p>BLK 386 25 MHz</p> <ul style="list-style-type: none"> 80386-25 MHz CPU 4 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB Floppy Drive 80 MB HD Dual HD/FD 1:1 Controller 101 Enhanced Keyboard VGA Card 16-Bit, 512K RAM 14" Super VGA 1024x768 Color Monitor 220W Power Supply <p>\$2,695.00 With 64K Cache \$2895.00</p>	<p>BLK 386 20 MHz</p> <ul style="list-style-type: none"> 80386-20 MHz CPU 2 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB Floppy Drive 65 MB, 28 ms RLL HD 101 Enhanced Keyboard 14" VGA Color Monitor VGA Card 16-Bit, 256K RAM Dual HD/FD 1:1 RLL Controller 220W Power Supply <p>\$2,095.00</p>
<p>BLK 386SX 20 MHz</p> <ul style="list-style-type: none"> 80386SX-20 MHz CPU 2 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB Floppy Drive 40 MB Hard Drive Dual HD/FD 1:1 Controller 14" VGA Color Monitor VGA Card 16-Bit, 256K RAM 101 Enhanced Keyboard 220W Power Supply <p>\$1,895.00</p>	<p>BLK 386SX 16 MHz</p> <ul style="list-style-type: none"> 80386SX-16 MHz CPU 2 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB Floppy Drive 40 MB Hard Drive Dual HD/FD 1:1 Controller 14" VGA Color Monitor VGA Card 16-Bit, 256K RAM 101 Enhanced Keyboard 220W Power Supply <p>\$1,795.00</p>	<p>BLK 286 12 MHz</p> <ul style="list-style-type: none"> 80286-12 MHz CPU 1 MB of RAM 2 Serial, 1 Parallel, and 1 Game Port 5.25" 1.2 MB Floppy Drive 40 MB Hard Drive Dual HD/FD 1:1 Controller Monographics Card 14" Monochrome Monitor 101 Enhanced Keyboard 220W Power Supply <p>\$1,095.00 With VGA \$1445.00</p>

Call Blackship For All Your Other System Needs.



"Blackship 386SX-16... High-speed, excellent price, and great expandability. This system is one of the best bargains in the round-up." — PC World, August 1990

"Of our seven contenders, the Blackship 486-25 earned the top value." InfoWorld, March 12, 1990

"With its winning combination of quality off-the-shelf parts, the Blackship 386-33 offers solid performance at an affordable price." — PC Magazine, February 13, 1990

"...its price/performance ratio easily justifies PC World's Best Buy recommendation." — PC World, August 1988

CALL TOLL-FREE
1-800-877-6249

BLACKSHIP
COMPUTER SYSTEMS, INC
4031 Clipper Court • Fremont, CA 94538
Tel: 415-770-9300 • Fax: 415-770-8674

POWER TIP NO. 153

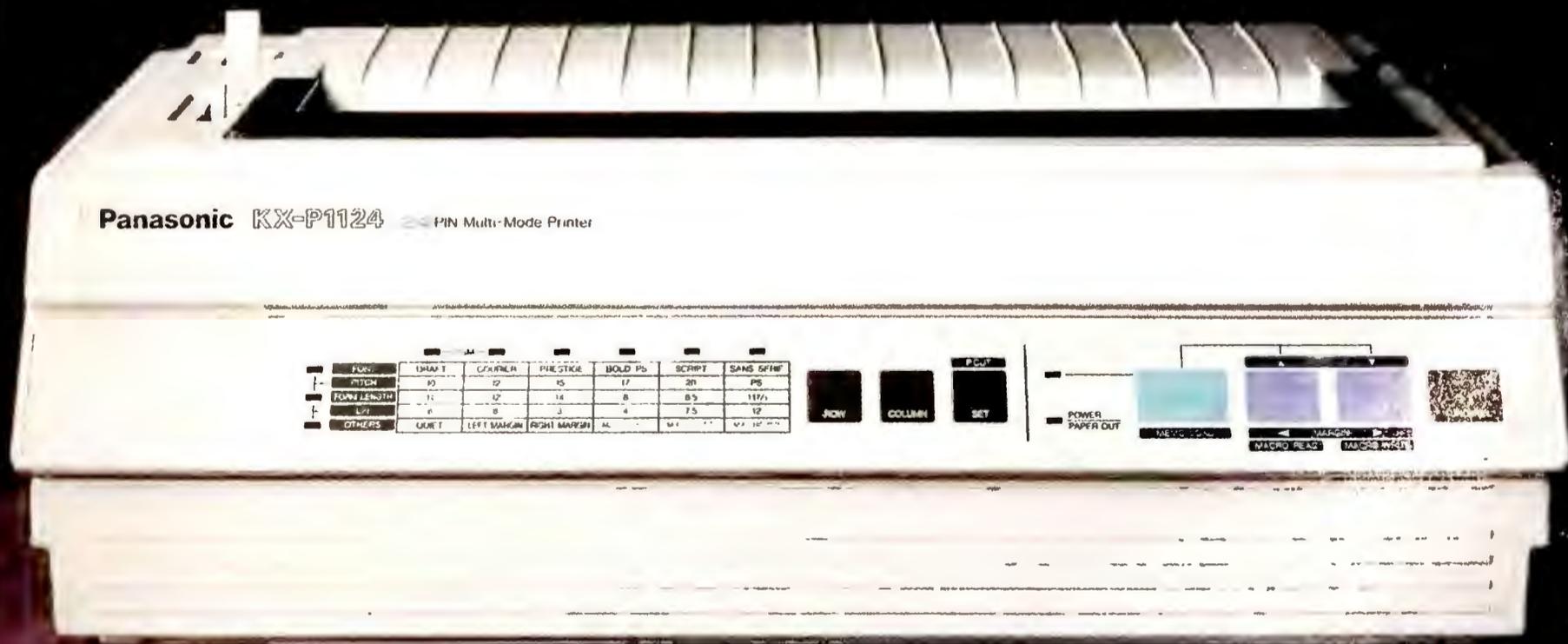
A Quick Copy to Floppy With WordPerfect

If you are using WordPerfect 5.0 or a later version, you can easily copy all the files from a subdirectory to a floppy disk or vice versa. Press <F5> <Enter> as usual. But then, rather than marking each file name individually with an asterisk, press <Alt>-<F5> to mark them all at once. Unmark individual files by highlighting a file name and pressing the asterisk key.

Brenda Silversmith
Provo, Utah

Circle 1 on reader service card

To become
 the hottest name
 in dot matrix printers
 you simply build
 one terrific
 printer



The award-winning KX-P1124.

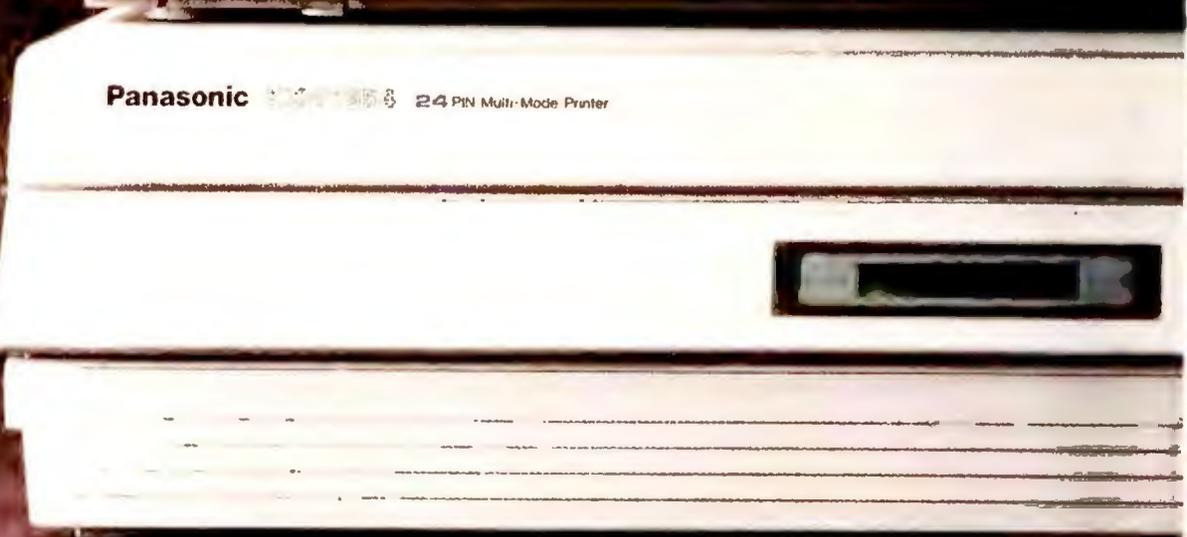
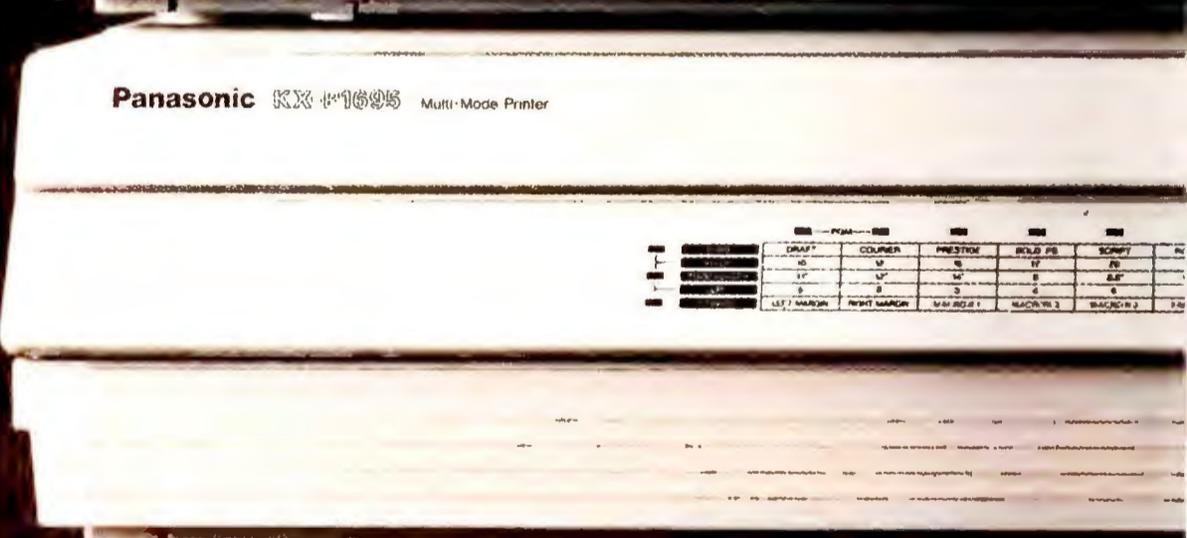
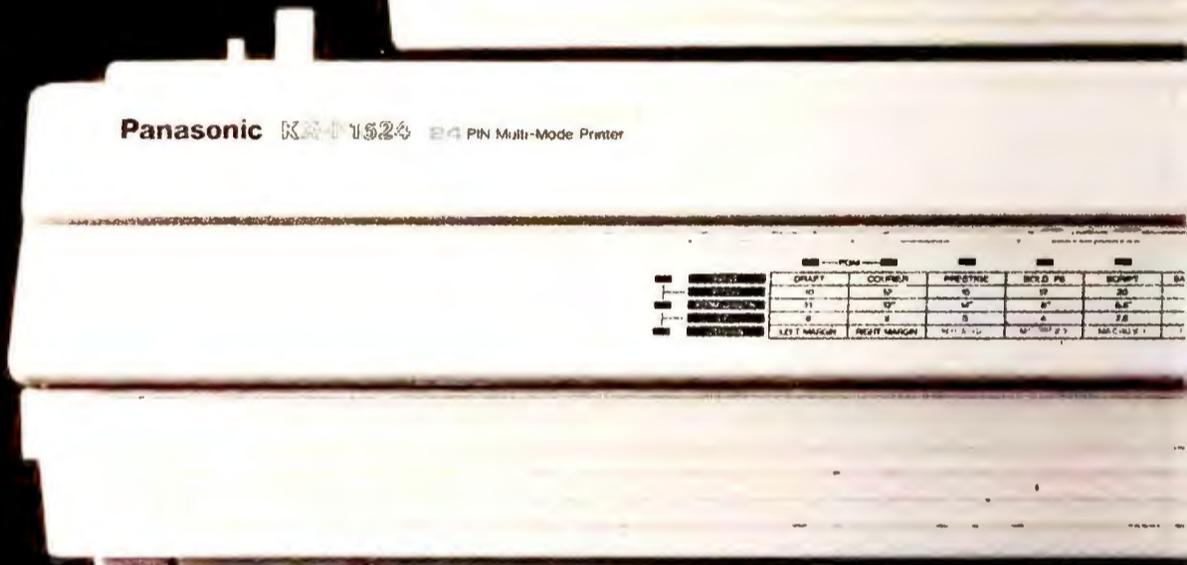
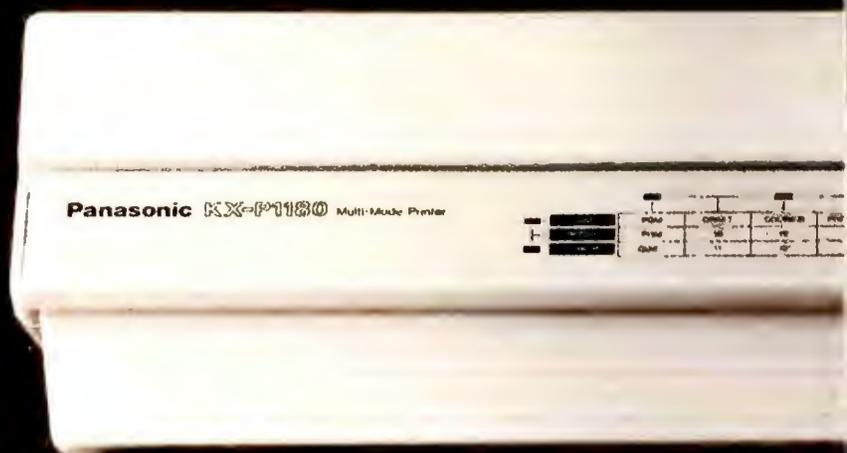
after another,

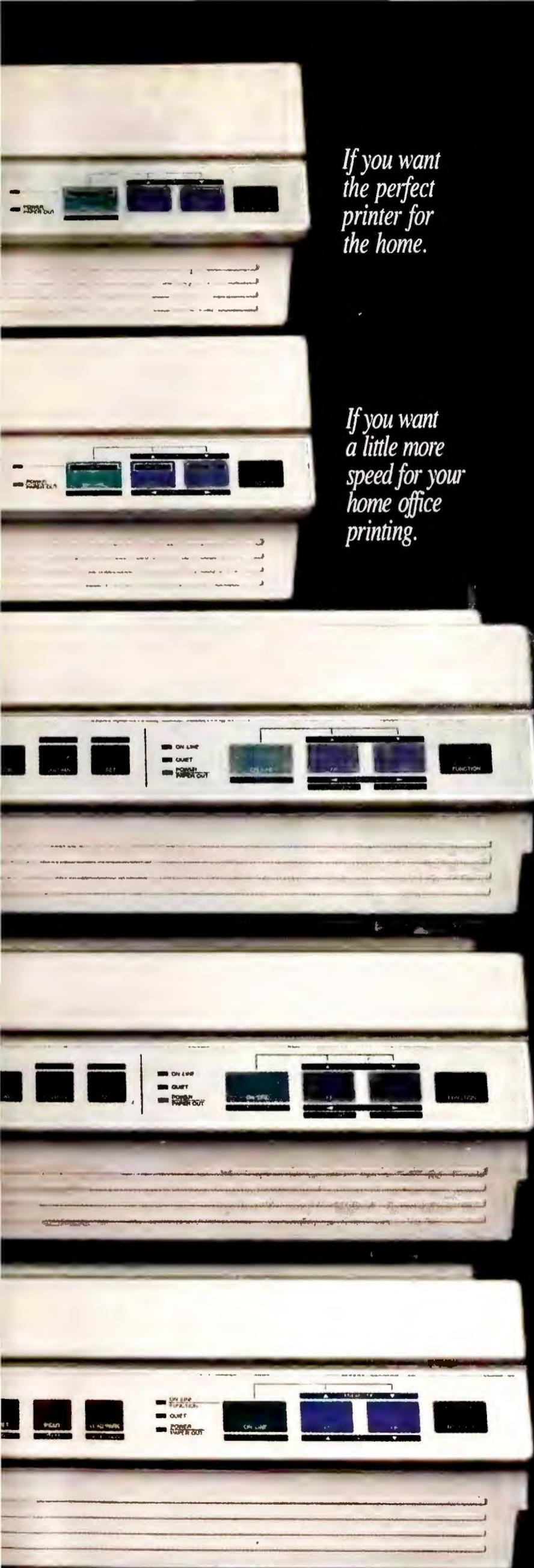
after another,

after another,

after another,

after another.





*If you want
the perfect
printer for
the home.*

*If you want
a little more
speed for your
home office
printing.*

*If you want
the same
features as
the 1124, but
with a wide
carriage.*

*If you want
high speed,
high volume
for spread-
sheets and
financials.*

*If you want
near laser
quality at
dot matrix
prices.*

A few years ago, we redefined what people expect from a dot matrix printer. By creating a 24-pin as sophisticated as it is simple. And as affordable to buy as it is economical to own.

The KX-P1124 has won its share of awards. But it's not the only Panasonic® Dot Matrix to receive rave reviews. Now there's



a whole family to choose from. All with EZ Set™ operator panel, multiple paper paths, a variety of fonts, 2-year limited parts and labor warranty (see your dealer for details), and other features that typify our approach to price/performance for today's office environment.

There are feature-rich 9-pin models for every-day drafts. And superb 24-pins for important correspondence. In both regular and wide-carriage versions.

And we've just introduced what may well be the quintessential office printer for the 90's, the KX-P1654. A wide-carriage 24-pin that rockets along at up to 375 characters per second. With print quality approaching that of lasers.

Chances are, your first Panasonic printer will lead to another, and another, and another.

For further information on Panasonic Dot Matrix Printers, see your Panasonic dealer, or telephone toll-free 1-800-742-8086.

*Printers, Computers, Peripherals,
Copiers, Typewriters and Facsimiles*

Panasonic
Office Automation 

Engineered for the office. Designed for people.

DMF-PCD

Circle 231 on reader service card

THE REASON SOME EXECUTIVES ARE SO UNPRODUCTIVE IS THAT THEY RELY ON TOOLS LIKE THESE.



It's amazing how many hours of the business day can be frittered away. Trying to line up everybody for a meeting. Getting everyone's feedback on an important document. Playing telephone tag with key people in your organization.

The new Finalsoft Executive™ can change all that. And make your working hours infinitely more productive.

It offers an unsurpassed array of features for both individuals and groups. Including text editor, dBaseIII+ compatible database, multi-document interface, integrated desktop tools, E-Mail, on-line help, inter-applications communication (DDE) — even dynamic hypertext and the best group scheduler available.

Suddenly, the telephone is a lot less important. Finalsoft Executive's scheduling feature lets you pull everything and everybody together quickly and easily.

And why waste time copying and distributing inter-office memos, or faxing reports? Just use E-Mail to send any kind of document electronically.

The hypertext function provides a much more efficient way of attaching notes to a document than does a paper clip. It lets up to ten people review a document at any one time and links together their thoughts and comments.

And those sticky pads and message pads become just so much litter.

Clear the clutter off your desktop, too. There's also an agenda, phone directory, programmable phone dialer, calendar, alarm clock, to-do list with deadline monitoring, while you-were-out message system, calculator and file encryption program.

In short, Finalsoft Executive can change the way you and the people you work with function. It can eliminate so many tedious,

unproductive, time-consuming tasks. And let you turn your full attention to problem-solving and management.

Prices start at just \$249 for a single-user. LAN prices start at \$445 for up to six users, with no limit to the size of the network you can create.

To order, call toll free: 800-232-8228. Finalsoft Corporation, 3900 N.W. 79th Ave., Suite 215, Miami, FL 33166.



Finalsoft Executive™
Changing The Way The Workplace Works.

SYSTEM REQUIREMENTS: IBM or 100% compatible computer using the Intel 286, 386 (386SX or 386DX) or higher processor. 1MB of RAM. One disk drive and a hard disk. CGA, EGA, VGA, 8514/A, Hercules graphics card or compatible video graphics adapter and monitor (EGA or higher recommended). DOS 3.1 or higher, Microsoft Windows 3.0, Novell NetWare 2.10 or higher, or equivalent NetBIOS network (for multi-user versions only). © Copyright 1990 Finalsoft Corporation. All rights reserved. Finalsoft is a registered trademark of Finalsoft Corporation.

Finalsoft Executive is a trademark of Finalsoft Corporation. All trademarks acknowledged.

Circle 84 on reader service card

FINALsoft



THE HELP SCREEN

PC World offers answers and advice at every level

Speed up document labeling in WordPerfect, banish shareware start-up mysteries, minimize back-up drudgery with a partitioned hard disk, and more.

Karl Koessel

Put a Document's Name Inside Its File

Q. *To identify my WordPerfect documents for future use, I often add the document's path and file name at the end. I'm currently typing this information by hand but would rather produce it using a macro. How do I write a macro to retrieve the file's path and name?*

Finn Nielsen

Washington, District of Columbia

A. WordPerfect 5.1's {SYSTEM} macro command will solve your problem. Like most of this word processor's macro commands, {SYSTEM} can't be inserted while a macro is being recorded; it must be inserted during a macro editing session. Moreover, you can't create a macro with the editor but can only alter an existing one.

To begin creating a macro that automatically adds the file name and path, press <Ctrl>-<F10> and enter a name and description for the macro. Press <Home> <Home> <Cursor Down> (which brings the cursor to the end of the file), and press <Ctrl>-<F10> to stop recording. To reach the macro editor, press <Ctrl>-<F10> again, type in the new macro's name, press <Enter>, and select *Edit* from the options presented.

Move the cursor to the bottom of the macro. Press <Ctrl>-<Page Up> to bring up the macro command menu. Type *sy* to highlight {SYSTEM} *sysvar~*, and press <Enter> to select the command. Type *path~*, press <Ctrl>-<Page Up> *sy* <Enter> again, and type *name~*. Press <F7> to exit the macro editor. When you run the macro, the path and name of the current file is added to the bottom of the file.

Running Shareware

Q. *Now and again I look at new shareware programs, paying for those I decide to use. However, there are some that I can't figure out how to start. When I issue a DIR command, none of the file names provides a clue. How do I start these programs?*

D. Thomsett

Pembroke, Ontario, Canada

A. If one of the files on the shareware disk is called README, README, README.TXT, README.1ST, or something similar, look at that file first. README files are usually straight text and typically contain instructions for installing and using the program(s) on the disk. (Even commercial programs use README files to convey late-breaking information that's not in their manuals.) You can display a small text file by enter-

ing *type*, a space, and the file's name at the DOS prompt. For a larger text file, use the DOS command *more <filename>* or load the file into any word processor, text editor, or DOS-shell file viewer. README files often are formatted so

With DOS 3.3 and later, you can partition a hard disk into multiple logical drives to keep programs and data separate.

you can print them by simply using the DOS command *copy filename prn*.

If there's no README file, try looking for an executable file—a file with an EXE, COM, or BAT extension that you run by entering the file name at the DOS prompt. If more than one file has such an extension, try to guess by the names which file to run first; for example, a file called INSTALL or SETUP is a pretty good choice to start with.

Many shareware programs are distributed in compressed form, using either the *PKARC* or *PKZIP* format. If your new shareware program is a single file with an ARC or ZIP extension, you must decompress that file to create the program's file or files. Both *PKARC* and *PKZIP* have decompression utilities and are widely available as shareware. Sometimes shareware comes in a single EXE file that decompresses the files it contains when you run it—it doesn't need *PKARC* or *PKZIP*. With luck, you'll find a README and an IN-
(continues)

STALL file among the decompressed files.

Partitioning Your Hard Disk

Q. In "Tame That Hard Disk" (The Help Screen, October 1990), you suggested a method of organizing a hard disk to keep programs and data separate. The technique called for creating two logical drives—one for programs, the other for data. Only the data drive needed to be backed up regularly.

But I can't figure out how to do it. Could you please explain how to turn one real drive into two logical ones?

George James

San Jose, California

A. With DOS 3.3 and later versions, you can partition your hard disk into multiple logical drives, each of which looks to DOS like a single hard disk. Before doing this, back up your hard disk thoroughly; partitioning it will destroy your data.

Once you're safely backed up, create a bootable floppy (format **a:s**). To that disk, add FDISK.COM and FORMAT.COM—both of which come with DOS—and the program needed to restore your backup. Run FDISK from either the hard disk's DOS directory or the floppy, and then follow the prompts—first to remove the DOS partition, and then to install a new primary DOS partition and the extended DOS partition you desire.

Exit FDISK, reboot using the bootable floppy, and format the new logical drives using **format c: /s** and **format d:**. From your backup, you now can restore your programs to the new C: drive and your data to the new D: drive.

The FDISK command of DOS versions prior to 3.3 can't create multiple DOS partitions, but commercial partitioning programs (such as Storage Dimensions' *SpeedStor* and Ontrack Computer Systems' *Disk Manager*) can do the job.

Toggling the Lock Keys' Lights

Q. I've been using LOCKKEY2.COM

(*"Nixing Num Lock,"* The Help Screen, August 1990) on a number of XT compatibles in our office. While it sets Caps Lock, Num Lock, and Scroll Lock as desired, it doesn't affect the lights on the keyboard. From this I've concluded that the program is meant only for 286 and 386 machines. Can it be modified to properly control an XT clone?

Larry Keeping

Mississauga, Ontario, Canada

A. LOCKKEY2.COM is not meant only for 286 and 386 machines. The program works correctly, but your XT clones' keyboards don't. Their Lock key lights (which you won't find an IBM PC or XT) toggle on and off in response to keystrokes but don't reflect what's happening inside the computer. Keyboard companies added the lights to mimic the look of IBM's AT keyboard, which receives as well as sends information. Each of the lights on an AT keyboard is tied to the state of its Lock key, not to the key itself. No one has yet designed a PC or XT compatible that supports the AT-style bidirectional keyboard.

Weitek and Intel Math

Coprocessors

Q. I would like to know more about the Weitek math coprocessor. From what I've read about it, I gather that it's faster and more expensive than an Intel 80387 chip, but that's all I know. Can I use the Weitek instead of the Intel chip? My proposed application for it would be AutoCAD.

John Lawrence

Kenai, Alaska

A. Last year Weitek reduced the prices of its 3167 coprocessors, which now are almost identical to Intel's 80387 prices. Weitek's coprocessors, like Intel's, come in various speeds so that you can, for example, install a 25-MHz coprocessor in a 25-MHz system. You can't install the Weitek coprocessor directly in an Intel 80387 coprocessor socket—such a socket requires an adapter. However, if you have one of the many 386 compati-

bles that include the extended math coprocessor (EMC) socket, you can plug in either coprocessor.

The Weitek can't process instructions for the 80387 (and vice versa); your software's math routines must be compiled for either one coprocessor or the other (although some software includes both compilations and automatically determines which to use). AutoCAD uses the 80387 but currently doesn't include Weitek compilations—however, 3D Studio and RenderMan do.

For a typical drawing, the 3167 is about 2½ times faster than the 80387; the more floating-point calculations, the faster the 3167 is (and the more integer calculations, the closer it comes to matching the speed of the 80387). The Weitek's superior speed is due in part to its greater number of registers (thirty-two 32-bit registers versus the 80387's eight 80-bit registers) and its seven-element instruction queue (the 80387 doesn't have one).

The Weitek can operate as though it has sixteen 64-bit registers to perform IEEE double-precision calculations. The 80387, with 80 bits per register, can use a wider range of larger and smaller numbers (extended double-precision) than the Weitek can. Some commercial software looks for an 80-bit coprocessor, and software developers such as Microsoft and Borland, among others, are supporting math coprocessors from Cyrix that are fully compatible with the 80387.

Weitek is also the only company that currently offers a 486-compatible coprocessor (the 486 has an 80387 clone built in). The 4167 is supported by 486-based systems from Compaq, ALR, AST, and others.

How does...? What can...? Should I...? Send your PC questions to The Help Screen, PC World, 501 Second St. #600, San Francisco, CA 94107-1431; CompuServe 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). Questions with the broadest appeal will be published. ●

IN GOTHENBURG, SWEDEN...



IN WORLAND, WYOMING...



AND IN SOCORRO, NEW MEXICO...



 **GATEWAY2000**

"You've got a friend in the business."

People the World Over

Everywhere you look these days you'll find Gateway 2000 computers. That's because people everywhere know a good value when they see one. In all 50 states and in over 70 foreign countries, thousands of people are comparing price, quality and service – and choosing Gateway 2000.



In Gothenburg, Sweden

Anders Bjernefors, a computer dealer and programmer, bought a Gateway 2000 25 MHz 486 system last April. "After many faxes and a lot of study, I selected Gateway 2000," said Anders. "I'm pleased with the machine. I received a very powerful, well-built computer for an astonishingly low price."

Anders was so impressed by his system and by the people at Gateway that he contacted the company about becoming a Gateway 2000 reseller. "I telephoned my salesman," Anders remembered, "and he told me I'd have to visit the factory to make the arrangements. I was on the next plane out of Goteborg on my way to North Sioux City, South Dakota."

In Worland, Wyoming

Bob Borst, owner and operator of Cloud Peak Pest Control in Worland, spent two and a half months



Bob Borst, owner and operator of Cloud Peak Pest Control, and his Gateway 2000 386SX.

researching his computer purchase. He chose a Gateway 2000 386SX.

"My final decision was based on people, not hardware," said Bob. "The Gateway people make you feel like you're the most important person in the world. I didn't buy a computer – I bought Gateway."

Bob was equally impressed by Gateway's service people. "One time I got into a file and couldn't get out of it," Bob related. "Even though it was a software problem, I called Gateway and they talked me through it."

In Socorro, New Mexico

Gordon Kane, Laboratory Associate at New Mexico Tech, runs a computer lab with 15 Gateway 2000 286 systems. "At first we bought Gateway's because of the good prices," said Gordon. "But now I buy them because of the technical support, which is very superior, and because the company is committed to improving its product line."



Gordon Kane, New Mexico Tech, with his Gateway 2000 286 lab computers.

NMT also uses Gateway computers in its research programs. "A Gateway 386 cache system will be used

Choose Gateway 2000!

at Kennedy Space Center next summer," said Gordon, "as part of a large program of thunderstorm studies being conducted there by NASA and the Air Force."

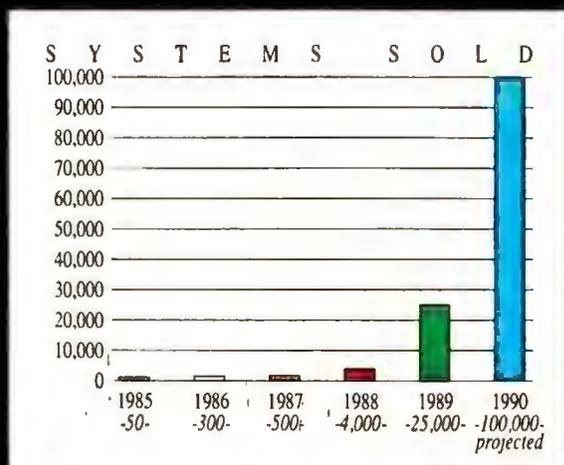
PC Magazine's survey about service and reliability confirms what these customers are saying:

"Gateway shared top billing with such heavy-weights as Compaq, IBM, and HP for those who would buy their products again...Overall, Gateway's high marks bode well for the company's future, as does its commitment to customer service."

PC Magazine
September 25, 1990

From the Heartland

The combination of price, quality and service makes Gateway 2000 the best value in the industry. But value alone doesn't explain how a little company in the Midwest, just celebrating its fifth anniversary, managed to outdistance hundreds of other companies, selling more systems through the direct market channel than any other PC manufacturer in the



Gateway 2000 sells more computers through the direct market channel than any other PC manufacturer in the country.

Computer magazine readers will remember the company's early ads featured a picture of the Waitt cattle farm with the headline, "Computers from Iowa?"

"In the computer industry, longevity should be measured in dog years."

country.
"It was the cows," laughed Ted Waitt, Gateway 2000 President and CEO. "Of course."

"We can't run that ad anymore," continued Ted, grinning, "because we built a new plant 14 miles down the road in South Dakota. But the cows really worked for us. They made the phones ring. From then on, though, we built our business on value – good prices on quality systems with old-fashioned, personal service."

Ted mentioned another reason for Gateway's success. "We take a long-term approach to customer service," he said.

"When you buy a computer from Gateway 2000, you become part of our family and we're going to be there for you as long as you own that machine."

As Ted talked about the company's fifth anniversary, he laughed again. "In the computer industry, longevity should be measured in dog years," he chuckled, "because everything's moving so fast. That makes Gateway 35 years old! But seriously, we've come a long way in five years. And I owe it all to the great people at Gateway and to our customers."

When you add it all up, you'll understand why you've got a friend in the business at Gateway 2000.



Gateway 2000
you'll find the



"You've got a friend in the business."

8 0 0 - 5 2 3 - 2 0 0 0
610 Gateway Drive • N. Sioux City, SD 57049 • 605-232-2000 • Fax 605-232-2023

GATEWAY 2000 SYSTEMS

12MHZ 286VGA

- 80286-12 Processor
 - 1 MB RAM
 - 1.2 MB 5.25" Drive
 - 1.44 MB 3.5" Drive
 - 40 MB 17ms IDE Drive with 32K Cache
 - 16 Bit VGA with 512K
 - 14" 1024 x 768 Color Monitor
 - 1 Parallel/2 Serial Ports
 - 101 Key Keyboard
 - MS DOS 3.3 or 4.01
- \$1495.00**



GATEWAY 386SX

- 4 MB RAM
 - 1.2 MB 5.25" Drive
 - 1.44 MB 3.5" Drive
 - 40 MB 17ms IDE Drive with 32K Cache
 - 16 Bit VGA with 512K
 - 14" 1024 x 768 Color Monitor
 - 1 Parallel/2 Serial Ports
 - 101 Key Keyboard
 - MS DOS 3.3 or 4.01
 - MS WINDOWS 3.0
- \$1895.00**



25MHZ 386VGA

- 4 MB RAM
 - 1.2 MB 5.25" Drive
 - 1.44 MB 3.5" Drive
 - 80 MB 17ms IDE Drive with 32K Cache
 - 16 Bit VGA with 1 MB
 - 14" 1024 x 768 Color Monitor
 - 1 Parallel/2 Serial Ports
 - 101 Key Keyboard
 - MS DOS 3.3 or 4.01
 - MS WINDOWS 3.0
- \$2395.00**

25MHZ 386CACHE

- 64K Cache RAM
 - 4 MB RAM
 - 1.2 MB 5.25" Drive
 - 1.44 MB 3.5" Drive
 - 80 MB 17ms IDE Drive with 32K Cache
 - 16 Bit VGA with 1 MB
 - 14" 1024 x 768 Color Monitor
 - 1 Parallel/2 Serial Ports
 - 101 Key Keyboard
 - MS DOS 3.3 or 4.01
 - MS WINDOWS 3.0
- \$2695.00**



33MHZ 386VGA

- 64K Cache RAM
 - 4 MB RAM
 - 1.2 MB 5.25" Drive
 - 1.44 MB 3.5" Drive
 - 200 MB 15ms IDE Drive with 64K Multi-Segmented Cache
 - 16 Bit VGA with 1 MB
 - 14" 1024 x 768 Color Monitor
 - 1 Parallel/2 Serial Ports
 - 101 Key Keyboard
 - MS DOS 3.3 or 4.01
 - MS WINDOWS 3.0
- \$3195.00**



25MHZ 486VGA

- 64K Cache RAM
 - 8 MB RAM
 - 1.2 MB 5.25" Drive
 - 1.44 MB 3.5" Drive
 - 200 MB 15ms IDE Drive with 64K Multi-Segmented Cache
 - 16 Bit VGA with 1 MB
 - 14" 1024 x 768 Color Monitor
 - 1 Parallel/2 Serial Ports
 - 101 Key Keyboard
 - MS DOS 3.3 or 4.01
 - MS WINDOWS 3.0
- \$3995.00**

BEST BUY

- Same features as our 33 MHz 386 VGA system except this machine has an 80 MB 17ms IDE Drive instead of the 200 MB 15ms IDE Drive.
- \$2795.00**

STANDARD FEATURES AND SERVICES

- Microsoft® WINDOWS™ and Mouse with all 386 and 486 systems
- 30-day money-back guarantee
- One-year warranty on parts and labor
- New leasing options now available
- Toll-free technical support for the life of the machine
- Free on-site service to most locations in the nation
- Free overnight shipment of replacement parts
- Free bulletin board technical support

*If our standard configurations don't fit your needs, we'll be happy to custom configure a system just for you.
Due to the volatility of the DRAM market, all prices are subject to change.*



8 0 0 - 5 2 3 - 2 0 0 0
610 Gateway Drive • N. Sioux City, SD 57049 • 605-232-2000 • Fax 605-232-2023

FREE GIFT!



**And 44% Savings When
You Subscribe Now.**

The *PC World* see-through solar calculator can be yours FREE, just for subscribing to *PC World*. Your special gift features:

- ▶ Amazing crystal-clear body with invisible circuitry
- ▶ Credit card size convenience
- ▶ Multi-function memory
- ▶ Special function keys: square roots, automatic percentages, etc.
- ▶ Easy-to-read liquid crystal display
- ▶ Advanced solar panel cell—it never needs batteries!

YES! Rush me my FREE GIFT and enter my one year subscription (12 monthly issues) to *PC World* for only \$19.97. That's almost 44% off the annual cover price and over 33% off the regular subscription rate of \$29.90.

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PC WORLD

4EJ87





NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

PC World
Subscription Department
P.O. Box 51833
Boulder, Colorado 80321-1833



NETWORK Q & A

Keep NetWare 286 Servers Sailing Smoothly Through Windows Waters

Keith Nickerson

Q. We are having problems running Windows 3.0 on our NetWare 286 network. Specifically, when Windows usage is particularly heavy, the network crashes. We have noticed in the File Server Statistics Summary screen of FCONSOLE that the amount of memory used from Dynamic Memory Pool 1 gradually approaches the maximum amount available (16,786 bytes). When this happens, we sit there helplessly, waiting for the impending crash. Do you know why the network is crashing and how we can prevent it?

Carolyn Smith

Oakland, California

A. What you are observing on your network is a conflict between Windows 3.0 and the new (version 3.01) NetWare enhanced-memory shells for Windows.

NetWare 286's Dynamic Memory Pool 1 stores in a 200-byte entry drive mappings and temporary file service request buffers for each user who logs on to the network. When the user logs off the network, NetWare clears the entry, freeing the 200 bytes. With a total of 16,786 available bytes, it obviously would take a lot of users logged on to exhaust the pool's available memory.

Enter Windows 3.0, with its ability to run multiple DOS windows—virtual machines—in extended and expanded memory. Whenever a user on your network runs a DOS application under Windows, NetWare creates an entry in Dynamic Memory Pool 1. In addition, initial versions of Novell's XMS and EMS NetWare workstation shells cause NetWare to create another entry every time a Windows user closes a DOS application or exits Windows. That memory is not freed until the user logs off the network, thereby adding significantly to the drain on Dynamic Memory Pool 1. If

several Windows power users on your system continually open and close DOS windows and run and exit Windows, but don't log off the network, the pool can easily become fully allocated, causing the server to crash.

(Note that NetWare 286 networks running the conventional-memory workstation shells, NET3.COM and NET4.COM, do not have the problem of overallocating Dynamic Memory Pool 1. Nor does the overallocation problem occur on NetWare 386 networks, because that operating system can dynamically allocate more memory to the pool.)

Novell's latest release of its XMS and EMS shells, version 3.01 revision D, solves the problem. To determine which revision you have installed, type **xmsnet3 i**, **xmsnet4 i**, **emsnet3 i**, or **emsnet4 i**, depending on which shell you use, at the DOS prompt. (The NetWare shell file must be in the current directory or in a directory referenced in your system's PATH command.) The revision D shells are available from the NDD forum on CompuServe (GO NDD) and may be available via your local Novell dealer.

If you can't get ahold of the new shells right away, you can solve the problem by placing the statement **NWShareHandles=true** in the [NetWare] section of each user's Windows 3.0 SYSTEM.INI file. This fix should allow you to run Windows 3.0 on NetWare 286 without overallocating Dynamic Memory Pool 1.

Here are some additional tips for running Windows 3.0 on NetWare:

- If, after loading the network shell, you load Windows in enhanced mode and it "hangs," there's probably a memory conflict between the Windows memory manager and the memory addresses used by your network interface card. Try adding either the line **EMMExclude=A000-C7FF** or **EMMExclude=A000-EFFF** to the [386enh] section of SYSTEM.INI.

- If you are having problems printing over the network with Windows, Microsoft recommends adding the line **NetHeapSize=58** to the [386enh] section of SYSTEM.INI.

- In enhanced mode, Windows' virtual memory capability enables it to open more programs and files than fit in your machine's installed memory by swapping chunks of code to disk. Swapping to a local disk bogs down Windows' performance, and swapping code to a network drive is even slower. You can disable the virtual memory capability by placing the line **Paging=No** in the [386enh] section of SYSTEM.INI. ☺

Keith Nickerson is the editor of NetWare Advisor and a member of the publishing team of Business Systems Group, a Houston-based network consulting firm.

POWER TIP NO. 155

Closing Windows Safely

When you quit the Windows 3.0 environment, don't start typing before the DOS prompt appears. Windows needs a little time to clean up and close down, and keystrokes can interfere with this process. You may freeze your system, and the DOS prompt may not appear at all. If this happens, even pressing <Ctrl>-<Alt>-<Delete> won't work—you'll have to press your reset button if you have one, or turn your computer off and on.

Robert Luhn
Senior Editor

Product Feature Summary	Lotus 1-2-3 Release 3.1	Microsoft PC Excel®	Borland Quattro Pro®
WYSIWYG Display	Yes	Yes	No
3D Multi-Page Worksheets	Yes	No	No
Text Styles per Sheet	100 +	4	8
Mix Text and Graphs on One Page	Yes	No	Yes
Word Wrap Around Graphs	Yes	No	No
Multiple Graphs on One Page	Yes	No	Yes
Print Multiple Worksheets at Once	Yes	No	No
Auto Compress to Print on One Page	Yes	No	No
Worksheet Zoom	Yes	No	No
Color Palette	224	8	16
Automatic Keystroke Recording	Yes	No	No
Relational Database	Yes	No	No
Virtual Memory Management	Yes	386 Only	No
24-Hour, 7 Day-a-Week Support	Yes	No	No

Even our competition is 100% behind us.

Take a look at the chart above and you'll see what we mean. Or listen to actual comments from our customers about the new Lotus® 1-2-3®.

"The product's graphical and WYSIWYG features are great... It gives me professional-quality output with just a few keystrokes... It makes me look good... I wholeheartedly recommend it... It's a slam-dunk!"

They also love its unique way of integrating text and graphics. Its 3D capabilities. Its virtual memory

management system that lets them build larger worksheets more efficiently. Its mouse-support and formatting options. And its compatibility with Windows™ 3.0.

On the other hand, they can't say the same about other spreadsheets. Because the fact is, the new Lotus 1-2-3 is simply superior.

So call us today for a free demo disk. And see why the new Lotus 1-2-3 is already developing quite a following.

For a Free
Lotus 1-2-3 Rel. 3.1
Demo Disk or for
Upgrade Information,
please call
1-800-TRADE UP
ext. 537

Introducing Lotus 1-2-3 **3.1**



CONSUMER WATCH

Advice and information for the computer consumer

From Sears to Radio Shack to umpteen mail-order firms, you can buy a computer almost anywhere. We survey the pricing and know-how of six very different outlets.

Roberta Furger

You'd Better Shop Around

Looking for a PC for home use? You won't have far to look. Alternatives to the traditional computer retail store and mail-order firm are springing up all over. You can stop by Sears Brand Central and check out the computers after you pick up the kids' school clothes. Or how about that low-priced clone you saw on your last few trips to the grocery warehouse? Everything else there is cheap...

How can you find the best deal? It's certainly convenient to buy your home computer where you purchase your other major appliances, but will you get the system that best suits your needs? And will the price be competitive?

To put these issues in perspective, we did some comparison shopping. We visited department stores and computer

dealers and called leading mail-order companies to find the best combination of competitive pricing and helpful assistance. And the results surprised us.

Our comparison-shopping scenario went like this: We're setting up a home office and need a computer primarily for word processing. We also intend to run spreadsheets and personal finance applications. We haven't made the switch to *Windows* but are considering doing so. It's our own money, so price is *very* important, but we also want to make a solid investment. Although not computer novices, we've never purchased a system before.

Act One: Sears Brand Central

We went into Sears to look at the PS/1 but were quickly steered toward other options: 286 and 386 computers from Laser and Packard Bell.

"The PS/1 is good if you don't know anything about DOS," said the salesperson. "But it costs more, has a smaller hard drive, and runs slower [than the clones]."

So far, so good. But a few minutes later the salesperson (who also sold TVs, VCRs, and a small jungle of other electronics equipment) had exhausted his knowledge.

"What's the main advantage of going with a 386 versus a 286?" we asked. "Speed," he answered. "And the 386 has more megabytes."

Hmmm.

But what he lacked in technical knowledge, he made up for with helpful consumer advice. He suggested, for example, that we go with the Laser system, since "you can get through to their technical support." He also proudly described Sears' low-price guarantee—if we could find the same system for less

within 30 days, Sears would pay us the difference. And if we weren't completely satisfied, we could get a complete refund within 60 days.

Unfortunately, the price wasn't anything to write home about: \$1778 for a 286 system. You should be careful, then, about buying through this type of channel. Novices should be especially wary—they may end up paying too much for a system that won't necessarily meet their needs.

Act Two: Moving Upscale

Next, we tried Whole Earth Access, an upscale department store. Whole Earth differs from Sears in that it has a dedicated computer department and sells name-brand systems, including Compaq, Apple, and Toshiba. It also has a knowledgeable sales staff.

What type of system did Whole Earth's sales staff suggest?

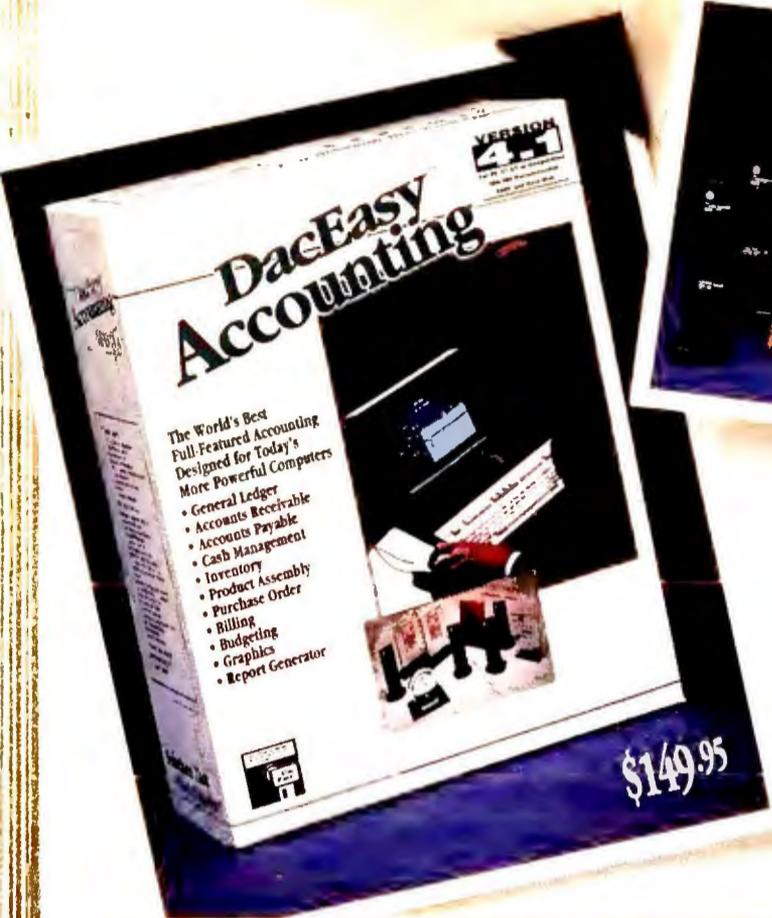
"Go with the 386SX; it'll only cost you \$100 more than the 286," the salesperson told us. "Besides, the 286 is becoming obsolete"—a point *PC World* has also made.

Our choice, he said, was between a Premier 1500 (a 16-MHz 386SX) and a Hyundai Super286e. When we asked about the Compaq Deskpro on display, he shook his head and told us matter-of-factly that they cost twice as much.

The Whole Earth employee knew a lot about PC hardware and software, rattling off the reasons why *Windows 3.0* would run better on a 386SX than on a 286 system and discussing options we might consider, such as a second 3½-inch floppy. He obviously had his own opinions but didn't try to force any one system on us.

The grand total for the SX he recom-
(continues)

Meet the First Family of



Easy-to use, sophisticated accounting with an award-winning heritage.

Whether for business accounting or personal financial management, the DacEasy family of award-winning accounting software has something for everyone.

It seems that every time you look at a personal computer magazine, DacEasy has won another award. DacEasy Accounting 4.1 has picked up three new awards just this year. Truth is, DacEasy Accounting has won more awards than all of its competitors combined. Here's why.

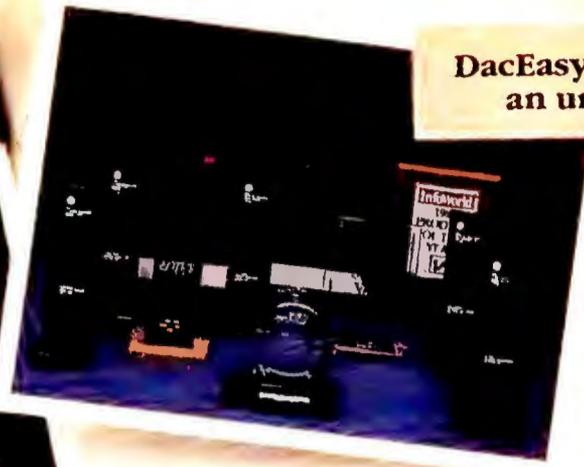
DacEasy™ Accounting 4.1 is sophisticated enough for an accountant, yet easy enough for a novice to use. With Accounting 4.1, you can invoice customers, track

"For versatility and ease of use, DacEasy is hard to pass up."

-Price Waterhouse Report on Low-Cost Accounting Software
PC Magazine, April 10, 1990

sales, establish a budget, control inventory and assembly, pay bills, generate purchase orders, forecast future business performance, generate custom reports, and create colorful graphic presentations.

Hardware Requirements: IBM or compatible PCs (Light Checkbook for Macintosh Plus, SE, II), Accounting 4.1-640K, Hard disk, DOS 3.1 or later, mouse optional. Payroll 4.1-512K, Hard disk, DOS 3.1 or later, mouse optional. Network Accounting-Net Bios Compatible LAN, 640K, DOS 3.1 or later, mouse optional. Sylvia Porter's RapidTax 512K, Hard Disk, DOS 2.1 or later, Accounting 3.1 512K, 2 disk drives, DOS 2.1 or later. Light Checkbook Accounting (PC)-256K, One Disk Drive, DOS 2.1 or later. Macintosh is a trademark of Apple Computer, Inc. DacEasy, Light, and RapidTax are trademarks of DacEasy Inc.



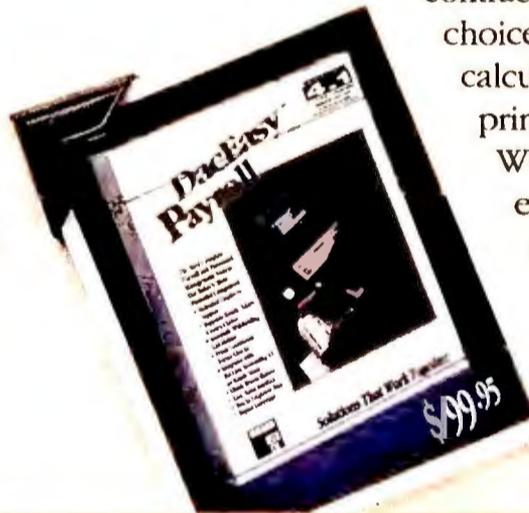
DacEasy wins PC World's World Class Award an unprecedented fifth year in a row!

With its intuitively organized menu environment and instant access to on-line help, DacEasy Accounting 4.1 makes business accounting less intimidating. And since all 11 of its modules are completely integrated, Accounting 4.1 requires just one manual that includes a primer on the basics of accounting.

Over a half-million businesses in small towns and big cities across the U.S. and in 17 countries worldwide trust DacEasy Accounting to manage their business finances.

DacEasy™ Payroll 4.1 is the perfect match for your business. Versatile Payroll 4.1 manages salaries, wages and contract labor and gives you a

choice of four pay periods. Tax calculations are automatic, and printing your payroll checks, W-2's and 1099's couldn't be easier. And Payroll 4.1 integrates with the General Ledger of Accounting 4.1 or you can use it as a stand alone program. As expected, DacEasy Payroll 4.1 offers all the and more for a value-leading price.



The complete payroll and personnel management solution.

For even greater value, get the **DacEasy™ BonusPack** with Accounting 4.1, Payroll 4.1 and the DacEasy Video Tutor for one great low price.

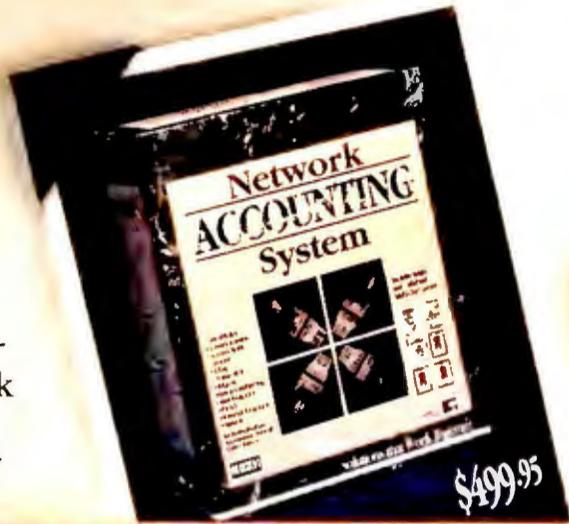
Accounting 4.1, Payroll 4.1, a FREE Video Tutor, and a great price!

For the best network accounting software, check out the **DacEasy™ Network Accounting System** with all the features of Accounting 4.1, Payroll 4.1 and a free Video Tutor.



Accounting Software.

The DacEasy Network Accounting System is compatible with all the popular LAN's, and includes options and capabilities found in network accounting systems costing thousands of dollars more. So if you need your accounting on a network, DacEasy offers award-winning performance at a great price.



The newest, most powerful member of the DacEasy family!

"DacEasy Accounting Network System, the product to watch for."

-Lotus Magazine
December, 1990

You can file your 1990 taxes with confidence with **Sylvia Porter's RapidTax™**. This easy-to-use 1040 program features a simple interview filing option, built-in IRS Tax Tips and an



Introducing the tax expert in the family.

Audit Detector.
You also get FREE

electronic filing software for quick refunds and DacEasy Light Checkbook Accounting for FREE.

If your business has an older, less powerful computer, DacEasy has a powerful accounting solution to fit your needs. **DacEasy™ Accounting 3.1** has many of the features found in Accounting 4.1, with reduced hardware requirements and a reduced price of \$99.95.

If your business accounting needs are simple, or you want to get a grip on your home finances, **DacEasy Light® Checkbook Accounting** is the perfect choice for you. Designed to look like familiar checks and credit-card slips, DacEasy Light's screens make financial management easy, even for the most inexperienced accounting lightweight. And there is a great new version made just for Macintosh users, too. For PC or Macintosh alike, you get the best small

Circle 94 on reader service card

business or personal accounting for less with DacEasy Light Checkbook Accounting.



Quick and easy accounting for home or office.

The DacEasy™ Advantage Club, a great success in its first year, continues to offer the best value in unlimited priority customer support, plus newsletters, free maintenance revisions and updates, and free Payroll tax tables. For on-site assistance, a nationwide network of **DacEasy™ Certified Consultants** are ready to serve you. There's also a full selection of classroom seminars, self-paced interactive materials and a Video Tutor to help you learn about computerized accounting with DacEasy. So for the best features, most choices, and highest level of support, get to know the DacEasy family.



Visit your local dealer or to order call:

1-800-877-8088.

In Canada call (416) 940-3314

Before making any accounting software purchase, order the DacEasy System Selector disk at no risk.*



- Please send an interactive DacEasy System Selector disk for \$5.00 (fully refundable or apply to purchase).
 - Please send information on the DacEasy Accounting family.
 - Please send _____ for \$_____
- In Texas please add 8 1/4% sales tax. Disk Size: 3.5 5.25

Phone: _____
Name: _____
Address: _____ St.: _____
City: _____ Method of Payment: Check Visa AmEx
Card #: _____ Exp.: _____

DacEasy, Inc.

17950 Preston Road • Suite 800 • Dallas, Texas 75252

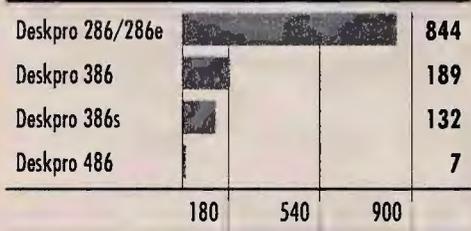
Insico

***30 Day Money-Back Guarantee on software purchased direct from DacEasy!**

RATE YOUR SATISFACTION: Compaq Desktop Computers

Compaq continues to get relatively high marks in user satisfaction, with only the newest system, the Deskpro 486, failing to get higher than the mean score in this area. PCs based on the 286 chip—both the original Deskpro 286 and the more recent 286e—make up the largest portion of the installed base of desktop models, according to this survey of 206 large organizations. But their more capable siblings, the 386SX-based Deskpro 386s and the Deskpro 386, rank higher in plan-to-buy statistics. Surprisingly few respondents had purchased the high-powered Deskpro 486 or planned to do so within six months.

Installed base at survey sites



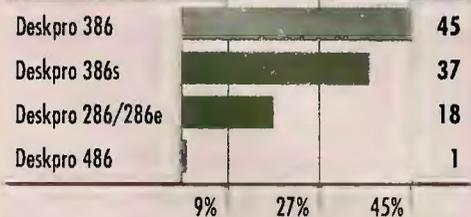
Users rate their satisfaction

1=low 5=high



Buying plans

percent of planned Compaq purchases



Source: International Data Corporation. From a survey of 206 large organizations, each with at least 50 PCs. (Percent totals don't add up to 100 due to rounding.)

mended? A reasonable \$1794 for a 386SX with a color VGA monitor. The "extras" made the deal even sweeter: on-site service for one year; technical support through both Whole Earth and the manufacturer (provided we went with the Premier), and a 2-hour DOS instruction class.

Act Three: A Tandy Deal

Although you may pay a little more with traditional dealers, you benefit from a more knowledgeable sales force and from after-sale service that should meet your every need. That's the theory we tested in visits to a Radio Shack Computer Center and a ComputerLand dealer.

Not surprisingly, in both cases salespeople were well versed in PC technology and explained in detail the ramifications of going with a 286 versus a 386. However, their sales styles and the deals they offered varied considerably.

The Radio Shack salesperson listened to our list of applications and then promptly showed us the Tandy 2500XL, a 286 with 1MB of memory and a 52MB hard drive. "For what you're doing, you won't be able to tell the difference in speed," he told us.

But does a 286 make sense as a long-term investment? "You don't buy a car expecting never to buy another one, right? You shouldn't buy a computer that way either."

This was a refreshing change from the "more is always better" argument. But we didn't get the feeling that we could call with a problem or question—one of the chief benefits of turning to a local dealer. When we asked about technical assistance, the salesperson referred us to the technical support department at Tandy's headquarters.

Act Four: Lost in ComputerLand

As soon as we walked in the door, the ComputerLand salesperson loaded us down with literature on printers before we could tell him what we were in the market for. Once he asked us our needs, he showed us the two IBM PS/2 models on the floor: the Model 30 286 and the 386SX-based Model 55SX. Either would fit our needs, he said.

Although the store also sold Arche and Epson systems, the salesperson didn't offer any information on either brand. In fact, although he was very knowledgeable, we had to pump him for information. Eventually, he told us what

we wanted to know about pricing, service, and performance trade-offs for each brand, but it took nearly an hour and a half of coaxing. Someone without much background in computers could easily wind up buying the most expensive system in the store—without learning about the other options.

Act Five: 1-800-PCs

Historically, mail order has had one advantage—price—and one disadvantage—shaky service. At least, that's the myth. We tested the myth and found it to be only half true.

We called two leading mail-order companies: Dell Computer and Northgate Computer Systems. In both instances, the salespeople were friendly, knowledgeable, and willing to spend as much time as needed to answer our lengthy list of questions.

The Dell representative recommended a 386SX, noting its relatively low price (only \$200 more than a similarly configured 286). "It's worth the investment," she said, explaining the difference between a 16-bit and a 32-bit data path and noting that some software, such as *Windows 3.0*, runs only on a 386. (In fact, *Windows 3.0* will run on a 286, although slowly, but her argument was otherwise sound.)

The biggest plus, though, was service and support: toll-free technical support for the life of the product and free on-site service for one year. The price? A competitive \$2099 for a 16-MHz 386SX with 1MB of memory, a 40MB hard drive, and a VGA monitor. For slightly more than the Whole Earth system, you get a PC backed by a well-known supplier.

The Northgate representative was the only person to ask up front how much we wanted to spend. She tailored her suggestions accordingly.

"Because of what you want to do, I'd suggest a 386 system," she said. "If you were buying a system for your nephew so he could play games, I'd recommend a 286."

(continues)



A Complete 386TM-33 MHz Cache System For Under \$2,000.



Finally, you can afford to put the fastest 386TM computer at your fingertips to enjoy the performance that once only belonged to the ranks of File Servers, Multi-user host Computers and CAD/CAM/CAE Workstations.

Other manufacturers with their simple-minded direct-mapped Cache architectures were obsessed with churning out the best benchmark numbers. We, however, were not convinced DOS and Power Meter 1.3 is any example of a typical real life application (registering at 8.003 MIPS, we are not too shabby either). With Two-Way Set Associative Cache capability, our 386TM is also more attuned to run the emerging multi-tasking operating systems like OS/2[®] and UNIXTM, where modular code

sizes (of less than 32K) and frequent code-switching are norms. Worrying about compatibility? Both IBM[®] and COMPAQ[®] endorsed the same INTEL[®] 82385 Cache Controller. Furthermore, we enhanced it with page-mode and interleaved memory in the event of a cache miss. It is the closest to a true 0-wait-state implementation on the market.

Nobody does it better, Nobody!

MIS 386TM-33MHz STANDARD

- 1MB 80NS RAM
- 32K 25NS SRAM CACHE
- INTEL[®]/WEITEK[®] MATH CO-PROCESSOR SOCKET
- TEAC[®] 5.25" 1.2MB FLOPPY DRIVE
- TEAC[®] 3.5" 1.44MB FLOPPY DRIVE
- 43MB 28MS AT HARD DISK DRIVE
- 2 SERIAL, 1 PARALLEL AND 1 GAME PORTS
- MGP ADAPTER
- SAMSUNG[®] 12" AMBER MONITOR
- MICROSOFT[®] COMPATIBLE SERIAL MOUSE
- NMB[®] 101-KEY ENHANCED KEYBOARD
- DESKTOP CASE WITH FIVE DRIVE BAYS
- 220W POWER SUPPLY
- ONE YEAR PARTS AND LABOR WARRANTY
- 30-DAY MONEY BACK GUARANTEE

\$1,995

Circle 172 on reader service card

386-25MHz STANDARD System w/ 32K Cache	\$1,845
386-25MHz STANDARD System (Non-Cache)	\$1,595
386SX-16MHz STANDARD System	\$1,145
286-12MHz STANDARD System	\$ 945
486-25MHz STANDARD System w/ 64K Ext. Cache	\$3,795

VGA (640x480) Upgrade	Add	\$ 360
P-VGA (1024x768) Upgrade	Add	\$ 500
80MB/212MB Hard Drive Upgrade	Add	\$250/750
4MB RAM Upgrade	Add	\$ 300
64K Cache Upgrade (386-25/33 MHz)	Add	\$ 120
Vertical Case	Add	\$ 150
Mini Vertical Case	Add	\$ 75
CALL FOR ADDITIONAL UPGRADE OPTIONS		

MIS Computer Systems

P.O. Box 70897 Sunnyvale, CA 94086-0897

Order Now

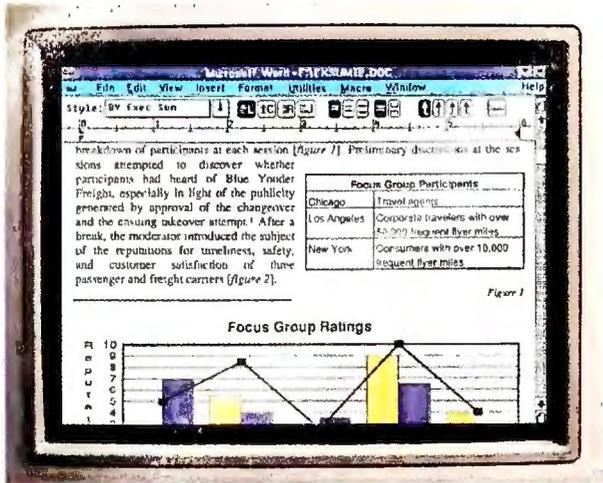
1-800-733-9188

Office Hours: M-F 9:00 am-6:00 pm Pacific Time



Prices and terms are subject to change without notice. 30 days money back does not include shipping charge. CA residents add appropriate sales tax. No surcharge on credit card purchases. Personal and company checks require 2 wks clearance. All names mentioned are registered trademarks of their respective companies.

Word for Windows redef

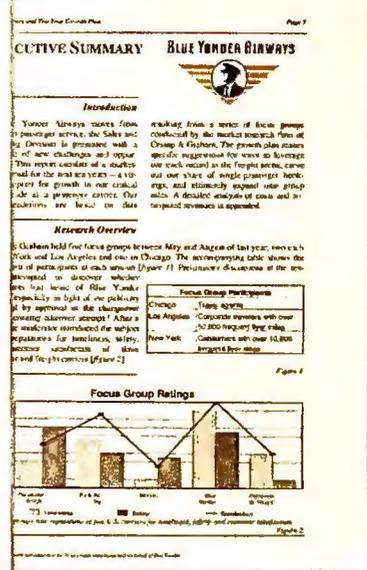
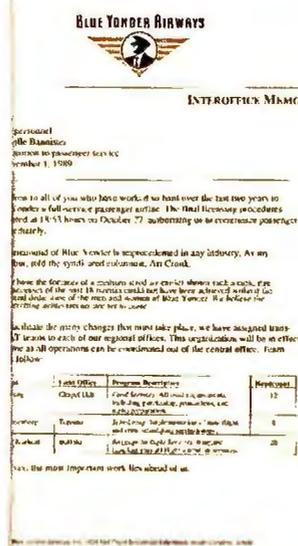
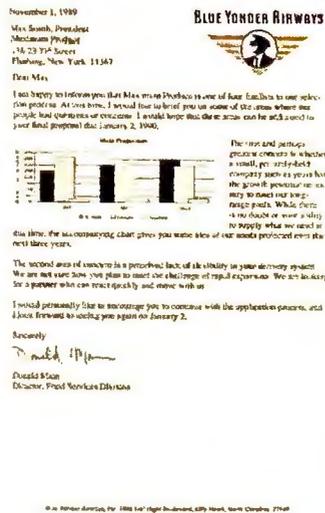


Don't get tied up. Tables make it easy to format numbers and words into rows and columns. All without using the tab key.

See what you do. With editable WYSIWYG, you can see and edit text and graphics formatting. Virtually everything for that matter. Right on your computer screen.

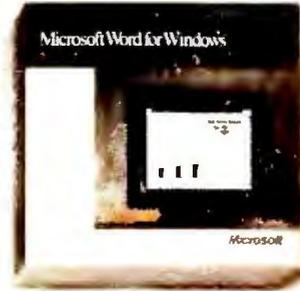


Cut corners. Cut and paste words, graphics, whatever. On your screen. Without an endless string of commands.



Look like a professional. Because we've taken the hard work out of the process, it's easy to create professional-looking documents. Making something else look professional. Like you.

Times the word processor.



Just say the word.
Microsoft® Word for Windows.™ The best thing to happen to word processing in quite a while. Check it out.

Save time.
Document Templates make it quick and easy to create standard letters, memos and more. Ensuring consistency. As well as company standards.



Something for nothing.
Get a full-featured Working Model free. Call (800) 541-1261, Dept. N01.*

Tailor your documents.
With a point and click, icons on the Ribbon and Ruler allow you to fashion formats from basic to sophisticated. You can even save these formats as a personal style or company standard.

Microsoft
Making it all make sense™

In fact, she ended up recommending Northgate's Slimline 386SX. The 16-MHz monochrome VGA system sells for \$1999.99 with 1MB of memory and a 40MB hard drive—only \$400 more than a comparable 286.

Like Dell, Northgate offers toll-free technical support and on-site service. It also guarantees replacement parts by

next-day air; so you're not left without a computer.

No mail-order firm can give the immediate up-close-and-personal attention a local dealer can promise (that's *promise*), but these two came close.

A Good Deal of Research

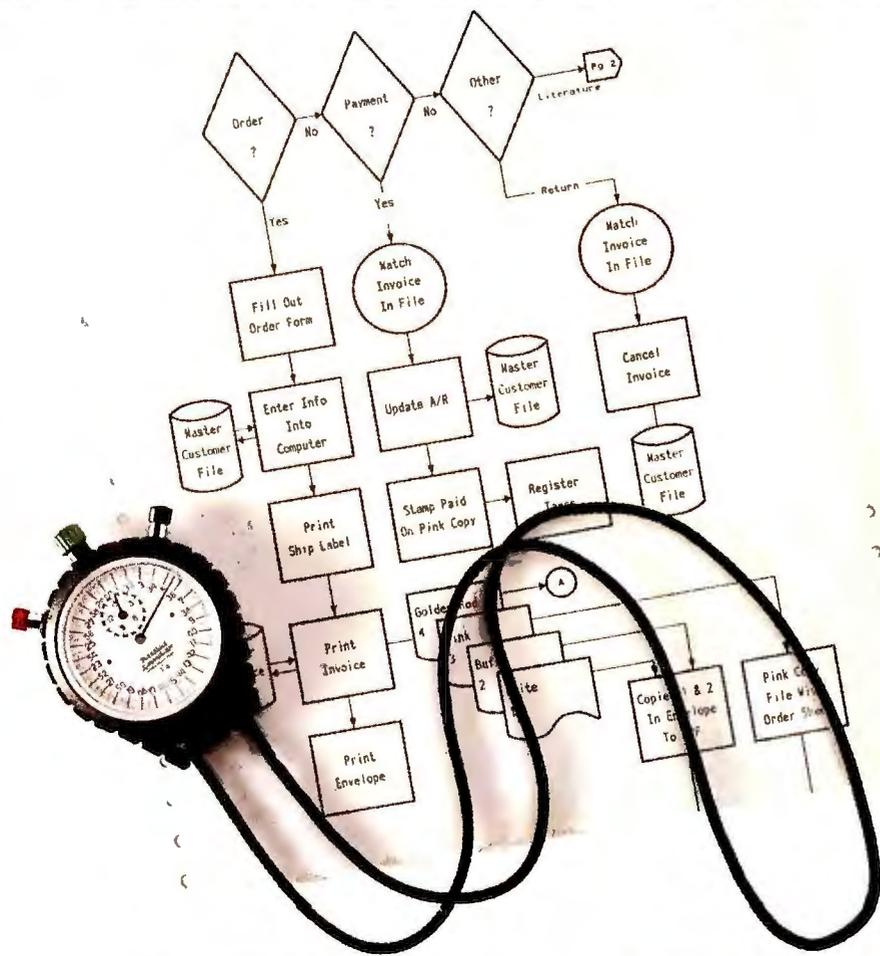
Top mail-order firms like Dell and

Northgate offer low prices and good service, and they have stood the test of time. But the decision still isn't straightforward. For many of us, even the best service over the phone can't replace the security we feel when dealing with a local salesperson.

And PC pricing is nothing if not fluid. So last week's low-price leader won't necessarily top this week's list.

Your best bet is to do your own comparison shopping. Visit several stores (*continues*).

BY HAND. OR BY NOON.



Announcing Flow Charting™ 3

Now, even complex flowcharts that once took days to perfect can be presentation-perfect—in no time!

Quick to master and a snap to use, Patton & Patton's flowcharting software is the standard of both large and small businesses around the world—and is available through all major software dealers.

See your dealer today! Or, for a "live," interactive demo disk, call: **800-525-0082, ext. PW48**
International: 408-778-6557, ext. PW48



PATTON & PATTON
Software Corporation

Excellence in charting the flow of ideas!

Works on IBM & 100% compatible PC's, supports CGA/EGA/VGA and over 150 dot matrix and laser printers, with multiple print densities and 10 font sizes. **Creates multi-page charts, portrait or landscape, on most standard paper sizes.** Mouse or keyboard controlled.

IBM is a registered trademark of International Business Machines Corporation.

Circle 233 on reader service card

POWER TIP NO. 154

Preserving Your Windows 3.0 Desktop

It's easy to set up a personal desktop in Windows 3.0—but just as easy to lose it. When you exit Windows with the Save Changes box selected, Windows saves the current desktop, even if it's not the one you want. To make sure you can recover your desktop arrangement, go to the DOS prompt in your Windows directory and enter these commands to copy your configuration files to a backup directory:

```
md winbak
copy *.ini winbak
copy *.grp winbak
```

If you accidentally mangle your desktop, you can now restore it by going to the DOS prompt in your Windows directory and entering the command `copy winbak`; then start Windows in the normal way.

Whenever you make changes in your desktop, make sure you remember to save them in your backup directory.

George Campbell
Contributing Editor

IT HAS BEEN
BROUGHT TO
OUR ATTENTION
THAT NOT EVERYONE
BELIEVES
PORTABLE PCs
CAN BE AS
FUNCTIONAL AS
DESKTOP PCs.



THIS SHOULD



This may be hard to believe, but there really is such a thing as a portable PC that can do everything a desktop PC can.



In fact, there's not just

Some people can't imagine squeezing a 40, 100, or even a 200MB hard disk into a portable PC. But when they take advantage of all that storage capacity, they find it hard to imagine life without it.

one, but an entire line of them. They're called Toshiba Portable Desktops™, and they'll forever change the way your company looks at power and productivity.

To get more information or a free Portable Desktop productivity survey, call 1-800-289-1400.

What does all this mean in "real world" terms? It means your top people can do everything they've been doing with their desktop PCs.

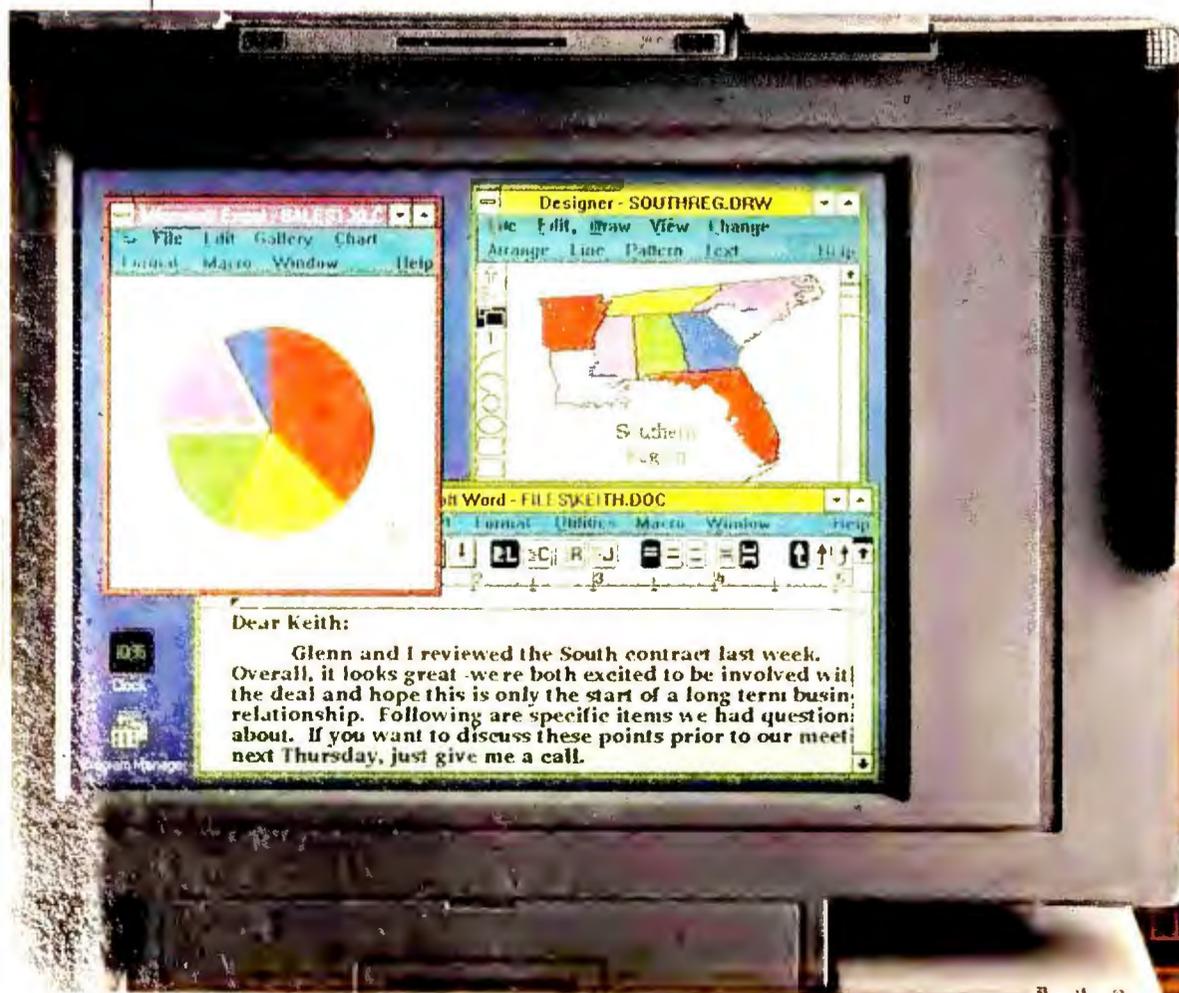
There once was a day when microprocessors this powerful were unheard of in a portable. Luckily for people who crave raw power and computing speed, that day is over.



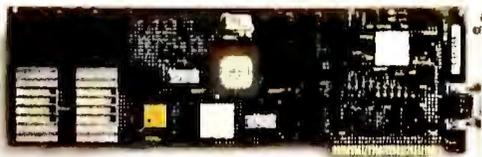
But with more flexibility.

It means your key employees can turn after-hours time into productive

For those who think a PC just isn't fully functional without a color display, we developed our second generation LCD color screen. For those who think basic is better, our VGA gas plasma systems have the perfect displays.



REMOVE ALL DOUBT.



To anybody who doesn't expect a portable PC to have IBM-compatible expansion slots, we have just one thing to say. Raise your expectations.



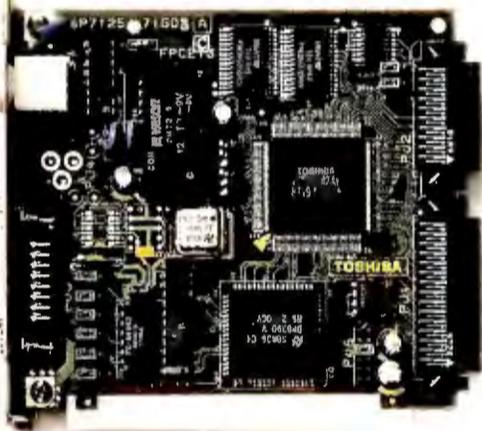
time, since their dining room tables and breakfast nooks can serve as off-site workstations.



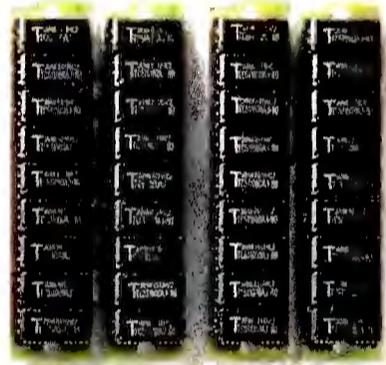
Anyone who insists portable PC users are doomed to cramped, undersized keyboards hasn't gotten their hands on a Toshiba. We use standard-size keys and standardized key spacing so your hands will feel right at home.

And it means they can add more impact to presentations, with a wealth of information and power at their fingertips.

In fact, they can even increase productivity at their desks (while using up considerably less desk space, we might add).



In other words, it really is possible to have the capabilities of a conventional desktop in a portable.



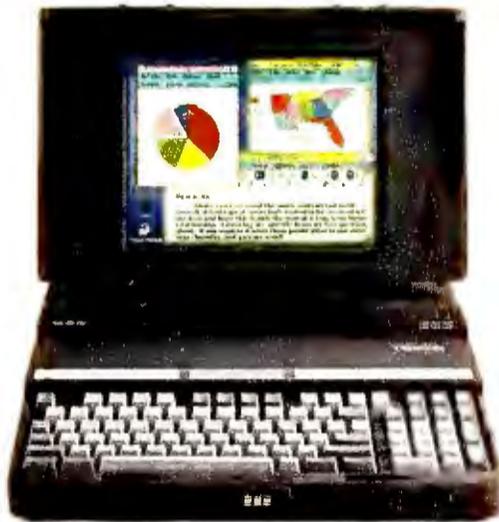
They say you can't squeeze much memory into a portable PC. But considering that our dedicated memory expansion slots let you add up to 12MB of RAM as your need for power grows, it looks like "they" were wrong again.

With an expansion slot for a LAN card (or any other full-size card), you get complete networking freedom without giving up all your other expansion slots.

All you have to do is try one. And believe.



T5200. 386 microprocessor, 40, 100 or 200MB HDD, 2 to 14MB RAM, 2 IBM-compatible expansion slots (in addition to dedicated memory slots), VGA plasma display.



T5200C. 386 microprocessor, 200MB HDD, 2 to 14MB RAM, 2 IBM-compatible expansion slots (in addition to dedicated memory slots), VGA passive matrix color LCD display.



T3200SX. 386 SX microprocessor, 40 or 120MB HDD, 1 to 13MB RAM, 2 IBM-compatible expansion slots (in addition to dedicated modem and memory slots), VGA plasma display.

In Touch with Tomorrow
TOSHIBA

Toshiba America Information Systems, Inc., Computer Systems Division

© 1990 Toshiba America Computer Systems Division

Circle 285 on reader service card

and make a few calls. You've got more options than ever before—use them wisely.

SHOP TALK

RP Systems Closes Its Doors

RP Systems, a mail-order company based in Oak Brook, Illinois, has gone

out of business, leaving many customers waiting to see if they'll recoup the thousands of dollars they've sent to the firm for undelivered merchandise.

Consumer Watch has repeatedly attempted to contact company officials, but they have not responded to our inquiries. The company's phone lines have been disconnected. One of RP Systems'

chief creditors, ITT Commercial Finance of Matteson, Illinois, seized RP's assets on September 25 after it failed to make payment on a loan.

Customers who have paid for merchandise but not received it should contact the Regional Postal Inspector, 433 W. Van Buren, Chicago, IL 60607-5401; 312/765-4605. If you paid via credit card, ask the card company to have the amount charged back to RP Systems (see *Consumer Watch*, May 1990).

LANtastic Not So Fantastic

I bought a *LANtastic* LAN package from a local dealer and was told it would run our data base, *Filepro 16+*.

Problems developed immediately after installation. Users could not print to their own printers. The dealer tried to resolve the problem with Artisoft, which finally blamed *Filepro 16+*. I then had to try to prove to The Small Computer Company, maker of *Filepro 16+*, that its program was incapable of networking. The staff there spent hours trying to find out why I could not print while on the network, to no avail.

The local dealer at this point became frustrated trying to work with Artisoft and refused to rectify the matter. By this time nearly two months had passed, and Artisoft refused to honor any calls to provide assistance because the warranty period had expired.

I have \$2000 worth of networking software that they will not accept back.

Mike Gaudreau

Auburn Machinery Inc.

Auburn, Maine

Artisoft responds: Our tests indicated that *Filepro 16+* is compatible with the *LANtastic* network operating system. Artisoft provides 30 days of free phone support, beginning with the first call to technical support. Any end user who reports a problem running *LANtastic* (as it is intended to be used) within the initial 30-day support period or during an extended support period is entitled to continued support until the
(continues)

**IMAGINE GETTING
ALL THE FACTS
ABOUT ANY PC
PRODUCT,
FAXED TO YOU
FOR FREE,
IMMEDIATELY,
NO STRINGS
ATTACHED.**

**TO ACCESS THIS FULLY AUTOMATED SYSTEM
USING YOUR TOUCH-TONE PHONE, CALL**

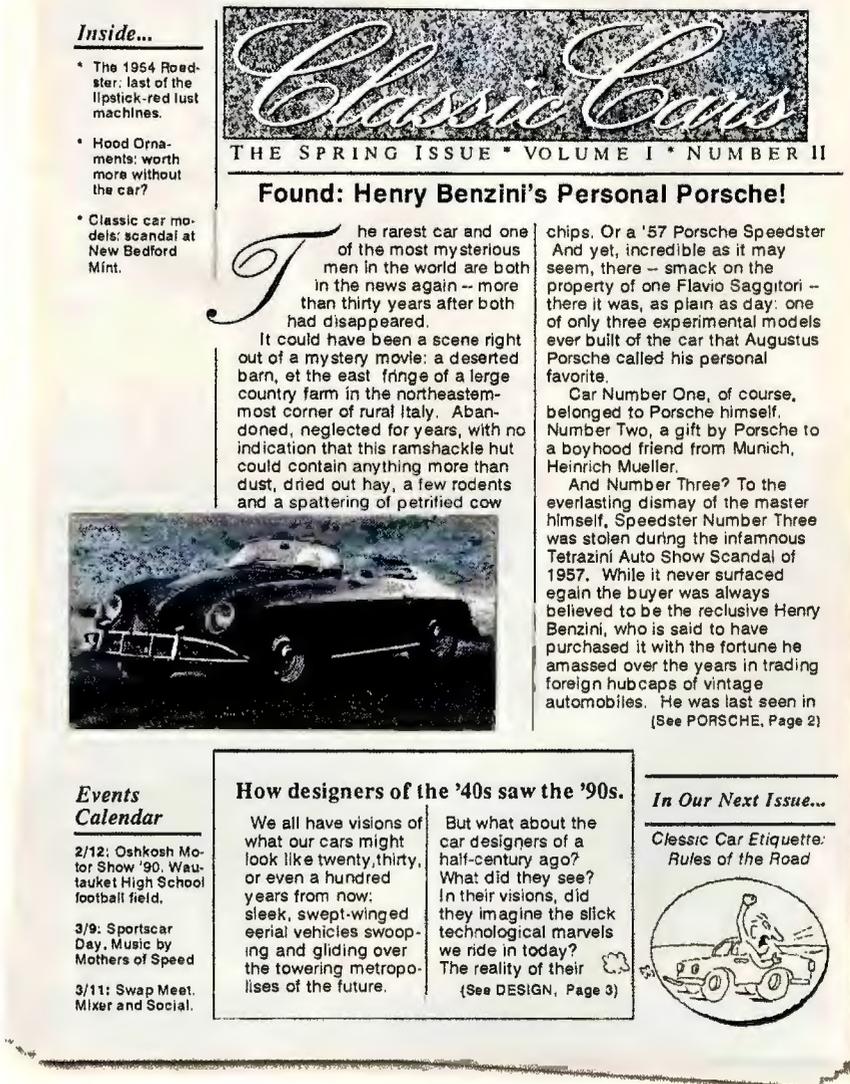
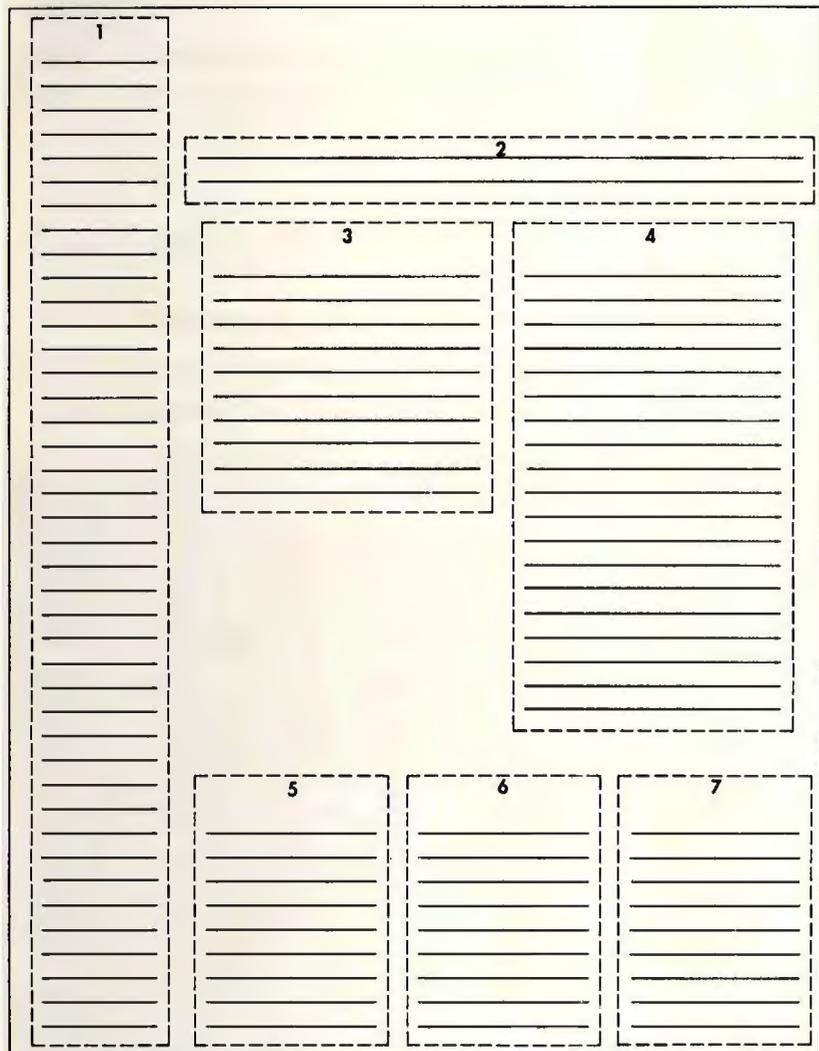
**1-800-274-RFAX
FACTS By FAX®**

WE'RE FAXING YOU THE FUTURE.

FOR ADVERTISER INFORMATION, CALL (516) 434-4400

Circle 300 on reader service card

Jumpstart your newsletters.



You can go from "Layout Gallery" to finished page in a matter of minutes.

The key to quick and easy, professional-looking newsletters is PFS:® First Publisher™ 3.0 from Software Publishing Corporation. It's the world's best-selling desktop publishing software for the PC. And no wonder.

It's the only entry-level package with the "Layout Gallery"—21 different, adjustable layouts. Just choose the one you like, type or import your text, select your typestyles, add graphics, then print.

If you can type at all, getting started couldn't be easier. If you need help, we've got the best context-sensitive help screens in the business as well as an on-line manual.

PFS:First Publisher also lets you import and export text from more word-processing programs than any other software in its class. And it offers more typefaces and graphic images, including many at 300 dots per inch — the best any laser printer can print.

PFS:First Publisher 3.0. A quick start. A fast finish. And a smooth ride all the way. Only \$149*.



SPC SOFTWARE PUBLISHING CORPORATION

For a free trial disk, call 1-800-345-2888, operator 506 (U.S. and Canada).

Be sure to ask about our new line of accessories including Business Template Kit, Font Library, Business Gallery and Recreation Gallery. For upgrade information, call 1-303-799-4900. In Canada, call 1-416-566-0566. *Suggested retail price. PFS is a registered trademark and First Publisher a trademark of Software Publishing Corporation. Banner and photo scanned and imported at 300 dpi. High-resolution clip art supplied by Metro ImageBase. ©1990 Software Publishing Corporation, 1901 Landings Dr., Mountain View, CA 94039-7210.

Circle 246 on reader service card

This is for every hard disk that's lost its drive.

File fragmentation. It shifts your hard disk into low gear. And takes the "varoom" out of your PC's performance.

Restore your hard disk to its youthful speed, with Disk Optimizer. The utility software that lets you retrieve your files up to *three times faster*.

Disk Optimizer undoes nasty file fragmentation that occurs naturally under DOS. It puts your files back in one piece. So your hard disk doesn't burn up your precious time or itself retrieving bits of data scattered all over the place.



It's the little utility that's a big time saver. Get Disk Optimizer today and give your hard disk a real power boost under the hood.

Disk Optimizer is just \$69.95. See your dealer. Or call 800-272-9900 to order.

SOFTLOGIC SOLUTIONS

One Perimeter Road, Manchester, NH 03103
603-627-9900 • 800-272-9900
© 1990 SoftLogic Solutions, Inc.

8

Circle 248 on reader service card

Automeniu®

Now the power is at your fingertips

- ✓ Eliminate DOS Training
- ✓ Password Protection
- ✓ Network Compatible
- ✓ Non Memory Resident
- ✓ Single Keystroke Access to DOS Applications



To order Automeniu® call
For sales information call

1-800-662-4330
404-446-0271

Call for a FREE demonstration diskette

ANOTHER PRODUCT OF MAGEE ENTERPRISES, INC.

Circle 162 on reader service card

problem is resolved. If we cannot resolve the problem, the user is entitled to return the product to the dealer or, if it was purchased directly from Artisoft, to us for a full refund.

Upon receipt of Mr. Gaudreau's letter we called him, offering a free year-long technical support policy and promising to work with him on a priority basis until his problem is resolved. If we cannot provide a satisfactory solution, we will give him a full refund.

Sam Henrie
Technical Support Manager

Value Plus, Where Are You?

Consumer Watch receives a surprising number of letters from military personnel stationed overseas who have ordered PC hardware and software through the mail—only to have it show up late, broken, or not at all. Often it's simply a lack of communication between the customer and the supplier. But a recent letter from Air Force Sergeant Thomas Lamson, stationed in Italy, documented outrageous behavior by one supplier.

Lamson sent a money order for \$1609 to Value Plus Computers in Canoga Park, California, for the purchase of a computer and monitor. During the course of 40 phone calls, totaling an additional \$300 in phone bills, he was told six times that his computer and monitor had already been sent; several other times he was promised that it would be mailed shortly. It never was.

Despite repeated phone messages, no one from Value Plus ever returned our calls. Now the company's phone lines have been disconnected. The company's ads look impressive, promising a 30-day money-back guarantee, but customers should avoid Value Plus.

Think you've gotten a raw deal? Send the details to Consumer Watch, PC World, 501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World/179-3813; or 415/442-1891 (fax). We'll investigate your complaint and publish letters with the broadest interest. ●

You no longer have to be a pro to communicate. Get CROSSTALK Communicator for only \$34.95.

With CROSSTALK Communicator getting on line has never been quicker or easier. And, for a limited time, while supplies last, this \$99 package is available for only \$34.95. Just return this card with a photocopy of your current asynchronous communications package master disk or the first page of your manual. Any asynchronous package will be accepted, including CROSSTALK. See back of card for further instructions. Limit one per customer.

Yes, send me CROSSTALK Communicator for \$34.95 plus \$5.00 freight. (Both 3¹/₂" and 5¹/₄" disks are included in package.)

Name _____

Firm _____ Phone _____

Address _____

City _____ State _____ Zip _____

Current Asynchronous Communications Software _____

CROSSTALK Communicator	\$34.95	(Part Number P009158)
Freight	5.00	
Sales Tax*		
Total	\$ _____	

Method of Payment

- Check enclosed
 VISA MasterCard American Express

Name on card (please print): _____

Card #: _____ Expiration Date: _____

Signature: _____

*State/local tax on product applicable in AL, AZ, CA, DC, GA, IL, KY, LA, MD, MN, NJ, NY, OH, OK, SC, VA.
State/local tax on product and freight applicable in CO, CT, FL, IN, KS, MA, MI, MO, MS, NC, NE, NM,
NV, PA, TE, TX, UT, WA, WI, WV. Customers that are exempt from paying state or local taxes must
enclose a photocopy of their Tax Exemption Certificate with order.

HOW TO ORDER

By Fax: Fax photocopy of master disk and order form with charge card information to (404)
442-4366.

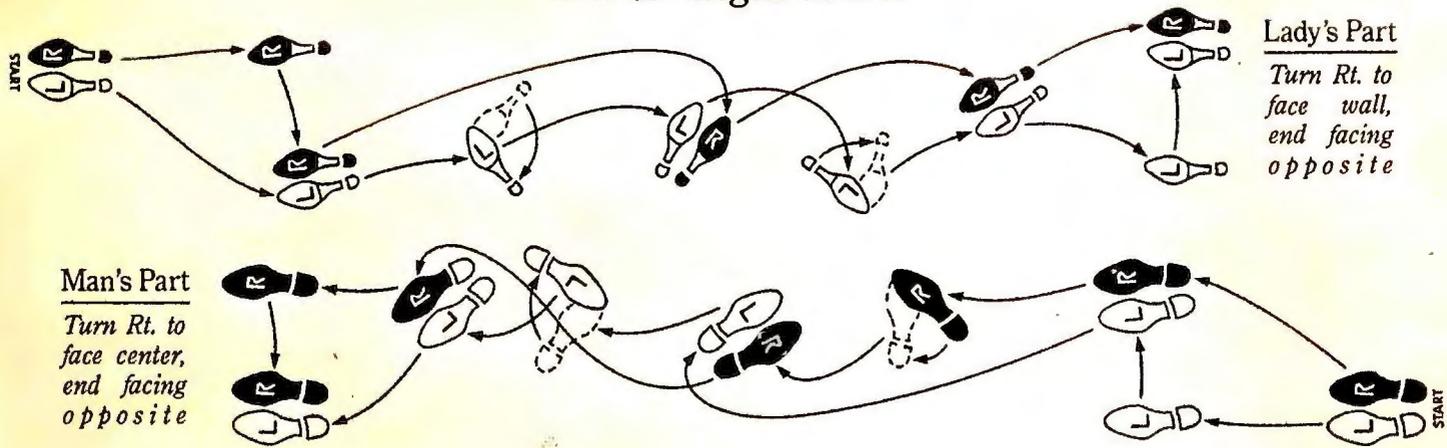
By Mail: Send in photocopy of master disk and order form with charge card information or check
to DCA Response Center, ATTN: PCS 1000-214, 1000 Alderman Drive, Alpharetta, GA 30202-9902.

By Phone: Call 1-800-289-4DCA with order information 8 a.m. to 9 p.m. EST Monday-Thursday,
8 a.m. to 6 p.m. EST Fridays.

Shipments will be by ground carrier. Please allow suitable time for delivery.



The Saratoga Fox Trot



There's a time and place for complex steps. Communications isn't one of them.

INTRODUCING CROSSTALK COMMUNICATOR

With the new CROSSTALK[®] Communicator, getting on-line is now simpler and more logical than ever.

Unlike other communications software, where you have to go through set-up information like parity, databits, baud rate, etc., CROSSTALK Communicator's convenient dialing directory menu is already prepared to call services like CompuServe[®], Dow Jones News/Retrieval[®], and bulletin boards.

Plus CROSSTALK Communicator gives you all the necessary features for sophisticated communications.

Name	Description	Called	Last called
BOSTON	Boston Computer Society BBS	18	10-25-90 7:55p
CDRNG	VAX Mail	47	10-26-90 10:11a
CREATIVE	Downloads to the CS Mac System	7	10-26-90 11:15p
CSEARVE	CompuServe	38	10-26-90 3:01p
DEIVER	Denver Accounting Dept.	13	10-23-90 2:33p
DWJONES	Dow Jones News/Retrieval	27	10-23-90 11:42a
HOME	Home PC	16	TODAY 8:25p
IBM	PROFF E-mail	56	10-24-90 8:18a
LEXIE	Lexie/Mavis via HeadNet	36	TODAY 1:17p
NORMAL	Default settings for new entries		
OAG	Official Airline Guides	13	10-26-90 4:13p
XTALK888	The Crosstalk BBS	7	10-11-90 3:17p
		20	entries

Unlimited connections are one step away with our dialing directory.

Like emulation of ANSI color graphics, Televideo[®] 900 series, IBM[®] 3101, DEC VT[™] 52, VT102, VT220, and VT320 terminals. And support for block mode, printing, wide screens and other various advanced features.

File transfer protocols are just as complete. From XMODEM to ZMODEM plus CompuServe B+ and Kermit. Additionally, CROSSTALK

Communicator knows the features of your modem, so file transfers are as efficient as possible.

Routine tasks can be automated without programming, utilizing our LEARN feature. It records your keystrokes and automatically creates scripts in CASL[™], our industry standard scripting language. All you do is touch one key and replay when needed.

Plus, CROSSTALK Communicator includes offers for CompuServe, OAG[®], Dow Jones News/Retrieval and other on-line services worth over \$150.

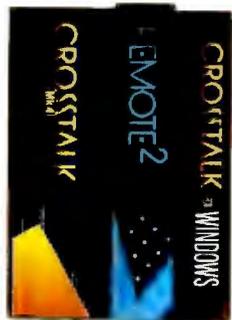
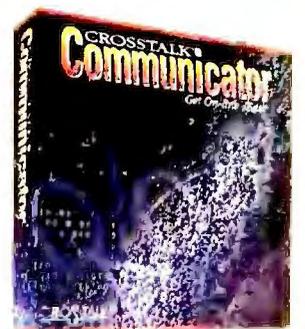


Trade in now for \$34.95.

There's also an economical upgrade path when you need communications products for networks, remote computing and Windows.

Best of all, CROSSTALK Communicator is a great deal at only \$99. And, for a limited time, you can trade in any asynchronous communications package, regardless of who you bought it from initially, and receive CROSSTALK Communicator for just \$34.95.* To order, call us at 1-800-289-4DCA ext. 67C. Could anything be simpler?

DCA



These products are an economical upgrade away.

*Limit one per customer. © 1990 Digital Communications Associates, Inc. All rights reserved. CROSSTALK is a registered trademark and CASL is a trademark of Digital Communications Associates, Inc. All other brand and product names are trademarks or registered trademarks of their respective owners.

We'd Like to Teach



Caere and Hewlett-Packard are sponsors of Project Literacy U.S. and Reading Is Fundamental® – our commitment to helping people around the world read as well!

the World to Read

...With *OmniPage*[®] and the ScanJet Plus.

By now most people have participated in the ongoing *Computer Revolution*, making great strides in personal productivity. Almost everyone today in business, government and education has access to a PC in one form or another.

And yet there are still computers that lack the one ability that most of us take for granted – the ability to read. This type of *computer literacy* is referred to as OCR (optical character recognition). Or in computer terms, scan text, numbers and graphics directly into applications files. It's the one capability designed to eliminate unnecessary typing or data entry. Plain and simple.

Well at Caere[®] and Hewlett-Packard we're committed to giving every PC in the world the ability to read – virtually any font, no matter what size or column format – directly into any PC or Macintosh[®] file. Think of it as a way to make every hard copy document in the office 100% compatible with your PC.

No small task you might say. But with *OmniPage*, pages of text or numbers can be scanned in minutes – directly into the most commonly used word processor, spreadsheet or database files. That's why *OmniPage* has become the world's most popular OCR software – the most powerful and expandable software found anywhere.

When combined with Hewlett-Packard's ScanJet Plus, *OmniPage* allows you to take on any assignment; from single page financial statements to multiple page documents. With the help of ScanJet Plus' Automatic Sheet Feeder, those lengthy, tough to scan documents require no special effort. With the click of a button everything is handled – automatically.

Unleash the untapped power of your personal computer. See what teaching your computer to read can do for you – whatever your business or profession. The ScanJet Plus, only from Hewlett-Packard. And *OmniPage* from Caere, the Complete Recognition Company.

Take the Caere/Hewlett-Packard Reading Test.

Go to any Caere/Hewlett-Packard dealer to learn how this complete OCR solution can make a difference for your business or organization – right now.

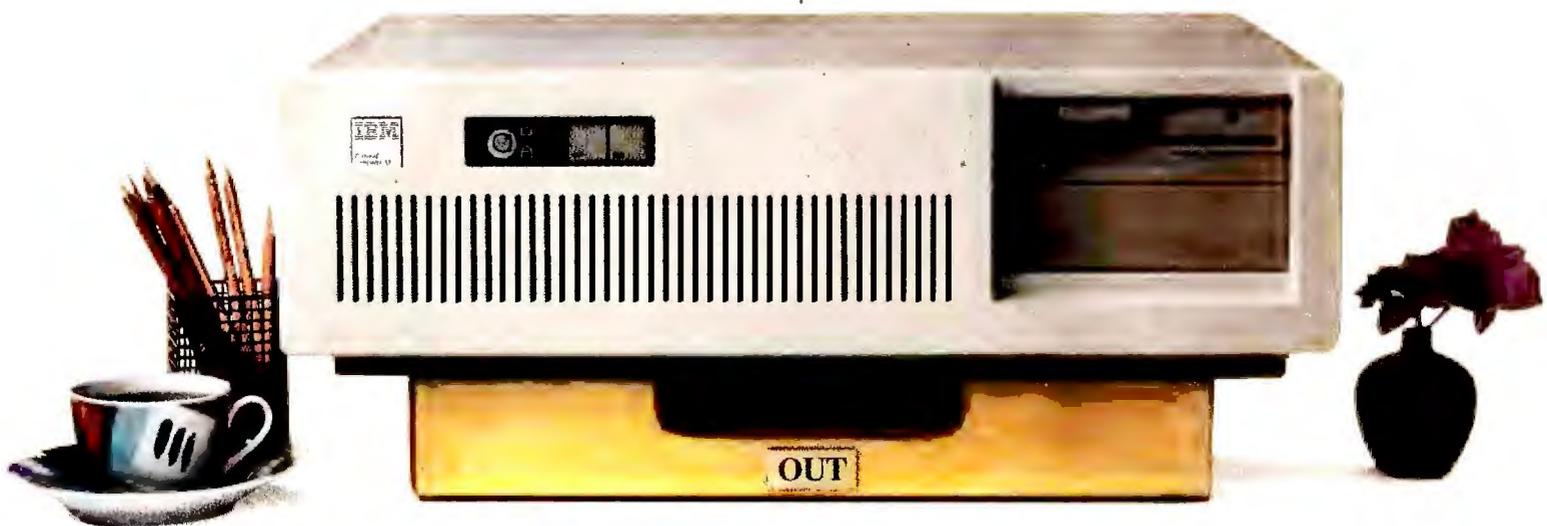


Circle 17 on reader service card

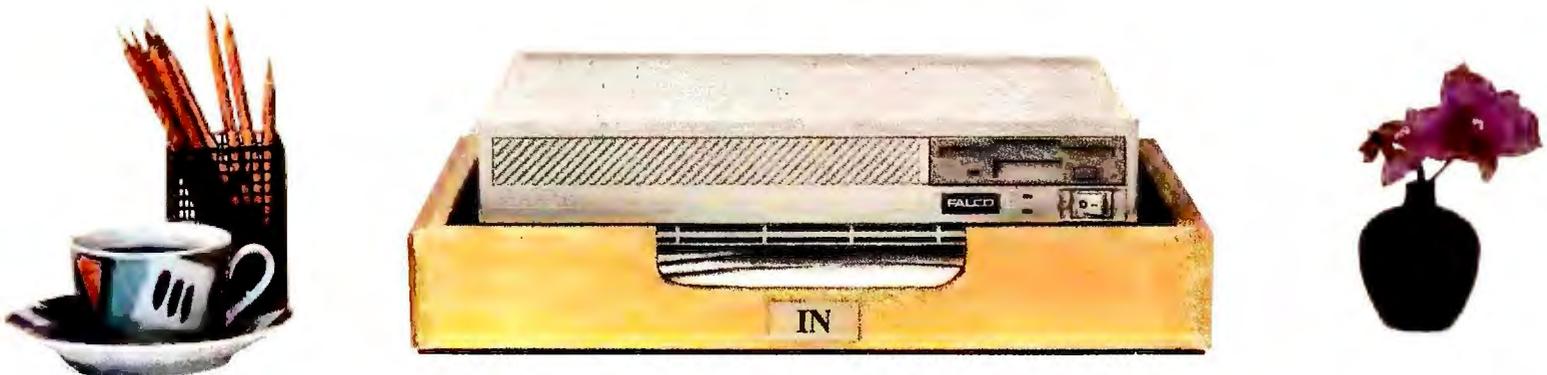
Caere Corporation
100 Cooper Court
Los Gatos, California 95030
Phone: 1-800-535-SCAN

CAERE[®]

BIG IS OUT.



SMALL IS IN.



Introducing the Falco Infinity Desktop Computer. The Smallest 386SX Desktop.

If you're sizing up desktop computers, you'll immediately see the advantage of the Falco Infinity™ Desktop. It gives you 386™SX power and performance without dominating your desk space.

Half the size of a standard PC, the Infinity Desktop has everything you need on-board: Peripheral interfaces like disk controllers. Memory expansion. Communication ports. And VGA® level graphics up to 1024 x 768 resolution. Plus, two AT®-compatible, 16-bit expansion slots.

It runs DOS™ 4.0, UNIX™, OS/2™ and Microsoft®



Windows 3.0. What's more, you can choose from four configurations, including a diskless network node and a full-featured model with 1.44MB floppy and the option of 40, 100 or 200 MB hard drive.

The only thing we left out is the noise. The Infinity Desktop runs so quietly, you'll hardly know it's on.

Whether you work in close quarters or spacious surroundings, the Falco Infinity Desktop covers all your needs. Without covering your desk. And that's about the size of it. To get one for your desk, call us today.

1-800-FALCO4U



440 Potrero Avenue, Sunnyvale, CA 94086-4117

Circle 77 on reader service card

Edited by ERIC BENDER

Windows, Graphics, CAD Packages Benefit

IBM Launches Successor to Popular VGA

XGA to Be Open High-Resolution Graphics Standard



Widely cloned and hugely popular, IBM's VGA gives PCs satisfactory graphics either free with the system or for as little as \$100 on the street. But if you're running multiple *Windows* packages, *AutoCAD*, or any of the other applications that get more graphic by the year, you probably want greater resolution, more colors, and snappier screen performance.

IBM, Texas Instruments, and other suppliers have been tussling for three years over how to take PCs past VGA's 640-by-480-pixel resolution. Now IBM aims to set the standard straight with its Extended Graphics Array (XGA).

First appearing in IBM's new 486 PS/2s (see the preview in this issue), XGA is a VGA superset capable of quick performance at up to 1024 by 768 pixels and 256 colors. It's optimized for graphic environments such as *Windows*.

Even more important, IBM is committed to publishing hardware details so that other vendors will rally around XGA. And by building XGA into the motherboard of the Model 90 desktop, IBM has sent a clear signal that VGA's successor has arrived.

"It's a good next step, and I'm glad it's coming from IBM," says Paul Grayson, chairman of Micrografx in Richardson, Texas. "IBM has been able to set the PC graphics standard at each turn."

If IBM puts XGA even on midpriced PS/2s, "and if it's a



The XGA adapter in IBM's 486 machines runs VGA software faster and displays 1024 by 768 resolution with up to 256 colors.

good architecture that runs *Windows* fast, it will have a profound impact," suggests Andrew Fischer, vice president for product development at Hercules Computer Technology in Berkeley, California.

Avoiding Past Mistakes

Of course, this is IBM's second try at moving the industry beyond VGA. The 8514/A adapter introduced with VGA in 1987 offered XGA's resolution and color mix. But IBM didn't publish the specifications (other vendors are only now starting to offer compatible boards). Also, 8514/A was clumsier and slower than XGA and worked only with interlaced monitors, whose flickering bothers users.

The result: "8514/A is still a very expensive proposition," says Michel Castro, an analyst with Dataquest in San Jose, California, and very little soft-

ware has been developed for it.

Texas Instruments beat IBM to market in 1986 with its 34010 graphics chip. An architecture that can support resolutions and color combinations

far beyond the capabilities of 8514/A, the 34010 was adopted by dozens of board manufacturers and is now in its second generation. But TI has also had difficulty rounding up software developers to support its hardware.

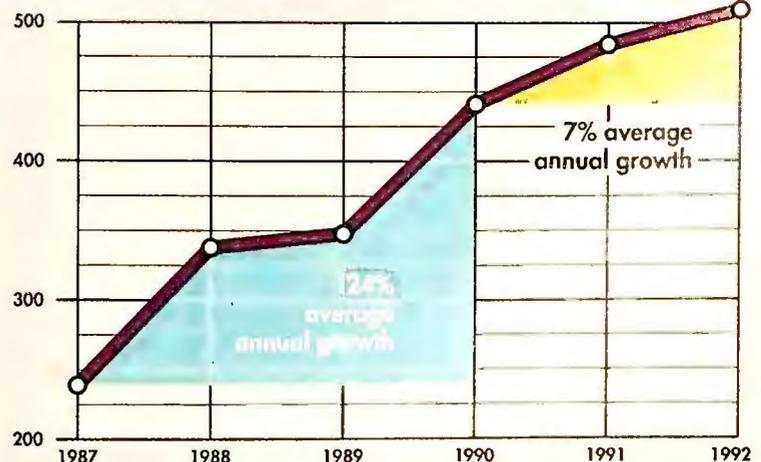
Meanwhile, board and monitor suppliers got together to push VGA to 800 by 600 resolution—"super VGA." Many also now offer 1024 by 768 modes, although speed, compatibility, and support problems have multiplied.

XGA will break this logjam of conflicting "standards." In time, rival vendors should drive the cost of an XGA board far below IBM's \$1095 introductory price.

Later, another XGA benefit—display of 65,536 colors at VGA resolution—will allow striking images that add to the appeal of multimedia software. "Humans are very sensitive to graphics quality," Grayson notes. "We need to get close as possible to the level of quality the human eye can see." —E. B.

Desktop Publishing Slows

U.S. retail units sold in thousands



Dataquest projects that the desktop publishing market will grow at a much slower rate, due to both market saturation and greater competition from word processing packages.

Service Issues Claiming Center Stage

Customers Want Direct Phone Support From Vendors

For years customers have demanded responsive, high-quality technical support and service for their PCs, but these cries fell on deaf ears. Increasingly, however, computer makers are getting the message and instituting new support programs—or touting existing programs—in the quest for customer loyalty.

“As sales slow down, we’re seeing more and more emphasis on service and support,” says Bruce Stephen, analyst with International Data Corporation in Framingham, Massachusetts. “At the low end, it gives companies a way of distinguishing themselves.” At the high end, where products are dedicated to mission-critical-type applications, “post-sale support is a requirement, not a luxury,” Stephen says.

Lorraine Junge, a micro-computer specialist with a Southern California corpora-

tion, has noticed big changes in support. “Vendors are beginning to realize that if they want to be here for round two, when corporations start replacing old architecture, they had better provide more [service] than they have in the past.”

Heeding the call, AST Research has beefed up its direct support options, converting to a toll-free technical support line and extending its hours of operation.

The Irvine, California, PC maker sells only through dealers and resellers and has traditionally relied on these two groups to handle most technical support questions, while offering its own hot line as a backup service. But customers want the option of talking to the vendor directly—without paying for the call, says Jim Schraith, vice president of sales and service for AST. He describes the enhanced direct

support options as a “safety net” for customers unhappy with dealer-provided service.

Rather Switch Than Fight

Customers need that safety-net option, insists Joe Dulworth, a systems analyst with Williamson-Dickie, a clothing manufacturer in Fort Worth, Texas. Dulworth used to buy only IBM and Compaq systems because of their reliability, but now he’s considering other vendors who promise direct access to technical support personnel.

Likewise, Chuck Davis, vice president of Computech Systems, an in-house purchasing and support organization for The Equity Group in Chicago, added Dell Computer, the large mail-order firm, to IBM and Compaq on his approved vendor list. “The price is what caught our attention, but the service and support is what made us stay,” says Davis.

Dell, which built its reputation around comprehensive support policies, recently extended the hours for its technical support line, added a fax service for customers who need technical documentation, and began offering training and service for customer in-house support staffs.

Demanding Direct Access

Davis, Junge, and other users say that direct access is now a criterion for doing business with a PC manufacturer. Junge believes field service engineers (like those employed by major PC manufacturers at their regional sales offices) can provide the assistance she needs to solve even complex problems.

But others are not satisfied with this option. “We need to

be able to talk to someone [at the manufacturer],” says Davis. His firm switched to Dell because “Compaq wouldn’t talk to its own grandmother.”

“Those who wish to stay in business had better set up their own support lines. It’s as simple as that,” says Seymour Merrin, president of Merrin Information Services in Palo



MARTHA LEONARD

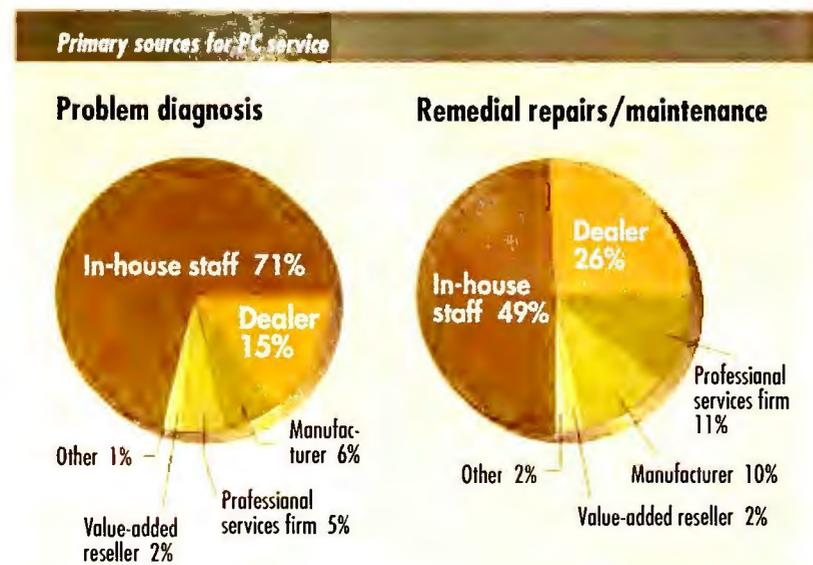
Dell Computer’s “service and support is what made us stay,” says Computech’s Chuck Davis.

Alto, California. “And Compaq is no exception. Customer patience is wearing thin.”

But Compaq continues its commitment to work through dealers and is skeptical of competitors’ support claims. “Some manufacturers’ hot lines are a joke,” asserts Ross Cooley, vice president of service and support. “We believe the dealer channel will rise to the occasion so long as manufacturers don’t block their opportunities.”

If a user can’t get a problem resolved through the dealer, the local Compaq sales office “is more than happy to take the problem and get the [resolution] process started.” But the dealer will always be included in that process. “Otherwise,” says Cooley, “the dealer never learns.” —Roberta Furger

Where Do You Turn for Hardware Support?



Among 500 Fortune 1000 companies studied by the Ledgerway Group, dealers rank second behind in-house staffs as a resource for diagnosing hardware problems and making minor repairs. However, many customers say that dealer support is no longer adequate for their needs.

Printer Sharing Solutions



**8 Parallel and 2 Serial Ports
Now Available With New SL**

SL 10 Ports from \$495

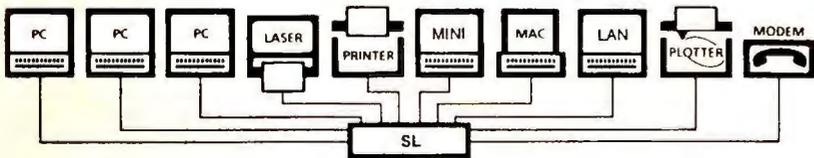
New Model - SLP™ has 8 parallel and 2 serial ports: The original SL™ has 4 parallel and 6 serial ports. Both can share any combination of ten printers or PCs; automatic switching, queuing, and serial-to-parallel conversion

Improved Data Throughput - True 115,200 bps: use other vendors' file transfer software with serial connected PCs

Pop-up Menu via Hotkeys: Keyboard selection of printers

Simple Installation: Just plug in your cables and run the menu-driven installation software

User Upgradable Memory: From 256KB to 4MB buffer



Save by Sharing Resources: The SL enables everyone to share lasers, printers, plotters, and modems. Greater access by more users reduces unproductive idle time and the expense of purchasing additional peripherals. All users can simultaneously send print data and quickly release their PCs to continue working.

BUFFALO

45 Day Money Back Guarantee

CALL TODAY (800) 345-2356

Fax (503) 585-4505

Buffalo Products, Inc. 2805 19th St. SE, Salem, OR 97302-1520



HWP

5 Ports from \$325

SPPS

Converter \$100

All ports are parallel and user configurable as either 3 inputs to 2 outputs with a pop-up menu, or 4 inputs to 1 output as a buffered auto-switch; memory is user upgradable from 256KB to 16MB buffer

AS-41

5 Ports \$200

4 parallel inputs to 1 parallel output, automatic switch with no buffer; use the AS-31 for up to 3 inputs to 1 output, \$175

CE

2 Ports from \$175

Printer buffer with 1 parallel input to 1 parallel output, from 256KB to 4MB buffer

Combination serial-to-parallel, or parallel-to-serial interface converter in a single unit, no power supply needed, serial transfers to 115,200 bps, DIP switch configurable

RCJ

Toshiba Memory Module

Memory expansion module for the Toshiba T1000SE, T1000XE, or J3100SS laptop (notebook) computer, 1MB - \$199, 2MB - \$299

Cables & Adapters

High quality, 24 gauge shielded cables, parallel or serial; modular cable adapters

IBM Spreads Software Bets

Windows Keeps Rolling Ahead

Whenever customers think they've nailed down a long-term strategy for software investment, another industry "partnership" pops up with yet another PC environment. IBM is introducing about one a year.

Called Patriot Partners and unveiled this past fall, the latest venture is a joint effort of IBM and Metaphor Computer Systems of Mountain View, California. Metaphor's object-oriented corporate-decision support system has won raves for its ease of use and analytical power.

The goal of Patriot Partners is to create a combination graphical user interface and object-oriented platform that will let developers port applications easily between OS/2, UNIX, and IBM's UNIX-based AIX. Not scheduled to ship until 1993, the new platform will accommodate emerging technologies that current environments are ill-equipped to handle, such as expert systems.

David Liddle, president of both Patriot Partners and Metaphor, hopes to bring the power of object-oriented techniques to the PC mainstream. "None of that yet exists in high-volume, widely available environments," he says. Additionally, he notes, future platforms must easily meld audio, full-motion video, animation, and other components.

But will hard-pressed PC developers put aside funds for yet another platform?

This is a "well-funded and serious attempt to do what has not been possible before," says Will Fastie, publisher of *The Fastie Report* in Baltimore. Like many others, however, Fastie doubts that most developers will rush to invest.

Windows on the World

The dominant environment of the nineties will be *Windows*, Fastie concludes. However brilliant the Patriot Partners software, "tens of millions of PCs will be running *Windows*

before the first Patriot system sees the light of day."

"For software developers, *Windows* is the only game in town," agrees InfoCorp analyst Bill Higgs. "New applications will be appearing on *Windows* first, then on OS/2 Presentation Manager as a sort of afterthought."

Applications written for OS/2 2.0 or later will be Patri-

ot compatible. Moreover, Microsoft has promised that *Windows* packages will run with a small performance hit under OS/2 2.0 and run well under OS/2 3.0. That means *Windows* investments should be protected as well (although Higgs questions how painless this upgrade path will be).

Liddle acknowledges that most developers have jumped on the *Windows* bandwagon. "For the spreadsheets and word processors that now dominate the market, there is no reason to move to another platform," he says. But he emphasizes that today's applications represent only a fraction of the ways software can be applied to business problems.

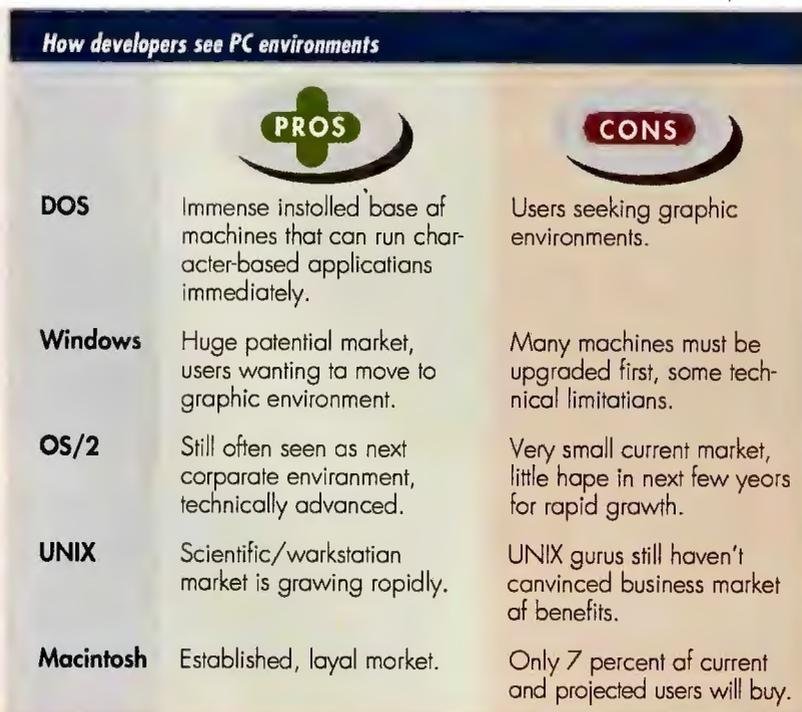
Users: Call If You Find Work

Most customers say they are indifferent to this debate about the future. "PC users are interested in applications, not operating environments," says Larry Heyl, a small-business consultant in Jonesboro, Arkansas. "Just because someone has a better idea doesn't mean you want to throw away what you already have," adds Brian Moura, assistant city manager of San Carlos, California.

However, *Windows* may be facing a backlash of sorts as users find that Microsoft was overly optimistic about its ease of use and speed. That opens up opportunities for ambitious new efforts like Patriot.

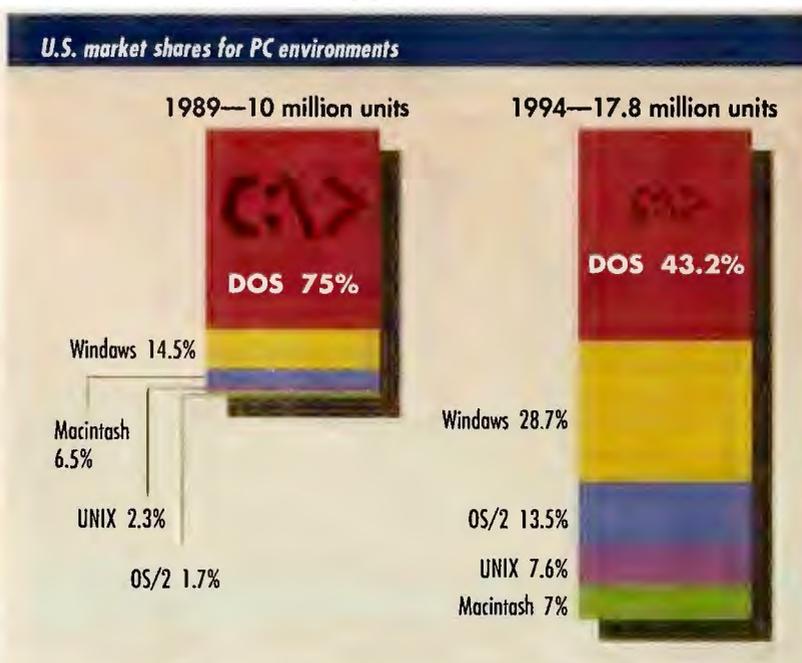
Still, IBM is by no means putting all its eggs in the Patriot basket. Big Blue has been on a buying spree of sorts, distributing resources to many often-conflicting efforts. These include various OS/2 flavors, the massive in-house *OfficeVision* effort, Steve Jobs's NextStep object-oriented system software, and Go Corporation's gesture-based environment—everything, in short, but *Windows*. —Alice LaPlante

The Developer's Choice



As the PC market fragments, software firms face tough choices on where to place development bets—choices that will dictate what customers can buy in years ahead.

DOS Yielding Dominance



By 1994, a far smaller percentage of personal computers will be delivered with DOS only, predicts International Data Corporation. Windows' market share will double.

**"When we say
anywhere, we
really mean
AnyWare."**



Take your business with you--anywhere you travel, the Acer AnyWare 1100LX laptop travels too.

Your business demands uncompromising performance and flexibility. The Acer 1100LX was designed with just that in mind.

The AnyWare 1100LX supports your current and future software needs by including the i386SX™ processor along with 1-5MB of memory expansion. A 1.44MB 3.5 inch floppy diskette, 40MB hard disk and 2400-bps modem are included to give you the flexibility and freedom to compete.

Ideal for hours in the airport lounge or at the kitchen table, the AnyWare 1100LX VGA screen's

exceptional brightness and clarity is easy on your eyes in any light or viewing angle.

Because you're "on the go," the AnyWare 1100LX laptop is compact, has a long battery life and when you are ready, recharges in just one hour. And its detachable keyboard offers the look, feel, and full key spacing of your familiar office PC.

Call 1-800-SEE-ACER for more information on the Acer AnyWare 1100LX. It's the no-compromise laptop that satisfies your no-compromise business demands.

The AnyWare goes anywhere, anytime, with you.

Acer 

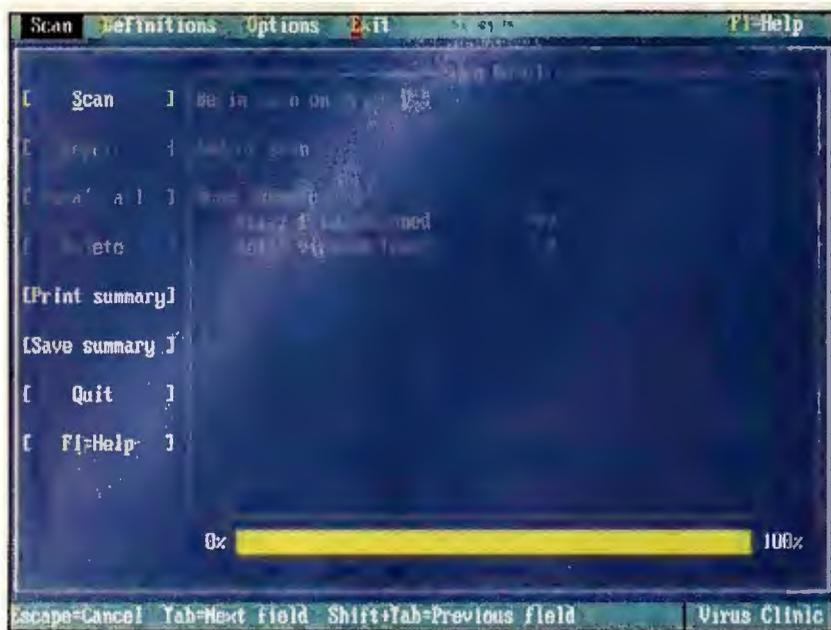
Your Global Partner in Computing

Acer, the Acer logo, and AnyWare are registered trademarks of Acer Inc. and Acer America Corp. in the U.S. and other countries. © 1991 Acer America Corp. All rights reserved.

Circle 3 on reader service card

Users Seek Defenses Against Viral Threat

Protective Packages Seek to Keep Up



Norton AntiVirus and some other vaccine packages post a memory-resident guard and scan disks for known viruses.

This is no longer just a bad dream: Computer viruses and other destructive software pose a real and present danger to an increasing number of users, who are girding their computers with a variety of protective programs.

Every corporate micro manager *PC World* interviewed had seen minor viral outbreaks, although none would admit suffering major data losses. PC managers don't like to talk about the problem, for fear of public embarrassment.

On the other hand, viral-security consultants are full of tales that border on the apocalyptic. "We've gotten calls of 'Oh, my gosh, we've lost 280 nodes of our 300 node network since eight this morning!'" says Peter Tippett, president of antiviral software vendor Certus International in Cleveland, Ohio. "I know of many major corporations that have been severely damaged by viruses," says Steve Gibson, president of Gibson Research

in Irvine, California. But Gibson and Tippett both say that the victims keep those incidents secret.

Viruses are usually introduced into companies through computer repair and system purchases, notes John McAfee, a security consultant in Santa Clara, California. When a virus hits, a computer technician usually runs a diagnostic program on the affected PCs. That infects the diagnostic program, which subsequently infects other PCs. Horror stories also abound of new PCs whose hard disks are unknowingly installed with software from virus-carrying floppy disks.

"Another threat is from demonstration software," says McAfee. "A salesman may give five or six software demonstrations a day. If his demo disk is infected, he'll infect every company he visits."

Customer Responses Vary

Many companies literally do nothing to protect themselves

from viruses. Others deploy antiviral software and train their employees in "PC hygiene." Some workers are prohibited from bringing in software from home PCs, or at least are required to scan the software for viruses before it's run on a company PC. Many companies deploy "virus SWAT teams" armed with antiviral tools. A frightened few, says McAfee, are overreacting wildly, spending millions to build bank vault-like "virus isolation rooms" for sequestering sick PCs.

An information engineer at an aerospace firm that has weathered numerous viral outbreaks says that his firm mandates PC hygiene courses for all employees. It also spends \$100,000 annually for memory-resident antiviral software for every PC, and has a lab with full-time technicians who screen every piece of software that comes in the door.

Investment Planning Services of Fairfax, Virginia, has tightened security on its Novell network, says network engineer Daryl Caudill, so that users "can execute software on the network but can't modify it." IPS also insists that employees put write-protect labels on floppy disks before taking them to the clients' offices.

A micro manager at a Big Six accounting firm that suffered one minor outbreak says that built-in hardware and software safeguards against viruses figure prominently in plans for the firm's new 2500-plus-node network.

Software Solutions?

Veteran antiviral packages like Certus's are being joined by products from larger firms, such as Symantec's *Norton AntiVirus*. Experts say that while there is no perfect defense, these packages can be quite effective. The two kinds of vaccine software—

scanning programs and memory-resident programs—are sometimes combined, as in *Norton AntiVirus*.

Scanning software such as McAfee's *Scan* checks a program or disk for occurrences of known viruses. The better programs will search for 200 or more viruses and are updated as often as every few weeks.

But "scan programs operate after the virus has already copied itself," points out William Hugh Murray, a Wilton, Connecticut, security consultant to Deloitte & Touche. "I want something that operates early." Murray advocates memory-resident programs, such as Certus's *Resident*, which check out each application before it loads and prevent the execution of unauthorized code. —Judy Heim

Has Your Firm Been Hit by Viruses?



Certus International, which sells antiviral software, polled more than a thousand U.S. corporations last year on viruses and other destructive software. A majority of firms had suffered at least one viral attack.



THE ONLY EXECUTIVE TOOLS MORE COLORFUL THAN THE GSX-140.

The GSX-140 is the ultimate executive business tool for office and home. It has proven to be the best in its class of 24-wire printers. Especially for a suggested retail of under \$500.00.

Like its wide carriage cousin the new GSX-145, the print quality rivals that of any printer in its class and its six resident fonts give you more flexibility to design your output.

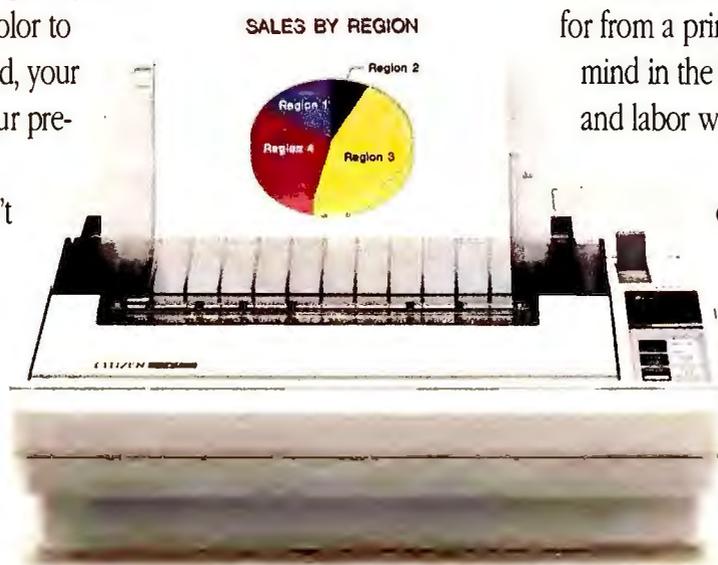
And, like all our new printers, it's equipped with our exclusive Color On Command™ feature which gives you the capability of installing dynamic color to make your spread sheets easier to read, your graphics easier to understand, and your presentations simply brilliant.

Speaking of ease of use, it doesn't take a MIS manager to operate the GSX-140 printer. That's because the Command-Vue™ control panel prompts you with plain English directions on its LCD panel. The "Quick" menu gives you instant access to the printer settings most

often changed. It remembers your four favorite software programs and sets them up just the way you like them, every time you use them.

Blending 192 cps, logic seeking, bidirectional printing and high speed paper feed, the GSX-140's high throughput design quietly cranks out page after page far faster than any of the competition.

What more could a busy executive ask for from a printer? How about peace of mind in the form of a 24-month parts and labor warranty.



Once you've tried the new GSX-140, it'll be easy to see how it makes your reports brighter and life easier. For the dealer near you, just call 1-800-441-2345, ext. 34 in Calif., 1-800-556-2345, ext. 34 outside Calif.

©1990 Citizen America Corporation.
Citizen, Color On Command, Command-Vue and the
Citizen logo are trademarks of the Citizen Watch Co. Ltd.

 **CITIZEN**

Circle 91 on reader service card

Mail Order Keeps Posting Sales Gains

Users Recommend Buying From Established Players

Atenth of all PC software and hardware arrives by mail, estimates BIS CAP International of Norwell, Massachusetts. Customers say mail order is a great way to buy—if you know exactly what you want and how to use it.

“We buy almost everything through the mail,” says Larry Schunk, director of management information systems for Cerro Gordo County, Iowa. County rules require Schunk to buy locally at up to a 10 percent premium. But he still buys mail order for 60 percent discounts on items like high-density floppies. “Retail prices are outrageous,” he says.

Historically, price has been mail order’s appeal. But the established players also get kudos for better service.

Mark Zuckerman, president of Managing Information Retrieval Associates in Roosevelt, New Jersey, couldn’t find the network version of some software at local stores. He called Computer Discount Warehouse (CDW) in Northbrook, Illinois. The salesperson asked how he was setting up the network, says Zuckerman. “Then he came up with a



Managing Information's Mark Zuckerman found mail-order bargains for his network.

better equipment list, better delivery time, and substantially better price.”

Other buyers laud the speed at which even unusual goods are delivered. “The vast majority of items we can pur-

But Tread With Care

However, some very shadowy firms also sell by mail; they set up shop just by buying an ad, and they go out of business just as quickly. PC companies account for a disproportionate

returns, which may be 25 percent of the sale price, and about other return policies for hardware that doesn’t work or just isn’t right. Software return policies can be even more stringent. PC Connection takes back unopened software within 30 days, CDW within 15. If you’ve opened it, odds are you’re stuck with it.

In general, “you have to



Union Carbide's Jane Husson finds that PC Connection can deliver almost all she needs.

chase through PC Connection,” says Jane Husson, buyer for Union Carbide in South Charleston, West Virginia. “If I call Monday before 4 p.m., by Wednesday they’re usually sitting here.”

CDW president Mike Krazny says his seven-year-old firm enjoys 70 percent repeat business. Thanks to high sales volume and modest fixed expenses, Krazny says CDW’s profit margins are several times the 2 percent to 6 percent mail-order average.

Profitability and sheer sales clout is bringing mail-order companies respect from large vendors. “I didn’t think this would ever happen, but a little over a year ago we became an authorized Lotus reseller,” says David Hall, executive vice president of eight-year-old PC Connection of Marlow, New Hampshire.

number of complaints to the Direct Marketing Association, says Lorna Christie, vice president for ethics and consumer affairs for the New York trade group.

Standard consumer warnings apply—starting with the need to check the company’s reputation. Look for ads in old issues of PC publications, suggests PC Connection’s Hall; the DMA advises calling the Better Business Bureau.

Shop for low quotes, but be wary of prices way below market, customers say. Established vendors are usually competitive; entrants who break in with extreme discounts need deep pockets and usually lack them. Pay with a credit card rather than cash.

Make sure you’re getting “fresh” parts still under manufacturer’s warranty. Ask if there are restocking fees on

know what you’re talking about,” says one user who buys parts for PC repair technicians at a large university. Installing the wrong parts sent by a mail-order house crashed university networks and caused enough havoc to make money-back guarantees meaningless, she cautions.

If trouble strikes, write *PC World's Consumer Watch* or the DMA’s Mail Order Action Line, 6 E. 43rd Street, New York, NY 10017. The DMA will contact the seller and, in cases of flagrant misconduct, will send the case to regulators. “Ninety-five percent of the problems are resolved to the customer’s satisfaction,” Christie says. —Mark Henricks

Alice LaPlante is a freelance writer in Palo Alto, California. ☺

PCs beat Macs for Illustration

REPORT CARD

AUGUST 20, 1990

**INFO
WORLD**

Illustration Software

	(InfoWorld weighting)	(Your weighting)	PC			MACINTOSH				
			Adobe Illustrator Version 1.0	Arts & Letters Graphics Editor Version 3.0	Corel Draw Version 1.2.1	Micrografx Designer Version 3.0.1	Adobe Illustrator Version 1.9.5	Aldus Freehand Version 2.0.2	CA-Cricket Draw Version 1.1.1	Canvas Version 2.1
Price			\$495	\$695	\$595	\$695	\$495	\$495	\$295	\$299
Performance										
Drawing/editing	(150)	()	Good	Very Good	Very Good	Very Good	Very Good	Very Good	Satisfactory	Good
Tracing	(50)	()	Very Good	Very Good	Very Good	Excellent	Very Good	Satisfactory	Poor	Good
Import/export	(50)	()	Satisfactory	Satisfactory	Very Good	Very Good	Good	Good	Satisfactory	Very Good
Speed	(50)	()	Satisfactory	Very Good	Excellent	Good	Excellent	Satisfactory	Good	Good
Output quality	(100)	()	Good	Good	Excellent	Very Good	Excellent	Very Good	Satisfactory	Satisfactory
Documentation	(100)	()	Very Good	Good	Very Good	Excellent	Very Good	Good	Satisfactory	Satisfactory
Ease of learning	(100)	()	Very Good	Good	Excellent	Very Good	Satisfactory	Good	Very Good	Good
Ease of use	(125)	()	Satisfactory	Very Good	Very Good	Very Good	Satisfactory	Very Good	Satisfactory	Very Good
Error handling	(75)	()	Good	Poor	Good	Good	Good	Very Good	Good	Very Good
Support										
Support policies	(50)	()	Satisfactory	Good	Good	Very Good	Satisfactory	Satisfactory	Satisfactory	Good
Technical support	(50)	()	Satisfactory	Very Good	Very Good	Very Good	Good	Good	Very Good	Very Good
Value	(100)	()	Satisfactory	Good	Excellent	Very Good	Very Good	Very Good	Satisfactory	Very Good
Final scores			6.0	6.4	8.2	7.7	6.9	6.8	5.4	6.5

Use your own weightings to calculate your score

GUIDE TO REPORT CARD SCORES

InfoWorld reviews only finished, production versions of products, never beta test versions. Products receive ratings ranging from unacceptable to excellent in various categories. Scores are derived by multiplying the weighting (in parentheses) of each criterion by its rating, where:
Excellent = 1.0 — Outstanding in all areas.
Very Good = 0.75 — Meets all essential criteria and offers significant advantages.
Good = 0.625 — Meets essential criteria and includes some special features.
Satisfactory = 0.5 — Meets essential criteria.

Poor = 0.25 — Falls short in essential areas.
Unacceptable or N/A = 0.0 — Fails to meet minimum standards or lacks this feature.
 Scores are summed, divided by 100, and rounded down to one decimal place to yield the final score out of 10 (plus bonus). Products rated within 0.2 points of one another are tied. InfoWorld readers can...

CorelDRAW wins InfoWorld Evaluation

In a pivotal InfoWorld product comparison, CorelDRAW running under Windows 3.0, beats all the leading illustration packages - Macs included! This shows the effectiveness of the Windows 3.0 graphical user interface and the power and ease of use of CorelDRAW, the world's finest PC illustration software.

Add Flair!

It's easy with CorelDRAW!



PANTONE® license included free

Call customer service: (613) 728-8200 for information and a free demo disk
 *Pantone, Inc.'s check standard trademark for color reproduction and reproduction materials.
 Requires MS-WINDOWS® 2.03 or 3.0

COREL
 Tel : (613)728-8200
 Fax : (613)728-9790

Circle 48 on reader service card

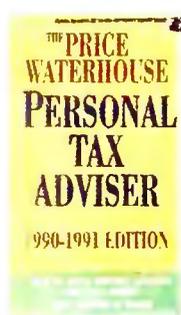
If You Can Find A Better Tax Program, We'll Buy It For You.

Even if you've never prepared a federal tax return, you won't find an easier, faster and more accurate tax preparation program than SWIFTAX.™ In fact, you may need the manual only for reference. This Final Edition of SWIFTAX contains all the 1990 approved IRS tax forms and schedules ... everything you need to complete and file your return.

And if you don't think it's everything we say it is, we'll buy you any other tax program you choose.

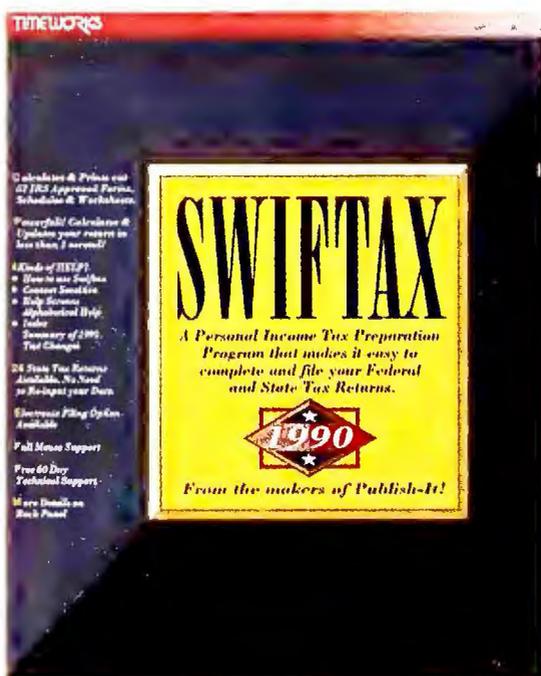
Here's How Easy It Is!

- **5 Kinds of Help:**
 - Summary of 1990 Tax Law Changes
 - A Quick-Start Mini-Manual™
 - Context-Sensitive Help Screens with On-Line IRS Instructions
 - Alphabetical Help Index for Specific Topics
 - Helpful Hints
- **A Taxpayer Interview** helps you select which forms and schedules you should complete
- **Tax Summary Window** summarizes your tax return on the screen
- **Full Mouse Support**
- **Automatic Timed Back-Up** saves your documents at user-specified time intervals
- **Free Technical Support Help Line.** Plus "900" support available 24-hours a day, 7 days a week.



FREE Tax Information & Planning Guide inside every program.

See your favorite dealer or order direct from Timeworks.
Call: 1-708-948-9206 Fax: 1-708-948-9212



From the Makers of Publish It!

**"In preparing my taxes,
SWIFTAX was a godsend!"**

- Jeff Eckert, INFO WORLD

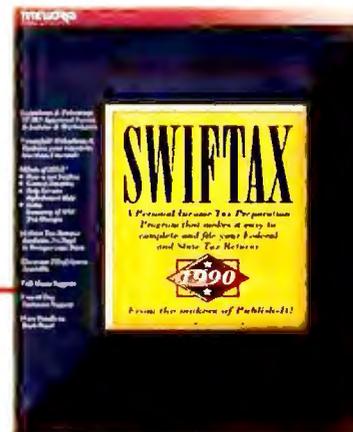
Timeworks® SWIFTAX Final Edition Guarantee

If you can find anything that works better for you, simply send us your SWIFTAX, your paid receipt, and the name of the tax program you want, along with your check or credit card information for any retail price difference. If it's available, we'll buy it for you.*

Here's How Powerful It Is!

- **Calculates, Completes and Prints Out 61 Forms, Schedules and Worksheets**, including IRS-approved replicas of 1040, 1040A, and 1040EZ – all you have to do is sign.
- **Automatic Linking** – forms, schedules and worksheets are linked and automatically updated when new data is entered.
- **Data Integrity Check** evaluates the completeness of your tax return.
- **"What If?" Scenarios** let you project tax alternatives.
- **24 State Tax Returns** are available and sold separately.
- **Audit Alert** advises you when your itemized deductions exceed the national average.†
- **Full EGA/VGA Support** – you can see 43 or 50 lines on your screen at one time.
- **Electronic Filing Option** lets you transmit your return via modem, or mail in your diskette for a quicker refund.
- **Interfaces with Quicken, Lotus 1-2-3, Dollars & Sense, and Managing Your Money.**

For IBM PC, PS/1, PS/2, Tandy and compatible computers. 512K and DOS 2.1 or higher required. Works with dot matrix and laser printers.



Suggested Retail Price \$79.95.

*Offer expires 30 days after date of original purchase

TIMEWORKS
444 Lake Cook Rd., Deerfield, IL 60015

Timeworks, Publish It! and SWIFTAX are trademarks of Timeworks Inc. © 1983, 1990 Timeworks, Inc. All rights reserved. Trademarks are property of the respective companies. †Based on the 1987 IRS Adjusted Gross Income Ranges

TWO-FISTED MANAGEMENT

TWO-FISTED MANAGEMENT

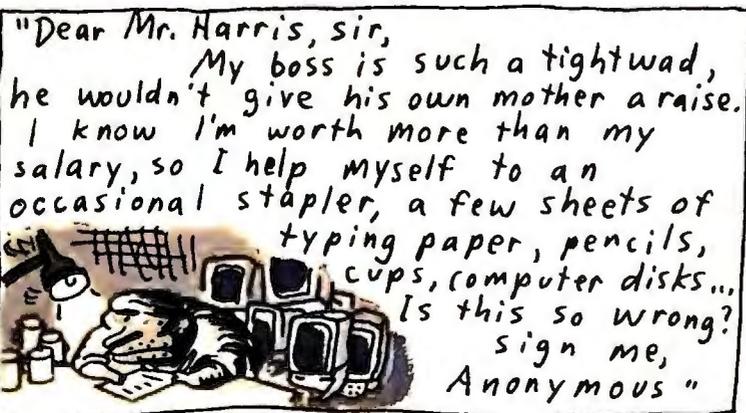
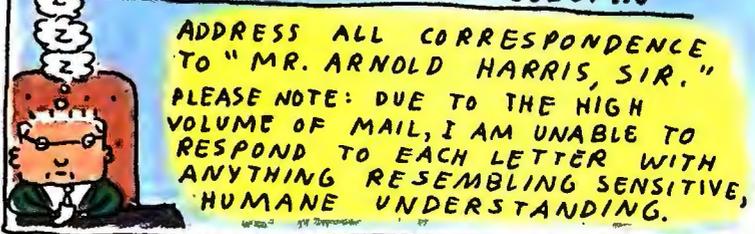
ANCIENT PROVERB SAY:



MARK, 34

"TELL IT TO THE BOSS"

TWO-FISTED ADVICE COLUMN



MARK MAREK



A

Do anything and you would

For 25 years, Epson® printers have placed ink on paper with fine-crafted precision and ever-increasing speed. Each character as impressive as the last. A feat that Epson 24-pin printers have



2 Year Warranty
*Just one more measure of how
dependable your Epson printer will be.*

accomplished 15 trillion times over.

Today, dot matrix is the most widely used printing technology in business. Of course, the most widely used dot matrix printers are made by Epson. The very



5 trillion times be good at it, too.

company that invented them two decades ago.

Epson printers—from dot matrix to laser to inkjet—are the epitome of reliability. But where there is brawn, there is also a brain. Consider Epson's ingenious SelecType™ control panel and

skillful SmartPark™ paper handling. These and other conveniences make operating an Epson as flawless as the printing.

We could go on. But you already have 15 trillion reasons to choose an Epson.

Engineered For The Way You Work.™

EPSON

PREVIEW

PC WORLD OFFERS FIRST IMPRESSIONS OF PRERELEASE HARDWARE AND SOFTWARE

IBM's Visionary New XPs

Sparkling graphics and plenty of room for memory and mass storage distinguish a new class of 486-based PS/2.



The PS/2 Model 90 XP offers snazzy XGA graphics and abundant internal storage.

Eric Bender



IBM's PS/2 XP 486 line finally pulls IBM abreast with its competition. This freshly christened, four-machine fleet—two Model 90 desktops and two Model 95 towers—offers 25- and 33-MHz 486 configurations and easily upgradable CPUs. Better yet, these flagship 486s boast a capacity for memory and drives that previous PS/2s can't touch.

The splashiest XP extra, however, is the next-generation graphics hardware that comes with every system. The Extended Graphics Array

(XGA) is built into all Model 90 motherboards and comes standard as an expansion board with all Model 95 towers. Like IBM's 8514/A board, XGA offers 1024 by 768 resolution with 256 colors, but IBM claims its performance is far superior. A special mode enables XGA to display up to 65,536 colors at standard VGA resolution, promising striking screen shows for multimedia and other upcoming applications (see the sidebar "XGA: Passing Tougher Screen Tests").

At the same time, IBM is fighting *Windows* mania with OS/2 1.3, a slimmer, faster version that offers more advanced multitasking than *Windows*

and may actually require about the same amount of memory. OS/2 1.3 is the first major PC environment to come with fonts that look almost the same on screen as they do on hard copy. Nonetheless, many customers will see this release as a placeholder for the full 32-bit OS/2 2.0 arriving early in 1991, which promises better performance and the ability to juggle multiple DOS applications.

The XP Performance Push

Like all 486s, XPs can handle tasks that eat ordinary PCs for lunch—manipulating big CAD drawings, multitasking under OS/2, running multi-user data base applications,

and other hairy jobs. The tower units offer a serverlike complement of drive bays and slots, but otherwise the tower and desktop configurations are internally nearly identical. Prices range from \$12,495 to \$17,745.

These machines leave relatively few questions unanswered about IBM's view of PC hardware for the nineties,

SNAPSHOT

IBM PS/2 Models 90 XP 486 and 95 XP 486

IBM's desktop and tower 486 machines offer expansion space galore plus snazzy XGA graphics.

KEY FEATURES

- Upgradable 25- and 33-MHz 486 CPUs
- Optional 256K secondary cache
- Up to 32MB of CPU-speed RAM
- Model 90 desktop holds five drives (up to 960MB storage) and has three available 32-bit Micro Channel slots
- Model 95 tower holds seven drives (up to 1.6GB storage) and has six available 32-bit Micro Channel slots

AVAILABILITY

Immediate

PRICING

\$12,495 to \$16,695 for Model 90 desktop, \$14,145 to \$17,745 for Model 95 tower

IBM

U.S. Marketing and Services
1133 Westchester Ave.
White Plains, NY 10604
800/426-2468

Reader service no. 660

starting with the removable CPU board that sits in a Micro Channel slot. This board holds the 486, memory controller, and related circuitry, making it easier to swap up to more powerful CPUs—such as the forthcoming 50-MHz 486—and to tap Micro Channel enhancements. The upgrade from 25 to 33 MHz costs \$2500.

All XP models come with 4MB of CPU-speed memory, which can be expanded to 32MB. The standard memory includes 70ns chips, so the upgrade from 25 to 33 MHz doesn't require new chips or added wait states. You upgrade with pairs of 1MB, 2MB, or 4MB single in-line memory modules (SIMMs). Eventually, IBM plans to supply 8MB SIMMs, allowing a total of 64MB of CPU-speed memory.

The memory architecture, which gives the 486 interleaved access to two 32-bit memory banks, promises solid performance. As a \$1995 option, IBM also offers a 256K secondary memory cache designed to speed multiuser and multitasking applications. Most competing boxes either have a hardwired secondary cache or can't be upgraded. IBM's flexible scheme ensures that if you don't need the extra cache, you don't pay for it.

Among other design tweaks, XPs store part of the BIOS on disk and copy it into RAM, aiding both performance and future upgrades. Throughput on serial ports has been boosted from 19,200 bits per second to a potential 345,000 bits per second to help the machines work with high-speed modems. Parallel and mouse ports are standard.

Unlike many 486 systems,



The most powerful PS/2, the Model 95 XP comes with six available 32-bit slots and space for five internal hard disks. Like the Model 90 it offers a bus-master SCSI controller, an upgradable CPU board, and an optional 256K cache. IBM intends to make the Model 95 the platform for the upcoming multiprocessor "super servers."

XPs have mass storage options that complement CPU power. All the systems take advantage of IBM's 32-bit SCSI bus-master controller, which is built in and handles up to seven SCSI drives—enough for multiple gigabytes of storage. IBM also offers a high-performance 2.3GB tape backup unit to match, for \$6550.

Model 90: Determined Desktop

The Model 90 is a little bulkier than the 386-based Model 70, at 17¼ inches wide, 16⅞ inches deep, and 5½ inches high. With XGA on the system board, the Model 90 offers

three available 32-bit Micro Channel slots. One of the slots has a special pass-through extension that hooks into XGA, accommodating such futuristic graphics options as IBM's M-Motion multimedia board.

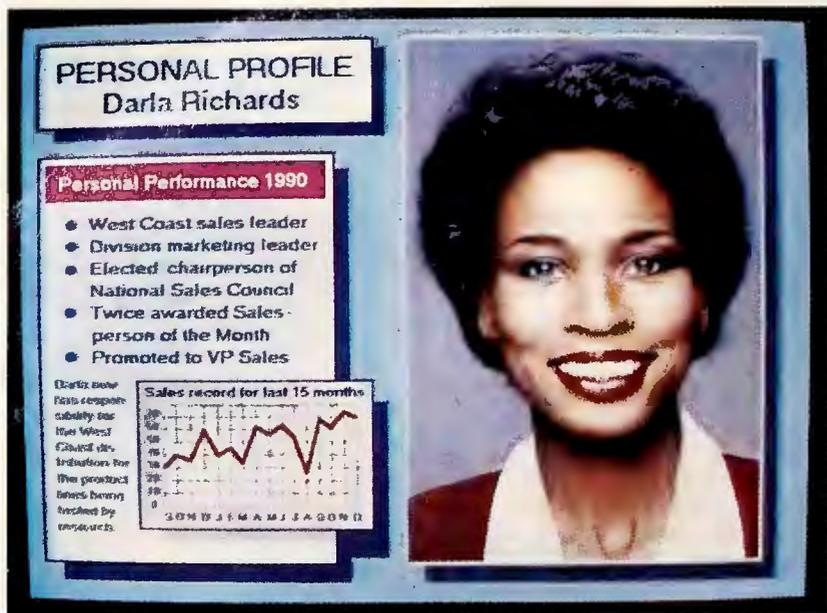
The desktop holds up to five storage devices. Two 5¼-inch bays can hold CD ROM drives, tape backup units, or even an optional half-height 5¼-inch floppy drive—a first for PS/2s. Three bays accommodate 17ms 80MB, 16ms 160MB, or 12.5ms 320MB SCSI drives, so that you can get up to 960MB of storage internally with IBM devices or more with devices from third-party suppliers.

On the motherboard, two vertical racks of sockets hold up to four SIMMs each. The power supply is 194 watts, and two serial ports and one parallel port are standard.

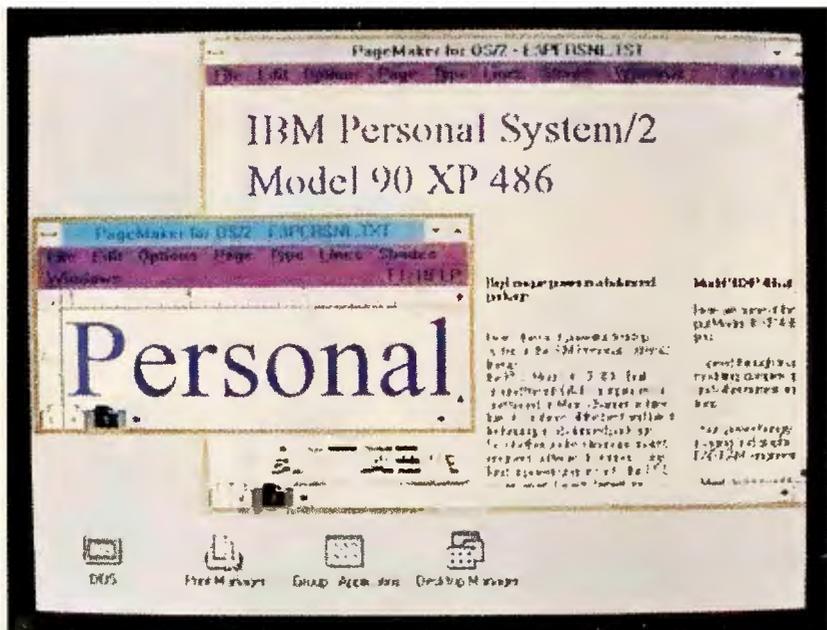
The 33-MHz Model 90 with 320MB drive comes in at \$16,695; the comparable Compaq Deskpro costs \$16,499. At the entry point, the 25-MHz IBM machine with 80MB lists for \$12,495; the closest Compaq alternative costs \$12,499 with a 120MB drive.

Model 95: Son of Tower of Power

The most powerful PS/2 is the Model 95, a tower slightly



XGA displays two-and-a-half times as many pixels as VGA, giving image quality a dramatic boost.



The slimmed-down OS/2 1.3 offers an on-the-fly font generator from Adobe. Its PostScript fonts look almost the same on screen as they do on hard copy.

shorter and squatter than the familiar Model 80 at 8 inches wide, 20 inches deep, and 19¾ inches high. This machine holds eight 32-bit slots, with six of them available. Two of the slots have XGA pass-through extensions; the SIMMs plug right into the system board.

The 95 stocks a 329-watt power supply and seven storage bays—two for floppy disks, CD ROM drives, or tape backup and five for hard disks. That means you can get up to 1.6GB with IBM drives, more with products from other suppliers.

IBM also offers a \$6500 external storage enclosure for SCSI devices, which essentially is a 95 box gutted of everything but a 320MB drive, power supply, and cables. (This box seems a bit dear, seeing that the drive itself costs \$5500.) You can pile in seven SCSI devices.

If you add more SCSI controllers and storage enclosures, you can grow the system to 28 hard disks and 8.96GB. You can sprinkle DOS, OS/2, AIX, and SCO UNIX across these drives and choose any one as a boot drive. (Those thrilled by this pros-

pect should note that while OS/2 supports 24 hard drives, DOS handles only 7, and you'll hit serious data transfer bottlenecks long before you install 24 drives.)

In some roles, such as network service, the Model 95 may well end up in a closet sans monitor. For these installations, the tower sports an 8-character LED diagnostic display in front.

A 33-MHz Model 95 with 320MB costs \$17,745—substantially more than the closest comparable Compaq and substantially less than Compaq's Systempro, whose 486 models begin at \$20,999.

Where's the Super Server?

You can't fairly pit the Model 95 against the Systempro in a King Kong-versus-Godzilla network server thriller. Targeting networks of three dozen or fewer workstations rather than much larger installations, the 95 omits Compaq's dual-processor architecture and proprietary Intelligent Drive Array disks.

However, IBM freely acknowledges that the 95 is a main building block for the "super server" shown in prototypes for more than a year, which IBM will hurl against the Systempro in the fullness of time. Among the missing components are a bus-master coprocessor card and bus-master network adapters.

Software probably represents a larger development hurdle. Both OS/2 and the associated OS/2 LAN Server need major enhancements to fully support the hardware potential of such systems. Compaq's in the same boat; only UNIX-based network operating systems currently chug along effectively on more than one processor at a time.

Polishing OS/2

With droves of software houses and corporate custom-

ers finally turning to *Windows*, IBM is preaching the virtues of OS/2 to fewer converted. And the OS/2 diehards are waiting for OS/2 2.0, the full 32-bit version that Big Blue expects to ship to selected customers by year-end.

But many also want OS/2 1.3—a downsized, faster 16-bit version—to run on their 286 and SX machines. They groaned about the prairies-full of memory gobbled up by earlier versions. Now IBM claims that OS/2 1.3 can run one DOS and two OS/2 applications in as little as 2MB of

SNAPSHOT

OS/2 1.3

IBM's better-tuned 16-bit OS/2 can run two OS/2 applications and one DOS package in as little as 2MB of memory.

KEY FEATURES

- Performance boost up to 25 percent for applications constrained by memory and 5 percent for others
- Adobe Type Manager offers matching PostScript fonts for screen and printer
- Print Manager solves many printer problems

AVAILABILITY

December 1990;
March 1991 for LAN Server 1.3

PRICING

\$340; free upgrade within 120 days of shipping for OS/2 1.1 and 1.2 customers and for OS/2 LAN Server 1.0 and 1.2 customers; \$830 for OS/2 Extended Edition 1.3; \$1040 for OS/2 LAN Server 1.3

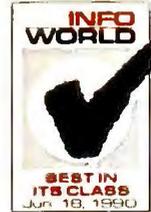
IBM

U.S. Marketing and Services
1133 Westchester Ave.
White Plains, NY 10604
800/426-2468

Reader service no. 661

New!
Version 1.2

Publish-It!™



In Less Than an Hour.

PUBLISH IT!—A full-featured desktop publishing powerhouse with word processing, page layout, typesetting and graphics.

For all its state-of-the-art ability, **PUBLISH IT!** is incredibly easy to learn—refreshingly so. **PUBLISH IT!** combines the familiar GEM User Interface, our Quick-Start Mini-Manual and a full complement of Help Screens. All designed to get you up and running in less than one hour!



Reports

Ads & Flyers

Newsletters & Bulletins

SPECIAL FEATURES:

- **Flexible Page Layout:** With your mouse or keyboard, you can overlap, reposition, resize, & reshape the text, columns, graphics.
- **More Typefaces and Sizes:** Choose from over 1350 possible type-style combinations! Opt for bold, italic, underlined, light, white, & superscript or subscript characters. Type sizes range from 7 to 72 point.
- **Premium Quality Printouts:** Gives you superior quality printouts on your laser or dot matrix printer.
- **Built-in Word Processor:** All the features necessary for everyday word processing, plus most of the sophisticated ones found only in more expensive programs.
- **Text Importing:** Load documents from WORDPERFECT, MICROSOFT WORD, WORDSTAR, WORD WRITER PC, or from programs with an ASCII text format.
- **Built-in Graphic Toolbox:** Draw lines, boxes, circles, curved corners, and "free-hand" graphics. Plus, choose from a wide variety of built-in line and fill patterns.
- **Graphics Importing:** Directly import graphics from LOTUS 1-2-3, GEM DRAW, GEM GRAPH, GEM SCAN, PC PAINTBRUSH, and PUBLISHERS PAINTBRUSH. Then crop and size them to fit.
- **Automatic Text Flow and Word Wrap.**
- **Multiple Size Page Views.**
- **Kerning and Leading.**
- **Over 150 Professionally Drawn Graphics & Illustrations.**

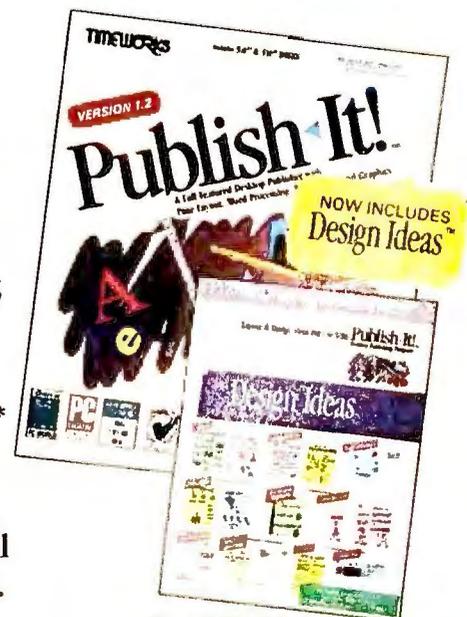
NEW FEATURES:

- **More than 85 Professionally Designed Layouts:** DESIGN IDEAS™. Choose from over 85 pre-designed formats. Easily create layouts for ads, brochures, newsletters & more.
- **Single Step Undo Function.**
- **More Compatibility!** Now compatible with: Hewlett-Packard Soft Fonts and DeskJet Printers, TIFF, Encapsulated PostScript and Splash! graphic formats.
- **Monospacing:** When using Typographica or Bitstream monospace fonts, you can now work in a monospacing mode.
- **Supports Downloadable PostScript fonts:** Now you can add additional PostScript fonts from sources such as Bitstream and Adobe.
- **Imports Encapsulated PostScript Graphics:** Now you can rotate your EPS graphics in 90 degree increments.
- **Extended Print to Disk Capability:** Now you can print to disk no matter what printer configuration you have.

Suggested Retail Price: \$249.95
Includes 5¼" & 3½" disks;
supports hard drive.

Upgrade Price: †\$29.95 + \$4.70*
(shpg. & handling). Total \$34.65
Send inside manual cover.

PUBLISH IT! is backed by a full
60-day, money-back guarantee.



For IBM PC & Compatible Computers

TIMEWORKS®

See your favorite Dealer or order direct from Timeworks, 444 Lake Cook Rd.,
Deerfield, IL 60015. Or call 1-708-948-9206. Fax: 1-708-948-9212.

PUBLISH IT! is a trademark of Timeworks, Inc. © 1990 Timeworks, Inc. All Rights Reserved. All other trademarks are of their respective companies.
† Does not include Design Ideas *Prices apply to shipments within the Continental U.S.

Circle 260 on reader service card

XGA: PASSING TOUGHER SCREEN TESTS

PC software is feeling a strong gravitational pull toward more sophisticated, more pleasing graphics. Building on IBM's 8514/A graphics technology, XGA is a direct response to this attraction and will likely set a new graphics standard.

While suppliers have competed vigorously to bring graphics more powerful than VGA to the masses, none of the new hardware has gained widespread software support. IBM aims to end the squabble, positioning XGA not as an add-on but as a standard for high-end PCs. In addition to being built into all Model 90 motherboards, XGA in its board incarnation comes with all Model 95s. IBM also will offer the board as a \$1095 option for the Model 55 SX and up.

"We're making it a public standard, just like we did with VGA," says an IBM spokesperson. IBM will release XGA specifications, encouraging other vendors to offer the technology—which means that prices will drop dramatically.

Like the 8514/A, the basic 512K version of XGA provides 1024 by 768 resolution in 16 colors. Add another 512K of video RAM, and it displays up to 256 colors. Hardware support for 132-column text mode is built in. IBM will ship XGA with drivers for Windows 2 and 3.0, OS/2 1.2 and 1.3, AutoCAD, and perhaps other applications. Like IBM's earlier 8514/A adapter, which left many users feeling they were paying for high-resolution flicker, XGA will drive IBM's

8515 and other monitors in interlaced mode.

Along with higher resolution comes the need for on-board graphics processing power, which XGA packs. Optimized for windowing environments, it also runs DOS VGA software up to 90 percent faster than VGA. XGA is also supposed to be considerably faster than the 8514/A (whose role now ends).

In a special 16-bit color mode with the added memory, XGA can handle up to 65,536 colors of standard VGA reso-

lution. This is substantially below the 24-bit photorealism of Truevision boards and similar products, but the images are still dazzling. This talent should be key for future graphics and multimedia applications.

IBM won't clarify its plans to slide XGA onto the motherboard of other PS/2s, except to say the 32-bit board-level product is tuned to work with 386s and 486s, so XGA won't appear on 286-based models. —E. B.

Color Graphics Standards

Adapters for PC business applications

Adapter	Year	Maximum resolution	Colors
CGA	1981	320 by 200	4
EGA	1984	640 by 350	16
VGA	1987	640 by 480	16
8514/A	1987	1024 by 768	256
XGA	1990	1024 by 768	65,536

XGA's resolution matches that of its immediate and unsuccessful predecessor, IBM's 8514/A. But this time, IBM has published the hardware specs, enabling competitors to create clone XGA boards that will probably cost half as much and sell like hotcakes.

memory. Performance has seen a significant boost as well, especially for packages that previously were memory-limited—these could see improvements of up to 25 percent, by early estimates. Hard disk requirements dip as low as 10MB.

OS/2 1.3 gets a brand-new

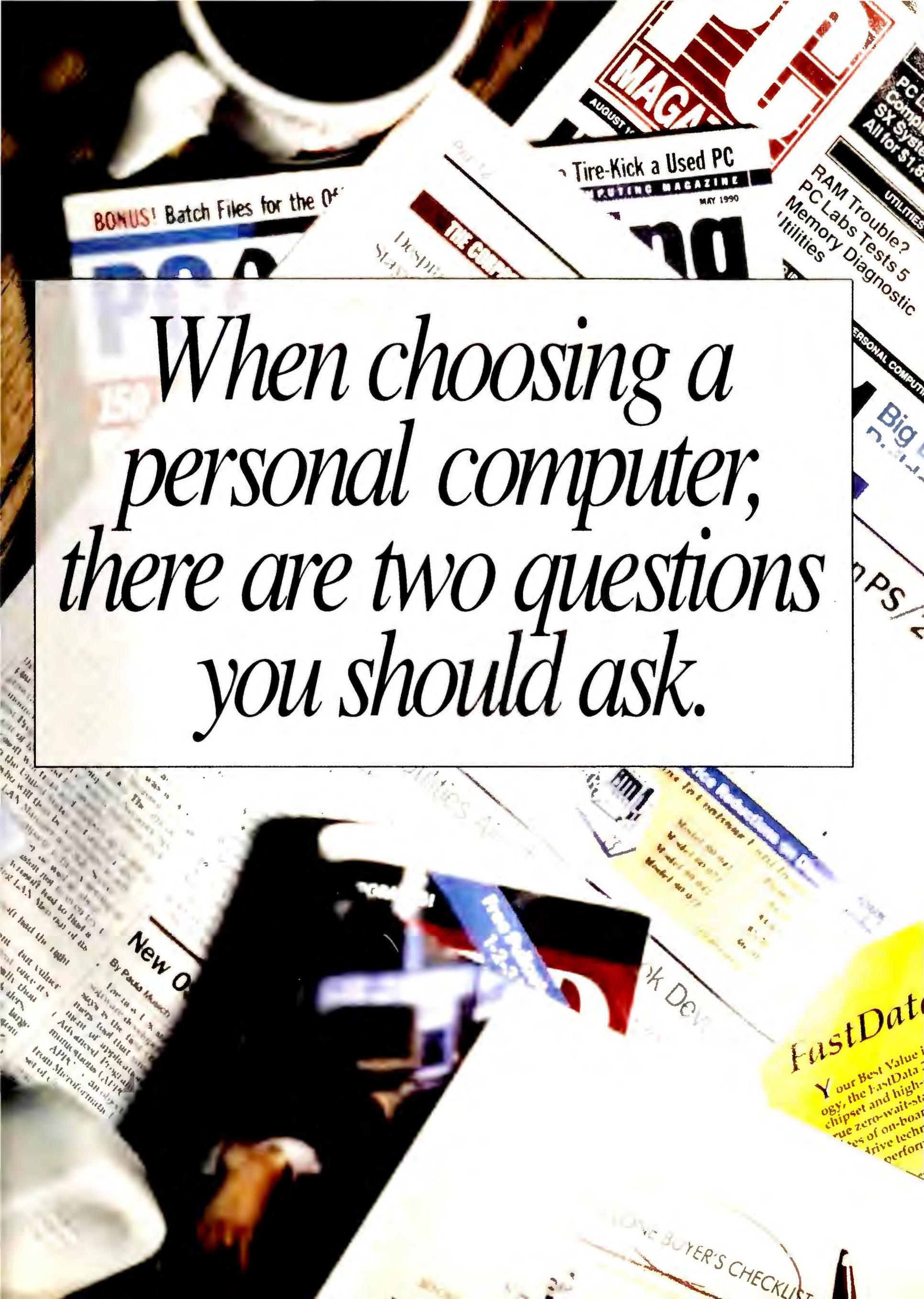
look by bundling Adobe Type Manager into the Presentation Manager user interface, so that all PM applications give you three scalable PostScript font families that match on screen and printer. Additionally, IBM has solved many of OS/2's exasperating printing weaknesses with a Print

Manager that makes it easier to install and configure printers and lets OS/2 talk to many more devices as well.

Earlier OS/2 releases gobbled memory and couldn't talk to most printers. The PS/2 Model 70 486 (previously IBM's top system) couldn't offer the mass storage and mem-

ory capacity to do a 486 justice. Now IBM has made up for these shortcomings. The XPs prove IBM can provide serious competition and—with super XGA graphics—set a new industry standard. ☺

Eric Bender is PC World's East Coast editor.



When choosing a personal computer, there are two questions you should ask.

New O

By Paula March

For in a 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

FastData

Your Best Value
ogy, the FastData
chipset and high-
true zero-wait-st
es of on-board
drive techn
perform

HOME BUYER'S CHECKLIST

Why FastData?

A personal computer is a large investment; before you choose, we want you to know what to expect when you purchase a FastData personal computer from FastMicro.

Superior Design.

You get more out of your FastData personal computer because we put more into it. We've been building PC's longer than most of the competition and we put that

experience to work for you. We use proven designs that pass our stringent performance requirements and compatibility standards so it will be sure to pass yours.

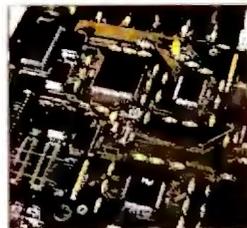


Better Components.

The whole is only as good as the sum of its parts; and FastData systems use some of the best parts in the industry. For example, each FastData

system ships with a Keytronics keyboard; Keytronics costs a lot more than others, but the quality is worth it.

Our systems use exclusively Toshiba floppy drives, the industry leader. Standard equipment includes other quality components from Western Digital, Phoenix, Chips & Technologies, just to name a few.



Service.

All FastData personal computers come with a full one year warranty, but that's just the start. In the unlikely event your computer is down, it is our goal to get back up and working as quickly as possible - and we back it up with action. Call us toll-free and we'll work with you to determine the problem; if a part breaks, we will send you the replacement part through our FastSHIP program - before the broken part is returned to us - and we'll pay the freight both ways. If our phone support or FastSHIP program can't solve your problem, we will service it on-site to most U.S. locations or replace your computer at no charge. Now that's service.



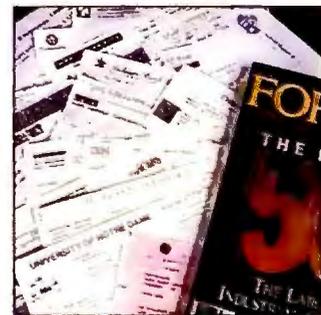
Selection.

Our face to face retail background has made us never forget that the customer comes first and that a personal computer is just part of a customer's overall needs. That's why FastMicro offers thousands of hardware and software products to enhance your new personal computer. In fact, our competition will probably tell you to call us when you need something to run on their personal computer.



Risk Free.

We pass the test for the choosiest of customers; in fact, FastMicro sells to over half of the Fortune 500 and Universities in 47 states (we're working on the rest). These people buy for a living and rely on us, you can too. You can do more than take our word on it - go ahead and purchase any FastData brand product from FastMicro and if you are not thoroughly satisfied after 30 days, you can return it for a full refund of the purchase price.



Circle 100 on reader service card

Which FastData?



\$1499 FastData 386/SX

Combine the benefits of an advanced Intel 386 processor, the value of a 286 and the advantages of FastData and you've got the FastData 386/SX! This machine is the choice of those who want to run today's powerful 386 and multitasking software, like Windows, and want to rip through their favorite programs, like Lotus and WordPerfect at blinding speeds. This machine is ideal to run the latest memory demanding and graphic software, right out of the box. We've made our customers' favorite options standard: it comes with an ample two megabytes of memory, a high performance 40mb hard drive, and 16 bit color VGA. Compare performance, features, and service and you will find no better SX value. Interested further? Try the FastData 386/SX for 30 days; you have to be happy - if not, we'll take it back.

Standard Features

- ✓ 16mhz Intel 80386-SX processor. (20mhz optional)
- ✓ 2 megabytes of zero wait-state RAM.
- ✓ 40 mb 28ms IDE hard disk, 1:1 interleave.
- ✓ 1.2mb 5.25" or 1.44mb 3.5" floppy drive.
- (Second drive add \$79)
- ✓ Standard chassis with keylock, speed and reset buttons. (Optional chassis add \$50)
- ✓ Five available drive bays.
- ✓ 200 watt power supply
- ✓ 14" VGA color monitor with 16 bit VGA card with 256K.
- ✓ Clock calendar, parallel port, and two serial ports. (Game port included on color systems)
- ✓ Keytronics 101 key keyboard.
- ✓ 8 expansion slots, 5 available.
- ✓ 80387-SX coprocessor socket.
- ✓ Full Shadow RAM and LIM 4.0 EMS support.
- ✓ Windows & Mouse add \$99.
- ✓ Compatible with DOS, OS/2, Windows, Xenix and Novell.
- ✓ FCC Class B approved.

System Price	40mb	65mb	80mb	100mb
Monochrome	\$1,199	\$1,269	\$1,399	\$1,469
VGA Color	\$1,499	\$1,569	\$1,699	\$1,769
VGA 1024	\$1,599	\$1,669	\$1,799	\$1,869



FastData 386/25 \$2099

The optimum combination of features, expandability, and power make the FastData 386/25 an ideal choice for those whose applications demand the most from a computer. Whether running as a network fileserver, CAD or graphics station, or power-user's workhorse, the FastData 386/25 handily meets the challenge. It comes configured with a whopping four megabytes of fast RAM, a superfast 22 millisecond 65 megabyte hard disk, and maximum VGA displaying 1024 by 768 resolution powered by a high-output 16 bit 512K VGA board. Plus, the FastMicro team will configure your FastData 386 exactly the way you want, without sending you shopping elsewhere. When evaluating 386-DX workstations, why even consider anything else?

Standard Features

- ✓ 25mhz Intel 80386-DX processor. (33mhz optional)
- ✓ 4 megabytes of zero wait-state RAM.
- ✓ 65 mb 22ms RLL hard disk, 1:1 interleave.
- ✓ 1.2mb 5.25" or 1.44mb 3.5" floppy drive.
- (Second drive add \$79)
- ✓ Standard chassis with keylock, speed and reset buttons.
- ✓ Five available drive bays.
- ✓ 80387-DX coprocessor socket.
- ✓ 200 watt power supply
- ✓ 14" Super VGA color monitor, 1024x768 resolution, with 16 bit VGA card with 512K.
- ✓ Clock calendar, parallel port, and two serial ports. (Game port included on color systems)
- ✓ Keytronics 101 key keyboard.
- ✓ 8 expansion slots, 5 available.
- ✓ Full Shadow RAM and LIM 4.0 EMS support.
- ✓ Windows & Mouse add \$99.
- ✓ Compatible with DOS, OS/2, Windows, Xenix and Novell.
- ✓ FCC Class B approved.

System Price	65mb	80mb	100mb	200mb
Monochrome	\$1,699	\$1,829	\$1,899	\$2,299
VGA Color	\$1,999	\$2,129	\$2,199	\$2,599
VGA 1024	\$2,099	\$2,229	\$2,299	\$2,699

FASTMICRO

For information or to order call:

1-800-441-FAST

Hardware

PRINTERS

ALPS Allegro 500 309
 Canon BJ10E 319

Citizen GSX140

Loaded with features, this 24 pin printer is a hot seller! It comes with 6 resident fonts, paper parking, and Epson & IBM printing modes. It does up to 192 CPS and has a unique LCD control panel that lets you set everything without DIP switches. Upgrade to color anytime for just \$39.

\$285



Citizen
 200GX 189
 GSX140 285
 Diconix 150 Plus 329
 FujitsuDL3400 419
 NEC
 P3200 275
 P3300 Call
 P6200 469
 P6300 635

NEC Silentwriter 2 Model 90 \$1645

PC Magazine's editor's choice! The new NEC model 90 comes with 2mb of memory, Postscript by Adobe with 35 fonts, and parallel, serial and Appletalk interfaces. All this and 6 ppm speed, an easy-to-use LCD operator panel and letter, legal, & envelope feed.



Panasonic
 KXP1180 165
 KXP1124 297
 KXP1624 429
 KXP4420 Laser 829
 KXP4450/4455 Lasers Call
 Seiko Smart Label Printer 167
 Star
 NX1001 149
 NX1500 299
 NX2410 249
 XB2410 / 2415 429 / 569
 Texas Instruments Microlaser PS35 1699

MONITORS

Mitsubishi
 1410 EGA 325
 Diamond Scan 1381 479
 NEC
 Multisync 2a 469
 Multisync GS 2a 199
 Multisync 3d 629
 Multisync 4d Call

Panasonic Super VGA \$439

The Panasonic C1381 will do VGA up to 1024x768 interlaced resolution. It has a dot pitch of .28 and is compatible with all standard VGA cards. Includes swivel base and VGA cable.



Panasonic C1381 VGA 439
 Princeton
 Max15 237
 Ultrasync 12" 479
 Ultrasync 14" (now 1024x768) 509
 Ultra 16 835
 Samsung Cali
 Seiko
 CM1440 519
 CM1450 659
 Sony 1304 Multiscan 669
 Zenith 1492 Call

BOARDS

ATI
 2400 ETC Internal Call
 2400 ETC External 187
 VGA Wonder + 256K 189
 VGA Wonder + 512K 229



ATI VGA Wonder + \$189

New and improved, the ATI VGA WUNDER+ is faster than VRAM. It does interlaced and non-interlaced 1024x768 modes, is 100% register compatible, and comes with extensive software drivers. A free mouse is included as an added bonus. 512K version \$229.

Brown Wagh Sound Blaster 149
 Everex
 1200B Int Modem 55
 2400B Int Modem 99
 EGA 480 Card 79
 RAM3000 16 bit RAM card 75
 RAM8000 16 bit RAM card 169
 Hercules Graphic Card + 169
 Intel
 8087-2 115
 287XL Faster than the 80287-10 199
 387-DX20 369
 387-SX16 319
 Logitech ScanMan Plus 165
 Orchid
 ProDesigner 179
 ProDesigner II 512/1mb 279/329
 Tiny Turbo 286 207
 Tiny Turbo Xtra 267
 Paradise
 Basic VGA - 8 bit 109
 VGA 1024 256K 175
 VGA 1024 512K 229
 Practical Peripherals
 1200B Int Modem 59
 2400B Int Modem 125
 2400B Int with MNP 169
 PM9600SA Ext. V.32/V.42bis 449

Toshiba \$549 100mb IDE Kit

Upgrade your 286 or 386 to IDE technology and Toshiba quality at a FastMicro price. This kit comes with a fast 20ms 105mb drive and built-in 1:1 controller, 16 bit IDE card with dual floppy controller and cables, 5.25" brackets and rails. Call our experts for all your drive needs. Model MK234FC.



Prometheus
 Promodem 1200B Internal 48
 Promodem 2400B Internal 98
 Promodem 2400B Mini-Pocket 119
 Promodem 2400G External 149
 The Complete PC
 Answering Machine 239
 Fax 4800 229
 Hand Scanner 400 139
 Tiara Networking
 Lancard/A PC (Arcnet) 75
 Lancard/E Star 8 (Ethernet) 139
 Lancard/E AT (16 bit Ethernet) 249
 USRobotics
 2400 Baud Internal 119
 2400 Baud External 147
 Courier HST 14,400 Ext. 579
 Courier HST 14,400 Int. 539
 Video 7
 VGA 1024i 256K 209
 VGA 1024i 512K 237
 Vega VGA 149
 V-RAM VGA 512K 355

POWER PROTECTION

American Power Conversion
 200DL UPS - XT Size 147
 450AT UPS - 386 Size 317
 Curtis
 Command Center 85
 Ruby Plus 59
 Datashield
 CPS-60 - 6 outlet surge 19
 S-85 - 6 outlet surge EMI/RFI protection 49
 S-100 - adds modern protection 57

FastData Products

FastData 16 Bit VGA

The FastData 16bit VGA card features 256K of video memory, does CGA, EGA, & VGA up to 1024x768 and comes with drivers for popular software including Windows 3.0. It's expandable to 512K and has a 30 day money-back guarantee.

\$95

256K Vers.

\$125

512K Vers.



FastData 16bit 1mb VGA 169
 FastData CGA Card 35
 FastData MGP Card 35

FastData 2400 Baud Internal Modem

The FastData 2400 baud internal modem is fully Hayes compatible and can be configured to COM port 1-4. It has an internal speaker, is auto answer & auto dial, and comes with BitCom software.

\$69

9600B SendFax w/ 2400B Modem 99
 MFM 16 Bit 1:1 Hard/Floppy Disk Cont. 59
 Parallel/Dual Serial/Game Card 35
 XT 1.44 Dual Floppy Controller 35

FastData Monitors

Your best value, we have a complete line made for us by leading manufacturers like Samsung & Hyundai. Like all FastData products, you have a full 30 day money back guarantee. Shown is the VGA Color for \$279.



FastData Monitors
 12" Amber Monochrome 79
 14" Amber Monochrome 119
 14" White Monochrome 119
 14" White VGA Monochrome 129
 14" CGA Color .52 dot pitch 199
 14" VGA Color .39 dot pitch 279
 14" VGA Color .31 dot pitch 319
 14" Super VGA 1024 x 768i .28 dp. 349

DISK DRIVES

Colorado DJ-10 40-120mb Int. Tape 249
 Conner
 CP3044 40mb IDE 28ms 299
 CP3104 100mb IDE 25ms 499
 CP3208 200mb IDE 25ms 849



Mitsubishi 60mb AT Kit \$349

RLL encoding, 1:1 controller, and 22ms access time make this a quick performer. The perfect upgrade for your 286 or 386 compatible, this kit comes with everything you need including controller and cables.

Micropolis
 MC1664 340mb ESDI 14ms 1395
 Miniscribe 80mb IDE 19ms 479
 Mitsubishi 60MB AT RLL MR535 269
 Seagate
 30MB XT Kit #238 w/ cont. & cables 249
 40MB AT #251-1 MFM Drive 259
 Teac
 720K 3.5" Floppy 59
 1.2MB 5.25" Floppy 69
 1.44MB 3.5" Floppy 69

Toshiba 1.44mb Floppy Drive \$79

Complete with mounting brackets and installation instructions, this Toshiba works in all true 286 & 386 compatibles. Will also read/write/format 720K 3.5" disks. Rails, add \$5.



Toshiba
 360K 5.25" Floppy (Black) 69
 1.2MB 5.25" Floppy 79
 1.44MB 3.5" Floppy 79
 65mb MK134 22ms RLL drive 279
 100mb MK234FC IDE 3.5" drive 499
 Western Digital Disk Controllers
 WD 16 bit IDE Host - Floppy/No Floppy 39/49
 WD1006V-MM2 MFM AT 1:1 Controller 79
 WD1006V-SR2 RLL AT 1:1 Controller 89
 WE1007V-SE2 ESDI AT 1:1 Controller 149
 FastData Disk Controllers Listed Above

FastData 286/12 \$799

Imagine a fast 286 computer at a super price and you've got the FastData 286/12. This system is complete, not stripped. You get one megabyte of zero-wait-state memory and a 28ms IDE hard disk - standard. Also included is an amber monitor and graphics card, your choice of a high density 1.2mb or 1.44mb floppy drive and a Keytronics keyboard. And since it's a FastData, you are backed with toll-free technical support, one year warranty with the FastShip replacement program & on-site service plan, and our 30 day full money back satisfaction guarantee!

- ✓ 12mhz 80286 processor.
- ✓ 1 megabyte RAM.
- ✓ 40 mb 28ms hard disk 1:1 interleave.
- ✓ 1.2mb 5.25" or 1.44mb 3.5" floppy drive
- ✓ Standard chassis (shown with optional chassis - \$50)
- ✓ Five drive bays.
- ✓ 200 watt power supply.
- ✓ 287XL coprocessor socket
- ✓ Monochrome monitor with monochrome graphic board.
- ✓ Clock calendar, parallel port, and two serial ports.
- ✓ Keytronics enhanced 101 keyboard.
- ✓ 8 expansion slots, 6 available.
- ✓ Full documentation.
- ✓ FCC Class B approved.



System Price	40mb	65mb	80mb	100mb
Monochrome	\$799	\$869	\$999	\$1,069
VGA Color	\$1,099	\$1,169	\$1,299	\$1,369
VGA 1024	\$1,199	\$1,269	\$1,399	\$1,469

Software

DATABASE

Clarion Personal Developer	45
Clarion Professional Developer	449
Clipper 5.0	489
DataEase	459
dBase III+	439
dBase IV	479



Personal R:Base \$69

Who's says powerful relational databases are expensive. Not with the new easy-to-use Personal R:Base. It has intuitive pull-down menus that let you query your data, build quick forms and reports automatically and even build applications without complex programming.

dBXL Diamond	129
Foxbase Plus	177
FoxPro	417
Paradox 3.5	489
Personal Rbase	Call
Q & A	214
RapidFile	99
Rbase for DOS	447
Reflex	159

DESKTOP PUBLISHING & GRAPHICS

Autos/etc 3.0	185
Corel Draw	309
Design CADD 3-D	185

Corel Draw \$309

Winner of all the top awards, Corel Draw gives you more for your money. It supports the new Windows & includes incredible drawing and editing tools. Includes over 100 typefaces and 300 pieces of clipart. CorelTrace converts scanned art to smooth vector images in seconds. This is the most complete illustration package we've ever seen!



DrawPerfect	265
Freelance Plus	307
GEM Desktop Pub.	159
Generic Cadd Level 2 Starter Kit	99
Generic Cadd 5.0	Call
Harvard Graphics	289
Pagemaker	479
PC Paintbrush IV Plus	109
Perspective Jr.	69
PFS:First Publisher	89
Printshop	33
Publisher's Paintbrush	149



Harvard Graphics \$289

The leading business graphics package, Harvard Graphics lets you create superior charts and graphs with ease. Plus, it comes with advanced drawing tools and symbol libraries, imports Lotus spreadsheets, and 3D features.

Publish It!	135
Ventura Publisher Gold for Windows	519

FINANCIAL

Edron Integrate Acct.	145
DAC Accounting 4.0	79
DAC Bonus Pack 4.0	119
Dollars & Sense	Call
Managing Your Money	113
Peachtree Complete III	139

Peachtree Complete III \$139

A super value! Includes General Ledger, Accts. Payable, Accts. Receivable/Invoicing, Purchase Order, Payroll, Inventory, Job Cost, Fixed Assets and more. Loaded with over 450 reports, automatic backup and helpful manuals.



Peachtree with Data Query	209
Quicken	36
Wealth Builder	129

INTEGRATED

First Choice	99
LotusWorks	89
SmartWare II	417
Symphony 2.2	489
Windows 3.0	89
Works	89

MICE

Neonics Professional	51
Logitech HiRes C9 Serial	65



Logitech C9 Serial Mouse \$65

Our best-selling mouse is top rated also. Comes with software to adjust the resolution just the way you want it and includes driver software and Pop-Up-Dos to make your computer hum at your fingertips. For PaintShow, add \$15.

Logitech HiRes C9 Bus	76
Logitech Trackman Serial	75
Logitech Serial w/Windows	127
Microsoft Serial or Bus Mouse only	83
Microsoft Serial or Bus w/ paint	95
Microsoft with Windows 3.0	147
PC Mouse II Serial or Bus	79

PROGRAMMING

Macro Assembler	89
Microsoft C Compiler	303
Turbo C++	127
Turbo Pascal	90
Quick Basic	60
Quick C	60
Quick Pascal	60

SPREADSHEETS

ways	106
Excel	309
Lotus 1-2-3 version 2.2	325
Lotus 1-2-3 version 3.1	Call
Lucid 3-D	53
Quattro Pro (call for details)	89

Lotus 1-2-3 Version 2.2 \$325

The standard for spreadsheets Lotus 1-2-3 version 2.2 is faster and more powerful than previous versions that made it famous. Includes add-in manager and more functions for greater flexibility. Also comes with Allways for great presentations made easy.

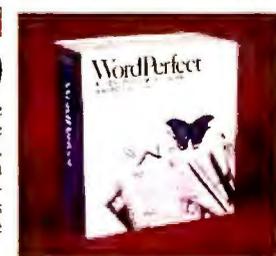


WORD PROCESSORS

GEM First Word Plus	57
Grammatik IV	49
LetterPerfect	119
Multimate 4.0	267
Professional Write	149
Rightwriter	58
Sprint	117
Word	209
Word for Windows	309

WordPerfect 5.1 \$239

What can we say? WordPerfect is the #1 rated word processor and the top selling software in the U.S.A. Its got almost every feature imaginable and yet it is easy to use. The current version adds pull-down menus, mouse support, table creation and equation editor. Add this to the best software support in the business and you can't go wrong!



Word Perfect 5.1	239
Word Perfect Add'l Station	153
Word Perfect Office	79
WordStar Professional	Call

WINDOWS SOFTWARE

Adobe Illustrator (Graphics)	279
Adobe Type Manager (Utilities)	59
Ami (Word Processing)	115
Ami Professional (Word Processing)	287
Asymetrix Toolbook	279
Corel Draw (Graphics)	309
DBFast/Windows (Database)	239
Excel (Spreadsheet)	299
Form Publisher (Desktop Publishing)	139
Grammatik IV for Windows (Word Processing)	49
PC Paintbrush for Windows (Graphics)	77
Pagemaker (Desktop Publishing)	479
Publisher's Powerpak for Windows	45

Windows 3.0 \$89

The graphical user interface everyone is talking about! Turns your 286 or above with 640K or more of memory into a powerful multitasking workstation that runs even non-Windows applications. Plus, if you buy Windows now from FastMicro, we'll throw in 10 of the best Windows shareware programs.



Micrographix Draw +	149
Micrographix Designer	459
Microsoft Mouse w/ Windows 3.0	147
Windows 3.0	89
WingZ for the PC (Spreadsheet)	309
Word for Windows (Word Processing)	309

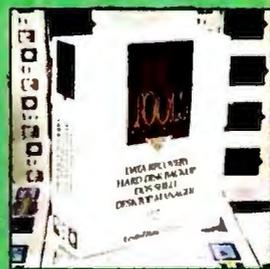
Utility Software

Central Point Backup	59
Compu	69
Copy	60
Copy	109
Copy	68
Copy	115
Copy	57

Norton Utilities 5.0	109
PC Anywhere III	59
PC Tools Deluxe 6.0	85
Per:Form Designer & Filler	155
PFS:Preface	43

PC Tools Deluxe \$85

Get the collection of utilities that's won every award we've ever heard of! Includes Dos shell, desktop manager, disk cache, and data communications. Also includes hard drive utilities such as DiskFix, undelete, unformat, backup and recovery. It also has Fax support, a special version of LapLink, and even more!



ProComm Plus	65
Prodigy	25
QEMM 386	54
QRAM	43

DESQview 386 \$115

Bring multitasking to your 386. Includes DESQview, the award-winning multitasking environment. Also includes QEMM386, the memory manager for 386 machines that makes DESQview scream and can repair your TSR programs and transform your extended memory into expanded (EMS 4.0) memory. Includes Manifest Memory Analyzer as an added bonus!



Windows 3.0	109
Plus	109
Go	52
	85

Central Point Backup \$59

The fastest and easiest to use award winning backup software. Includes backup, restore, and archive utilities. Also includes backup, restore, and archive utilities. Also includes backup, restore, and archive utilities.



SideKick Plus	59
Sideways	85
Super PC Kwik	59
XTree Pro Gold	59
	85

\$52 ProComm Plus

Brings unequalled power to your modem! Includes 16 popular terminal emulations, 12 error-correction file transfer protocols, and a powerful script language. And it's easy to use and comes with an easy to understand manual and context sensitive help.



SideKick Plus	119
Sideways	37
Super PC Kwik	43
XTree Pro Gold	75

For Information on Products Not Listed Above, Call Toll-Free: 1-800-441-3278



TERMS: No Charge for Visa or MasterCard. Shipping & handling charge: 3% (Min. \$4). Product warranties, offers & claims are handled by the manufacturer. Compatibility is not guaranteed. DOA's repaired or replaced at our option. Unopened returns get full refund. No returns on used items. * All opened returns are subject to 15% restocking fee. Call for return authorization (RA) number first. Shipping is not refundable. Sorry, no COD's. Personal/company checks delay shipping. APO addresses add \$15 per box. Prices/availability subject to change. Purchase orders accepted from approved corporations only. AZ orders add 6.7% tax.

* Excludes FastData products.
Mailing Address:
3655 E. LaSalle St., Phoenix, AZ 85040
To place orders call: 800-441-3278
For customer service call: 602-437-0300

Introducing the only expandable, customizable laser font cartridge.

Why One New Multi-font Cartridge Has Everyone in the Office Talking... and Smiling!



"Unlimited fonts, headline type, logos and our own graphics. It's simple to use. That's super!"



"More productivity. Better results. Lower costs. That's great!"



"It has 3.6 and 4.8 point spreadsheet fonts. That's good."



"Forms and letterheads on plain paper. No tray changes and tedious downloading. That's wonderful."

The Revolutionary 25 Plus/Charisma Builds Productivity.

Accounting has to print a spreadsheet. That means changing cartridges for a small font. Billing has to print invoices. That means another font change and reloading the paper tray. Marketing has to print a classy sales proposal. Then there's routine correspondence and prospecting letters. 25 Plus/Charisma keeps your HP Laser Printer from becoming the center of an office log jam.

- **Master Cartridge:** all 25 HP "A to Z" fonts (Letter Gothic, Tms Rmn, Helv, Prestige Elite, Math etc) plus Zip Codes, Bar Codes, Z-Bats, 24&30 pt. headline fonts, and 3.6&4.8 pt. fonts for spreadsheets all for \$399.
- **Typeface Modules:** add other typefaces like *Avante Garde, Park Place, Garamand, etc.* on individual modules for \$99 each.
- **Custom Modules:** store company logos, graphics, signatures and letterheads, and up to 20 forms on a module. Cut outside printing costs by using plain paper and your custom module.
- Everything stays resident in the printer. The Master Cartridge holds up to 4 modules at a time to eliminate downloading and tray changes.
- Free lifetime warranty



BUSINESS APPLICATIONS, INC.

28 Rt 3 North Millersville, MD 21108
 Patent Pending Copyright 1990
 Phn (301) 987-9050 Fax (301) 987-9053

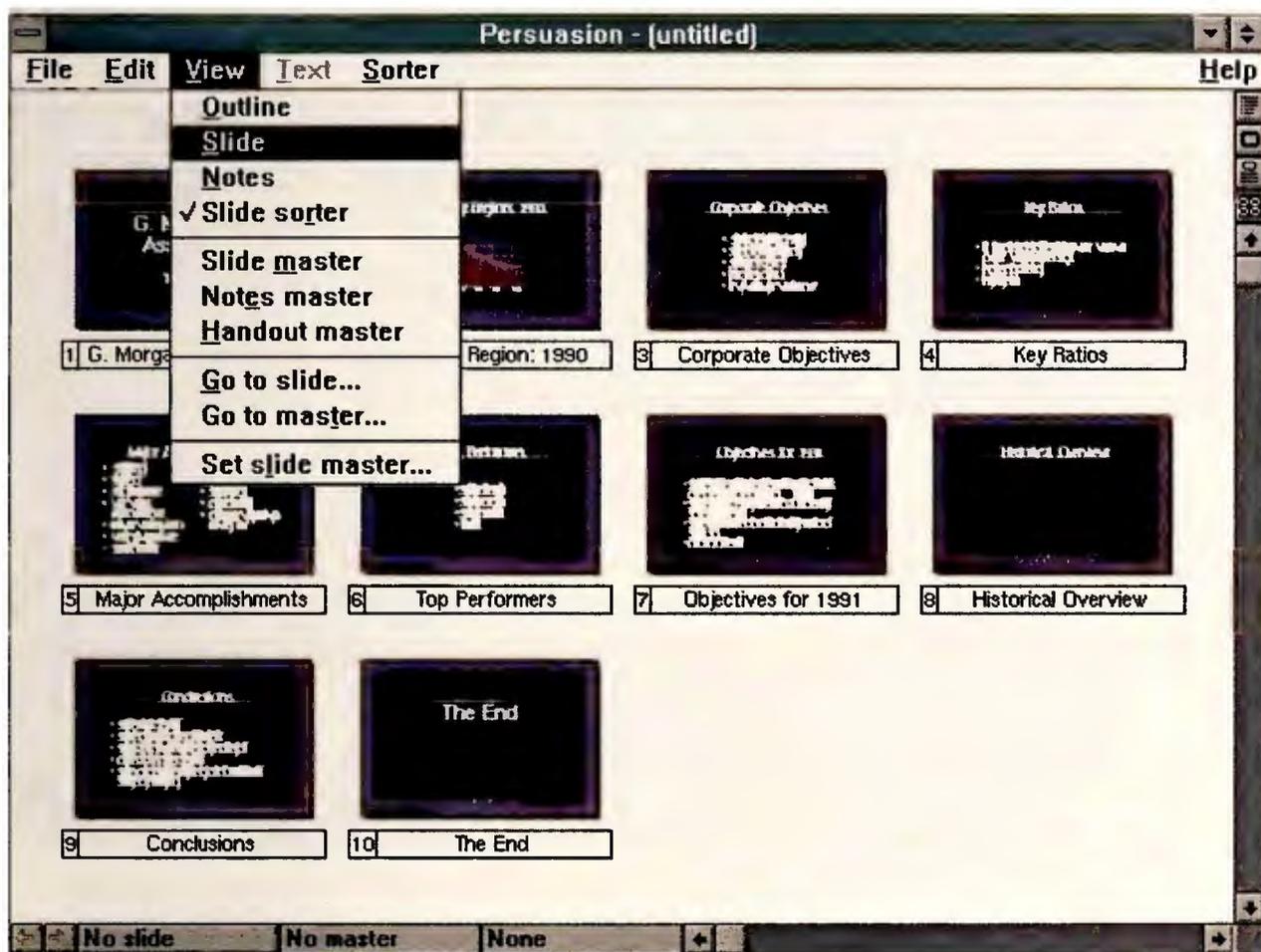


Call 1-800-942-0018 for the name of your nearest dealer.

Circle 113 on reader service card

Easy Persuasion

With Mac-like flair, Aldus's new package eliminates many redundant chores involved in creating presentations.



Persuasion gives you global control over your entire presentation. You can view all your slides at once, rearrange their order, or jump quickly to a specific image.

John Walkenbach

The premise is simple: You shouldn't have to be a graphics professional to produce professional graphics for your presentations. Aldus *Persuasion 2.0*, the Windows version of the powerful Macintosh presentations package, makes this argument convincingly—and might even sway users of *PC World's* 1990 Best Buy Microsoft's *PowerPoint for Windows* (see "Graphics Power for the Rest of Us," November 1990).

Like *PowerPoint*, *Persuasion* offers powerful global control features, but it adds the integrated outliner that its Windows-based rival lacks. And its wealth of preformatted master slides surpasses Microsoft's, letting you focus

on the content of your presentation instead of its design. Users of the character-based *Harvard Graphics* and *Freelance Plus* will be amazed at the results they can achieve with relatively little effort.

On the downside, since *Persuasion 2.0* doesn't support Windows' Dynamic Data Exchange (DDE), you can't create "warm links" to spreadsheet data. Fortunately, the program does enable you to import named ranges in 1-2-3 and *Excel*, making it fairly easy to update your charts with new data.

Easing Into Presentations

Persuasion covers all the bases in presentation development, from building outlines and creating charts to producing audience handouts and

speaker's notes. Fully mastering all these features will take time; fortunately, *Persuasion's* master slide and outline facilities offer some elegant shortcuts.

Like *PowerPoint*, *Persuasion* comes with master slides, which contain information about fonts, background colors, and where text and graphics will appear on each slide. But *Persuasion* also provides 36 auto-templates, each containing seven similarly designed master slides and a background master, that let you change the entire look of your presentation with a few clicks of a mouse. The result is easy, professional-looking presentations—even for those who wouldn't know a T square from a T-bone steak.

The advantage to *Persua-*

sion's auto-templates becomes obvious when you use the integrated Outline View. You enter the title of each slide on the first level of the outline and add subheads and bulleted text items on deeper levels. Then, to assign master slides to your outline, simply pop up a menu and select the appropriate slide type (such as Title, Two-column Text, or Chart and Text) for each level. *Persuasion* automatically pours the outline text into the master slide's placeholders (areas of the slide formatted for text and graphics) in the styles you've selected.

In Slide View you can view your neatly formatted presentation, create or edit charts, and zoom in to add finishing touches. You can modify slides

SNAPSHOT

Aldus Persuasion 2.0 for Windows

A longtime favorite in the Macintosh environment, *Persuasion* brings its graphics wizardry to Windows, offering control over all aspects of your presentations.

KEY FEATURES

- Extensive global presentation controls
- Tightly integrated outliner for organizing and creating slides
- Auto-templates simplify presentation design
- Good drawing and enhancement tools

AVAILABILITY

Second quarter 1991

PRICING

\$595 (includes Adobe Type Manager fonts package)

Aldus Corp.

411 First Ave. S
Seattle, WA 98104-2871
206/622-5500,
206/343-4259

Reader service no. 645

selectively, or change the entire look of your presentation by choosing another auto-template. And, as with *PowerPoint*, *Persuasion's* Sorter View gives you a bird's-eye view of your slides and lets you rearrange them easily.

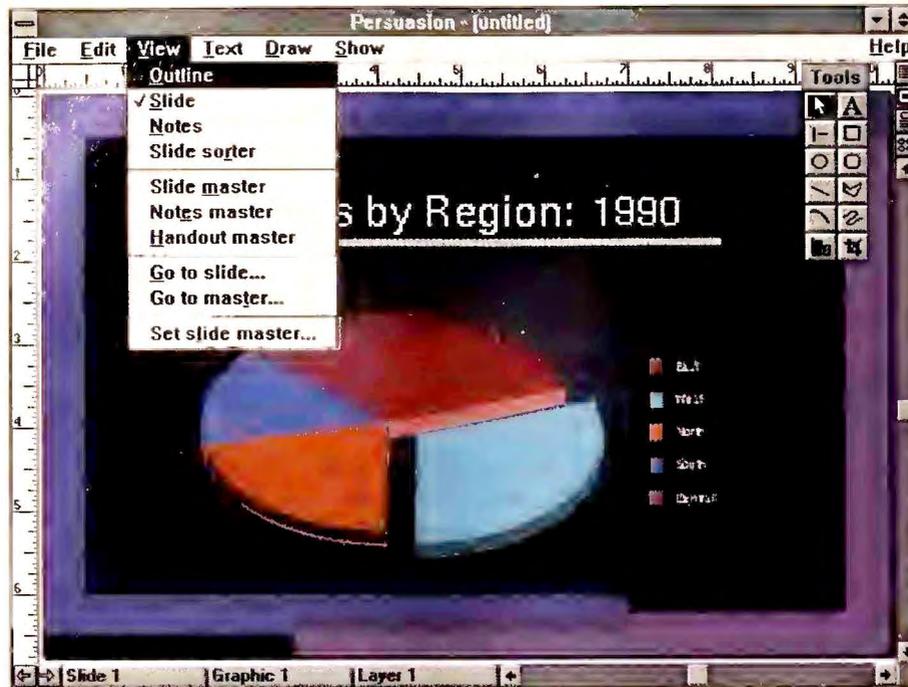
Feeling artistically constrained by the auto-templates? You can also place graphs and text blocks in areas of the slide not defined by placeholders, or modify master slides to create a custom auto-template. However, unlike *PowerPoint*, *Persuasion* works with only one presentation file at a time, which makes transferring slides between presentations difficult.

Charting: A Clear Course

Persuasion's charting capabilities are more powerful than *PowerPoint's*, thanks to an easy-to-use overlay feature that lets you mix graph types such as lines and bars. And creating organizational charts is a breeze—just enter the hierarchical information into an outline and tag it as an org chart.

The easiest way to create a chart is to assign a master slide containing a graph placeholder to your current slide. Unlike most packages, *Persuasion* doesn't provide a visual gallery of graph types; rather, it displays tiny icons and graph types by name.

To select a chart, you click on the graph icon, position the cursor over the placeholder, and click again. Two new windows appear: a spreadsheetlike data entry form and a dialog box in which you specify your options. The data entry window lets you type in data manually or import it from a spreadsheet, but you can't perform math functions or define formats. The dialog box makes it easy to specify chart settings (such as scale values, tick marks, and numeric formats) and later apply



Using *Persuasion's* auto-templates, you can choose from a variety of colorful graph types and modify them with text and data.

them to other graphs.

While the prerelease version could import only text files, the shipping version should handle data from *Excel* and 1-2-3.

Fine Art of Manipulation

Persuasion provides a good assortment of tools for enhancing your slides, but it's no match for Micrografx's *Charisma*. While you can draw boxes, lines, polygons, and freehand objects, you can't fill the objects with graduated shading, and you can rotate them only in 90-degree increments. Unfortunately, text can't be rotated at all.

On the other hand, you can break objects apart—for example, ungroup the elements in a bar chart and apply different colors to them, to emphasize, say, a specific month's data. Users will appreciate the *PageMaker*-like rulers and guides for aligning objects, as well as its pasteboard—an area on screen where you can store text and graphics before placing them in slides.

Need to enhance a text chart? *Persuasion* hands you complete control over fonts, type sizes, colors, bullets, and drop-shadow effects. And Aldus will bundle *Adobe Type Manager*, which provides 13 scalable font outlines, plus ac-

cess to thousands of other Type 1 typefaces (see "Easy Fonts for Great-Looking Documents" in this issue).

Less artistic types can import ready-made images in a variety of formats, including CGM, TIFF, PCX, PIC, and *Windows* metafiles, plus HPGL plotter graphics. Aldus also provides more than 100 clip-art images, but *Persuasion* lacks *Charisma's* handy preview feature, so you'll have to thumb the manual to see what's available.

Getting the Message Out

With presentations, output media is a big part of the message, and *Persuasion* handles all forms—35mm slides, overhead transparencies, paper handouts, and screen-based slide shows. You can print audience handouts with multiple slides per page, as well as miniature versions of your slides annotated with notes.

An especially powerful feature is the ability to create *slide layers*. You can specify that objects appear on different layers, which can be displayed or output in sequence—ideal for "build" slides in which bulleted points or graph elements are added one at a time. You can output each layer separately or specify different transition effects for display-

ing layers on screen.

There's no run-time module, however, which means you'll need a copy of *Persuasion* in order to make a screen presentation. To ease 35mm slide production, *Persuasion* will include a direct communications link to MagiCorp, an overnight slide service bureau. Aldus also expects to include links to the Autographics slide service, plus support for Geniographics drivers.

The Final Pitch

Persuasion's well-integrated outliner and sophisticated use of master slides may well give it an edge over *PowerPoint*. Its charting and enhancement tools are also first-rate, but sophisticated graphics users may detect a certain lack of *Charisma*.

There's little doubt that *Windows* is an excellent environment for presentation graphics. Once you've picked up *Persuasion*, character-based products appear clunky and inefficient. If the migration towards *Windows* continues, users of *Harvard Graphics* and *Freelance Plus* might be persuaded to move up to a graphical solution. ☺

John Walkenbach is a contributing editor for PC World.



Fireworks on Your PC

INTEGRATE TEXT, GRAPHICS, SOUND, VIDEO, ANIMATIONS & SCANNED IMAGES

It's here - interactive multimedia for your PC. No more hype, no waiting, not next year, now! In minutes, with your own PC, you can combine the visual impact of slick animation, dazzling graphics, scanned images, still-frame or laser-disc video, with the sizzle of stereo music and voice narration. Flaunt it on a standard VGA monitor, touch screen monitor, or television. You can even record onto video tape.

CREATE TRUE INTERACTIVE MULTIMEDIA

There's so much you can do with ASK•ME. Create stimulating business presentations, engineering and scientific

simulations, computer-based training programs, promotional videos, interactive educational courses, point-of-purchase demonstrations, electronic building directories, and more.

COMPATIBLE WITH POPULAR PRODUCTS

ASK•ME works with tools you might already have; like popular paint and animation programs (eg. Autodesk's Animator); or sound boards (eg. SOUND BLASTER) or video capture boards. ASK•ME doesn't actually create the animations and graphics but simply allows

the seamless integration of any or all of these mediums.

EASY TO WORK WITH

ASK•ME does all the dirty work; carrying out your selections at the click of the mouse on very colorful and attractive screens. With ASK•ME, you become the author, designer and director.

Call us today. Get ready to open people's eyes and ears to your fireworks display. Then when someone mentions multimedia, just say...



*Brown
Wagh*

1-800-451-0900
1-408-378-3838 (in CA)

130 D Knowles Drive • Los Gatos, CA 95030

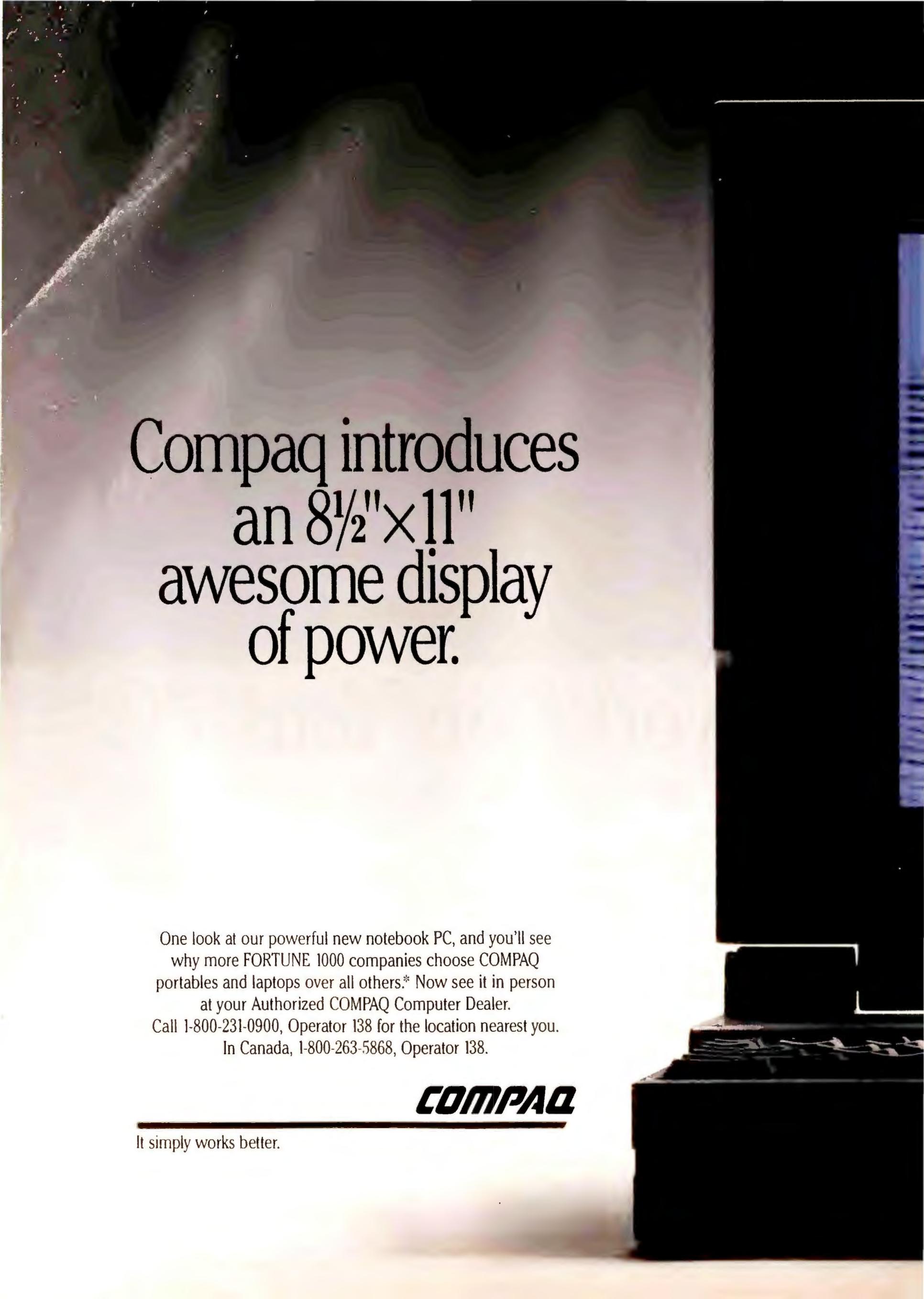
MERISEL Part Number 22764 • INGRAM MICRO-D Part Number 104598

ASK•ME .. ONLY \$495

Call today for your
ASK•ME Trial Pack .. ONLY \$7995

ASK•ME is developed by Innovative Communication Systems, Inc. Referenced products are registered trademarks of their respective companies.

Circle 86 on reader service card



Compaq introduces
an 8½"×11"
awesome display
of power.

One look at our powerful new notebook PC, and you'll see why more FORTUNE 1000 companies choose COMPAQ portables and laptops over all others.* Now see it in person at your Authorized COMPAQ Computer Dealer. Call 1-800-231-0900, Operator 138 for the location nearest you. In Canada, 1-800-263-5868, Operator 138.

COMPAQ

It simply works better.

YOU'RE LOOKING AT THE NEW COMPAQ LTE 386s/20 PERSONAL COMPUTER.
THE MOST POWERFUL NOTEBOOK PC ON THE PLANET.

■ YES, IT'S SMALL, BUT
LEAVE NOW BIG IT IS
TRY THE INSIDE.



■ STORES UP TO
30,000 PAGES.
THE ONLY NOTEBOOK
PC THAT OFFERS
A 60-MB FIXED DISK
DRIVE.

■ VGA DISPLAYS
RAZOR-SHARP
GRAPHS IN 16
GRAY SHADES.



■ THE 20-MHz
INTEL 386SX
PROCESSOR WITH
CACHE SETS YOUR
PRODUCTIVITY
ON FIRE.

■ AT A MERE
7.5 LB. WITH
BATTERY, IT
TRAVELS
LIGHT.

■ THE 2-MB
HIGH-SPEED
RAM IS
EXPANDABLE
TO 10 MB.



■ MORE THAN 3
HOURS' BATTERY
LIFE PLUS INTERNAL
FAST CHARGE.

■ ADD A DESKTOP
EXPANSION BASE
FOR MORE OFFICE
CAPABILITY.

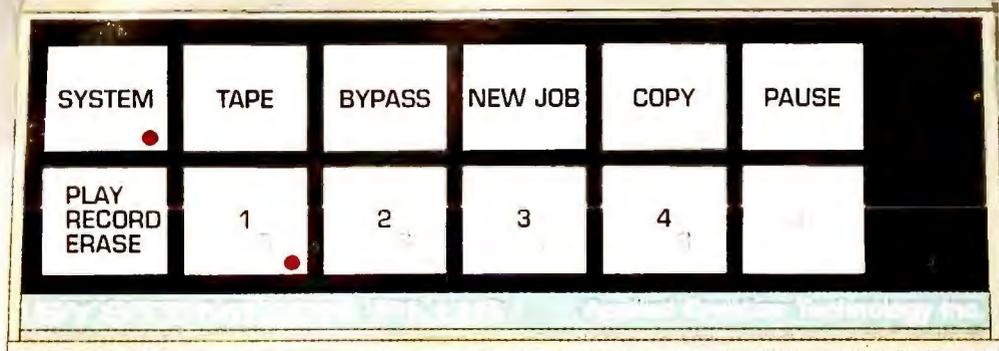


■ TRAVEL MUCH? OUR WORLDWIDE
WARRANTY ASSURES SERVICE IN
OVER 60 COUNTRIES.

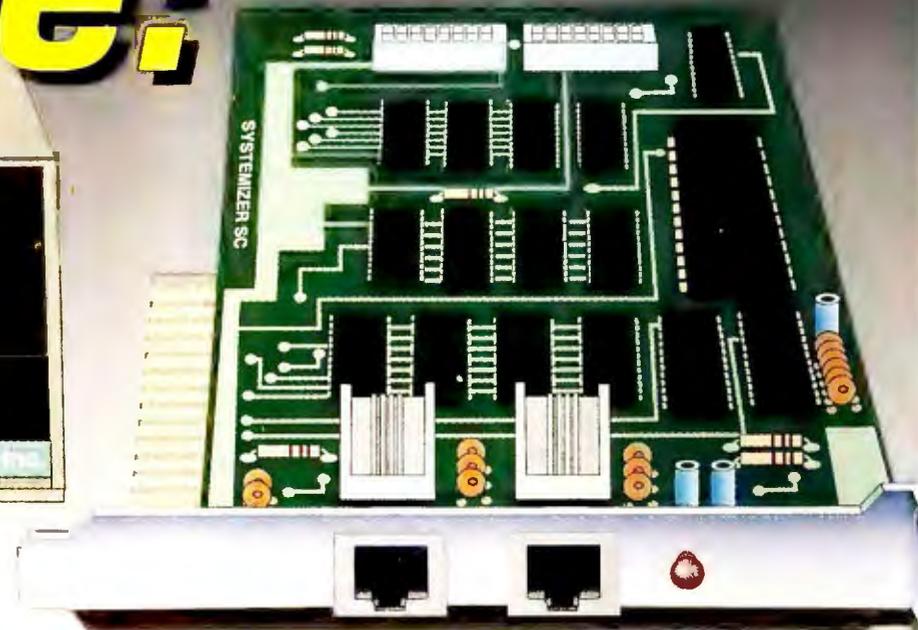
■ YOU CAN EVEN PLUG IN A MOUSE.

COMPAQ

SYSTEMIZE and save!



Several models available. The **Systemizer® Plus** shown above is an externally mounted networking module. Because it's self-contained and requires no software in the computer, it can work with practically any computer, operating system and application program.

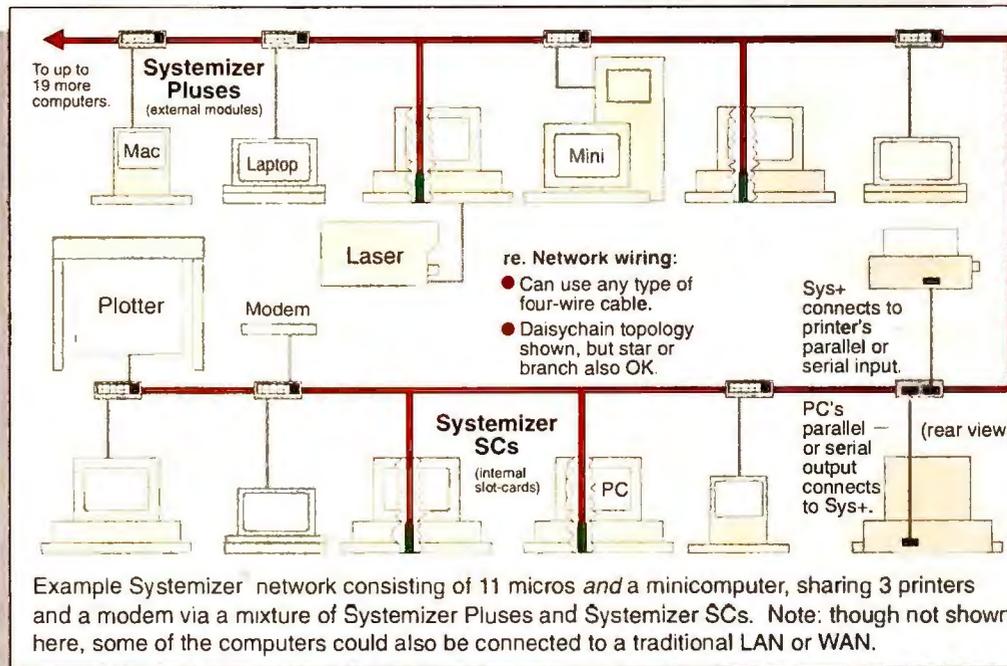


Or use the internally mounted **Systemizer® SC**, a slot-card version of the Systemizer Plus. For MS-DOS® PC's and compatibles. The SC and Sys+ can be used in the same network, as shown in the diagram below.

Up to 31* users can:

- Share Printers
- Share Plotters
- Share a Modem
- Share a FAX
- Exchange E-MAIL
- Transfer files

* [networks can be "stacked" to serve more than 31 users]



Systemizing is a distributed-processor network-like approach to sharing peripherals, consisting of internally or externally mounted modules. It is a time-tested, proven technology, that has become the connectivity standard at many of the world's largest corporations and throughout the U.S. and Canadian federal governments. Over 50,000 are already in use. Why? Because Systemizing delivers what 95% of corporate computer users want from networking, without the associated costs and complications. In addition, Systemizing fits perfectly into a corporate networking strategy because it will work in conjunction with any LAN or WAN. A company can have the best of both worlds: Systemizing for the ultimate in peripheral sharing, and if needed, a LAN or WAN for users who must access a central database.

Systemizing also offers your company:

- The ability to begin networking NOW, without changing any existing hardware or software. Universal compatibility.
- Freedom to mix computers of all brands in the network.
- Flexibility; readily accommodates growth and changes.
- Easy installation using common, inexpensive cabling.
- After 5 min. training, users need NO ongoing support.
- Independence! Does NOT require any special expertise.

Available through your local dealer or direct. On GSA.

CONNEXPERTS
A Division of Applied Creative Technology Inc.

Dallas, Texas U.S.A.

For a free demo call: (800) 433-5373

or fax: (214) 696-3925



Edited by MIKE HOGAN

Nextstation, Nextcube, Nextstation Color, Nextdimension Board

What's Next? More Power, Lower Prices, New Shapes



The Nextdimension is one of three new variations on Next's sleek black cube. The trio offer greater speed, better pricing, and new storage and color options.

When introduced in 1989, the Next computer was based on a radical design that reached into the future of computing and brought back read/write optical storage, a near match between screen and printer output, and a flexible new programming environment that made UNIX look almost human. Alas, the future came at

a price (\$10,000, to be exact) that kept Next systems on loading docks rather than desktops. And applications for the machine have been slow to arrive.

Next hopes to reverse its fortunes with a new trio of models offering better pricing, faster performance, and snazzy color-display options.

The entry-level Nextstation trades the signature black cube for a shape akin to a 15-by-17-by-2½-inch pizza box. At \$5000, it's half the price of the original Next Computer, but it still comes with the attractive MegaPixel (1120 by 820 resolution) Display. It's faster too, thanks to a new 25-MHz 68040 CPU. And instead of a slow, 550MB read/write optical drive, the standard Nextstation configuration includes a 2.8MB floppy and a

17ms 105MB hard drive.

Considering the storage needed for release 2.0 of the system software, the Nextstep development environment and its bundle of applications, E-mail, and various and sundry on-disk reference works and utilities, you'll probably want to spend another \$2995 for the 15ms 340MB hard drive. You'll also want to take the standard 8MB of RAM a little closer to its 32MB maximum.

If you want expansion slots—three, to be specific—you'll need to step up to the \$7995 Nextcube, the successor to the original computer and the most expandable for network server or other transaction-intensive applications. It lets you increase memory to 64MB and choose Winchester (continues on p. 94)

INSIDE PRODUCT OUTLOOK

94 TurboTax, TaxCut, MacIntax for Windows

Better answers for troublesome April questions.

96 Wyse Decision

486/33E Souped-up tower system handles transaction-heavy applications.

98 Express Publisher 2.0

Make your documents more exciting with electronic sleight of hand.

98 IBM PS/1 Printer

Small enough for the home, good enough for the office.

102 Co/Session 5.0

Lets you use your mouse when you're running applications from a remote PC.

106 Turbo Pascal 6.0

Build slick interfaces with a great library of objects.

106 PacificPage PE 4.9, PacificType, Pacific

Memory, PacificConnect Give your old LaserJet new fonts, memory, and more.

108 SatisFAXtion

Send faxes from your PC with just a few keystrokes.

108 Quicken 4.0

Investment tracking makes best-seller even better.

116 CompuAdd 333,

333T Low-priced 386 systems that have the "hot-slot" performance advantage.

116 AST Premium II

386SX/20 Faster performance, a smaller box, and a 16-MHz price.

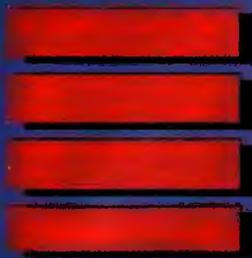
IN BRIEF

Next becomes more appealing, thanks to better pricing on new color and black-and-white models that incorporate both today's and tomorrow's technology.

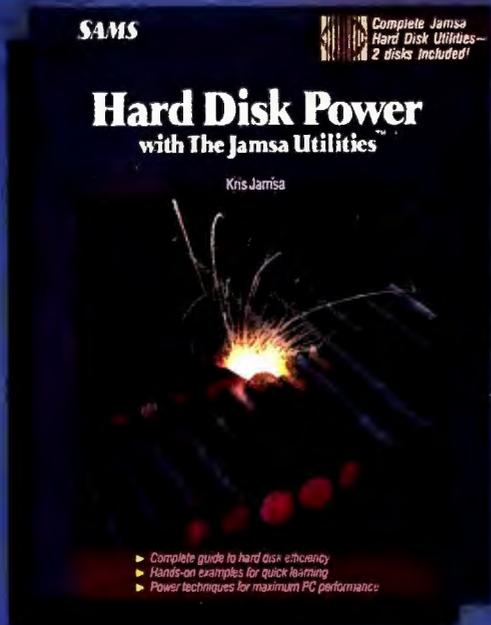
Next Computer, Inc.

900 Chesapeake Dr.
Redwood City, CA 94063
800/848-6398

Reader service no. 615

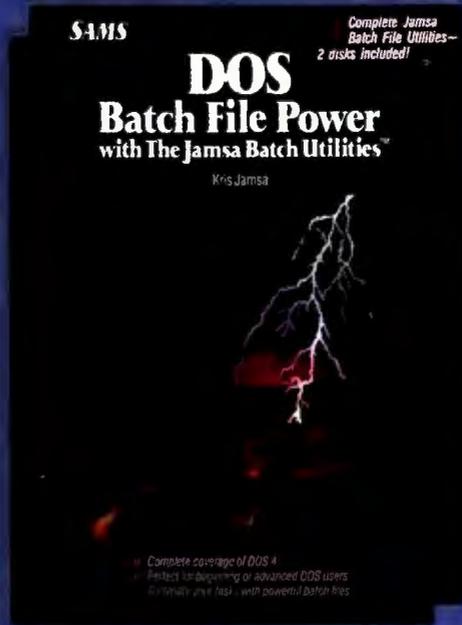


Sams Has The First And The Best For More DOS Power!



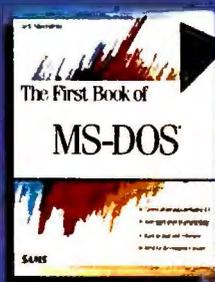
Hard Disk Power with the Jamsa Disk Utilities
\$39.95 USA 0-672-22761-4

The complete hard disk management guide — with the newly developed Jamsa Disk Utilities on two bound-in disks — at one low price!



DOS Batch File Power
\$39.95 USA 0-672-227770-3

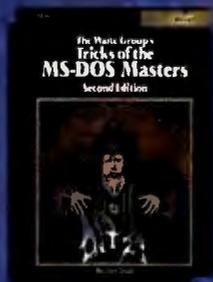
Get the most from your DOS system with this valuable book-and-disk set! Includes hundreds of tips and techniques for efficient file management and a bound-in disk!



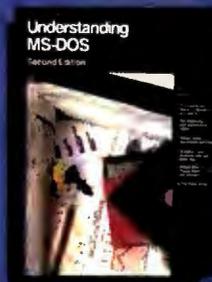
The First Book of MS-DOS
\$14.95 USA
0-672-27312-8



The Best Book of DOS
\$24.95 USA
0-672-22680-4



The Waite Group's Tricks of the MS-DOS Masters, 2nd Edition
\$27.95 USA
0-672-22717-7



The Waite Group's Understanding MS-DOS, 2nd Edition
\$19.95 USA
0-672-27298-9

Whether you're a beginner or a veteran computer user, Sams helps you achieve better results from your DOS system. Sams' DOS titles cover the spectrum. With two new blockbuster book-and-disk sets — including *Hard Disk Power with the Jamsa Disk Utilities* and *DOS Batch File Power* — Sams has the books to boost your DOS efficiency!

SAMS

Alaska

BAKER & BAKER BOOKSELLERS
Fairbanks AK
907-456-2278

California

ASUC STORE/UC BERKELEY
Berkeley CA
415-642-7294

TOWER BOOKS-SUNRISE
Citrus Heights CA
916-961-7202

CONCORD BOOKS
Concord CA
415-827-2920

TOWER BOOKS
Concord CA
415-827-2920

A CLEAN WELL LIGHTED PLACE FOR BOOKS
Cupertino CA
408-255-7600

UNIVERSITY OF CALIFORNIA BOOKSTORE
Davis CA
916-752-2944

EAGLE ELECTRONICS
Glendale CA
800-992-3191

OPAMP TECHNICAL BOOKS
Los Angeles CA
213-464-4322

KEPLERS BOOKS & MAGAZINES
Menlo Park CA
415-324-4321

PRINTERS INC.
Mountain View CA
415-961-8500

ELECTRONICS CENTER
Oceanside CA
619-722-5855

PRINTERS INC.
Palo Alto CA
415-327-6500

STACEY'S BOOKSTORE
Palo Alto CA
415-326-0681

TOWER BOOK-WATT AVENUE
Sacramento CA
916-481-6600

STACEY'S
San Francisco CA
415-397-7935

THE BOOKSMITH
San Francisco CA
415-863-8688

GREEN APPLE BOOKS
San Francisco CA
415-387-2272

FLA

STANFORD BOOKSTORE
 1000 University Ave
 Stanford CA
 415-724-4447

COMPUTER LITERACY
 1000 University Ave
 Stanford CA
 415-724-4447

COMPUTER LITERACY
 1000 University Ave
 Stanford CA
 415-724-4447

GA**THE BARN BOOK STORE**

1000 University Ave
 Stanford CA
 415-724-4447

ALABAMA BOOK CENTER

1000 University Ave
 Stanford CA
 415-724-4447

THE BARN COVER

1000 University Ave
 Stanford CA
 415-724-4447

CONNECTION**REVIEW COVER BOOKS**

1000 University Ave
 Stanford CA
 415-724-4447

UTAH**THE TRAINING BOOKS**

1000 University Ave
 Stanford CA
 415-724-4447

UNIVERSITY OF**DELAWARE BOOKSTORE**

1000 University Ave
 Stanford CA
 415-724-4447

FLORIDA**WATKINS OF DEACHES**

1000 University Ave
 Stanford CA
 415-724-4447

THE BOOKSTORE OF

1000 University Ave
 Stanford CA
 415-724-4447

THE BARN STORE AT

1000 University Ave
 Stanford CA
 415-724-4447

WORLD BOOK PLAZA

1000 University Ave
 Stanford CA
 415-724-4447

WORLDWIDE, INC.

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

WATKINS OF DEACHES

1000 University Ave
 Stanford CA
 415-724-4447

JUNCTION BOOK ROOM

Dekalb IL
 815-758-0678

INDIANA**CHAPTERS BOOK SHOPS**

Indianapolis IN
 317-872-2665

IOWA**UNIVERSITY BOOK STORE**

Des Moines IA
 515-274-3401

Kentucky**PAGES & PAGES**

Louisville KY
 502-425-2433

Louisiana**BARRON'S BOOKS, INC.**

Shreveport LA

Maryland**GORDON'S BOOKSELLERS**

Baltimore MD
 301-685-7313

Massachusetts**THE UNIVERSITY STORE UMASS**

Amherst MA
 413-545-2619

CHARLESBANK BOOKSHOP

Boston MA
 617-267-8484

M.I.T. COOP AT KENDALL

Cambridge MA
 617-491-4230

WORDSWORTH

Cambridge MA

BARILLARI BOOKS

Cambridge MA
 617-864-2400

DATA BOOKS

Worcester MA
 800-642-6657

ACTIVE ELECTRONICS

Woburn MA
 617-932-4616

Michigan**STUDENT BOOK STORE**

E. Lansing MI
 517-351-4210

ROCHESTER BOOK CENTER

Rochester Hills MI
 313-651-0199

MICRO AGE COMPUTER CENTER

Troy MI
 313-528-3535

K 40 ELECTRONICS

Warren MI

COMMAND COMPUTER SYSTEMS

Warren MI
 313-573-8130

THE ELECTRONIC CONNECTION

Westland MI
 313-595-6655

Minnesota**ODEGARD BOOKS SAINT PAUL**

St. Paul MN
 612-222-2711

Missouri**ANDERSON'S BOOK SHOPS**

Kansas City MO
 816-454-7677

Nebraska**NEBRASKA BOOKSTORE**

Lincoln NE
 402-476-0111

New Jersey**HAPPY BOOKER INC.**

Cedar Knolls NJ
 201-539-4240

CHERRY HILL BOOKS

Cherry Hill NJ

PRINTED WORD

Clifton NJ
 201-779-3996

LIVINGSTON STATIONERS

Englewood NJ
 201-568-6800

New Mexico**PAGE ONE INC.**

Albuquerque NM
 505-294-2026

New York**BOOKSTORE PLUS**

Lake Placid NY

NEW YORK UNIVERSITY

Book Center
 New York NY
 212-998-4674

McGRAW-HILL BOOKSTORE

New York NY
 212-512-4100

WORLD WIDE NEWS

Rochester NY
 716-546-7140

Oklahoma**BOLLINGER'S BOOKHOUSE**

Oklahoma City OK
 800-375-0020

NOVEL IDEA

Tulsa OK

Ohio**KENWORTHYS BOOK STORE**

Cincinnati OH
 513-791-8600

BOOK & CO.

Dayton OH
 513-298-6540

WILKIE'S UNIVERSITY

Shoppes
 Fairborn OH
 513-429-1677

LEO'S BOOK SHOP

Toledo OH
 419-255-5506

Oregon**POWELLS BOOKSTORE**

Beaverton OR
 503-643-3131

O.S.U. BOOKSTORE

Corvallis OR
 503-737-4323

THE BOOK MARK

Eugene OR
 503-484-0512

POWELLS TECHNICAL

Bookstore
 Portland OR
 800-255-6911

PORTLAND STATE UNIV.

Bookstore
 Portland OR
 503-226-2631

Pennsylvania**BRADD-ALAN BOOKSTORE #4**

Philadelphia PA
 215-386-5235

ATLANTIC BOOK SHOPS #215

Pittsburgh PA
 412-765-1457

ATLANTIC BOOK SHOPS #222

Pittsburgh PA
 412-765-1233

UNIV. OF PITTSBURGH

Book Center
 Pittsburgh PA
 412-648-1452

Tennessee**UNIVERSITY BOOK AND**

Supply Store
 Knoxville TN
 615-974-1054

Texas**UNIV. OF TEXAS AT**

Arlington Bookstore
 Arlington TX

PRNT BOOKSTORE

AT INFOMART
 Dallas TX

TAYLORS-TECHNICAL BOOKS

Dallas TX

BROWN BOOK SHOP

Houston TX

SAM HOUSTON BOOK SHOP

Houston TX

HOUSTON WHOLESALE

Electronics, Inc.
 Houston TX
 800-338-9507

BARRON'S BOOKS, INC.

Longview TX

Utah**WEBER STATE COLLEGE**

Bookstore
 Ogden UT
 801-626-6352

BRIGHAM YOUNG

University Bookstore
 Provo UT
 801-378-3584

SAM WELLERS BOOKSTORE

Salt Lake City UT
 801-328-2586

Virginia**VPI UNIVERSITY**

Bookstore
 Blacksburg VA
 703-231-5991

BOOK GALLERY

Richmond VA
 804-740-6723

Washington**ACTIVE ELECTRONICS**

Bellevue WA
 206-881-8191

TOWER BOOKS

Seattle WA
 206-283-6333

UNIVERSITY BOOK STORE

Seattle WA
 206-634-3400

ELLIOT BAY BOOK CO.

Seattle WA
 800-962-5311

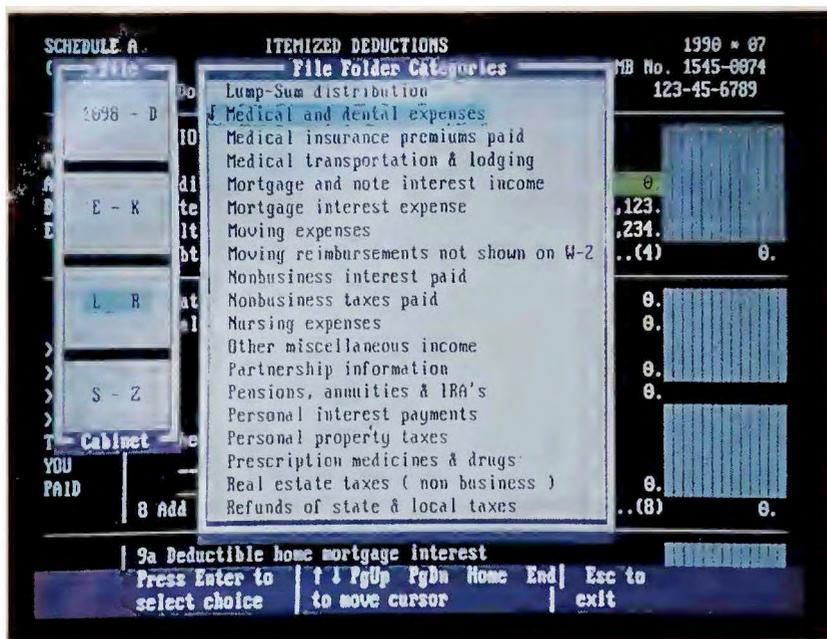
Washington D.C.**REITER'S SCIENTIFIC**

& PROFESSIONAL BOOKS
 Washington DC
 800-537-4314

SAMS

TurboTax, Andrew Tobias' TaxCut, MacInTax for Windows

Top Tax Packages Beefed Up for 1991



On-line expert tax assistance is the focus of this year's revisions to the leading PC-based tax preparation programs. TurboTax's new audit feature scans your return and flags entries likely to trigger an IRS audit.

Three leading suppliers of PC tax software have introduced their 1991 tax packages, adding multilevel tax help to speed users through the annual ordeal of preparing federal income tax returns. (For more information about tax software, see "Tax Relief For the Rest of Us" in this issue.)

Next

(continued from p. 91)

drives as large as 1.4GB or optical drives of up to 550MB.

You can turn the Nextcube into a 32-bit color system that displays more than 16 million shades for publishing or graphics design by adding the Nextdimension board and MegaPixel Color Display. This boosts the price to \$13,990 but gives you an Intel i860 graphics accelerator supported by 8MB of RAM (upgradable to 32MB) and JPEG real-time video playback from the optical drive, making Nextcube an ideal multimedia platform.

Nextstation Color is a

ChipSoft has responded to competition from MECA Software's *Andrew Tobias' TaxCut* by adding features to guide users of its market-leading *TurboTax Federal Personal 1040* through their tax return. Last year, *TaxCut* won praise from users for its plain-English tax preparation ad-

slightly less powerful (16-bit) color solution for the pizza box. It offers "only" 4096 simultaneous colors, but for \$7995 you get a graphics workstation that's every bit as innovative as the Sun Sparcstation, but cheaper. Next also saves money in printing. Thanks to the integration of Display PostScript, Next continues to give you PostScript printing while halving the price of its 400-dpi laser printer to a mere \$1795.

Finally, the easy-to-program Nextstep environment is beginning to pay dividends in the form of a number of novel Next applications, such as Lotus's *Improv* spreadsheet and Ashton-Tate's *PowerStep* spreadsheet. —Mike Hogan

vice from tax attorney and software developer Dan Caine.

TurboTax is fighting back this year with a "next-step" feature that guides you through the array of forms and schedules. As you complete a series of questions concerning your finances, *TurboTax* jumps you to relevant forms, holding your hand through the entire process. Also new with version 8.0 of *TurboTax* is an audit feature that scans the return and flags entries likely to trigger an IRS audit. Intuit's *Quicken*, a personal finance manager, automatically tracks tax-related income and expenses, and that data can be transferred to *TurboTax* electronically. *TurboTax* requires DOS 2.0 or a later version and 512K of RAM. It sells for \$75; upgrades cost \$37.50.

But MECA hasn't been sitting still. It too has included an audit feature in this year's *TaxCut*, one designed to highlight missing or incomplete information, such as an incomplete social security number. To attract sales among its huge installed base of *Managing Your Money* users, MECA has improved the connection between that personal finance package and *TaxCut* by allowing for the direct import of *MYM* files into *TaxCut*. Relevant information is automatically carried over into the appropriate line of your tax return. *TaxCut* requires DOS 2.0 or a later version and 512K of RAM. It retails for \$90; upgrades are \$50.

The lone *Windows* tax package on the market, SoftView's *MacInTax for Windows*, now supports *Windows 3.0*, and the company claims substantial speed improvement. Like its two DOS competitors, *MacInTax for Windows* now includes an on-line tax adviser to decipher complex IRS regulations. With the program's new interview format, users answer a series of

questions, and *MacInTax for Windows* identifies the required forms and schedules.

With SoftView's proprietary forms technology, *MacInTax for Windows* can print forms identical to the IRS's on plain white paper. *MacInTax for Windows* requires DOS 3.0 or later and 2MB of RAM. Its \$99 retail price is reduced to \$50 for users upgrading from the previous year.

All three packages support electronic filing. For a fee of approximately \$25, taxpayers who expect a refund can have an authorized transmitting service file their return electronically to the IRS. Refunds are guaranteed within three weeks—sooner if you have the check automatically deposited to your bank account. "Early bird" versions of all three packages are available now. Final versions, incorporating last-minute changes to the tax law, are scheduled to ship sometime after January 15.

—Roberta Furger

IN BRIEF

More hand-holding and automatic audit alarms are the key features of this year's versions of the top tax packages: *TurboTax*, *TaxCut*, and *MacInTax for Windows*.

ChipSoft, Inc.

P.O. Box 85709
San Diego, CA
92186-5709
619/453-8722,
800/755-1040 (fax)
Reader service no. 623

MECA Software, Inc.

327 Riverside Ave.
Westport, CT 06880
203/222-9150,
203/226-2437 (fax)
Reader service no. 624

SoftView

1721 Pacific Ave. #100
Oxnard, CA 93033
800/622-6829,
805/385-5001 (fax)
Reader service no. 625

DR DOS 5.0. WE COULDN'T HAVE SAID IT BETTER.



So what's all the hoopla about? MemoryMAX™ for one thing. A breakthrough in memory management that can give you more than 620K so you can run today's memory-intensive applications, including, for example, dBASE IV™ on Novell NetWare™.

In fact, John Dvorak calls MemoryMAX nothing short of "amazing."

The Press goes on to mention that because DR DOS 5.0 is fully DOS compatible, you can run all your current DOS applications. And because it is easy to install and requires no hard disk reformat-

ting, upgrading to DR DOS is simple. Since DR DOS 5.0 also includes ViewMAX™, a graphical interface, DOS is easier than ever to use.

Now if we could just get a word in edgewise, we would simply like to add that DR DOS 5.0 is available now. Call your reseller now.

DR DOS 5.0



Digital Research®

WE MAKE COMPUTERS WORK

(+08) 647-6675

For Laptop and Notebook manufacturers, DR DOS 5.0 is fully executable from either RAM or ROM. And, it's available with BatteryMAX™, a battery-saving feature that can increase battery life 2-3 times (dependent upon OEM implementation).

Digital Research is a registered trademark, and the Digital Research logo, DR DOS, MemoryMAX, ViewMAX, and BatteryMAX are trademarks of Digital Research Inc. Copyright © 1990, Digital Research Inc.

Reprinted from PC Week May 14, 1990. Copyright © 1990 Ziff Communications Company
Reprinted with permission from The San Francisco Examiner Copyright © 1990 The San Francisco Examiner

Circle 55 on reader service card

Wyse Decision 486/33E

More of Everything Is Packed Into the Wide-Body Wyse



The Decision 486/33E marries the fastest processor available to the fastest I/O bus, and it adds maximum storage and expansion options so that you can tackle the largest applications.

Some applications have a way of growing on you, and outgrowing even the most powerful computer systems. Maybe you're running a large data base application for a network or some other transaction-heavy job. Wyse's new Decision 486/33E tower system leaves you room to grow by giving you more of everything: processing power, I/O speed, expansion slots, and even a little something extra.

The bonus in this system is its unusual 64-bit asynchronous bus, which connects CPU, memory, and the EISA bus. This extra bus lets the processor feed two 32-bit data words to memory at a time, keeping the 128K cache from being overwhelmed even when you run multimegabyte applications. Wyse also augments the i486 CPU's bracing 33-MHz performance and on-board 8K cache with a 128K copy-back cache overseen by a proprietary Wyse controller.

Everything else is pedal to the metal as well. Not only is the Decision 486/33E EISA-based, but you get a bountiful nine 32-bit EISA slots, leaving eight free after a video card is installed. Two megabytes of memory are standard, but you can expand that to 192MB

thanks to four 32-bit memory slots connected to the 64-bit bus. Because the 64-bit bus is asynchronous, you'll be able to upgrade and take full advantage of the 50-MHz i486 when that CPU becomes available.

The Decision 486/33E's

PrinTools

Utility Tool Kit for Laser Printers

If you have a Hewlett-Packard DeskJet, LaserJet, or compatible printer, you can benefit from *PrinTools*—a terminate-and-stay-resident program that offers instant access to six of the most commonly used printer utilities.

Tired of drumming your fingers while your computer sends information to the printer? *PrinTools*' PT-Spool whisks your file to a dynamically sized buffer that can be located on your hard disk or in high memory and allows you to use your computer for other work while your file prints in the background.

Have questions, but not the time to call anyone? PT-Help provides on-line help taken directly from the tech support manuals at Hewlett-Packard.

tower case has six rear half-height drive bays. You can pack up to 3.4GB of disk, tape, or optical storage into the tower. It's driven by a stout 325-watt power supply and cooled by two separate fans. Its software bundle includes a version of DOS 4.01 that is enhanced by Wyse with on-line help, disk caching, and EMS 4.0 support.

Wyse sells the Decision 486/33E in a single-floppy version for \$8999; more cash buys you a choice between IDE and ESDI drives. Wyse recommends ESDI drive models for this system, such as Wyse's EISA Turbo ESDI controller, which provides up to 33MB-per-second transfer rates for up to two ESDI drives.

You can get a system with a 300MB ESDI drive and Turbo ESDI controller plus a 1024 by

768 color monitor and video card, all for \$13,138. If you're among the majority who will use this machine as a LAN server, you also may be interested in Wyse's companion network workstation, the Decision 386SX/16S. This 16-MHz small-footprint desktop comes configured with 1MB of memory and an 800 by 600 VGA adapter and sells for \$1599 in a diskless version. —Mark Henricks

IN BRIEF

The Decision 486/33 gives you more of everything, including a 64-bit bus for speeding data between memory, CPU, and EISA bus.

Wyse Technology

3471 N. First St.
San Jose, CA 95134
800/438-9973

Reader service no. 616

the Save Settings function on the main menu. *PrinTools* comes with a default set of printer-output specifications, but with Save Settings you can create customized batch files for all kinds of print jobs, so you don't need to reset specifications every time you want to print.

PrinTools is not without its flaws. It takes a 55K bite out of conventional memory, and unlike *Lasertools' Printer Control Panel*, it doesn't perform automatic emulation switching between PCL and PostScript documents. Likewise, *PrinTools*' sixth utility, PT-Plot, turns your printer into an HPGL-2 plotter but works only with LaserJet Series III and IIID printers. Nonetheless, the HP-authorized help alone is worth *PrinTools*' low \$129 price. *PrinTools* requires DOS 3.0 or a later version. —Melissa R. Riofrio

IN BRIEF

PrinTools packs the essential printer utilities for HP LaserJets and compatible printers into an inexpensive and easy-to-use program.

Insight Development Corp.

2200 Powell St. #500
Emeryville, CA 94608
800/825-4115,
415/652-9857 (fax)

Reader service no. 630

Join a world power of over half a million people.

When you join CompuServe, you join the largest and most comprehensive computer information service on Earth. Which means you join up with more knowledgeable experts, greater capabilities, and more members than you can find anywhere else.

To find out more about us, return this card today.

Please send me your CompuServe Information Services brochure, or call 800 848-8199.

Name _____

Address _____

City, State, Zip _____

Telephone _____



CompuServe®
PCW/JAN

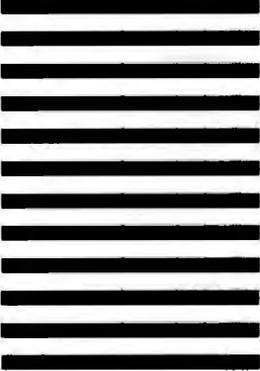


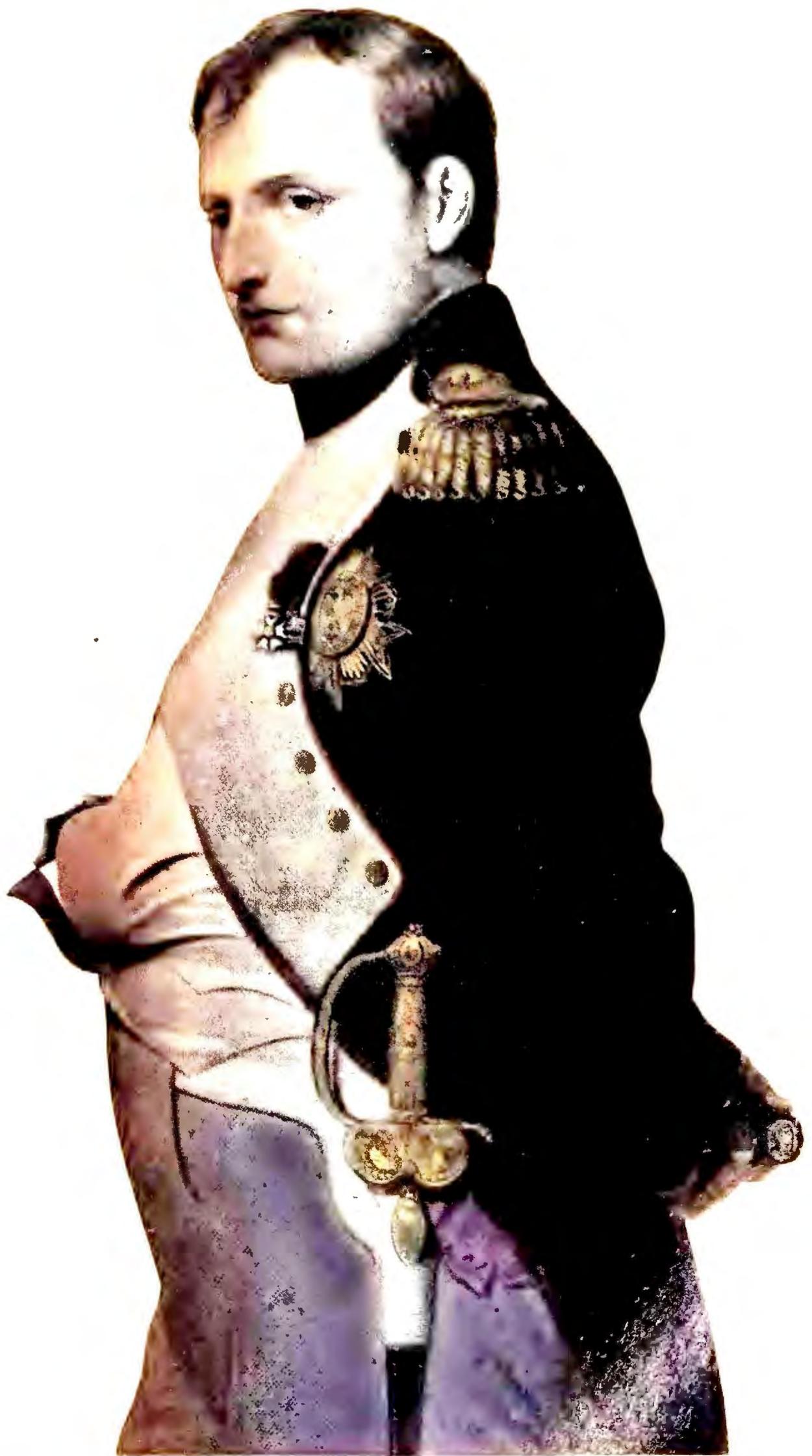
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 407 COLUMBUS, OHIO

POSTAGE WILL BE PAID BY ADDRESSEE

CompuServe®
ADVERTISING DEPARTMENT
PO BOX 20212
COLUMBUS OH 43220-9988





Napoleon Bonaparte

But Your Excellency, we've found a better way to put the world at your command.

We call it CompuServe. The world's most powerful network of people with personal computers.

We put you in command of a bigger world of communication, information, and entertainment

than the Little Emperor ever dreamed of. With just a few keystrokes on your personal computer.

To join forces with us, call today.

CompuServe[®]

800 848-8199

Circle 33 on reader service card

Express Publisher 2.0

Text Effects for Occasional Publishers

Express Publisher 2.0 adds powerful text-handling features to a low-end package that has competed well against better-established players in the occasional-user desktop publishing market. Version 2.0 lets you produce attention-grabbing documents without having to live with a manual by

your side.

Express Publisher 1.0's wide range of scalable fonts helped win over customers. The big news with the new version is *TextEffects*. This powerful text-handling program lets you fill a polygon with words or wrap letters around a curve to produce dramatic documents. You can also rotate text, add shadows, and stretch, reverse, and fill text, extending your font options considerably.

Sounds complicated, but it isn't. For text that gradually increases in size, you merely choose the size at the small end and at the large end. *Express Publisher 2.0* scales the intervening letters to produce an eye-catching headline. Some of the other effects aren't so simple, but a new on-screen training tutorial should

IN BRIEF

Thanks to powerful text-handling features in *Express Publisher 2.0*, you can easily produce attention-getting newsletters and other documents.

Power Up Software Corp.

2929 Campus Dr.
San Mateo, CA 94403
800/851-2917

Reader service no. 621



Express Publisher 2.0 has a wider range of scalable fonts and lets you create a variety of text effects such as wrapping words around a curve.

help you get the hang of it.

Power Up also added support for *Harvard Graphics* CGM files. You can now edit an image that's zoomed in or out. Landscape printing is new, as is support for headers and footers in documents.

Express Publisher 2.0 costs \$159.95. Updates from previ-

ous versions are \$34.95. It requires DOS 3.0 or a later version, 640K of memory, a CGA or better monitor, a mouse, and a hard disk with 3MB of space. If you have extended memory or EMS 4.0 expanded memory, *Express Publisher* automatically takes advantage of it. —Mark Henricks

IBM PS/1 Printer

Users Get Home-Based Hard Copy

Working at home has always meant making do with less capable equipment—sometimes *much* less capable. The PS/1 was IBM's latest shot at bridging the gap between home and office PCs. The PS/1 Printer, a quality 24-pin dot matrix

printer, aims in the same direction and comes closer to the mark.

This \$449 impact printer is designed for light business, educational, and personal computing. Its compact size (16 inches wide and 13.5 inches

deep) makes it a sure fit for home spaces, but it has enough features to handle business applications. It prints up to 64 characters per second in near letter quality mode and 192 cps in draft, making it comparable to several Epson and Panasonic low-end business printers.

Those printers have more memory, font options, and paper-handling features, but the PS/1 Printer has enough bells and whistles to get the job done. Although it doesn't support downloadable soft fonts or font cartridges, it comes with 180 by 360 graphics resolution and four resident fonts, each of which is available in seven pitches. Paper-handling options include continuous formfeed, single-sheet feed, three-part forms, envelopes, and labels. You can also pick up an automatic sheet-feed option

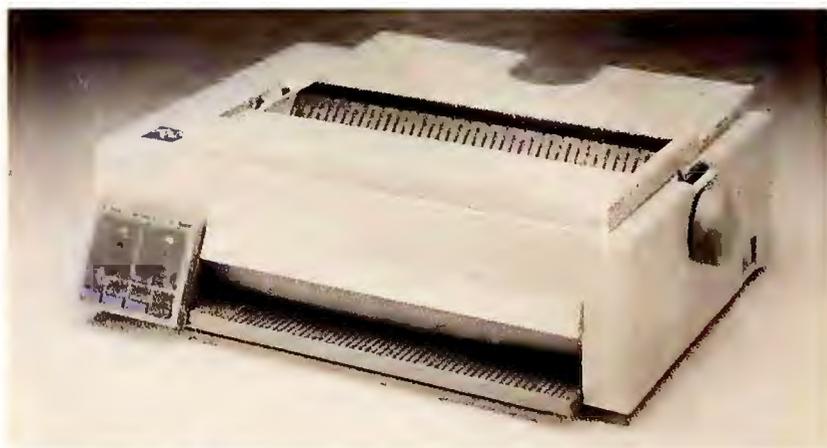
IN BRIEF

IBM's 24-pin PS/1 Printer is a scaled-down dot matrix with enough standard features to produce snazzy output at home.

IBM

101 Paragon Dr.
Montvale, NJ 07645
800/426-3377

Reader service no. 633



IBM's PS/1 Printer brings 24-pin dot matrix printing home in a compact design for business, educational, and personal computing applications.

for \$199 or a tractor feed for \$69.

The PS/1 Printer features plug-and-go installation and a one-year guarantee for free service and support. Like its computer namesake, the PS/1 Printer comes with the option to join the PS/1 Users' Club on Prodigy, where on-line support is available 18 hours a day, seven days a week. —Cathy Smith



THE FIVE STORE
LEWIS WARY
BOSTON, MA
(603) 889-5400

INVOICE

1001
06/30/90

Elton B. De, Inc.
3000 Paragary Dr.
Roseland, NJ

06/30/90 PAYEE
06/30/90

one-write plus
MONEY MATTERS
SuperTrack

GRAND OPENING

\$59.95

**AND YOU'RE
IN BUSINESS.**

Cut quick checks and invoices, and avoid cash flow problems, with **MONEY MATTERS™**. The one money manager designed specifically for small business.

If you run your business by your checkbook, you should be running Money Matters—the easy-to-use software that lets you get a grip on your cash.

Money Matters isn't a personal finance program trying to make it in business. It's designed for business. All kinds of business. Home or office. Which means when you bring Money Matters to work, it's going to do the job. Like get your invoices out on time. Speed up payments. Improve overall cash flow. And give you more control over all your finances by letting you tailor Money Matters to fit your business precisely.

Everything a small business needs.

Sure, Money Matters writes checks and balances your checkbook, just like other money management programs. But that's where the similarity ends.

Only Money Matters handles *all* financial aspects of your business. Automatically. It compiles and prints invoices for professional-looking bills that get out the door faster than the ones you write by hand. It calculates sales tax. Tracks 1099 information so you don't have to scramble at tax time. And reconciles all your banking transactions. Things no other single money management program can do.

Unquestionably powerful, surprisingly easy.

Ready for the best part? You set up and run Money Matters with simple menus and screens

that zip you through installation, checkwriting, invoicing and all the rest of Money Matters' powerful functions. So you can get on to other things. Like making money.

SuperTrack™ tracks costs one way. Your way!

With SuperTrack, you can quickly analyze income, expenses, inventory and more. By customer. By client. By hour. By employee. By whatever's important to your business.

It's the ultimate custom tracking and reporting feature that lets you see job costs the way it makes the most sense to you. Not the way the system wants you to.

SuperTrack gives you instant insight into where your cash is coming from. And where it's going. It generates information every business needs, no matter how small. And you won't find it anywhere else.

Take 30 days and prove it to yourself.



Before you buy personal finance software and try to squeeze your business into it, find out how fast, easy and effective real business software can be. There's no risk. In fact, if you're not writing checks, collecting cash and managing your business better in 30 days, send us your copy of Money Matters and we'll send your money back.

In the meantime, we'll provide free hotline support to ensure your success.

And you should expect nothing less. Because everything you need to manage your money is right inside the box. So pick one up at your software dealer in the U.S. or Canada.

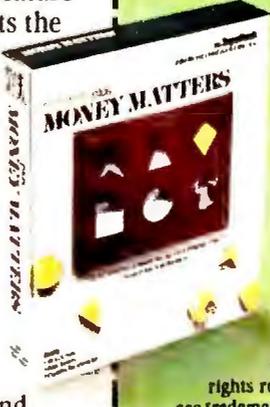
Or call to order today. **1-800-388-8000 Ext. 213**

\$59.95

**one-write plus®
MONEY MATTERS™**

I want the one for business! Please send me Money Matters—for \$59.95 plus \$6.00 shipping and handling. 3.5" disk 5.25" disk
Payment method Check MasterCard VISA AmEx COB \$3.50 extra

Credit Card # _____ Expiration date _____
Name on Card _____
Name _____
Address _____
City _____ State _____ Zip _____
Phone # (____) _____



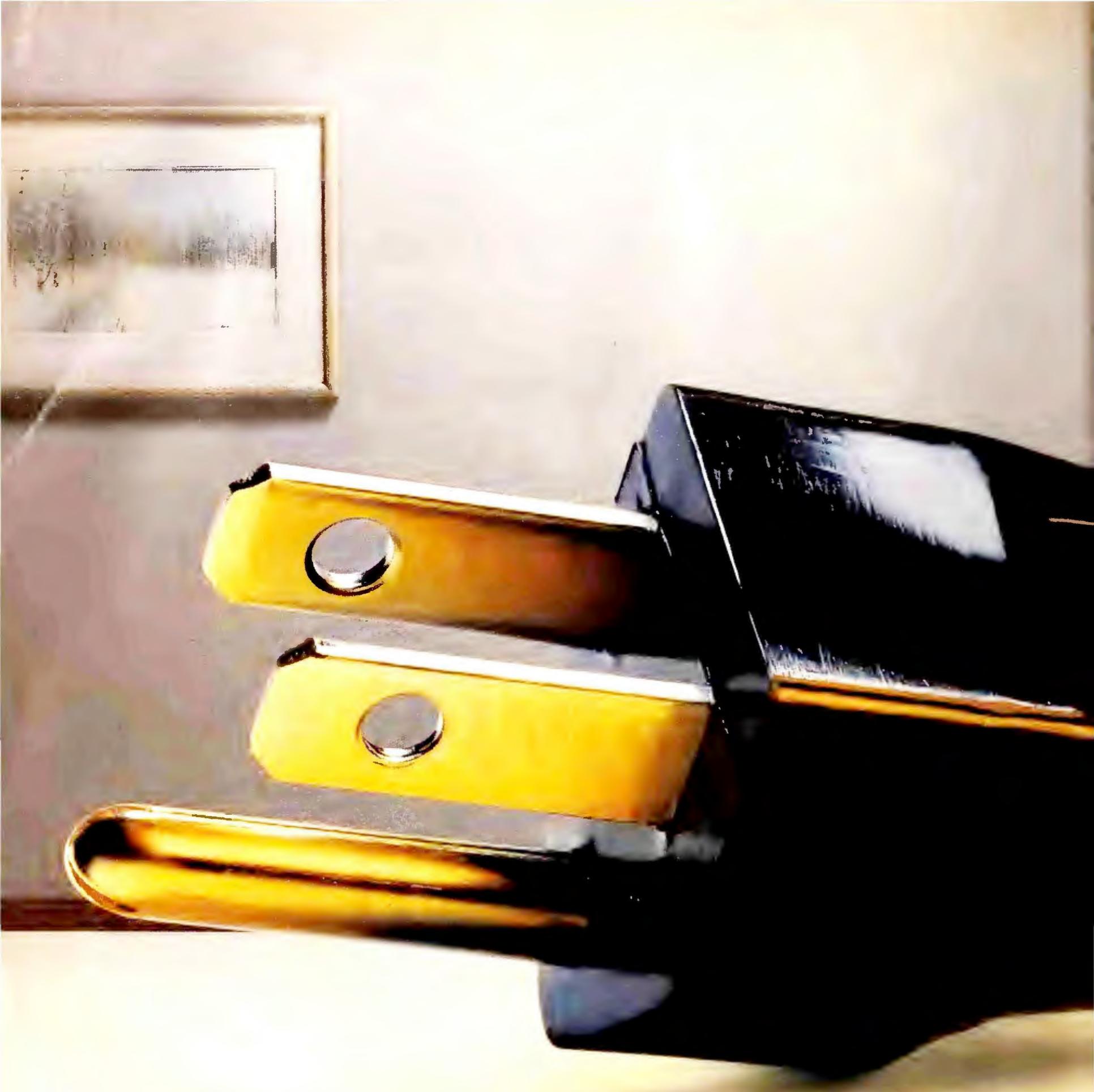
Great American Software
615 Amherst Street
Nashua, NH 03063
Or FAX 603-889-7776

© 1990 Great American Software. All rights reserved. Money Matters and SuperTrack are trademarks of Great American Software

**IT'S ALL
BUSINESS.**

System Requirements: IBM® PC, XT, AT, PS/2® or compatible; DOS 2.1 or higher; 512K RAM and hard disk.

Circle 110 on reader service card



The 486™ PC. It may be a little

486™ Never before has this much power been plugged into a business PC.

Presenting the Intel 486 microprocessor—a veritable powerhouse that's been harnessed for business.

A 486 microprocessor-based PC has everything it takes to run today's high-powered applications. And run them the way you need to—simultaneously and at lightning speed.

Plus, it's compatible with the hard-



more power than you're used to.

ware and business applications you already own, so you won't spend any extra time or money on training.

The 486 PC. Plug it in and start shocking the corporate world.

For additional information, call

1-800-548-4725 and ask for "The 486 Micro-processor Means Business" brochure.

intel[®]

The Computer Inside.[™]

486 is a trademark of Intel Corporation.

Circle 109 on reader service card

BlueMax, 386Max 5.0

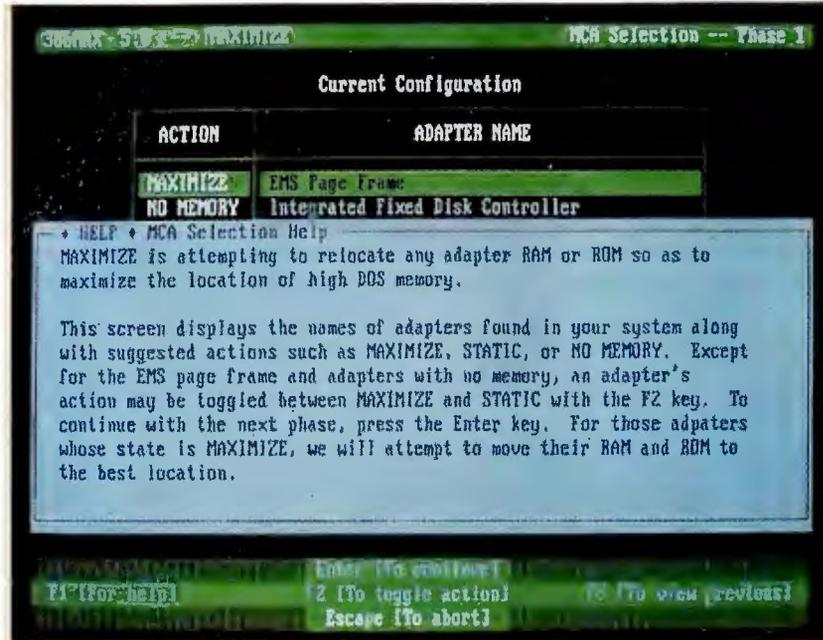
Memory Manager Learns Its PS/2s

When IBM designed the PS/2, it created a memory hog. You won't notice it until you need to run big applications and use a memory manager to load DOS utilities and TSRs into high memory—but when you do, you may find the applications that used to fit on your old PC no longer do. The reason: The PS/2's BIOS, designed to run with OS/2, takes up more high memory than the PC BIOS.

Qualitas' solution is *BlueMax*, a PS/2 version of its popular memory manager, *386Max 5.0*. Either program takes advantage of the 386 chip to make more room at the memory trough for all your hungry applications, but *BlueMax* adds a PS/2-specific wrinkle that can free up more than 65 percent of previously inaccessible memory above 640K.

BlueMax does its thing using a devious and, at first blush, unsettling technique: It compresses the parts of the IBM BIOS that aren't often used for DOS programs. As a result, what once took up 128K of high DOS memory now may occupy as little as 40K. If you want the squeezed features of the BIOS back in order to run OS/2, just reboot without *BlueMax*. If you're stuck with a memory-resident network driver and still have to run a big eater like *Ventura Publisher*, this could make a real difference in your workday.

In addition to its BIOS tricks, *BlueMax* incorporates some of the memory-saving techniques of *386Max 5.0*, beginning at installation. During this process, either program determines the best location for memory-resident programs, leaving you with the



386Max 5.0 and its PS/2 counterpart, BlueMax, take advantage of the 386 chip to make more room for all your memory-hungry applications.

largest possible high-memory segments for other programs. The \$155 *BlueMax* automatically makes available as much as 212K of contiguous high memory for the initialization of your TSRs, which often need more memory to start than to run. The \$130 *386Max*

5.0 provides 192K for initialization on a PC.

386Max 5.0 is compatible with *Windows 3.0* and even lets you load your printer utility, disk cache, or other TSR into high memory before *Windows 3.0* start-up. The new *386Max 5.0* runs on any 386 or

better PC with DOS 3.0 or a later version, 1MB of memory, and a hard disk. *BlueMax*, which is also *Windows 3.0* compatible, has the same system requirements, but for a PS/2. You can upgrade from *386Max 5.0* to *BlueMax* for \$25. Upgrades to the *Windows 3.0* version of *386Max 5.0* are free for registered *386Max* users. —Mark Henricks

IN BRIEF

BlueMax frees up memory for PS/2 users by reducing the space hogged by IBM's BIOS; *386Max 5.0* helps manage memory for the rest of us.

Qualitas Inc.

7101 Wisconsin Ave.
#1386
Bethesda, MD, 20814
800/733-1377,
301/907-0905 (fax)
Reader service no. 628

Co/Session 5.0

Now You Can Point and Click From Afar

Dialing into a PC to run software applications from a distance often means sacrificing certain creature comforts. Your software doesn't work as quickly as it does on the PC directly in front of you, and the mouse is as useful as a chunk

of plastic cheese.

Version 5.0 of *Co/Session*, Triton Technologies' remote communications software, reanimates mousy creatures so that you can happily point and click your way through mousable applications even at a distance. Additionally, *Co/Session 5.0* comes with expanded memory support—specifically, EMS 4.0. The \$125 host version of the program now can be loaded into expanded memory and requires only 5K of conventional memory instead of the regular 50K to 102K.

While the host module runs memory-resident, the \$135 support module can be run either in the foreground or as a TSR whose PC connects to the host PC over phone lines. Ei-

ther host or support PC can call the other.

Co/Session 5.0 comes with a 4K add-on security program, *Safeguard*, which can be used to limit callers' access to certain drives, directories, and applications. It also prevents callers from leaving an application and gaining access to the host's DOS prompt, but it would seem more sensible to build these features into the software, as *Co/Session* competitors have done.

Other enhancements in version 5.0 include support for 43-line and 50-line text modes in applications running on the remote end, password protection for the phone directory in both the host module and the support module, easier modem configuration, and command-line options in the support version that enable calls to be placed without the use of menus. —Judy Heim

IN BRIEF

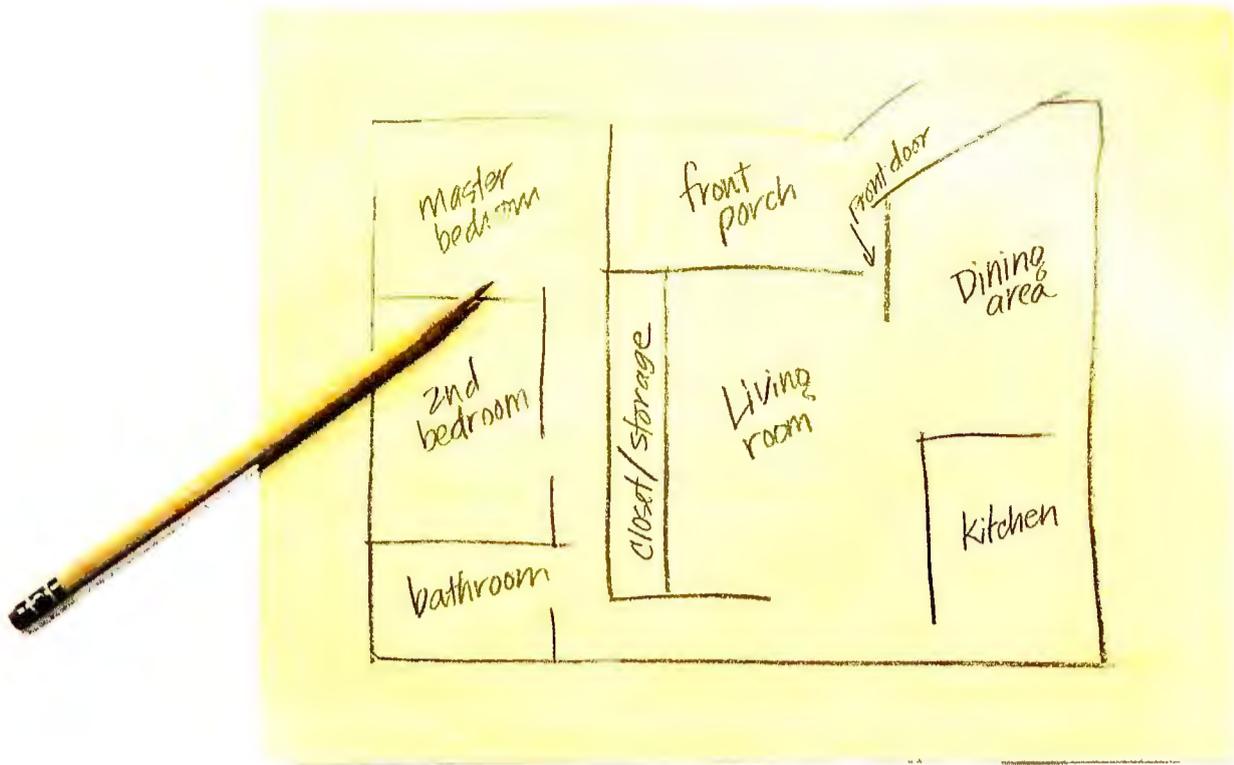
Co/Session 5.0 wakes up your mouse for remote PC use and lets you tuck its overhead into expanded memory.

Triton Technologies Inc.

200 Middlesex Tnpk.
Iselin, NJ 08830
800/322-9440,
201/855-9608 (fax)

Reader service no. 635

Now Available
23 Symbol Libraries for under \$50.00 each
Call 1-800-223-2521 for details



Sketch.



AutoSketch®

If you can sketch, you can AutoSketch.
Which gives you real CAD power—speed, accuracy and easy revisions—all without a long, drawn-out learning curve.

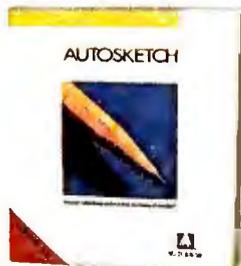
With AutoSketch version 3, you have our easiest CAD yet with pull-down menus and on-screen icons. You also have DXF™ file

compatibility and associative dimensioning. It's what you'd expect from the makers of AutoCAD®, the world's most popular CAD package.

For a brochure or ordering information, call 1-800-223-2521.

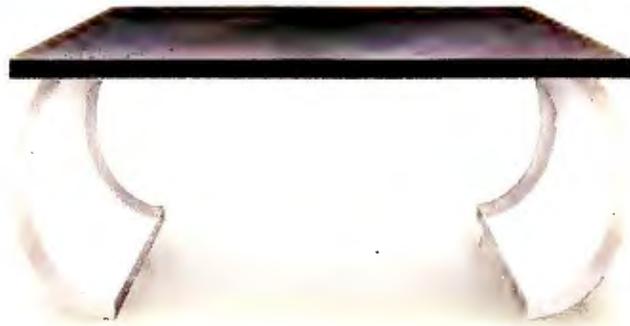
We'll sketch in the details.

U.S. \$249



 AUTODESK

The affordable HP Laser

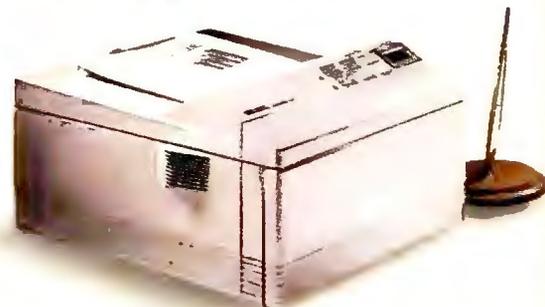


Put an HP LaserJet printer on everyone's desk.

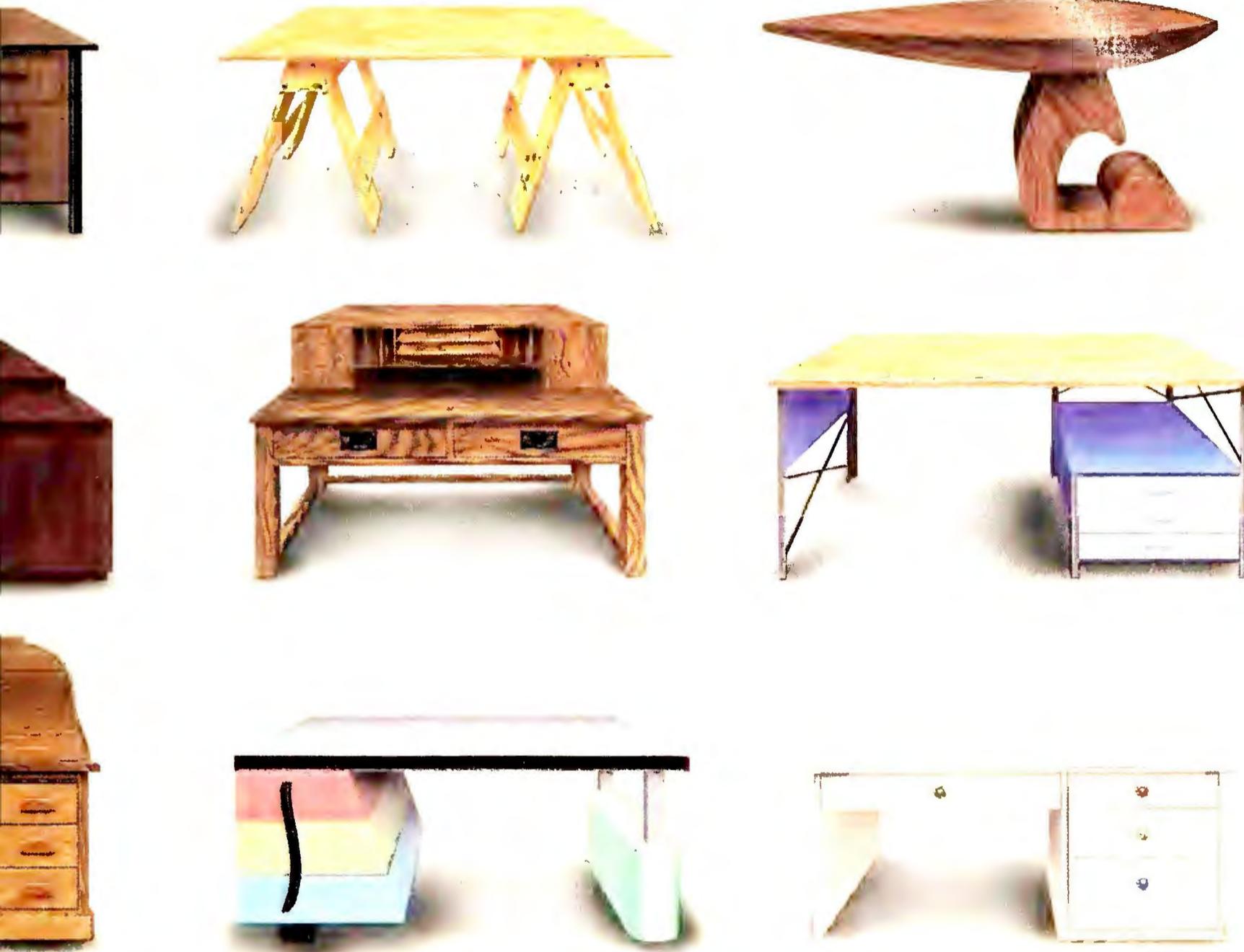
With a list price of \$1,495,* we're now delivering the legendary Hewlett-Packard LaserJet IIP printer at a very personal size and price. Without sacrificing any of the qualities people love in a LaserJet.

You get crisp 300 dpi text and

graphics. Software and hardware compatibility. And a wide selection of HP typefaces and accessory products.



et IIP can top anyone's hardware.



Plus, there's room to grow, without taking up any more desk space. From our Great Start font cartridge up through scalable type, you can dramatically expand the way people express themselves. You can even add an optional 250-page paper cassette for people who have a lot to say. Or need the flexibility of two paper trays.

What's more, with HP quality built into every printer, you can look forward to smooth operation.

It's no wonder *PC Magazine* gave the HP LaserJet IIP its coveted 1989 and 1990 Editors' Choice awards. Or that *InfoWorld* selected the LaserJet IIP as the 1989 Hardware Product of The Year.

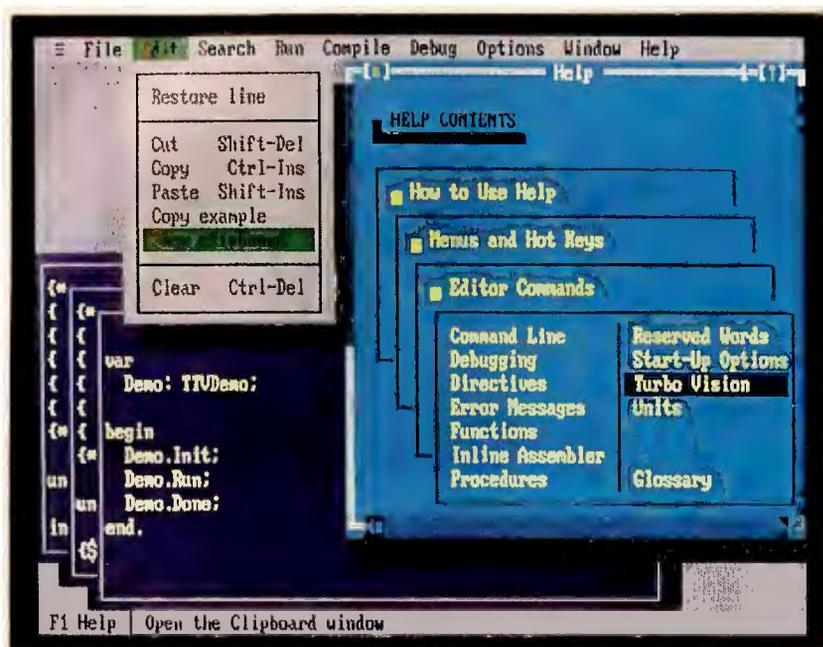
Call 1-800-752-0900, Ext. 1587 for the name of your nearest authorized HP dealer.

You'll find that when it comes to affordable laser printers, nobody can top HP.



Turbo Pascal 6.0

Easier Programming Is the Object



Version 6.0 of Borland's popular Turbo Pascal gains still greater facility and more power within its new object-oriented programming structure.

No matter how you slice it, programming is a challenge, and anything that can make it easier is appreciated. With version 6.0 of its original language program, *Turbo Pascal*, Borland International has mustered a two-flank attack on programming complexity: with an improved development

environment, and with a collection of objects to which the word *library* doesn't do justice.

The most spectacular new feature of *Turbo Pascal 6.0* is Turbo Vision, a library of integrated objects for creating text-based GUI-like interfaces. Turbo Vision offers ob-

jects for windows, menus, dialog boxes, and other features of modern, "mousable" programs. Because of its integration and object-oriented nature, Turbo Vision is much more than a conventional interface library; it provides a full structure onto which programs can be built.

Among the programs Turbo Vision has already helped create is the *Turbo Pascal 6.0* development environment. The editor/debugger is now a rodent-friendly, windowing workplace where you can view and edit multiple files at once. Other new features include macros, a better help system, conditional breakpoints, and EMS support.

The heart of *Turbo Pascal*, the compiler itself, hasn't undergone so drastic a change, but it has been improved. There's now a small, simple inline assembler that lets you easily put small pieces of assembly code into your Pascal program. This feature should not be confused with a real assembler, such as the Turbo Assembler that comes with *Tur-*

IN BRIEF

Version 6.0 of *Turbo Pascal* combines easier programming with an object-oriented structure that is at once intuitive and powerful.

Borland Int'l
P.O. Box 660001
Scotts Valley, CA 95066
408/438-5300
Reader service no. 617

bo Pascal Professional.

The *Professional* version includes a second, command-line compiler that runs in 286 and 386 protected mode, using extended RAM to compile large programs (which will still run only in real mode). As with other *Turbo Professional* languages, *Pascal Professional 6.0* comes bundled with *Turbo Debugger and Tools*.

Turbo Pascal 6.0 requires DOS 2.0 or a later version and 256K of RAM—512K for the integrated development environment. The regular version lists for \$149.95, the *Professional* for \$299.95. —Lincoln Spector

PacificPage PE 4.0, PacificType, Pacific 4 Memory, Pacific Connect

Fulfilling the Promise of the LaserJet

Thinking about trading in your old reliable LaserJet for a sportier PostScript model? Pacific Data Products has a few ways you can get more mileage out of your laser—by adding everything from PostScript and fonts to memory and printer-sharing options.

PacificPage PE 4.0 is a major upgrade to Pacific Data's popular PostScript emulation cartridge. Like its predecessors, PE 4.0 lets your LaserJet pretend it's a PostScript printer, offering 35 scalable fonts and the ability to render complex images. But version 4.0 incorporates Bitstream's

Speedo technology for faster font rendering and higher-quality output and requires only 1.5MB of printer RAM instead of 2.5MB. Also new is 4.0's ability to use extra memory to boost performance. The \$499 cartridge is available for the IIP, IID, III, and IIID printers; owners of previous versions can upgrade for \$99.

Thirty-five fonts not enough for you? Try PacificType, an add-on cartridge for PacificPage that contains an additional 40 scalable typefaces, from Baskerville to Zurich. Note, however, that the \$399 cartridge works only with PE

4.0 already installed and requires a second font slot—which means Series IIP users are out of luck.

Of course, to download fonts or print full-page graphics, you'll need extra RAM. Enter the Pacific 4 Memory line, inexpensive upgrade

boards that let you add printer memory for about half of what HP charges—from \$199 for 1MB up to \$499 for 4MB. Pacific 4 Memory is available for the Series IIP, III, and IIID printers.

Finally, if your work group isn't networked but you're still splitting one LaserJet, Pacific Connect offers an easy way to share the wealth. Plug this board into the printer's optional I/O slot, and you can link five PCs or Macintoshes to your Series II, IID, III, or IIID. The \$399 Pacific Connect comes with one parallel and four serial ports, cabling, and 256K RAM for spooling and queuing print jobs; with 1.25MB RAM it costs \$499.

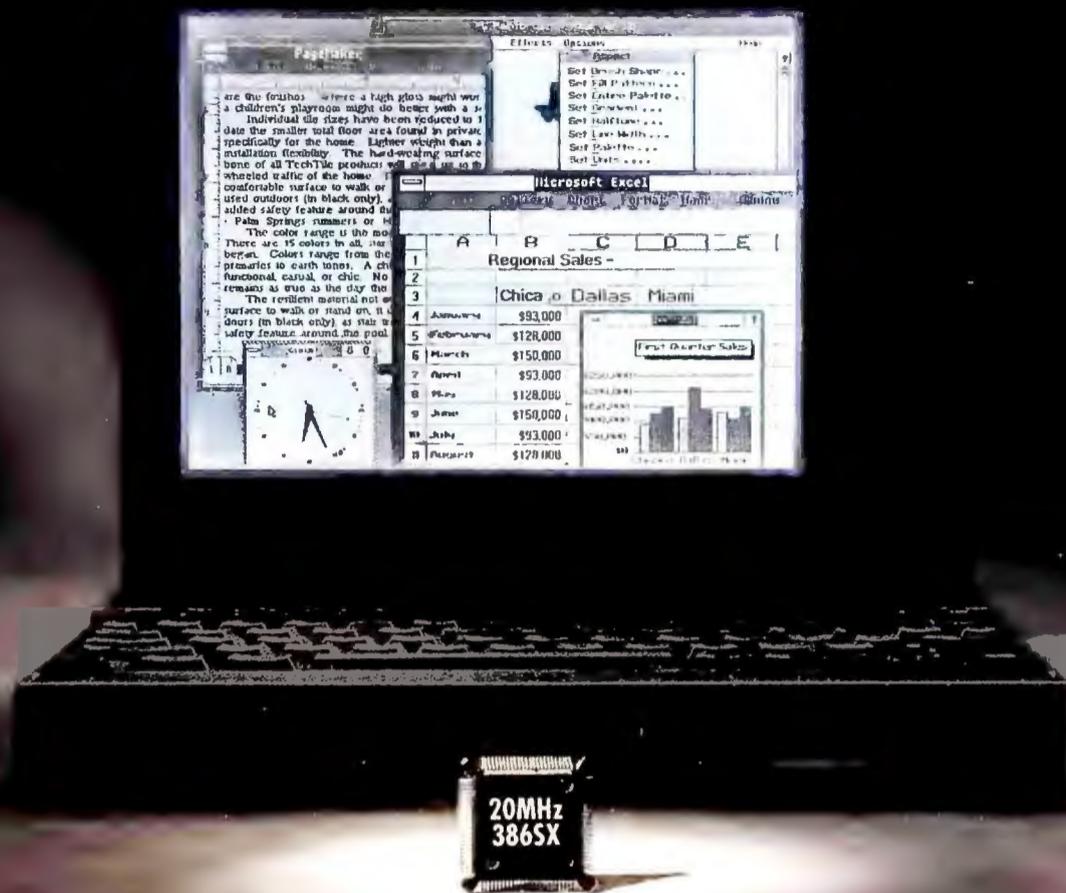
—Daniel Tynan

IN BRIEF

Pacific Data offers a passel of memory, font, and utility add-ons that can extend the life of your LaserJet.

Pacific Data Products
9125 Rehco Rd.
San Diego, CA 92121
619/552-0880,
619/552-0889 (fax)
Reader service no. 626

The new look of power just got more powerful.

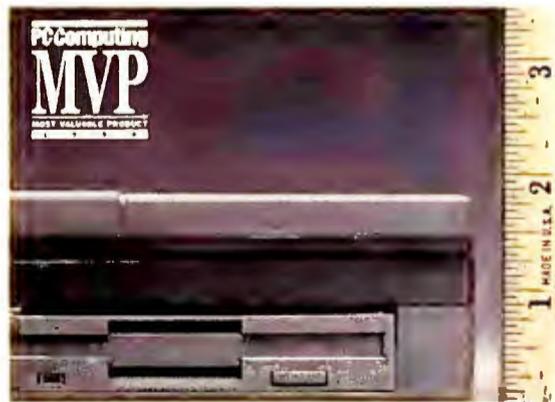


The new TravelMate™ 3000 notebook computer packs 386SX power into 1.8" and 5.7 lbs.

Finally. A truly portable 386SX notebook computer attractively packaged in a sleek, breakthrough design that complements your workstyle — TI TravelMate 3000. This latest addition to TI's powerful new look of notebook computers packs 20 MHz, 386SX processing power into a convenient 1.8" thin, 5.7-lb. package.

Portable power for power users.

Now you can easily carry desktop performance in an exceptionally lightweight package. Run power-hungry applications with 2MB of RAM (expandable to 6MB) and a 20MB, 40MB or 60MB hard disk drive. Get the full effect of Windows[®] and graphics-intensive software on the TravelMate 3000's big, bright 10" diagonal VGA display with 32 shades of gray.



The new 20 MHz 386SX TM 3000 is just 8.5" x 11", a mere 1.8" thin and weighs an easy-to-carry 5.7 lbs. (including battery)!

Loading application software and file back-up are easy with the built-in 3.5" floppy diskette drive. The internal battery lets you

work up to three hours nonstop. Plus, the TravelMate 3000's full-function AT[®]-enhanced keyboard lets you do it in comfort.

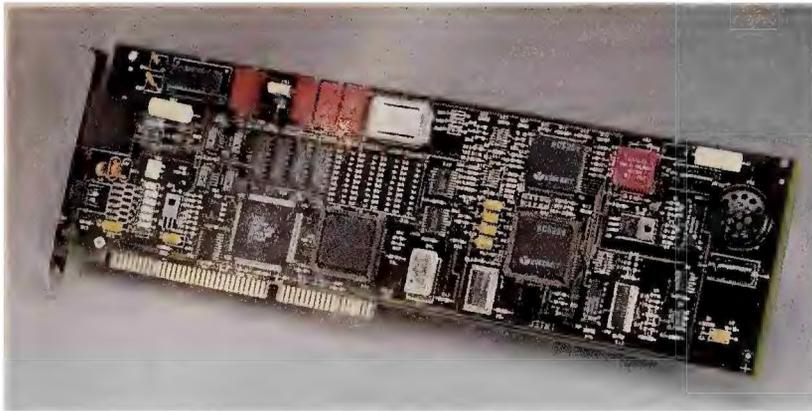
Call today for power without compromise.

To see the new look of 386SX power, call TI for the name of a TM 3000 dealer near you.
1-800-527-3500


**TEXAS
INSTRUMENTS**

SatisFAXtion Board

What You Print Is What You Fax



The SatisFAXtion board lets you fax files at 9600 bps from within an application just by hot-keying a pop-up menu. You also get an on-board 2400-bps modem with MNP Level 5 error correction/compression.

Using a fax board just got easier. SatisFAXtion, Intel PCED's new fax/modem combo, makes sending a fax from your PC almost as painless as printing a file—and sweetens the deal with good performance and a low price.

SatisFAXtion lets you send files at 9600 bps from within any application that supports an Epson FX85 printer merely by using a menu that you pop up with a user-definable hot key. You enter the name and phone number of the recipient in the dialog box, or you can choose a name from a phone book of up to 100 entries. In the past, if your application didn't support the Intel/DCA Communications Applications Specification (CAS), you had to exit the application and load special fax software.

The board preserves Epson fonts and formats in transmission, and standard Windows screen fonts, and its on-board processor and 128K of RAM ensure that your other work won't suffer a slowdown.

SatisFAXtion lets you specify a date and time for transmission, send faxes to a distribution list, and attach logos, signatures, or a cover sheet. Another unobtrusive dialog box pops up to tell you whether the fax transmission was successful or to alert you to an

incoming fax.

The board's memory-resident software requires 66K, but 53K's worth runs in expanded memory if you have EMS 4.0. A separate, nonresi-

Quicken 4.0

Check-Writer Tracks Your Investments

Having evolved from a simple check-writing program to a serviceable one-write accounting system, *Quicken* is now expanding into personal finance management, where MECA Software's *Managing Your Money* is the standard by which others are measured.

Intuit has added investment tracking and built-in support for electronic bill payment to *Quicken 4.0*, one of the best-selling and easiest-to-use programs of any kind. With *Quicken 4.0*, you now can track the performance of a wide variety of investments, including stocks, bonds, mutual funds, and retirement accounts. Investments can be grouped by industry, risk level, or goal. New reporting features let you create customized reports in such areas as investment performance, portfolio value, and capital gains.

For a quick look at your

portfolio history, *Fax*, lets you maintain your phone book, read the activity log, and view and print stored faxes.

For sending nonfax files, SatisFAXtion includes an on-board 2400-bps modem with MNP Level 5 error correction/compression that can boost some transmissions to 4800 bps. SatisFAXtion's modem works with any standard communications software or modem, but SatisFAXtion can send binary data files at 9600 bps only to fax machines or to PCs equipped with a SatisFAXtion board, Intel's Connection CoProcessor, or another CAS-compatible fax board.

SatisFAXtion list prices are \$499 for the AT bus version and \$549 for an IBM Micro Channel, well below the \$890 you would have paid for the

first-generation Connection CoProcessor, which will gradually be phased out. SatisFAXtion requires DOS 3.0 or a later version, 640K of RAM, 1MB of disk storage, and a single 8-bit slot. —*Judy Heim*

IN BRIEF

SatisFAXtion lets you send and receive background faxes from within any application that can print to an Epson FX85 printer.

Intel PCED
5200 N.E. Elam Young Pkwy.
Mail Stop CO3-07
Hillsboro, OR
97124-6497
800/538-3373,
800/525-3019 (fax)
Reader service no. 619

funds to pay your bills, you can take advantage of *Quicken's* expanded reporting features to create reports on your income and outgo. And *Quicken 4.0* tracks tax-related income and expenses that can be transferred to popular tax-preparation programs such as ChipSoft's *TurboTax*.

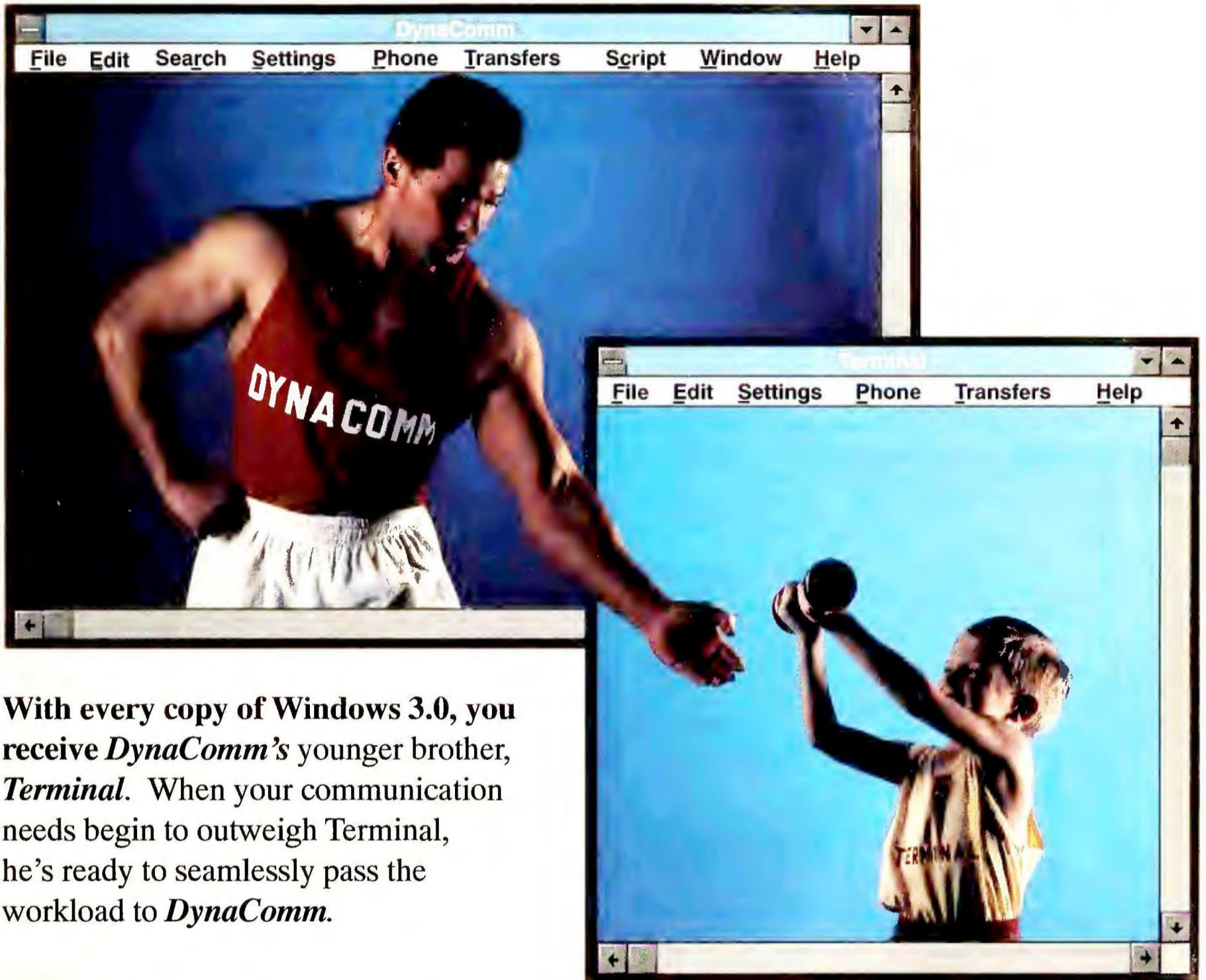
Quicken's menu systems are so intuitive, you should be able to learn and use them without referring to the on-line help, let alone the manuals. *Quicken 4.0* has even gained an auto-completion feature; you need only type in the first few letters of a data entry—such as the payee on a check—and *Quicken* will search its files to complete the rest of the entry for you. Like *Quicken 3.0*, *Quicken 4.0* has a suggested retail price of \$59.95 and comes with free, unlimited technical support. *Quicken 4.0* requires 320K of RAM with DOS 2.0 or 384K with DOS 3.0 or a later version, and a single floppy drive. —*Roberta Furger*

IN BRIEF

One of the most intuitive programs around, *Quicken 4.0* adds powerful investment tracking to its personal finance features.

Intuit, Inc.
P.O. Box 3014
Menlo Park, CA 94026
415/322-0573

All Gain. No Pain.



With every copy of Windows 3.0, you receive *DynaComm's* younger brother, *Terminal*. When your communication needs begin to outweigh Terminal, he's ready to seamlessly pass the workload to *DynaComm*.

■ **Comprehensive LAN Support**

NetBIOS, Ungermann-Bass, Eicon Gateway...

■ **Terminal Emulations**

IBM 3270, DEC VT100/220, IBM 3101
AT&T 605/1705, DG 470C, HP 700/94...

■ **Power Scripting**

DDE, Dynamic Link Library Access...

■ **Reconfigurable Interface**

Redefinable Menus, Dialogs, Function Keys...

■ **Standard Protocols**

IND\$FILE, XModem/CRC, YModem Batch,
YTerm, Kermit, CompuServe B+

■ **Built-in Multiple Document Editor**

When you're ready to gain micro-to-mainframe communications with power for all your needs, call Future Soft at 713-496-9400.

DynaComm[®]
Dynamic Communications

F S Future Soft
E Engineering, Inc.®

1001 South Dairy Ashford • Houston • TX 77077 • (713) 496-9400 • FAX (713) 496-1090

DynaComm is a registered trademark of Future Soft Engineering, Inc. Other trademarks are the properties of their respective owners or licensees.

Circle 134 on reader service card

Ring out the old

1990 World Class Award for Best Mail-Order Company



- 3 1/2" format available from us. Specify when ordering.
 - package includes both 5 1/4" and 3 1/2" disks.
 - 3 1/2" format available from manufacturer by request. Call us for details.
- CP—copy-protected; NCP—not copy-protected.

The four-digit number next to each product is the product's ITEM NUMBER. Please refer to this number when ordering. Thank you.

SOFTWARE

We only carry the latest versions of products. Version numbers in our ads are current at press time.

Products listed here in red are Microsoft Windows Applications.

- Adobe Systems ... NCP**
- 7547 Adobe Type Manager for Windows \$59.
 - 8367 ATM & Plus Pack Bundle 169.
 - 7392 Adobe PostScript Cartridge 249.
- (Entire Adobe Type Library, from 1 to 133 is available. Call for more information.)
- Aldus ... NCP**
- 1332 PageMaker 3.01 499.
 - 8000 Persuasion 2.0 for Windows. 399.
- Alpha Software ... NCP**
- 5104 Alpha Four 1.1 319.

- Application Techniques ... NCP**
- 1214 Pizazz Plus 2.0. \$69.
- Ashton-Tate ... NCP**
- 4450 dBASE IV 1.1 499.
- Asymetrix ... NCP**
- 7384 Toolbook 1.0 for Windows 309.
- Avery ... NCP**
- 6006 Label Pro 1.0 (Laser) 49.
 - 7336 Label Pro 1.0 for Dot Matrix 49.
- Bitstream ... NCP**
- 7568 FaceLift 1.0 for Windows 2.x/3.0 59.
 - 8368 FaceLift 1.0 & Microsoft Windows Productivity Pack 1.0 99.
 - Collections: each 129.
 - Typeface Packages each 89.
- Bloc Publishing ... NCP**
- 1447 FormTool Gold 3.0 55.
 - 6245 Pop Drop Plus 1.0 59.
- Borland International ... NCP**
- 7357 Turbo C++ 1.0 Professional 219.
 - 7356 Turbo Pascal Professional 2nd Ed. 179.
 - 6242 Quattro Pro 2.0 339.
 - 1514 Paradox 3.5. 569.

Corel Systems ... NCP
5506 CorelDRAW! 2.0—The award-winning PC graphics software. It gives you incredible type control, drawing power, and special effects in a value-packed package. \$389.

Adobe Systems ... NCP
8367 ATM & Adobe Plus Pack Bundle—ATM converts Windows 3.0 screen displays & dot-matrix printed output to crisp, legible text at any point size. The Plus Pack includes 22 additional PostScript fonts \$169.

- DCA ... NCP**
- 7936 Crosstalk Communicator 1.0 59.
 - 2908 Crosstalk XVI 3.71 119.
 - 5611 Crosstalk for Windows 1.1 129.
- Delrina Technology ... NCP**
- 7351 PerFORMPRO 1.0 for Windows. 299.
- Fifth Generation Systems ... NCP**
- 7725 Direct Access 5.0. 65.
 - 7795 Disklock 1.0. 109.
 - 3950 Fastback Plus 2.1 119.
- FormWorx ... NCP**
- 5810 FormWorx with Fill & File 2.5 85.
 - 7311 Form Publisher for Windows 1.2. 145.
- Fox Software ... NCP**
- 6188 FoxPro 1.02. 489.
- Franklin Software ... NCP**
- 7071 Language Master 3.0 49.
 - 7416 Language Master 3.0 for Windows 59.
- Funk Software ... NCP**
- 2228 Sideways 3.3 59.
 - 7380 P.D. Queue 1.0 (print spooler) 59.

Qualitas ... NCP
386MAX & BlueMAX let you run your 386 & Windows to the MAX! New! BlueMAX is the ultimate memory manager for 386 PS/2s!
7539 386MAX 5.0 \$75.
7967 BlueMAX 1.0 (3 1/2" only). 85.

- Broderbund ... NCP**
- 1434 New Print Shop 39.
- ButtonWare ... NCP**
- 6419 PC-File 5.0. 89.
- Caere ... NCP**
- 6004 Omnipage 386 2.1 599.
- Central Point ... NCP**
- 5039 PC Tools Deluxe 6.0. 95.
 - 8114 Backup 6.0 65.
- Chipsoft ... NCP**
- 1663 TurboTax 8.0 for 1990 Taxes. 45.
- CompuServe**
- 7546 DOS Membership Kit 23.
- Concentric Data Systems ... NCP**
- 6575 R & R Relational Report Writer 3B 109.
- Corel Systems ... NCP**
- 5506 CorelDRAW! 2.0 389.
- Custom Applications ... NCP**
- 7474 Freedom of Press 2.2. 255.
- Data Storm ... NCP**
- 4798 PROCMM PLUS 1.1 65.

Chipsoft ... NCP
1663 TurboTax 8.0 for 1990 Taxes—The best-selling, easy-to-use and complete software for preparing individual tax returns. Turbo Tax provides on-line help, IRS instructions and comprehensive tax assistance. \$45.

bring on the new.



Hayes ... 2 years

7983 Smartcom Exec 2.0—On-line editor, full scripting language, ZMODEM...support for all popular PC modems and high speed serial ports such as Hayes ESP. It also supports network operations on Local Area Networks \$79.

Great American Software ... NCP

- 4879 One Write Plus Payroll Module . . . 89.
- 4880 One Write Plus Acct. Sys. 2.06 . . 189.
- 5825 Money Matters 2.0 42.

Harvard Associates ... NCP

- 2324 PC Logo 3.0 59.

Hayes ... NCP

- 7983 Smartcom Exec 2.0 79.
- 2295 Smartcom III 1.2 149.

hDC Computer Corp. ... NCP

- 7389 Windows Express 3.0 52.
- 7383 First Apps 1.0 52.

Hilgraeve ... NCP

- 2323 HyperACCESS/5 1.1 (DOS & OS/2) 115.

IBM ... NCP

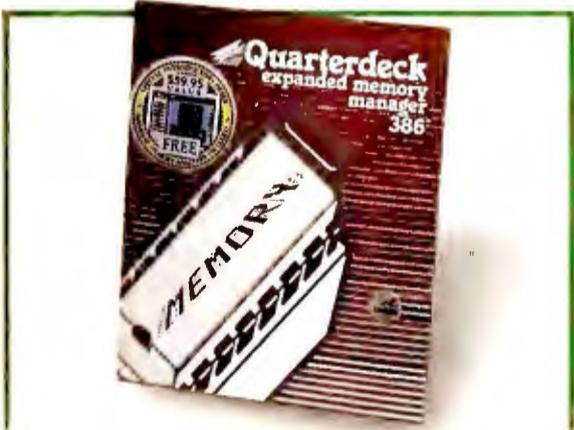
- 6599 Current 1.1 239.

Individual Software ... NCP

- 6222 Resume Maker 1.1 29.

Inset Systems ... NCP

- 7298 Hijaak 2.0 99.
- 7300 Inset Plus Hijaak 125.



Quarterdeck ... NCP

3221 Expanded Memory Manager 386 5.1—Now works in conjunction with Windows 3.0. Able to load TSR programs and DOS resources into high memory regardless of which Windows mode you're in. . . . \$59.

Insight Development ... NCP

- 8320 PrinTools 1.0 \$85.

Intuit ... NCP

- 2426 Quicken 4.0 39.

Isogon ... NCP

- 7478 FontSpace 2.0 59.

Laser Go ... NCP

- 7635 Go Script Plus 3.0 189.

LaserTools ... NCP

- 6882 PrintCache 2.3 99.

Lord Publishing ... NCP

- 5191 Ronstadt's Financials 1.02 75.

Lotus ... NCP

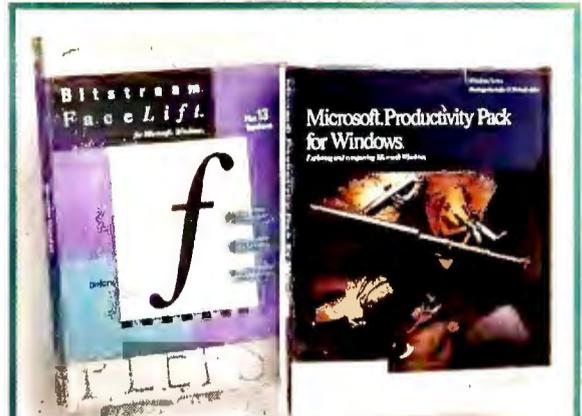
- 5417 1-2-3 3.1 429.
- 5653 1-2-3 2.2 349.
- 5134 Magellan 2.0 119.

MECA ... NCP

- 4603 Andrew Tobias' Tax Cut-1990 Taxes 49.
- 2798 Managing Your Money 7.0 135.

Microcom ... NCP

- 7649 Virex 1.1 79.
- 6234 CarbonCopy Plus 5.2 119.



Bitstream ... NCP

8368 FaceLift 1.0 for Windows 2.x/3.0 & Windows Productivity Pack 1.0—Here's how to get great type in any size for any printer & all the Windows help you'll ever need at a great price. \$99.



Software Publishing ... NCP

Holiday Bundles—"Free for all promotion!"

- 7769 Preface (with Viruscan) \$49.
- 3499 First Publisher (with Deluxe Paint II) . 99.
- 3478 First Choice (with Prodigy) 105.
- 3496 Professional Write (w/Professional File) 179.

Multisoft ... NCP

- 4925 PC-Kwik Power Pak 1.5 79.

Nolo Press ... NCP

- 2982 WillMaker 4.0 39.

PC Globe ... NCP

- 5902 PC Globe 4.0 39.
- 5900 PC USA 2.0 39.

Personics ... NCP

- 4384 Ultravision 2.0 79.
- 7048 Monarch 1.0 (Data Mgmt. Tool) . 319.

PowerUp ... NCP

- 7860 Calendar Creator Plus 3.0 45.

Precision Software ... NCP

- 6600 Superbase 4 for Windows 1.2 . . 469.

Qualitas ... NCP

- 7539 386MAX 5.0 75.
- 7967 BlueMAX 1.0 (3 1/2" only) 85.

Quarterdeck ... NCP

- 6422 QRAM 1.0 49.
- 3221 Expanded Memory Mgr. 386 5.1 . 59.
- 3220 DESQView 2.3 79.
- 4586 DESQView 386 5.1 129.

Reality Technologies ... NCP

- 6572 WealthBuilder 1.1 145.

Reference Software ... NCP

- 4396 Grammatik IV 1.0 52.
- 7483 Grammatik for Windows 1.0 52.

Revolution Software ... NCP

- 4480 VGA Dimmer 2.01 (screen saver) . 29.

RightSoft ... NCP

- 4155 RightWriter 4.0 55.

Samna ... NCP

- 5148 Ami 129.
- 5799 Ami Professional 1.2 309.

Sitka/TOPS ... NCP

- 6675 TOPS Network Bundle 3.0 159.
- 3720 Flashcard 2.1 (AppleTalk ntwrk. card) 155.

Softlogic Solutions ... NCP

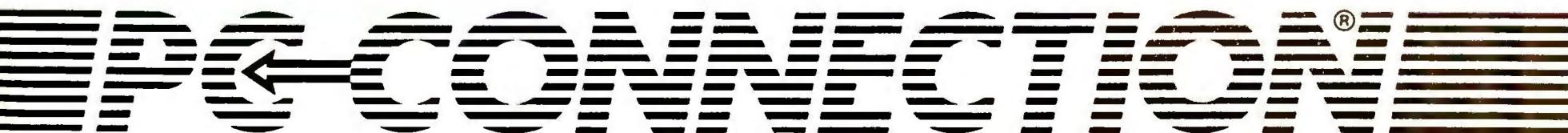
- 3542 Software Carousel 4.0 55.

Software Publishing ... NCP

- 3499 PFS:First Publisher 3.0 99.
- 3478 PFS:First Choice 3.1 105.
- 3496 Professional Write 2.2 179.
- 3482 Harvard Graphics 2.3 359.

1-800/243-8088

MMC **PC Connection** 800W
 of the Best Marketing Companies, Inc. 6 Mill Street
 Marlow, NH 03456
SALES 603/446-7721 FAX 603/446-7791



ALL ITEMS SUBJECT TO AVAILABILITY. PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

A little more speed



Samna ... NCP

5799 Ami Professional 1.2—Word processing combines ease of use with features like tables, drawing and charting, & more! Windows 3.0 & HP NewWave compatible . . . \$309.
5148 Ami . . . 129.

Software Ventures ... NCP

6889 MicroPhone II for Windows. . . . 215.

Solution Systems ... NCP

7977 Brief 3.0 (Programmer's Editor) . 189.

Spinnaker ... NCP

7604 PLUS for Windows 1.0 289.

Symantec ... NCP

3152 The Norton Commander 3.0 . . . 105.

6397 The Norton Backup 1.1 105.

3146 The Norton Utilities 5.0 125.

3425 Q&A 3.0 229.

Systems Compatibility ... NCP

8215 Outside In 1.0 65.

6564 Software Bridge 4.1 79.

TIMESLIPS ... NCP

2987 Timeslips III 4.0 195.

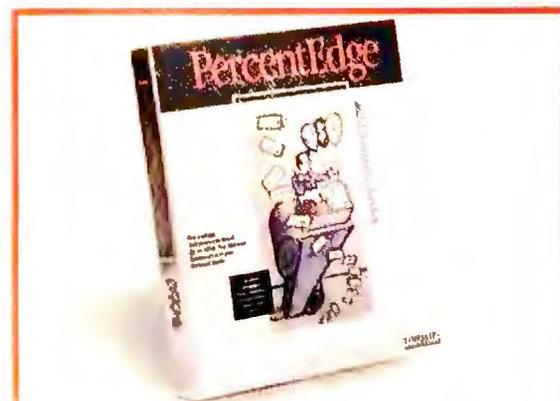
6994 PercentEdge 1.0 69.

Timeworks ... NCP

6253 Publish-It! 1.1 115.

Touchstone Software ... NCP

7420 Check It 3.0 89.



TIMESLIPS ... NCP

6994 PercentEdge 1.0—Calculate mortgage rates, present values, annuities, savings & loan balances, and more. "Fill in the blank" interface completes the calculation once your data is entered. "Pop-up" mode available . . \$69.

Traveling Software ... NCP

5179 LapLink III 3.0 \$95.

Ventura Software (Xerox) ... NCP

7796 Ventura Publisher for Windows 3.0 569.

West Lake Data Corp. ... NCP

7577 PC-FullBak+ 1.12 52.

7574 PathMinder+ 1.0 79.

WordPerfect Corp. ... NCP

7781 LetterPerfect 1.0 135.

3804 WordPerfect 5.1 265.

6685 DrawPerfect 1.1 279.

WordStar International ... NCP

6791 WordStar Prof. 6.0 279.

XTREE ... NCP

6161 XTreePro Gold 1.4 85.

ZSoft ... NCP

7016 PC Paintbrush IV Plus 1.0 119.

7014 PC Paintbrush Plus for Windows 1.12 89.



Microsoft ... NCP

2858 Microsoft Aircraft and Scenery Designer for Flight Simulator 4.0—Fly a 747-400 or create your own aircraft. Design and customize buildings and scenery with this brand new companion to the classic program . . . \$29.

RECREATIONAL/EDUCATIONAL

Broderbund ... CP

8068 Where in the World is Carmen

Sandiego Deluxe Edition 52.

5851 SimCity 33.

Electronic Arts ... NCP

5804 Deluxe Paint II (Enhanced) 89.

Microsoft ... NCP

7881 Entertainment Pk for Windows 1.0 29.

8270 Aircraft and Scenery Designer 1.0

(req. FS 4.0) 29.

2858 Flight Simulator 4.0 39.

Microsoft Press (Books)

8126 Running with DOS 4th Edition 20.

8129 Running Windows (2nd Edition) . . . 22.

8136 Running Microsoft Excel 22.

Penton Overseas ... NCP

VocabuLearn/ce Levels I & II (French,

Italian, German, Spanish, Russian,

Hebrew and Japanese) each 39.

Sierra On-Line ... CP

5106 Space Quest III 39.

7972 King's Quest V 45.



Touchstone Software ... NCP

7420 Check It 3.0—Diagnostic software will help find and get rid of system problems. Run over 160 tests on all major system components. Results can be logged to disk or printer with suggestions on fixing simple troubles . . \$89.

Spectrum Holobyte ... NCP

3467 Tetris 22.

5993 Welltris 22.

Software Toolworks ... NCP

4659 Chessmaster 2100 (CP) 35.

7372 World Atlas 42.

Stone & Assoc. ... NCP

5231 Phonics Plus 22.

3433 Algebra Plus Vol 1 (ages 13+) . . . 27.

Toyogo ... NCP

7676 Nemesis Go Master Deluxe 88.

True BASIC, Inc. ... NCP

Kemeny/Kurtz Math Series. each 45.

HARDWARE

Manufacturer's standard limited warranty period for items shown is listed after each company name. Some products in their line may have different warranty periods.

American Power ... 2 years

7108 Smart UPS 400 339.

6811 360SX (stand-by power source) . . . 219.

7106 520ES (stand-by power source) . . . 329.

AST Research ... 2 years

1299 SixPakPlus 384k C/S/P 179.

8041 SixPak 286 0k 105.

Boca Research ... 5 years

7001 BOCARAMI/AT PLUS (0-8 Meg)

(LIM 4.0 extended) 125.

7061 BOCARAM/XT 0K (0-2 Meg, LIM 4.0) 99.

6998 I/O Board for AT 59.

8380 BasicVGA (256K 640 x 480) 79.

8381 SuperVGA (1 Meg 1024 x 768) . . . 145.

Bravo Communications ... 2 years

7400 2 Pos. Laser Compatible Switch Box 109.

Canon ... 1 year

7894 BJ-10e BubbleJet Printer (4.6 lb.) . 349.

7896 Sheet feeder for BJ-10e 75.

CH Products ... 1 year

8119 FlightStick w/Falcon & GameCard III . 79.

7345 RollerMouse (Trackball) serial 85. bus 99.

and memory would do.



Systems Compatibility ... NCP
 8215 *Outside In 1.0*—Import text or data directly into your word processor from over 50 different word processor, spreadsheet, and database programs—without leaving your word processor. \$65.

- Curtis ... lifetime**
 1704 Universal Printer Stand PS-1 18.
 1708 Ruby-Plus SPF-2 Plus 65.
 7358 Command Center 89.
 Glass Filter Plus (specify size) . . ea. 65.

- Datadesk ... 3 years**
 6901 Switchboard 175.

- Epson ... 1 year**
We are an authorized Epson Service Center.
 1906 FX-850 (80 col., 264 cps, 9 pin) . . . call
 1904 FX-1050 (136 col., 264 cps, 9 pin) . . call
 5183 LQ-510 (80 col., 180 cps, 24 pin) . . 289.
 1930 LQ-850 (80 col., 264 cps, 24 pin) . . call
 1917 LQ-1050 (136 col., 264 cps, 24 pin) call
 5184 LX-810 (80 col., 180 cps, 9 pin) . . . 185.
 7775 Equity LT-286e Laptop 1995.
 7774 Equity LT-386SX Laptop 3069.

- 5th Generation ... 1 year**
 7157 Logical Connection Plus 512k 599.

- Hayes ... 2 years**
 2307 Smartmodem 2400 349.
 8049 JTFax 9600B 499.
 7391 Ultra 9600 Modem 829.

- Hewlett-Packard ... 1 year**
 6754 LaserJet III (w/toner) 1699.
 6582 LaserJet IIP (w/toner) 1069.

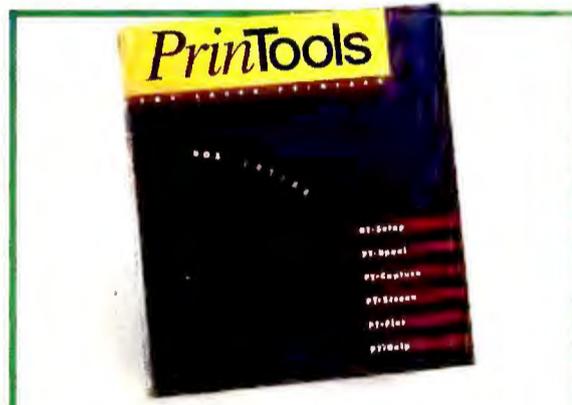
- Intel ... 5 years**
 6421 2400B MNP Internal Modem 199.
 4696 2400B Internal Modem 159.
 2352 2400B Internal Modem 2 (for PS/2) 249.
 5119 2400 Baud External Modem 179.
 6420 2400EX MNP Modem 229.
 7880 9600EX Modem 549.
 2346 Inboard 386/PC w/1 Meg 495.
 5336 Above Board Plus 8 2 Meg 599.
 5342 Above Board Plus 8 I/O 2 Meg . . . 629.
 7782 SatisFAXtion (fax board) 399.
 7552 NetPort (3 year warranty) 489.

- MATH COPROCESSORS**
 7385 80287XL (16 MHz 80286 CPU's) . . . 199.
 4750 80387SX (16 MHz 80386SX CPU's) 309.
 2371 80387 (16 MHz 80386 CPU's) 349.
 2372 80387-20 (20 MHz 80386 CPU's) 399.
 4121 80387-25 (25 MHz 80386 CPU's) 429.

- Kensington Microware ... 1 year**
 2582 Master Piece Plus \$109.
 7899 Expert Mouse serial . . 119. bus . . 129.
Keytronic ... 3 years
 4518 101 Plus Keyboard 99.
Kraft ... 5 years
 5800 3 button Thunder Joystick 29.
 5813 Game Card/Thunderstick Bundle . . 55.
 7862 TopTrack (Laptop Trackball) 79.
Logitech ... limited lifetime
 7768 C9 Mouse with Windows 149.
 6029 Trackman (Trackball) serial 85. bus 89.
 4297 ScanMan Plus (hand scanner) . . . 185.
 7975 ScanMan 256 319.
Micron Technology ... 2 years
 7595 2 Meg Expansion for HP LaserJet IIP or III 165.
 7012 Beyond Memory Board for PS/2 Model 70 (2 Meg) 169.
Microsoft ... lifetime
 7597 Microsoft Mouse 89.
 2897 Mouse with Paintbrush 109.
 2898 Mouse with Windows 3.0 149.



Boca Research ... 5 years
SuperVGA by Boca—High-performance VGA upgradeable 1024 x 768 graphics in 256 colors. Interlaced & non-interlaced compatible.
 6995 1024 x 768/16 Colors (512K) \$139.
 8381 1024 x 768/256 Colors (1 Meg) 145.



Insight Development ... NCP
 8320 *PrintTools 1.0*—Utilities for the HP LaserJet, DeskJet & compatibles. Includes Spooler, Screen Dump, Screen Capture, SetUp, Plot with HPGL/2 support, and Help utilities \$85.

- MicroSpeed ... 1 year**
 PC-TRAC Trackball
 6007 serial 75. 6008 bus 89.
 7271 Inport 79. 6330 PS/2 79.
Mouse Systems ... lifetime
 5997 Trackball (1 yr. wrnty.) serial 75. bus 85.
 7878 PC Mouse III 99.
NEC ... 2 years
 4799 Multisync 2A (VGA Monitor) 499.
 5085 Multisync 3D Monitor 689.
Orchid Technologies ... 4 years
 7512 ProDesigner VGA II (1024 x 768) . . 299.
 7888 ProDesigner/e (256k) 209.

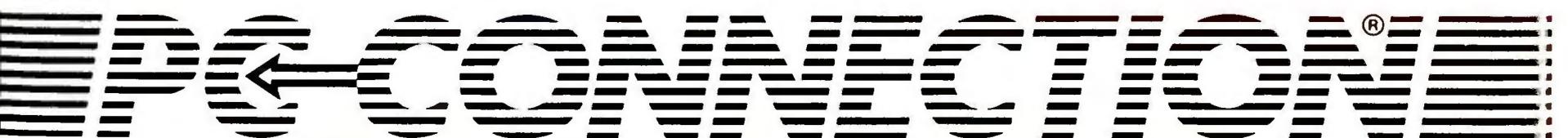
1-800/243-8088

MMC PC Connection 800W
 6 Mill Street
 Marlow, NH 03456
SALES 603/446-7721 FAX 603/446-7791

- PC Power & Cooling ... 1 year**
REPLACEMENT POWER SUPPLIES
 3202 Turbo Cool 150 (25° - 40° cooler) . 129.
 7915 Turbo Cool 300 165.
 3200 Silencer 150 (84% noise reduction) 115.
Pacific Data Products ... 1 year
 6779 25 Cartridges in One! (for LJ II, IIP, III) 275.
Memory upgrade for LaserJet IIP/III
 7054 1 Meg . . . 149. 7055 2 Meg . . . 199.
 7758 3 Meg . . . 279. 7759 4 Meg . . . 339.
 7158 Pacific Page 4.0 (for LaserJet IIP/III) 379.
 6834 Pacific Page with free 2 Meg Memory Board (for LaserJet II) . . . 379.
Practical Peripherals ... 5 years
 3103 2400 Baud Internal Modem 135.
 3102 2400 Baud External Modem 179.
 5286 2400 Baud Int. MNP Modem (Lev. 5) 175.
 5285 2400 Baud Ext. MNP Modem (Lev. 5) 209.
 4542 2400 Baud Internal Modem for PS/2. 229.
 8132 PM2400 Pocket Modem 99.
 7934 PM9600SA 489.



Practical Peripherals ... 5 years
 7934 *PM9600SA Modem*—Practical Peripherals does it again by making communications affordable with their newest modem featuring the data compression & error correction of 9600bps V.32 & V.42bis operation . . . \$489.



*DEFECTIVE SOFTWARE REPLACED IMMEDIATELY. DEFECTIVE HARDWARE REPLACED OR REPAIRED AT OUR DISCRETION.

Happy New Year.

- PSION .. 1 year**
 7086 MC600 Mobile Computer \$2149.
 7090 512K Flash EPROM 309.
 7962 3 1/2" External Drive. 299.
Reflection Technology .. 1 year
 7127 Private Eye (virtual display) 499.
SAFE Power Systems ... 2 years
 7913 Safe 650W 459.
Targus ... lifetime
 6037 Premier Leather Carrying Case. . . 199.
TheComplete PC ... 2 years
 8082 TheComplete Half Page Scanner/400
 w/ReadRight Personal OCR Software 289.
 6797 TheComplete Fax Portable 319.
 5828 TheComplete Communicator 449.
Tripp Lite ... 2 years
 6199 Isobar 4-6 (4 outlets, 6 ft. cord) 49.
 6200 Isobar 6-6 (6 outlets, 6 ft. cord) 59.
Video 7 ... 7 years
 5883 1024i VGA (includes 512k). 219.
 4931 VRAM VGA 512k 379.

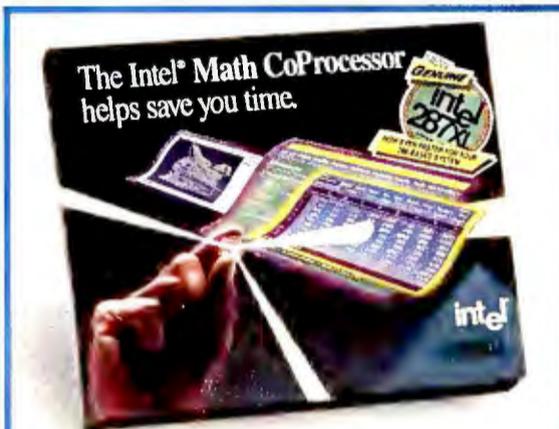
- 2286 30 Meg Int. Hard Drive ST238R
 (w/controller and cables, 65 ms) . \$269.
 4554 40 Meg Int. HD ST251-1 (28 ms) . . 329.
TEAC ... 1 year
 4951 720k Drive (specify XT or AT, 3 1/2") . 75.
 4670 1.44 Meg Drive for PC/XT (3 1/2") . . . 89.
 4326 1.44 Meg Drive for AT 109.

MEMORY

- 6556 256k DRAMs (100 ns, set of 9) . . . \$29.
 5510 1 Meg x 9 SIMMs (80 nanosecond). 69.
 5746 1 Meg Chips (80 ns, set of 9). 69.

OUR POLICY

- We accept VISA and MASTERCARD only.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order (in the U.S.).
- No sales tax, except Ohio residents (please add applicable tax).
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped 1st Class Mail.
- International orders U.S. \$250 minimum.
- Upon receipt and approval, personal and company checks clear the same day for immediate shipment of your order.
- COD max. \$1000. Cash, cashier's check, or money order.
- 120 day limited warranty on all products.*
- To order, call us Monday through Friday 8:00 AM to 1:00 AM, or Saturday 9:00 AM to 5:30 PM. You can call our business offices at 603/446-3383 Monday through Friday 9:00 AM to 5:30 PM.



Intel ... 5 years
 80287XL & 80287XLT Math CoProcessors—Runs up to 50% faster than other 80287 math chips. The 80287XL works in virtually every 80286-based PC, and the 80287XLT is made especially for Compaq LTE/286. . each \$199.



Intel ... 5 years
 7880 9600EX Modem—Provides ultra-fast data communications without sacrificing compatibility. Supports V.32 & V.42bis 9600 bps operation, as well as MNP Level/5 and Hayes compatible 2400/1200/300 bps modes . \$549.



Intel ... 5 years
 7782 SatisFAXtion—Send and receive faxes from within most applications using the print command. Built-in 2400 bps MNP modem standard. Includes coupons for free PC Tools and Fax-It software. \$399.



Ashton-Tate ... NCP
 6922 □ MultiMate 3.31—Upgrade to MultiMate 4.0 through Ashton-Tate for \$79.50. Total cost \$121.50 including shipping. Save over \$400 on list price of \$565. Call for details \$39.

DRIVES

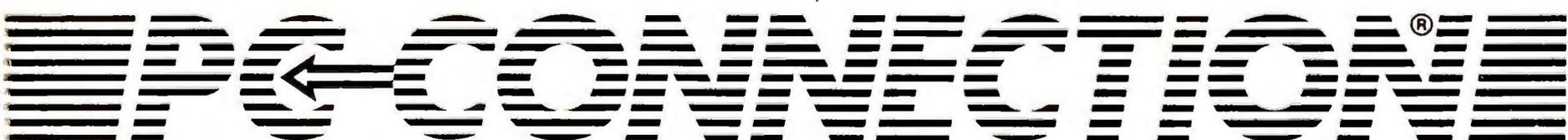
- IOMEGA ... 1 year**
 7551 Bernoulli II Transportable 44 Meg . 997.
 5113 44 Meg Cartridge Tripak (5 1/4") . . . 249.
 2500 PC2B Controller 229.
Mountain Computer ... 2 years
 2917 40-60 Meg Internal Tape Drive . . . 259.
 5500 80-152M Int. Tape Drive 629.
 5190 DC2000 Pre-formatted Cartridges ea. 35.
 6153 DC2120 Tape Cartridge (5 pack) . . 135.
Pacific Rim ... 1 year
 5010 1.2 Meg External (for PS/2's) 215.
 6602 1.44 Meg External (for PC/XT/AT) . 239.
Plus Development ... 2 years
 6424 Hardcard II 80 Meg (19 ms) 599.
 8304 Hardcard II XL 50 Meg (9 ms) 399.
 8287 Hardcard II XL 105 Meg (9 ms) . . . 689.
Seagate ... 1 year
 2285 20 Meg Int. Hard Drive ST225
 (w/controller and cables, 65 ms) . . 255.

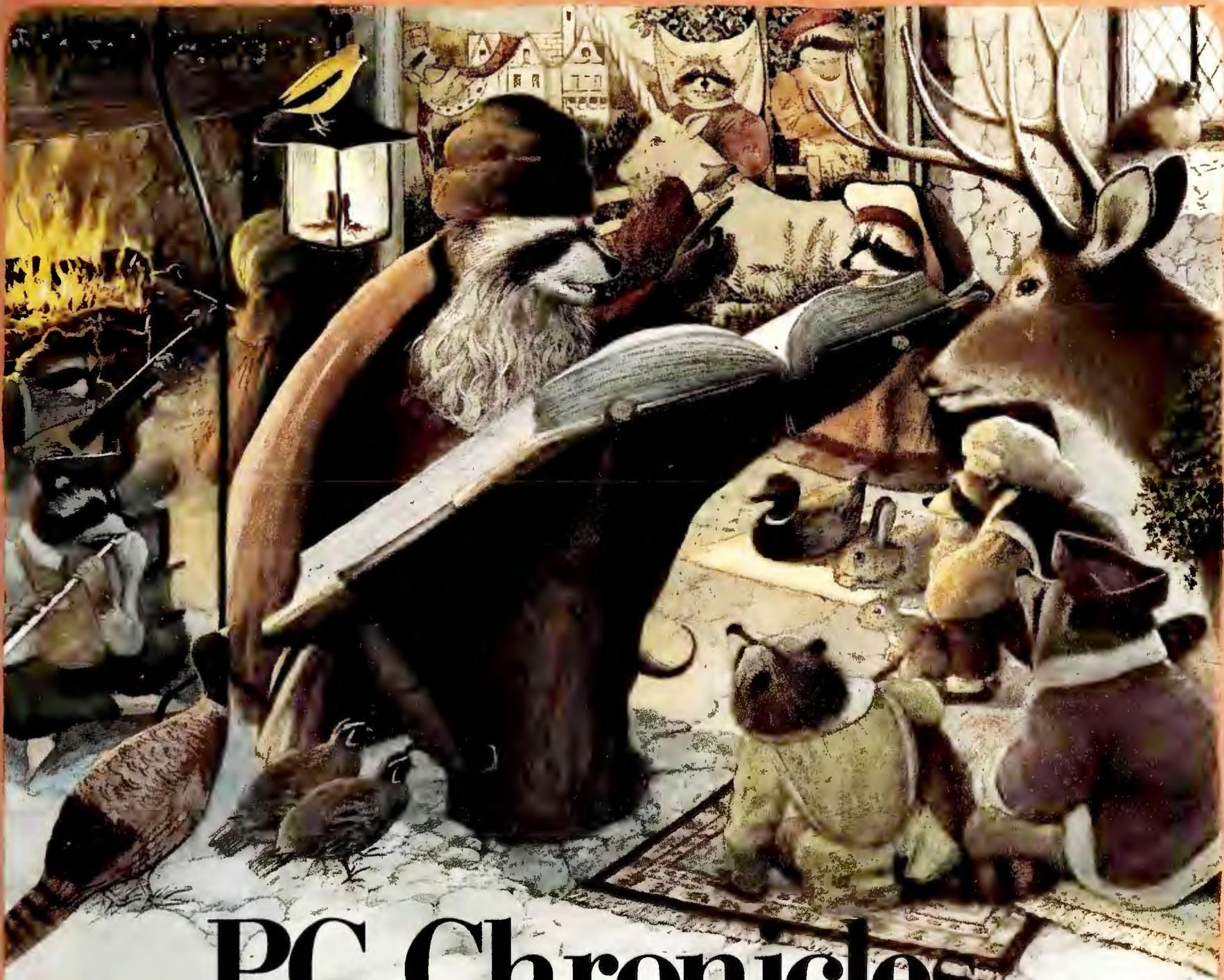
DISKS

- Maxell ... lifetime**
 2789 5 1/4" MD2-D 360k Disks (Qty. 10) 12.
 2790 5 1/4" MD2-HD 1.2Mb Disks (Qty. 10) . . 19.
 2792 3 1/2" DS/DD 720k Diskettes (Qty. 10) . . 14.
 2793 3 1/2" DS/HD 1.44Mb Diskettes (Qty. 10) 27.
Sony ... lifetime
 3291 5 1/4" DS/DD 360k Disks (Qty. 10) 10.
 3292 5 1/4" DS/HD 1.2Mb Disks (Qty. 10) . . . 19.
 3297 3 1/2" DS/DD 720k Diskettes (Qty. 10) . . 13.
 3298 3 1/2" DS/HD 1.44Mb Diskettes (Qty. 10) 22.
 8185 QD 2040 Tape Cartridge 19.

SHIPPING

- Note:** Accounts on net terms pay actual shipping.
Continental US:
 ● For heavy hardware items such as printers, monitors, Bernoulli Boxes, etc. pay actual charges. Call for UPS 2nd-Day & Next-Day-Air.
 ● For all other items, add \$3 per order to cover UPS Shipping. For such items, we automatically use Airborne Express at no extra charge if you are more than 2 days from us by UPS ground.
Hawaii:
 ● For monitors, printers, Bernoulli Boxes, computers, hard drives, and power backups, actual UPS Blue charge will be added. For all other items, add \$3 per order.
Alaska and outside Continental US:
 ● Call 603/446-7721 for information.





PC Chronicles.

Call me a lyre.

(Or, how we wrote the book on PC mail order.)

Truth tends to be stranger than fiction in the telltail town of Marlow, NH (pop. 564). That's why you'll often find the local color gathered 'round the ancient sage as he recounts in vivid detail how our forest glade was transformed into a PC paradise.

For, in days of yore, buying software and peripherals by mail was a perilous task, fraught with danger and uncertainty. Only those well versed in the black arts dared risk such unpredictable delivery and uncertain compatibility.

Then one day the enlightened Order of the Connection appeared majestically on the scene, bringing

the classic virtues of toll-free tech support, prompt shipping, and way-under-retail prices to the brave new world of the IBM PC. Since that glorious day our humble home has served as a beacon of light to noble users in cottages, condos, and corporations throughout America. **That'll be the day.**

It's not every day of the week you get offered your very own 1991 PC Connection Calendar. This very timely offer includes 13 classic illustrations of our legendary mascots, all your favorite holidays, and fascinating historical facts about the fiefdom of Marlow, NH. This wondrous wall calendar is free to everyone who places an order of \$750 or more between now and February 28.



Mark time with the PC Connection Calendar featuring our very own day-tripping mascots. Offer not available to accounts on net terms. One per customer.

PC CONNECTION®

CompuAdd 333, 333T

Low-Cost 386s With Hot Technology

Since the first 33-MHz 386 PCs debuted in spring 1989, their price tags have tumbled quickly. Riding the downward slope of this price curve, CompuAdd has a pair of new entries that come in at about half the cost of the 33-MHz pioneers. Both units employ the company's inventive "hot-slot" architecture.

The CompuAdd 333 desktop and 333T tower dedicate two of their six, 16-bit I/O slots to 12.5-MHz operation instead of the usual 8 MHz. These special slots are designed for the company's proprietary Hard-

Cache/ESDI hard disk controller card and Hi-Rez VGA card. CompuAdd claims hard disk data transfer improves by 15 percent and video throughput by 6 percent.

Even better, both 333 models feature a 33-MHz memory slot dedicated to a 640K static RAM card. This setup is designed to let DOS and DOS applications run with true zero-wait-state performance—up to 6 percent faster than standard memory caching, according to CompuAdd.

The machines come with their 386 processors on CPU

cards, which contain 4MB of memory (expandable to 16MB) and 64K of cache memory. You get the usual number of ports and a choice of 1.2MB 5¼-inch or 1.44MB floppy drives. However, both *Windows 3.0* and *DOS 4.01* are

loaded on systems with hard disks, and the warranty coverage includes a year of on-site service.

The desktop 333 holds up to three floppy or tape drives plus two half-height hard drives, while the 333T tower unit accepts up to four floppy/tape drives and five hard drives.

The floppy-only Model 333 sells for \$2595. An enhanced model with a 150MB ESDI drive, a HardCache/ESDI card with 1MB of cache, a 14-inch VGA monitor, a Hi-Rez VGA card, and a static RAM board costs \$5795. Comparable tower models are priced at \$2775 and \$5975, respectively.

—Eric Bender

IN BRIEF

CompuAdd's 33-MHz 386 models offer solid pricing and performance-enhancing "hot slots."

CompuAdd

12303 Technology Blvd.
Austin, TX 78727
800/456-3116,
512/250-2070 (fax)

Reader service no. 620

Premium II 386SX/20

AST's Downsized, Upgradable SX

AST Research is doing its part in the never-ending push toward smaller and faster with the Premium II 386SX/20, a 20-MHz SX system with a footprint that's 20 percent smaller and performance 25 percent faster than the 16-MHz Premium 386SX/16. You don't pay more for the extra capabilities—instead, AST has lowered the prices of its 16-MHz models by \$300.

In place of VGA, the 386SX/20 has a super-VGA adapter (with 800 by 600 resolution) on the motherboard. Also built-in are two IDE connectors capable of controlling three floppy or tape drives, and two hard drives.

AST has downsized the 386SX/20 to 15½ by 16½ by 6¼ inches while preserving two 32-bit, two 16-bit, and one 8-bit expansion slots and support for five drive bays. Better yet, the 386SX/20 is part of a 386/486 line. AST's CUPID backplane architecture puts the CPU on a card so you can

IN BRIEF

AST's 386SX/20 proves that better things can come in smaller packages, giving you 25 percent faster processing at 16-MHz prices.

AST Research, Inc.

16215 Alton Pkwy.
Irvine, CA 92713-9658
714/727-4141,
714/727-9355 (fax)

Reader service no. 618

upgrade all the way to a 33-MHz 486. The card holds up to 16MB of RAM, and a 16K memory cache enhances processing performance.

You can get the 386SX/20 with a single 3½-inch or 5¼-inch drive for \$2595. Adding a 28ms 40MB drive or 25ms 110MB drive bumps prices up to \$3195 and \$3695, respectively. The year-old 386SX/16 ships in the same configurations (but with 16-bit VGA on a board) for \$300 less in each case. —Mike Hogan

Sanyo MBC-17NB

Well-Rounded Flyweight Contender

If your office is a hotel room or an airplane seat for part of the week, you no longer need an extra piece of luggage to carry a laptop with a decent display, battery life, and storage. Notebooks that fit in a briefcase abound, and newcomer Sanyo has a good midrange alternative at a fair price.

Sanyo's MBC-17NB is a laptop with a lot to love. You get sharp VGA graphics and, unlike with some in its class, both a floppy and a 23ms 20MB hard disk. And at \$2999, the 12.5-MHz 80C286-based Sanyo is less expensive than the CGA-equipped Compaq LTE/286 or Toshiba 1200XE.

At seven pounds, it's a pound or so heavier than some notebooks; and at 12¼ by 10 by 2 inches, the MBC-17NB stretches the limits of generally accepted notebook conventions. But it still fits in most briefcases without separating seams or shoulder cartilage.

The snap-off, nickel-cad-

mium battery has a 2-hour life and comes with an AC adapter/charger that recharges the battery in just an hour. Elsewhere, there's a spot for a \$390, 2400-bps modem and a pair of memory-module sockets that let you boost the standard 1MB to a robust 5MB for \$775. The MBC-17NB has no AT expansion slot or docking station, but the price is right.

—Mark Henricks

IN BRIEF

The MBC-17NB has a good midrange feature set at a very reasonable price, although it adds a pound here and an inch there compared to most notebooks.

Sanyo Business Systems Corp.

51 Joseph St.
Moonachie, NJ 07074
800-524-0047,
201-440-9300,
201/440-1755 (fax)

Reader service no. 622

NOW
OVER
43%
OFF!

Add PC World
To Your
Management
Reading List

ACT NOW!
Take advantage
of these Special
Savings and we'll
BILL YOU
LATER!

YES! Bill Me Later

Rush me one year (12 monthly issues) of PC World for only \$19.97. That's over 43% off the annual cover price of \$35.40 and over 33% off the regular subscription rate of \$29.90—plus I receive FREE: PC World's PowerBase**.

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PowerBase ** diskette is offered solely by PC World Magazine. It should not be confused with 'power-base' which is relational database software offered by Compuware Corporation. Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only.

PC WORLD

4EJ95

FREE
PowerBase** Disk
—35 Tips, Macros
and Utilities

YES! Bill Me Later

Rush me one year (12 monthly issues) of PC World for only \$19.97. That's over 43% off the annual cover price of \$35.40 and over 33% off the regular subscription rate of \$29.90—plus I receive FREE: PC World's PowerBase**.

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PowerBase ** diskette is offered solely by PC World Magazine. It should not be confused with 'power-base' which is relational database software offered by Compuware Corporation. Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only.

PC WORLD

4EJ95

FREE
PowerBase** Disk
—35 Tips, Macros
and Utilities

YES! Bill Me Later

Rush me one year (12 monthly issues) of PC World for only \$19.97. That's over 43% off the annual cover price of \$35.40 and over 33% off the regular subscription rate of \$29.90—plus I receive FREE: PC World's PowerBase**.

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

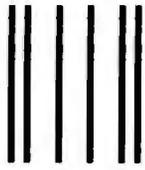
CITY _____ STATE _____ ZIP _____

PowerBase ** diskette is offered solely by PC World Magazine. It should not be confused with 'power-base' which is relational database software offered by Compuware Corporation. Please allow 6 to 8 weeks for delivery of your first issue. Offer good in the U.S. only.

PC WORLD

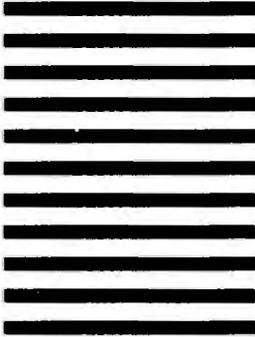
4EJ95

FREE
PowerBase** Disk
—35 Tips, Macros
and Utilities



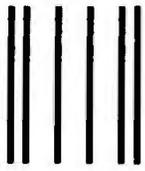
NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 1262 BOULDER, CO



POSTAGE WILL BE PAID BY ADDRESSEE

PC World
Subscription Department
P.O. Box 51833
Boulder, Colorado 80321-1833



NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 1262 BOULDER, CO



POSTAGE WILL BE PAID BY ADDRESSEE

PC World
Subscription Department
P.O. Box 51833
Boulder, Colorado 80321-1833



NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 1262 BOULDER, CO



POSTAGE WILL BE PAID BY ADDRESSEE

PC World
Subscription Department
P.O. Box 51833
Boulder, Colorado 80321-1833





InstaPlan

InstaPlan
Project Software

Escape the agony of crisis management!

There is a better way to manage projects, departments and schedules. InstaPlan's unique outline-based planning system makes project management practical for anyone with a personal computer.

InstaPlan is a complete method of planning and a state-of-the-art software tool. With InstaPlan you can foresee resource shortages, plan around schedule conflicts, and quickly respond to changing work conditions and customer requirements. Then communicate priorities graphically so that people work together more effectively.

InstaPlan provides convenient many-project support, integrated work accounting, trend analysis and other advanced features that line managers and project leaders depend on to help achieve their goals.

Proven in 30,000 places around the world, from Ford Motor Company to small consulting firms, in product engineering, marketing, manufacturing, MIS and construction applications, InstaPlan works even where other project management software has failed.

Escape the Agony . . . with InstaPlan.

InstaPlan[®]

\$249

PCW 1/91

30 day money back guarantee. (800) 852-7526

InstaPlan Corporation, 655 Redwood Highway, Suite 311
Mill Valley, CA 94941 (415) 389-1414

- Send InstaPlan 2.0 \$249 5 1/4" disk
 Tracking and Notepad options now included. 3 1/2" disk

Send InstaPlan 5000 \$549 (all of the above & supports EMS memory for larger jobs) **VISA/MC/AMEX/Checks**

Add \$6 S&H: \$10 Canada: \$25 International: CA residents add 6 1/4% Sales Tax.

Card# _____ Expires: _____

Signature: _____

Name: _____

Company: _____

Address: _____ Phone: _____

City: _____ State: _____ Zip: _____



Recommended Configuration: IBM PC/XT/AT/PS2 Comp. 640K RAM Hard Disk. Printers Supported: IBM ProPrinter & Graphics Printer, Epson FX/MX/RX/LQ, Okidata Plug'n Play 192/3, 292/3, Toshiba 351, HP LaserJet+/Series IV IID, DeskJet, ThinkJet, QuietJet. InstaPlan is a division of Micro Planning International.

Circle 96 on reader service card

PC Paintbrush IV Plus



Now you can scan, create, edit and dramatically enhance images. All with one program: the new PC Paintbrush IV Plus.™ It brings you all the power of ZSoft's PC Paintbrush IV™ – and builds in complete scanner control, large image support and other powerful pluses.



Dress up your documents and presentations with gradient color backgrounds, impressive text effects, and automatic patterns.

Scanning power.

Control your scanner from *within* PC Paintbrush IV Plus. Scan and edit full-page, black-and-white, gray-scale and color images with a 640K system. Rescale images (25 to 400 percent). And with the unique pre-scan feature, simply frame the precise area you want, then scan *only* that area at high resolution.

Image enhancement.

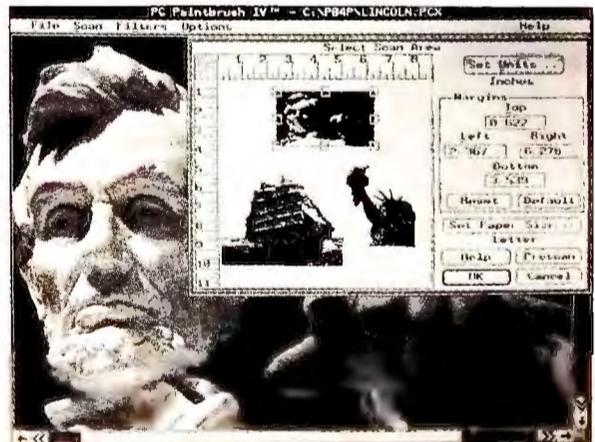
The new PC Paintbrush IV Plus is packed with innovations. New retouching features let you blend, lighten, darken, adjust contrast, change tints and blur portions of any image. New image processing functions let you automatically correct poor originals. It's like having a photo lab in your computer!

Persuasive presentations.

For compelling overheads, slides and documents, choose from a huge arsenal of features. For example, use the "tiling" feature to create 3-D effects and intricate textures. Automatically shadow, outline and graduate text for dynamic effects. Load and save PCX and TIFF images. Capture screens. You can even overlay two images.

Intuitive interface.

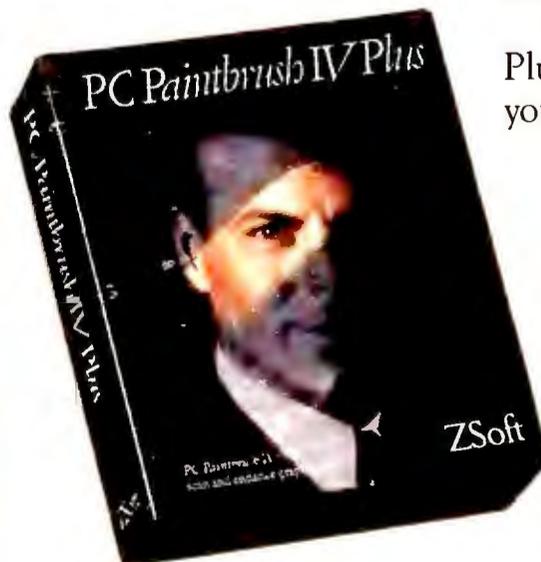
PC Paintbrush IV Plus is packed with convenience: Pull-down menus, customizable screen layouts, graphically labeled options,



Complete control of your scanner... select resolution, halftone pattern, brightness, contrast and rescale from 25 to 400 percent.

multiple levels of context-sensitive help, and a combination of mouse control and keyboard accelerators.

Move up to PC Paintbrush IV Plus. It's the perfect finish to what your scanner started.



ZSoft

CORPORATION

450 Franklin Road / Suite 100
Marietta, Georgia 30067
(404) 428-0008
FAX: (404) 427-1150

© 1989 ZSoft Corporation

PC Paintbrush IV and PC Paintbrush IV Plus are trademarks of ZSoft Corporation

To update, send \$50 plus \$4.90 shipping and handling and your original PC Paintbrush Plus program disk to: ZSoft Update, Dept. WX, P.O. Box 8123, San Francisco, CA 94128. Specify 5.25" or 3.5" disk. CA (6%) and TX (7.5%) residents, add sales tax. Canadian customers, add \$15.90 for air shipping. Outside N. America, add \$15.90 for surface shipping or \$24.90 via air. Payments must be in U.S. funds by check, money order, VISA, MasterCard or American Express.

Circle 206 on reader service card

UPDATE

New Versions of Your Favorite Products

QMS ColorScript 100 Model 10, Model 30i



QMS has lowered the price on its ColorScript 100 Model 10 \$1000 to \$8995 by reducing standard RAM to 5MB instead of 8MB.

QMS is making it easier to get into color PostScript laser printing by reducing the price on its ColorScript 100 Model 10 \$1000 to \$8995. The thermal transfer printer sports the same engine and case but now ships with 5MB of RAM instead of 8MB and includes the Hewlett-Packard Graphics Language. Also new is the Col-

orScript 100 Model 30i, which lists for \$12,995 and has an internal SCSI controller for an add-on hard disk, compared to the regular \$15,995 Model 30, which comes with an external SCSI controller and 20MB hard disk. QMS, One Magnum Pass, Mobile, AL 36618; 800/523-2696.

Reader service no. 637

HP NewWave Mail

Hewlett-Packard adds another facet to its *NewWave* object-oriented environment with an electronic mail capability. Now you can combine *NewWave* text, graphic, and spreadsheet elements into a file that you can send over a network simply by dragging it to the electronic mail icon and dropping it off. The \$195 *NewWave Mail* searches the server data base until it finds your recipient and then alerts the user when the

mail arrives in his or her mailbox. Hewlett-Packard, Customer Information Center, 19310 Pruneridge Ave., Cupertino, CA 95014; 800/752-0900.

Reader service no. 642

DeScribe—Word Publisher 2.0

A new network-oriented version of the OS/2 word processor, *DeScribe—Word Publisher* provides Dynamic Data Exchange between *DeScribe* documents and any other OS/2

file, enabling you to incorporate, for example, a spreadsheet range in a *DeScribe* document that can be updated in both files from either file. System administrators can define system dictionaries, layouts, and macros to be shared by all users on a network. The server edition of *DeScribe—Word Publisher 2.0* retails for \$595, while the client version of the program sells for \$250. DeScribe, Inc., 4047 N. Freeway Blvd., Sacramento, CA 95834; 916/646-1111, 916/923-3447 (fax).

Reader service no. 636

SixPak 286

AST Research is offering an unpopulated version of its SixPak 286 multifunction board for \$169 and has reduced the prices of its 512K and 2MB versions of the AT-compatible board to \$295 and \$595, respectively. The SixPak 286, which can be populated with up to 4MB of RAM using 256K or 1MB SIMMs, provides EMS 4.0 hardware support, also configurable as extended memory for protected-mode operating environments such as *Windows 3.0*. Utility software for print spooling and the creation of a RAM disk is included. AST Research Inc., 16215 Alton Pkwy., Irvine, CA 92713-9658; 714/727-4141, 714/727-9355 (fax).

Reader service no. 638

TMI Key Results Advanced

The just-released U.S. version of Europe's personal/group information manager, *TMI Key Results Advanced*, offers

130 improvements, including a new macro programming language for expediting repetitive operations and more reporting and import/export options. The \$395 network-capable PIM lets you append multiple notes or other elements to a single item or vice versa, and you can now run *TMI Key Results Advanced* memory-resident and shell out to DOS when necessary. TMI (North America) Inc., 185 Berry St. #6504, San Francisco, CA 94107; 800/541-3800, 415/957-1133, 415/882-4960 (fax).

Reader service no. 639

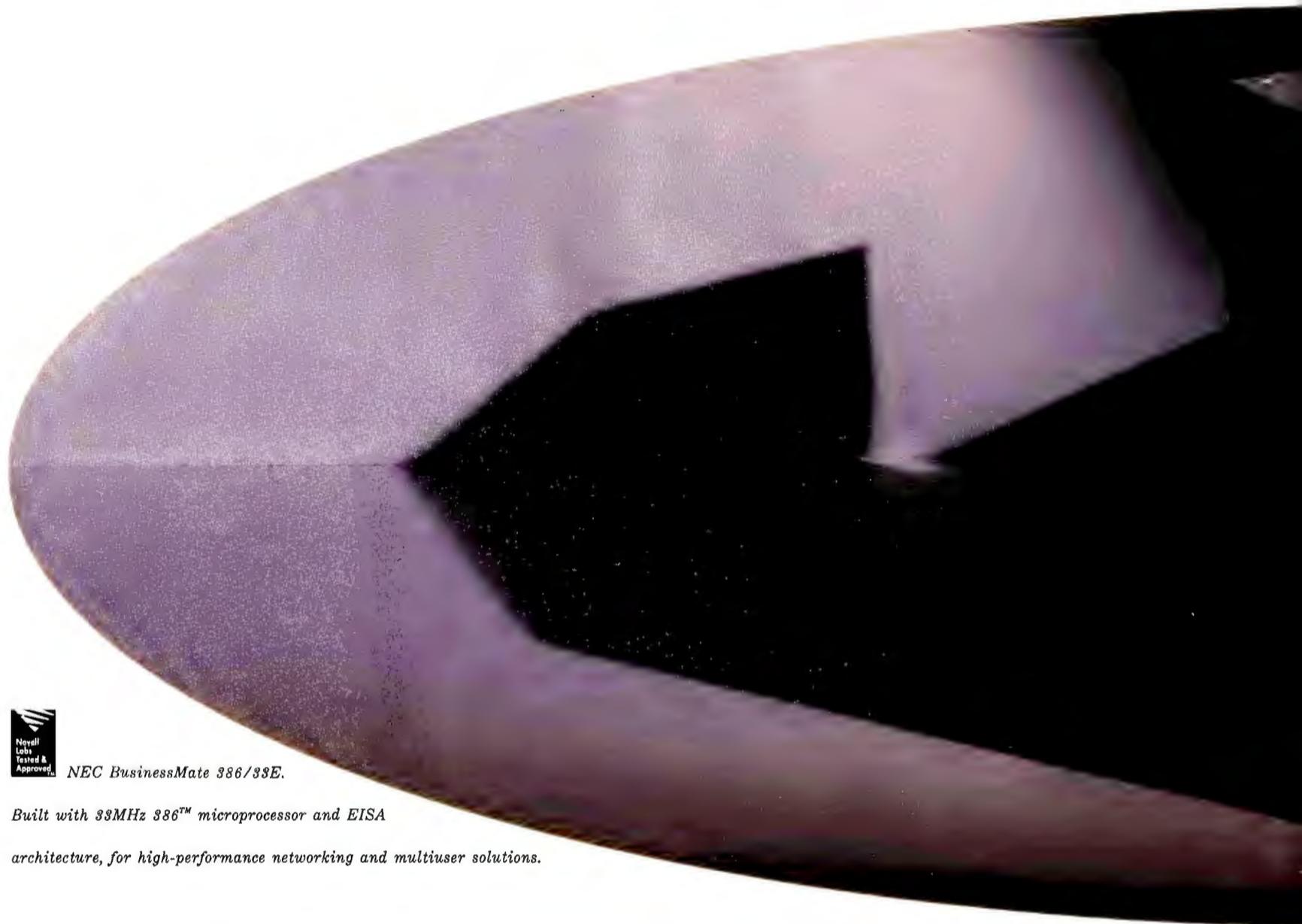
OfficeWriter 6.2

Version 6.2 of *OfficeWriter*, Software Publishing Corporation's dedicated document-processing program, includes enhanced macro capabilities that let you use programming logic when creating a macro for interapplication operations such as retrieving data from a data base, performing calculations in a spreadsheet, and exporting the results to a form letter. *OfficeWriter 6.2* now has a wider range of foreign-language dictionaries and import/export options, and there's support for more than 200 printers. Upgrades to the \$495 program are \$45 from previous version. Software Publishing Corp., 1901 Landings Dr., Mountain View, CA 94039-7210; 415/962-8910.

Reader service no. 640

For more information about any product, contact the manufacturer or circle the number on the reader service card. ☺

Perhaps its best fea



NEC BusinessMate 386/33E.

Built with 33MHz 386™ microprocessor and EISA

architecture, for high-performance networking and multiuser solutions.

If you see networking and multiuser solutions in your company's future, there's no better investment than the NEC BusinessMate® 386/33E. Because it gives you the performance, capacity and expandability these environments demand.

It comes with 4MB or 8MB of RAM, a 64KB SRAM cache, and room for three full-height and three half-height storage devices. Its 32-bit EISA architecture accepts 8-, 16- and 32-bit cards among eight



Computers and Communications

ure is its future.



expansion slots. And its NEC Host Adaptor supports up to seven SCSI devices, for increased flexibility with no sacrifice in performance.

In short, with support for thousands of applications, you'll have the

Fully compatible with The Santa Cruz Operation® UNIX® and XENIX® UNIX is a registered trademark of AT&T

power to make your system grow and change as your needs do. Best

XENIX is a registered trademark of Microsoft Corporation

of all, you'll have a system that offers something no one else can offer

Novell certification mark is a registered trademark of Novell, Inc.

at any price: NEC. Which may be the most attractive feature of all.

386 is a trademark of Intel Corporation

For more information, call 1-800-NEC-INFO.

BusinessMate® is a registered trademark of NEC Corporation © 1990 NEC Technologies, Inc.

NEC

Circle 182 on reader service card

Easy Fonts for Great-Looking Documents

Sure, you can buy a \$5000 PostScript printer to get superb scalable fonts. But a \$100 font-generator like Adobe Type Manager can do nearly as well using the printer you have right now.

George Campbell

There are two types of business document: the kind people read, and the kind they throw away. The better your documents look, the more likely they'll end up on your customer's desk instead of in the dumpster.

If all you print are in-house drafts or simple correspondence, your printer's typewriterlike resident fonts are probably all you'll need. But use these fonts in presentations, reports, or brochures, and your documents become instantly disposable. To give your pages that professional edge, you'll need a full range of typefaces, sizes, and styles.

There are plenty of ways to overcome your laser's limited font options—invest in a PostScript or other scalable-font printer; buy a plug-in cartridge, or use bit-mapped soft fonts (see the sidebar "Exercising Your Font Options"). But for the greatest flexibility at the lowest price, you can't beat a scalable-font generator.

Font generators let you select a typeface at your PC,

scale it to the proper size, and then send it to the printer. If you use *Windows* or *Ventura Publisher GEM/DOS Edition*, you can produce high-quality screen fonts that match the ones coming out of your printer; which makes designing and editing documents a lot easier. Best of all, these new "on-the-fly" packages are as easy to use as a PostScript printer, at a fraction of the price.

This review scrutinizes seven scalable-font generators, putting them to the test with a variety of applications and output devices. The result is two Best Buys: For *Windows 3.0* users, *Adobe Type Manager* wins the trophy, while Atech's *Publisher's Powerpak* is the Best Buy for users of DOS programs like *Ventura Publisher* and *WordPerfect*.

Fonts as You Like Them

The programs reviewed here fall into two camps: traditional "while-you-wait" font generators, and new on-the-



RON CHAN

types of business documents to read, and the kind of paper you use. The better your documents, the more likely they'll end up in the trash can instead of in the recycling bin.

If all you print are in-house drafts or simple correspondence, your printer's typefaces are probably fine. But use these fonts inside your printer's font menu, and all you'll need. But use these fonts inside your printer's font menu, and all you'll need. But use these fonts inside your printer's font menu, and all you'll need.

To give your pages that professional look, you'll need a full range of typefaces, sizes, and styles.

There are plenty of ways to overcome your laser's limited font options—from PostScript and other scalable font printers, to plug-in cartridges, to bitmapped soft fonts. But for the greatest flexibility at the lowest

fly packages. The first group of programs, like Bitstream's *Fontware*, Z-Soft's *SoftType*, and Agfa's *Type Director*, require you to generate the fonts you need and store them on your hard disk before creating your document. These fonts are then downloaded at

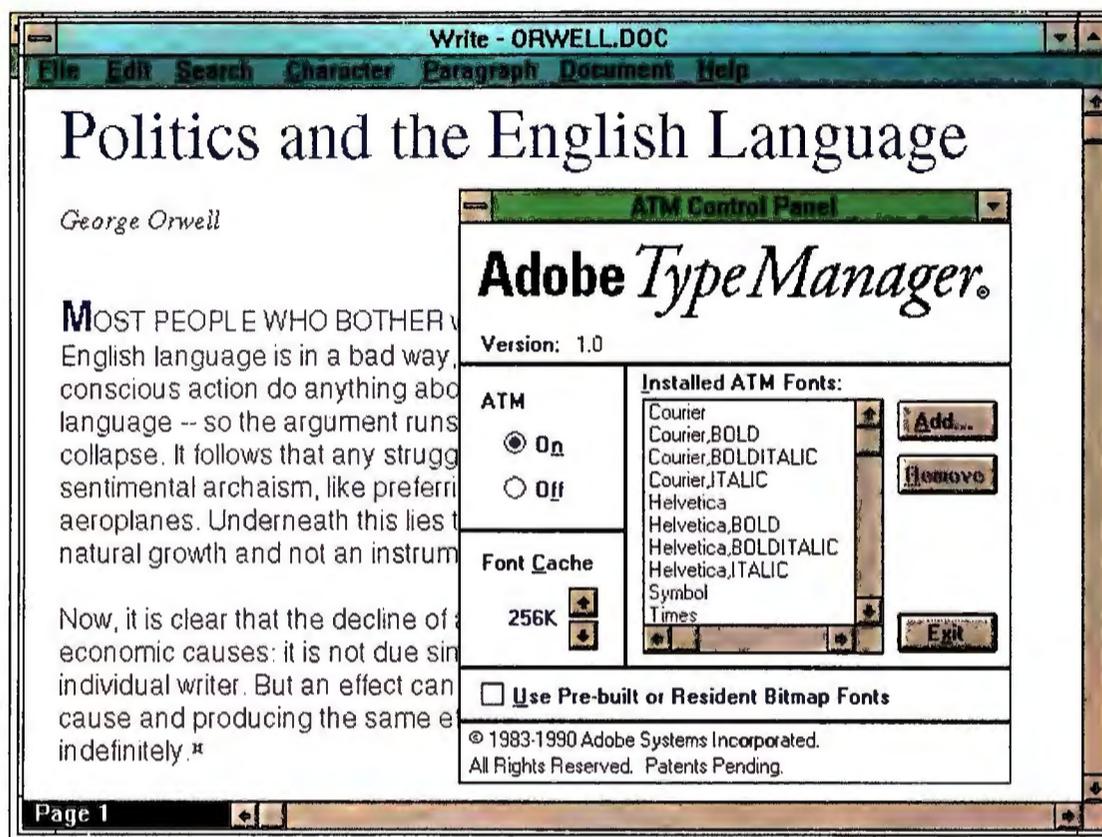
print time—a tedious process that can quickly soak up printer RAM.

When you want to create a new font (say, 16-point Helvetica instead of 14-point), you have to exit your application and repeat the process. It's a hassle, and the printer font files are disk hogs: A

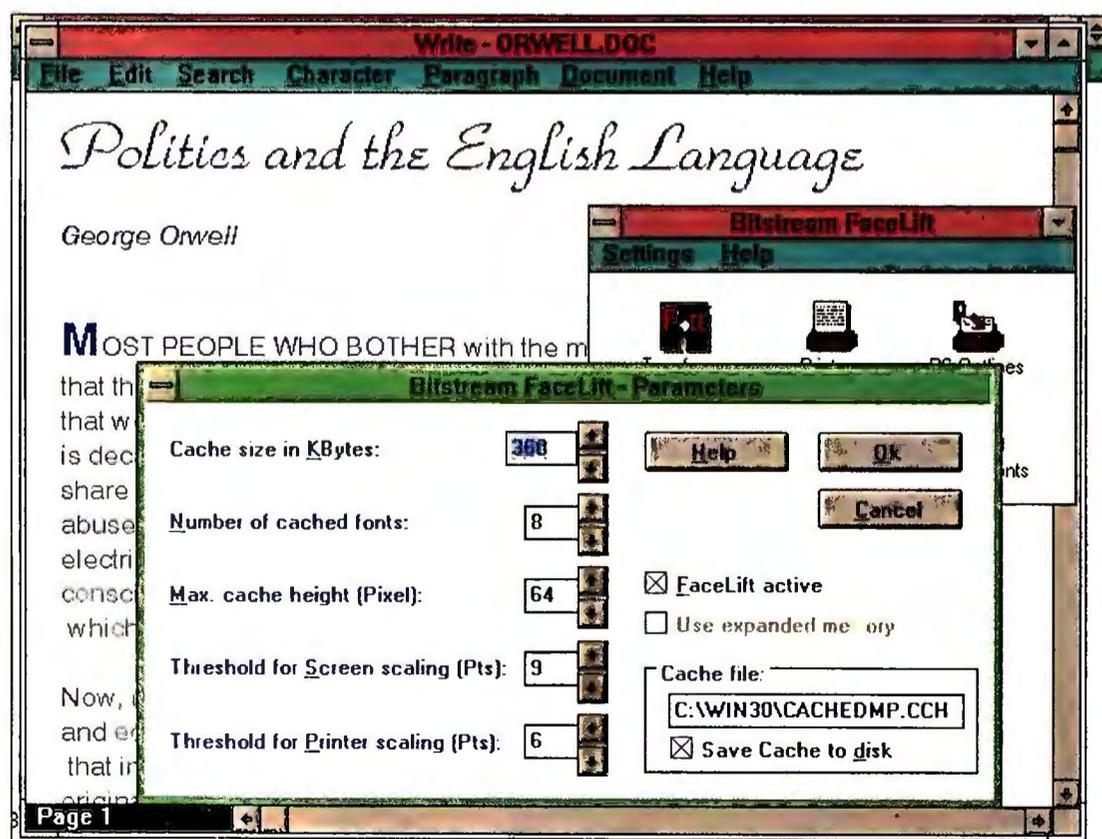
simple 12-point font can gobble up 22K of disk space, a 60-point font nearly half a megabyte. (Fortunately, you can conserve disk space by creating reduced character sets—say, only those letters you need to print at 60 points.) The while-you-wait programs also create separate screen font files, which must fit within *Windows*' and *Ventura*'s 64K file-size limit. If you try to create a large screen font that takes up more than 64K, the font program will refuse to generate it.

With an on-the-fly font scaler, you simply install the package for your application and select fonts as you go. The program automatically generates screen fonts up to 127 points in size or larger (depending on the application), then sends a graphic image of the entire page to the printer at print time. There are no huge font files to clutter your hard disk, and no fonts to download, which makes these packages ideal for networked printers. *Adobe Type Manager (ATM)*, Bitstream's *FaceLift*, and Atech's *Publisher's Powerpak* create screen and printer fonts as you work. (*Zenographics' SuperPrint 1.0* requires you to generate screen fonts manually—a limitation corrected in upcoming version 1.1.)

Clearly, the on-the-fly programs are preferable, but they work with only a handful of applications. If your programs aren't supported, you'll have to use a traditional program like *Fontware*. But if you use *Windows*, *Ventura Publisher*, or other supported programs, our Best Buys, *ATM* and *Powerpak*, are the only way to fly.



Adobe Type Manager's Control Panel makes it easy to add and delete fonts, increase the font cache size, and turn the program on or off. Otherwise, just install the program and forget about it—ATM works transparently in the background.



FaceLift gives you broad control over parameters such as the minimum and maximum size of screen fonts, but the multiple icons make its interface a little confusing.

Adobe Type Manager 1.0



PROS: Great-looking output, huge font library, transparent operation inside applications

CONS: Limited to Windows 3.0 applications

PostScript finally has a baby brother, and it's a prodigy. Even though the \$99 *Adobe Type Manager* is limited to Win-

FEATURES EVALUATION

On-the-Fly Fonts Fare Well

Font packages like Best Buy winners Adobe Type Manager and Publisher's Powerpak speed printing and conserve disk space by generating fonts as you type.

- Yes
- No
- ◐ Deficient

	Adobe Type Manager 1.0	Facelift 1.0	Fontware	Publisher's Powerpak	SoftType 1.01	SuperPrint 1.0	Type Director 2.0
Standard features							
Price	\$99	\$99	varies ¹	\$79.95	\$199	\$195	\$99
Minimum hard disk space required	750K	1.5MB	1.2MB ²	500K	1MB ²	2MB	1.75MB ²
Minimum RAM required	1MB ³	640K ³	512K	640K ³	640K ³	640K ³	640K
Font options							
Number of font outlines included	13	13	varies ¹	30	63	22	8
Font sizes available (in points)	4-127 ¹	4-127 ¹	2-144 ¹	4-1000 ¹	1-72	4-127 ¹	4-200 ⁴
Number of additional typefaces available from manufacturer	700+	52 ⁵	52 ⁵	86	none	unlimited ⁶	176
Average cost per font outline ⁷	\$8.49	\$5.79	n/a	\$2.22	\$3.16 ⁸	\$7.45	\$22.86
Accepts Type 1 fonts	●	○	○	●	○	●	○
Accepts third-party font outlines	●	○	○	●	○	●	●
On-the-fly screen and printer fonts	●	●	○	●	○	◐ ⁹	○
Creates reduced character set	●	○	●	●	●	●	●
Creates special font effects	●	○	○	◐ ¹⁰	●	○	○
Software support							
Windows 3.0	●	●	●	●	●	●	●
Font manager runs under Windows	●	●	○	●	●	●	○
WordPerfect	●	○	●	●	○	○	●
Micrasoft Word	●	○	●	●	○	○	●
WordStar	●	○	●	●	○	○	●
Ventura Publisher (GEM/DOS)	●	○	●	●	●	○	●
Printer support							
HP LaserJet II, IID, IIP	●	●	●	●	●	●	●
HP LaserJet III, IIID	●	●	●	●	○	●	●
HP DeskJet (all models)	●	●	◐ ¹	●	○	●	◐ ¹¹
HP PaintJet	●	●	◐ ¹	●	○	●	●
Epson-compatible 9-pin	●	●	◐ ¹	●	●	○	●
Epson-compatible 24-pin	●	●	◐ ¹	●	●	○	●
PostScript devices	●	●	●	◐ ¹²	●	○	○
	BEST BUY			BEST BUY			

¹ Varies according to application.

² Space needed by program files; font files will require more.

³ 2MB recommended for Windows versions.

⁴ Up to 999.75 on HP LaserJet III.

⁵ Each set includes four font outlines.

⁶ SuperPrint can read multiple formats for outlines.

⁷ Average based on cost of package plus upgrade to standard 35 PostScript font outlines.

⁸ Not all PostScript outlines are available.

⁹ Version 1.0 creates printer fonts only.

¹⁰ Special effects included as outlines.

¹¹ DeskJet Plus and later.

¹² Requires separate utility.

dows 3.0 applications, its transparent operation, huge library of available fonts, and excellent laser print quality easily earn it our Best Buy.

ATM installs in a single step, which takes about 10 minutes; the program needs just 750K of disk space. Using the package is child's play: Just select the

desired font and size. Type Manager works in the background, creating screen and printer fonts as you work. Adding new font outlines couldn't be

simpler. You slip the font disk into the drive, click the Add button in *ATM*'s Control Panel, and select the outlines you want.

ATM's 13 base typefaces include several styles of Times Roman, Helvetica, and Courier, plus symbol outlines. A \$198 *Plus Pack* supplies the rest of PostScript's 35 standard fonts. But why stop there? You can choose from thousands of outlines available from Adobe and other vendors.

Laser and ink jet output are exemplary, but *ATM*'s dot matrix performance can't match *Powerpak*'s. Screen fonts match the printer's exactly and appear instantly—unlike with *FaceLift*, you won't notice any delay as you type. Since *ATM* supports PostScript output devices, creating a file to send to a typesetter is a snap.

For *Windows 3.0* applications, *ATM*

is an unbeatable package. This talented youngster may be the best reason yet for users of the GEM-based *Ventura Publisher* to switch to the *Windows* version.

FaceLift 1.0

PROS: High-quality laser output, transparent on-the-fly operation

CONS: Sluggish screen fonts, limited font library

Bitstream's \$99 *FaceLift 1.0* bears more than a cosmetic resemblance to *Adobe Type Manager*. Both are limited to *Windows* applications and give you the same gorgeous output and easy on-the-fly operation. *FaceLift* is a good deal, but slower screen fonts, a more complicated interface, and fewer available outlines make it a runner-up in the *Win-*

dows beauty contest.

FaceLift's installation is a little knot-tier than *ATM*'s, requiring you to copy the font outlines after installing the basic program. Unlike *ATM*, with its single icon, the *FaceLift* font manager employs several icons, making it just a touch confusing. And the program requires about 1.5MB of disk space—twice as much as *ATM*.

FaceLift comes with 13 font outlines, including Dutch and Swiss in 4 styles, 3 script fonts, Cooper Black, and a fixed-space Helvetica. You can purchase a 35-font PostScript companion package for \$179 or any of 52 other font sets for \$129 each. But *FaceLift* accepts only Bitstream fonts, and fonts shipped with older versions of Bitstream's *Fontware* aren't compatible. Fortunately, you can upgrade your older fonts for a minimal charge.

BUYING SMART: FONT SHOPPING TIPS

When you buy font software, the first thing to think about is whether it works with your applications and your printer. Beyond that, it becomes a question of how well it works. Is output crisp and readable? Do the screen fonts match your printed output? How easy is the package to use? Consider the following factors.

Printer and Software Support

Obviously, a font package must be compatible with your applications and printer. *Adobe Type Manager*, *SuperPrint*, and *FaceLift* are *Windows*-only applications. If you need fonts for DOS programs like *Word*, *WordPerfect*, or *Ventura Publisher GEM/DOS Edition*, your best bet is *Publisher's Powerpak*. As for output devices, *ATM* and *FaceLift* support the widest range of printers, from Epson 9-pins to PostScript machines. PostScript support is important if you plan to print final

output on a PostScript device, such as a high-resolution imagesetter.

Font Quality

Text should print out crisply, free of jagged edges, with properly spaced letters regardless of font size. Screen fonts must match the printed output—a requirement the old-style font generators can't always meet. All these programs produced excellent output on laser printers—the most crucial output device—and most handled ink jets with aplomb, but only *Publisher's Powerpak* churned out high-quality fonts on laser, ink jet, and dot matrix printers.

Ease of Use

You should be able to install your font package in a single step, using a minimum of disk space, then forget about it. The program should operate transparently—letting you select fonts and add new outlines from inside your applica-

tion—and have a negligible impact on both print and display speed. Of the on-the-fly packages, *ATM* is the most transparent in installation and use. The traditional font generators, which require lots of hard disk room and separate steps for creating and downloading fonts, just can't cut it.

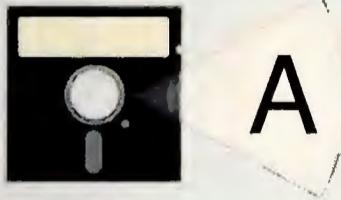
Font Options

Demand a minimum starter set of 13 font outlines, plus a wide assortment of inexpensive font add-ons. *SoftType* comes with 63 standard typefaces—the most offered by any package—but there's no way to add more. Most of the others limit you to their manufacturer's proprietary fonts, but with *ATM* that means access to thousands of Type 1 PostScript fonts. Tops here is *SuperPrint*, which accepts fonts from Adobe, Bitstream, Agfo, and other major type vendors. —G. C.

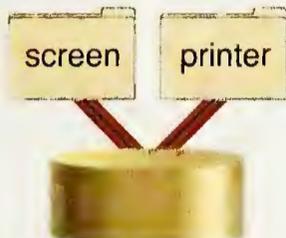
How Font Generators Work

On-the-fly font generators are faster and easier to use than the while-you-wait kind. Here's why.

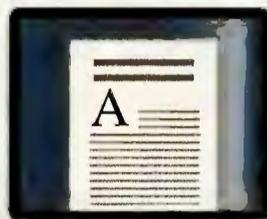
While you wait...



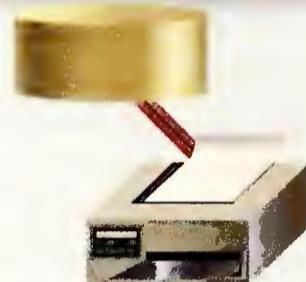
- Using the font package, you create fonts, specifying typeface and point size (for example, Helvetica 14 point).



- The program stores printer and screen versions of the fonts in separate files on the hard disk.



- Only after the fonts have been specified and stored on a disk do they appear in your application.

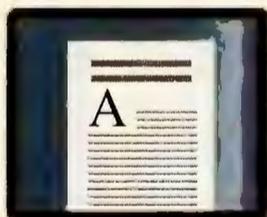


- Before printing the page, the system downloads printer fonts to printer memory.

...or on the fly



- After installing the font package, you load an application.



- You select fonts from inside the application; they are generated instantly in the point size selected and stored in memory, not on the hard disk.



- At print time, the font software sends an image of the entire page to the printer without requiring the time to download fonts.

Printer font quality is first-rate on LaserJets and ink jets, but when it comes to dot matrix output, *FaceLift* sags. Its print speed is as fast as *ATM*'s, but you'll notice a lag as the program produces screen fonts. *FaceLift* supports a broad range of printers, from 9-pins to PostScript devices, and a separate version announced at press time supports *WordPerfect*.

In operation and print quality, *FaceLift* comes within a nose of *ATM*. But its more elaborate interface, lethargic screen fonts, and limited font library keep it a solid second choice for *Windows* users.

Fontware

PROS: Inexpensive, broad application support

CONS: Slow, lacks an-the-fly operation, hard disk hog, ragged dot matrix output

Fontware has been around for years—and it's showing its age. Available mainly via coupons included with applications such as *Microsoft Word*, *Fontware* is widely supported and generally doesn't cost more than \$30. But it takes a heavy toll on disk space, prints painfully slowly, and provides poor-quality output on low-end printers. If *Fontware* is the only package that works with your application, your decision has already been made. Otherwise, you'll do better to look elsewhere.

Fontware supports programs ranging from *WordStar 5.5* to Lotus's *1-2-3*, but each application requires a separate installation kit. Fortunately, the kits can reside in the same directory, sharing common files. However, you'll still need 1.2MB of disk space before you can even begin to create fonts.

Font generation speed is glacial. Creating *Fontware*'s suggested set of 8- to

24-point Dutch and Swiss fonts for *Ventura Publisher* took over an hour and gobbled up over 5MB of disk space. And because you have to download fonts at print time, you'll have to wait longer for your output.

The typefaces included with *Fontware* kits vary, but you'll always get Dutch and Swiss, and usually at least one other outline. You can purchase any of Bitstream's 52 other font packages, but *Fontware* can't use outlines from other sources.

Fontware's print quality on lasers and ink jets is solid, but its dot matrix output is ragged and unusable in large sizes. Screen fonts were good but limited in size to about 36 points.

Given *Publisher's Powerpak's* on-the-fly support for major DOS applications and *ATM's* superb *Windows* support, there's little reason to opt for the antiquated *Fontware*.

EXERCISING YOUR FONT OPTIONS

Daniel Tynan

Freedom of choice can be an awful thing. Take font options, for example. There are literally dozens of ways to add high-quality typefaces to your documents; the solution you choose depends on the kind and volume of documents you produce and how much money you want to spend. Here's a rundown of your font options, from low-cost soft fonts to posh printers.

Resident Fonts

These are fonts that come with your printer. Their main advantage is that you don't have to think about them—just select one from inside your application and print. But unless you own a scalable-font device like a PostScript printer, font selection is usually limited to a handful of standard typefaces at 8 to 12 points.

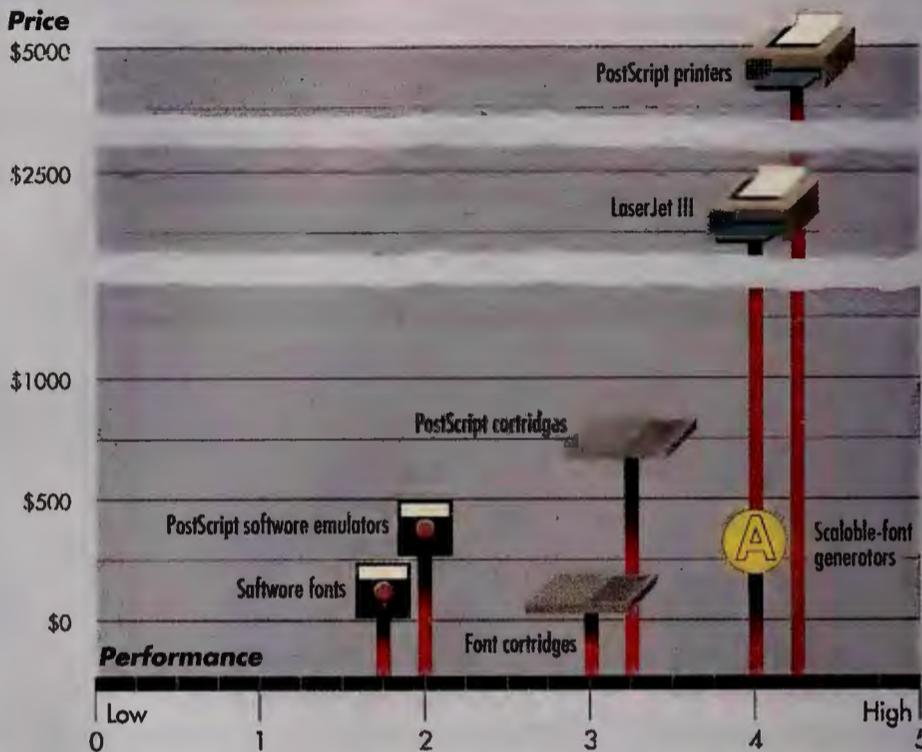
Font Cartridges

For enhancing simple text documents or adding small fonts so you can print big spreadsheets, cartridges are an easy option. Cartridge fonts come as either fixed-size bit maps or scalable font outlines and range in price from \$100 to \$300. They're easy to install and use—

just plug the cartridge into your printer. They're also supported by almost all applications. The trouble is, the bit-mapped cartridges are limited to a

handful of fonts, and the others work only with scalable-font printers. Another drawback: Font for font, they're fairly expensive.

Fonts: Price Versus Performance



Scalable-font generators give you a lot of bang for only a few bucks. Note: Performance encompasses ease of access to fonts, typical number of standard typefaces, and relative speed of font generation. Prices indicated represent the median available price for each product.

Publisher's Powerpak



PROS: Support for major DOS applications, special font effects, sharp dot matrix output

CONS: Limited font options, requires separate versions for DOS and Windows applications

Atech's *Publisher's Powerpak* isn't very well known, but it should be. Like *ATM*, it features high-quality fonts and on-the-fly font scaling, plus the finest dot matrix output you can get. Best of

all, it offers versions supporting a number of major DOS applications for about \$80 apiece. *Windows* users will likely prefer *ATM*'s smoother laser output and wider choice of typefaces options, but for *Ventura* and *WordPerfect* users, *Powerpak* is the Best Buy.

Powerpak comes in three flavors: one for *Windows 3.0*, one for *Ventura Publisher*, and one that supports *Microsoft Word*, *Microsoft Works*, *WordPerfect*, and *PlanPerfect*. Since *Ventura* doesn't support on-the-fly screen fonts, you'll have to generate screen fonts manually.

For the other DOS applications, *Powerpak* supports printer fonts only.

Powerpak installs quickly and easily in just 500K of disk space, but multiple versions can't share common files or outlines. Another drawback: *WordPerfect* users must give up background printing. *Powerpak* generates fonts as quickly as *ATM* does, but its LaserJet and ink jet fonts aren't as smooth. On the other hand, its high-resolution dot matrix output is the class act of the roundup.

Atech's font names are unusual.

Software Fonts

At one time, soft fonts were a godsend for users trapped by their printer's limited font horizons; now they're mostly useful when you need a special font that you can't find elsewhere. These fixed-size bit-mapped fonts are stored on your hard disk and downloaded before printing. (Many applications, such as *Ventura Publisher*, come bundled with a smattering of soft fonts.) While generally your cheapest solution—prices range from \$15 to \$300 per typeface—soft fonts require extra hard disk space and printer RAM, and you may run into compatibility problems with some applications.

Scalable-Font Generators

Scalable-font generators turn your PC into a type foundry—just select a typeface from a list, and scale it to whatever size you like. It's a fast and moderately cheap way to add fonts to your documents: The packages reviewed here cost between \$200 and \$400 for 35 or more font outlines. You can also view the scaled fonts on screen in both *Windows* and *Ventura*. But application support is limited, and many font programs re-

quire extra hard disk space and printer RAM. If you need additional typefaces and lack a PostScript printer, these are good buys.

PostScript Printers

PostScript printers give you easy access to 35 or more scalable font outlines and enable you to print virtually any complex graphic you can create (see *PC World's* review of PostScript printers in the December 1990 issue). They also allow you to print the same page on a 300-dpi office laser or a 1270-dpi Linotronic printer. But they're expensive—from \$2500 to \$8000 for a 300-dpi device. If you're a full-time desktop publisher, a PostScript printer is a must-have. But if all you need is fonts, it's overkill.

PostScript Cartridges

Plug-in cartridges like Pacific Data's PacificPage or HP's PostScript Cartridge can turn your LaserJet into a PostScript printer for \$300 to \$700. But using a cartridge is generally slower than using a true PostScript printer, and you'll need extra printer memory. These cartridges are a good, economical choice for occa-

sional desktop publishers who already own LaserJets.

PostScript Software Emulators

Another breed of PostScript "clones," emulators are software packages that process text and graphics in the PC, then send the pages directly to the printer. Although relatively cheap (\$300 to \$500 for 35-font versions), most are slower and less reliable than either cartridges or PostScript printers, and many require extra CPU memory and a math coprocessor for decent performance. If printing complex text and graphics is part of your daily regimen, you'd do better buying a cartridge—or the real McCoy.

LaserJet III

As with PostScript devices, HP's \$2395 LaserJet III lets you create fonts of virtually any size inside the printer. But it's limited to eight resident font outlines, it lacks PostScript's full graphics power, and HP's PCL 5 printer language isn't supported by most high-resolution imagesetters. Still, if you're shopping for a new laser and don't need professionally typeset output, the HP is a good deal.

Times Roman becomes Marin, while Helvetica is called Dixon. Fortunately, you can easily rename the fonts. Each package includes three typeface families in a variety of unusual styles—solid and hollow versions of thin, condensed, wide, and expanded font outlines—for a grand total of 30 typefaces. You can buy more than 80 other multitypeface collections for \$29.95 each, but you can only add fonts made by Atech or Monotype.

If you need on-the-fly printer fonts in non-*Windows* programs or require the

highest-quality output from dot matrix printers, *Publisher's Powerpak* is your Best Buy.

SoftType 1.01

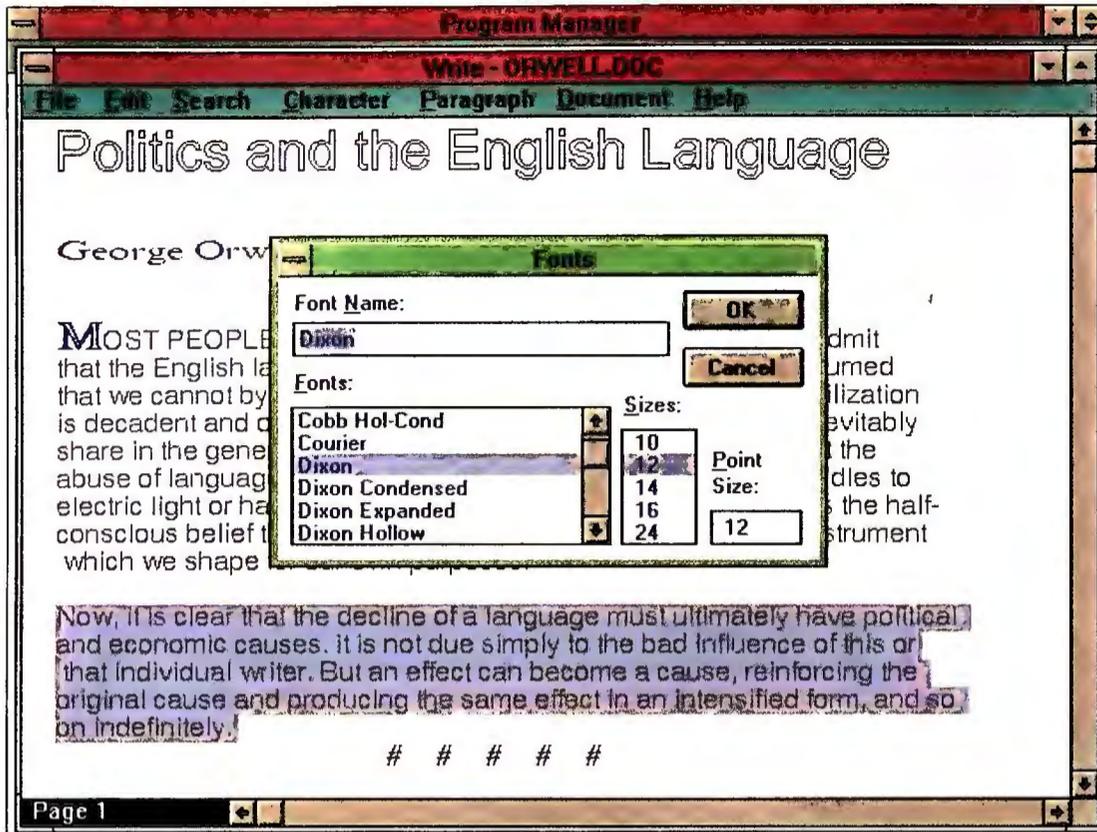
PROS: 63 standard typefaces, unique type-styling utility

CONS: Slow, lacks on-the-fly fonts, limited screen fonts, no way to add typefaces

Z-Soft's \$199 *SoftType* has two things going for it: a generous 63 standard typefaces, and a unique type-styling

feature that lets you create your own fonts. So much for the good news. The bad news is that *SoftType* is hampered by the same limitations as *Type Director* and *Fontware*, its support for non-laser printers is poor, and expandability options are nil. The *Windows*-based *SoftType* offers neither the speed nor the simplicity of *ATM* and *Powerpak*.

SoftType lets you create fonts for *Ventura Publisher* as well as *Windows*. Installing *SoftType* takes a long time and requires 1MB for program files, plus acres of space for fonts. As with



Atech's typefaces aren't really unique—Cobb is actually Courier, while Dixon is Helvetica—but only Publisher's Powerpak offers hollow, expanded, and condensed versions of each face.



With Agfa Compugraphic's Type Director, you must specify a font's name, size, and character set before using it in your document.

Type Director and *Fontware*, *SoftType* makes you define your fonts before starting an application, then stores screen and printer fonts in separate files. Screen fonts top out at 36 points, and *Ventura* users must run a separate utility to create font width tables.

Since you must download fonts at

print time, printing is slow, though you can print in the background under *Windows*. While laser print quality is good, version 1.01 doesn't support ink jets at all, and its dot matrix output is poor and limited to available screen font sizes.

On the other hand, *SoftType* comes with a type-styling facility that lets you

modify fonts with special effects like shadowing and shading. But that's the only way you'll be able to add fonts to the original 63. Version 1.02 of the program, due out at press time, will add the ability to scale Type 1 PostScript outlines, plus ink jet support.

If you need to create unique typefaces for letterheads and logos, *SoftType's* font modifier is a useful tool. But as a font generator for everyday business documents, it's too slow and limited.

SuperPrint 1.0

PROS: Vast font library, on-the-fly printer fonts

CONS: Screen fonts must be created manually, complex interface, no dot matrix support

Priced at a fairly steep \$195, *Zenographics' SuperPrint 1.0* offers on-the-fly printer fonts for *Windows* applications, but you'll have to create the screen fonts manually. (Version 1.1, released too late for inclusion in this review, features on-the-fly screen fonts and other improvements.) Also, version 1.0 doesn't support dot matrix printers or non-*Windows* applications. If you're looking for variety, it's a good deal—*SuperPrint* is compatible with virtually every font library in existence—but otherwise, the other on-the-fly packages are better.

SuperPrint is easy to install, but it demands 2MB of disk space, plus room for screen fonts. The program generates printer fonts automatically, but to get display fonts in version 1.0 you must launch the *SuperText* utility, specify fonts and sizes, and wait while the program creates the files. As with the traditional font generators, screen font sizes are limited.

SuperPrint isn't as easy to use as *ATM* or *FaceLift*. You have to set up the *SuperQueue* driver and specify it in the *Windows* control panel, then define several parameters before using your fonts. Again, version 1.1 should fix many

Face to Face: Font Software Compared

PRINTERS

	Epson LX-86	Hewlett-Packard DeskJet 500	Hewlett-Packard LaserJet Series II
SOFTWARE			
Adobe Type Manager 1.0	Roman 24	Roman 24	Roman 24
Agfa Type Director 2.0	Roman 24	Roman 24	Roman 24
Atech Publisher's Powerpak	Roman 24	Roman 24	Roman 24
Bitstream FaceLift 2.0	Roman 24	Roman 24	Roman 24
Bitstream Fontware	Roman 24	1	Roman 24
Zenographics SuperPrint 1.0	Roman 24	Roman 24	Roman 24
Z-Soft SoftType 1.01	Roman 24	2	Roman 24

¹ Support for ink jet varies with installation kit.

² Not supported.

In our typeface face-off, all the programs produced crisp laser and ink jet fonts, but only Atech Publisher's Powerpak yielded decent dot matrix output.

of these problems.

Because *SuperPrint* uses its own printer drivers, it produces output slightly faster than the other packages and displays printer progress graphically—a nice touch. Output quality is excellent on both laser and ink jet machines, but if you need dot matrix support, you'll have to wait for version 1.1.

SuperPrint can use outlines from

just about any source. In addition to its standard 22 font outlines, it accepts Adobe Type 1, Bitstream, Agfa Intellifont, and URW typefaces, giving it the largest potential library in the roundup. Zenographics' \$129 *SuperFonts* package offers 22 additional outlines.

Version 1.1, with its automatic screen font generation and superior dot matrix support, should make *SuperPrint* more

competitive with the other on-the-fly packages. But 1.0 just misses the mark.

Type Director 2.0

PROS: High-quality laser output, excellent application support, matching screen fonts for LaserJet III users

CONS: Poltry selection of standard typefaces, poor dot matrix output, locks on-the-fly font scaling

EXECUTIVE SUMMARY

Adobe and Atech: Easy Fonts, No Waiting

Scalable-font software offers an inexpensive alternative to PostScript printers.

You don't have to buy new hardware to get high-impact, professional-looking fonts. The best of these font packages offer instant access to a wide range of typefaces that look as good on screen as they do on the page.



Adobe Type Manager 1.0 is the Best Buy for Windows 3.0 users, thanks to its smoothly transparent operation and its compatibility with thousands of Adobe Type 1 PostScript font outlines. Just install **ATM** and forget about it: The program works inside your application, automatically producing fonts as you work. Atech's **Publisher's Powerpak** is the Best Buy for those who need on-the-fly printer fonts for old DOS standbys like Ventura Publisher, WordPerfect, and Microsoft Word.

	Adobe Type Manager 1.0	Facelift 1.0	Fontware	Publisher's Powerpak	SoftType 1.01	SuperPrint 1.0	Type Director 2.0
Printer support	Excellent	Excellent	Good	Excellent	Good	Fair	Good
Software support	Fair	Fair	Excellent	Excellent	Fair	Fair	Excellent
Printer font quality	Good	Good	Good	Excellent	Fair	Excellent	Good
Screen font quality	Excellent	Excellent	Fair	Excellent	Fair	Good	Fair
Font options	Excellent	Good	Good	Good	Good	Excellent	Fair
Ease of use	Excellent	Good	Poor	Good	Poor	Good	Poor
Overall value	Excellent	Good	Fair	Excellent	Fair	Good	Fair
	BEST BUY			BEST BUY			
Reader service no.	605	606	607	608	609	610	611

How we rate font generators
We rate font generators based on information in the Features Evaluation, combined with our opinions of quality, reliability, ease of use, and user benefit.

Printer support is critical. To earn an Excellent rating, the program must support Hewlett-Packard LaserJet and ink jet printers, plus Epsan-compatible dot matrix printers.

Software support rates how well the package works with key applications. To earn an Excellent rating, the program must work with Windows 3.0 applications, plus popular DOS programs such as Ventura Publisher, WordPerfect, and Microsoft Word.

Printer font quality assesses the quality and sharpness of final output. While the primary emphasis is on laser output, an Excellent rating means that the package produces exemplary printouts on all its supported printers.

Screen font quality measures both the appearance of screen fonts and how well they match final output. To earn an Excellent rating, display fonts must be smooth and readable from at least 4 points to 127 points in size and must correspond to all printer fonts in size and appearance.

Font options measures both how many typeface outlines the package provides and how many additional outlines are available. To earn an Excellent rating, a package must include versions of Times Roman and Helvetica in four styles, plus at least

five more font outlines. At least 500 additional typefaces must also be available.

Ease of use rates the program on ease of installation and smooth integration with supported software. An Excellent rating here means that you can install program and font files in a single automated process and that you can select, size, and print transparently from inside your applications. Hard disk storage requirements must be minimal, and the program should not slow down your application's print speed or screen display.

Overall value weighs all of the above criteria, with special emphasis on software compatibility, print quality, and ease of use; it also factors in the price of each package.

When it comes to laser output, Agfa Compugraphic's \$99 package is a star; otherwise, this *Director* is no Hitchcock. It forces you to generate fonts manually, then download them to the printer. Worse, it combines the fewest standard fonts with the most expensive add-ons. Even though it works with a broad range of applications and provides excellent support for the LaserJet III, most users will find it only a fair value.

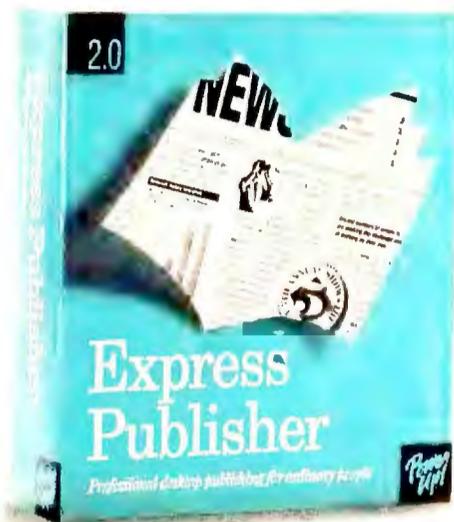
Installing *Type Director* is a pain. The program swallows up 1.75MB—and that's *before* you create any fonts. But a pulldown menu interface makes it fairly easy to build fonts. First, identify the application where the fonts should go, and select your desired outlines. Then enter the point sizes, and specify parameters such as orientation (portrait or landscape) and character set. Need to create a new font or install fonts for another application? As with *Font-*

ware and *SoftType*, you'll have to start the process all over again.

Also worthy of suspicion is Agfa's skimpy selection of typefaces. You get only 8 font outlines: CG Times and Univers in normal, bold, medium, and italic versions. And the price of additional fonts may give you vertigo—you can pay a steep \$99 per family, or buy a package of 12 outlines for \$199.

Type Director supports Windows, Word, WordPerfect, Ventura Publisher,

ONLY ONE



DESKTOP PUBLISHER

LET'S YOU

DO ALL THIS

Make sure you buy before Dec. 31, 1990 — you'll get 5 additional fonts FREE (a \$125 value) while supplies last!

If you already own PFS: First Publisher, Publish It! or any other desktop publisher, trade up to Express Publisher for just \$49.95! (see details) 



Introducing Express Publisher 2.0—the only layout program that lets you curve, shadow, rotate, and stretch text with TextEffects™. Now you can create even flashier flyers, head-turning headlines, and better brochures.

Express Publisher gives you the same high quality output as PageMaker—in a package that's easier to learn and use than PFS: First Publisher.

It's also the only desktop publisher under \$160 that lets you scale any font instantly*, from "mouse size" up to 2" high. Wrap text to fit any shape, automatically. And print the crispest, cleanest output your dot matrix or laser printer can produce.

Express Publisher and Power Up are registered trademarks of Power Up Software Corporation. Intellifont is a registered trademark of Agfa Corporation.

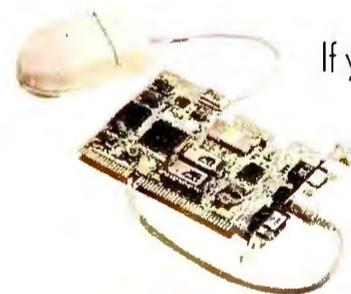
Express Publisher 2.0 utilizes Intellifont type scaling technology.

Send the title page of your current desktop publisher, this ad, and a check for \$49.95 plus \$3.95 shipping & handling payable to Power Up Software. Residents of CA, NY, IL, PA, WA: add applicable sales tax. Please specify 3.5" or 5.25" disks. Mail to: Power Up Software Corporation, EP Trade Up, PO Box 7600, San Mateo, CA 94403. Offer expires June 30, 1991.





VGA WONDER+ FASTER THAN VRAM



If you're about to buy a graphics card, make sure you don't get fleeced. And if anyone tells you that VRAM is the fastest, he's pulling the wool over your eyes. **VGA WONDER+*** what ewe...er...you need.

While others follow, **VGA WONDER+** leads the flock with remarkable resolution, fabulous colors and outstanding value. **VGA WONDER+** offers an optimized architecture including fast 16-bit bus support and fast page mode memory which assures maximum speed...that's faster than VRAM and other VGA cards. Based on ATI's

original award-winning **VGA WONDER*** and available in 256K and 512K versions, you receive

- High resolution non-interlaced and interlaced 1024x768 plus 800x600 graphics;
- 100% register-level compatible in all modes;
- Extensive drivers support including Windows 3.0*, Presentation Manager* and AutoCAD* Display List;
- Ergonomic 70Hz refresh rate in 1024x768, 800x600 and 640x480;
- Easy, switchless installation;
- Free Microsoft* compatible bus mouse;
- And much more.

With **VGA WONDER+**, performance is in the baaaaaag.

For more information, contact your supplier or

ATI Technologies Inc.
3761 Victoria Park Avenue
Scarborough, Ontario
Canada M1W 3S2
Tel: (416) 756-0718
Fax: (416) 756-0720



ATI's Family of Products includes: 8514|ULTRA ■ 8514|Vantage ■ 2400etcl ■ 2400etcli ■ 9600etcl

Circle 302 on reader service card

WordStar 5.5, and *MultiMate 4.0*, among others. Laser printer output is excellent, but screen fonts are limited in size, and dot matrix output is for the birds. On the positive side, *Type Director* uses the same font-scaling technology found inside HP's LaserJet III, which gives LaserJet III owners matching screen fonts and the ability to download font outlines to the printer—an easy way to add typefaces to the HP's meager collection of eight outlines.

In other respects, *Type Director* suffers the same limitations as the other while-you-wait font generators. (Agfa's *Intellifont for Windows 3.0*, which provides on-the-fly font scaling for the III

and IIID printers, should be available by the time you read this.) If you own a LaserJet III and use a program not supported by *ATM* or *Powerpak*, you might consider buying *Type Director*. Otherwise, it won't win any Oscars.

Facing the Font Choice

Once you use an on-the-fly font generator, you'll never go back. The question is, which one do you choose?

For *Windows 3.0* users, the answer is *Adobe Type Manager*. *FaceLift* is a good deal, but it can't match *ATM*'s fluid operation, overall speed, and huge library of available typefaces. If you need fonts for *Ventura Publisher*, *Word-*

Perfect, or other popular DOS applications, plus high-quality dot matrix output, your best bet is Atech's *Publisher's Powerpak*. Sure, you can still get by using your printer's tired old typefaces. But when font packages are this cheap and easy to use, why hesitate? ☺

George Campbell is a contributing editor for PC World. He writes the monthly Words Into Print column. Daniel Tynan is an associate editor for PC World.

For more information about all products in this article, circle reader service no. 902.

WHERE TO BUY

Adobe Type Manager for Windows 1.0

Adobe Systems, Inc.
1585 Charleston Rd.
P.O. Box 7900
Mountain View, CA
94039-7900
800/344-8335
LIST PRICE: \$99; 22-outline font pack \$198; additional packages range from \$99 to \$370 depending on number of outlines
REQUIREMENTS: 1MB (2MB recommended), DOS 3.1 or later version, hard disk, Windows 3.0
TECHNICAL SUPPORT: unlimited, M, W, F 8-5; T, Th 8-4
OTHER SUPPORT: none
Reader service no. 605

FaceLift 1.0

Bitstream, Inc.
215 First St.
Cambridge, MA
02142-1270
800/522-3668,
617/497-6222,
617/868-4732 (fax)
LIST PRICE: \$99; 35-font PostScript pack \$179, 24-font Value Pack \$199; sets of 4 outlines \$129 each, sets of 12 outlines \$199 each

REQUIREMENTS: 640K, DOS 3.1 or later version, hard disk, Windows
TECHNICAL SUPPORT: unlimited, toll number, M-F 9-7
OTHER SUPPORT: none
Reader service no. 606

Fontware

Bitstream, Inc.
LIST PRICE: up to \$30 (varies with application); sets of 4 outlines \$129 each, sets of 12 outlines \$199 each
REQUIREMENTS: 512K, DOS 3.1 or later version, hard disk
TECHNICAL SUPPORT: unlimited, toll number, M-F 9-7
OTHER SUPPORT: none
Reader service no. 607

Publisher's Powerpak

Atech Software
5964 La Place Ct.
#125
Carlsbad, CA 92008
800/748-5657,
619/438-6898 (fax)
LIST PRICE: \$79.95 for each version, additional typeface collections \$29.95
REQUIREMENTS: 640K, DOS 3.1 or

later version, hard disk
TECHNICAL SUPPORT: unlimited, toll number, M-F 8-11:30 1:30-4:30
OTHER SUPPORT: none
Reader service no. 608

SoftType 1.01

Z-Soft Corp.
450 Franklin Rd. #100
Marietta, GA 30067
404/428-0008,
404/427-1150 (fax)
LIST PRICE: \$199
REQUIREMENTS: 640K, DOS 3.0 or later version, hard disk, Windows
TECHNICAL SUPPORT: unlimited, toll number, M-F 10-6

OTHER SUPPORT: BBS, CompuServe forum
Reader service no. 609

SuperPrint 1.0

Zenographics, Inc.
4 Executive Cir.
Irvine, CA 92714
800/366-7494,
714/851-1314 (fax)
LIST PRICE: \$195; Superfonts (22 additional outlines) \$129
REQUIREMENTS: AT, 640K, DOS 3.0 or later version, hard disk, Windows
TECHNICAL SUPPORT: free for first 180 days, toll number, M-F 8-5
OTHER SUPPORT: BBS
Reader service no. 610

Type Director 2.0

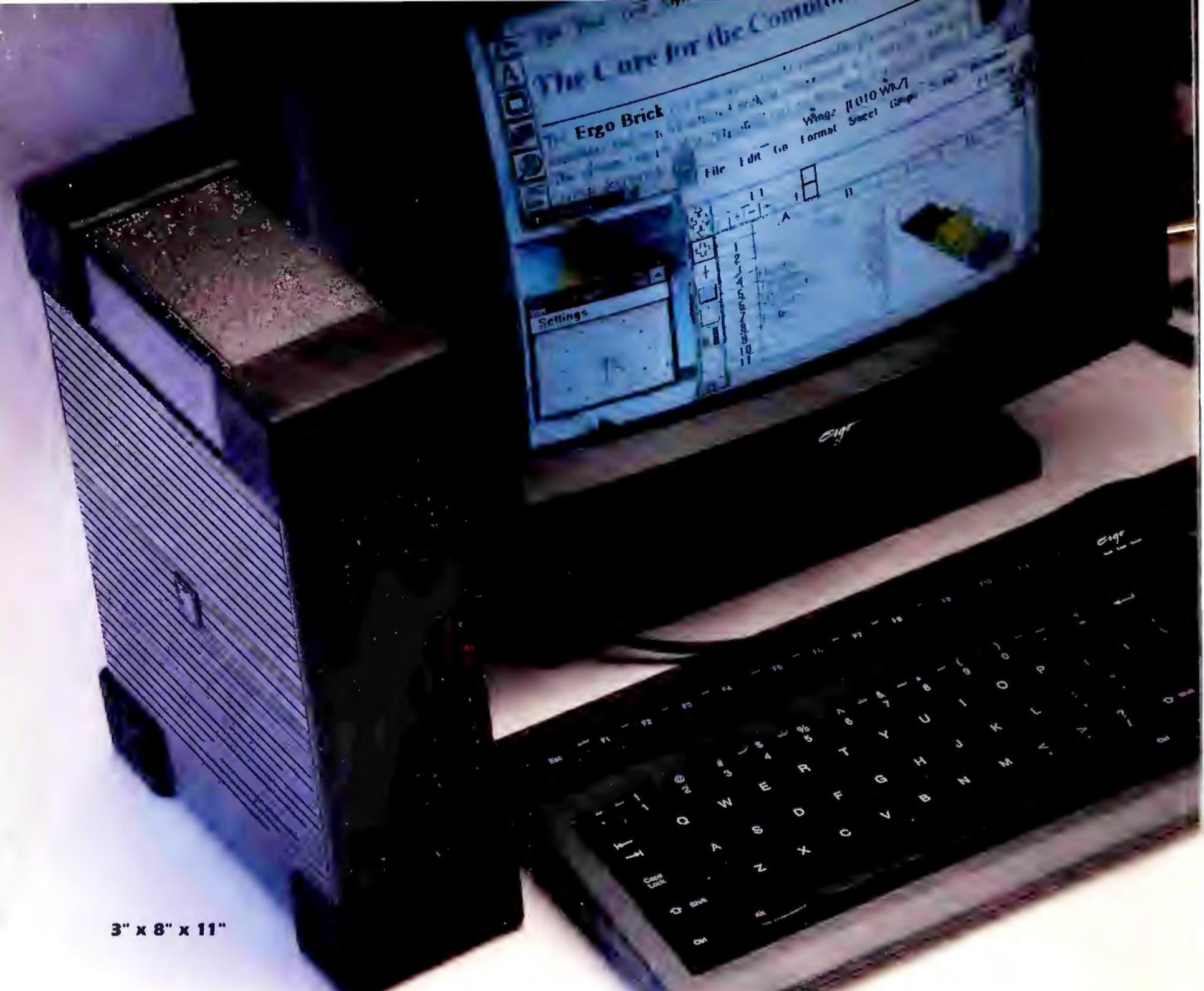
Agfa Compugraphic Division
90 Industrial Way
Wilmington, MA
01887
800/873-3668
LIST PRICE: \$99; additional typeface families \$99 each, pack of 12 outlines \$199
REQUIREMENTS: 640K, DOS 3.1 or later version (excluding DOS 4.0), hard disk
TECHNICAL SUPPORT: unlimited, toll-free number, M-F 8-5
OTHER SUPPORT: none
Reader service no. 611

POWER TIP NO. 156

Crosstalk's Screen Snapshots

During an on-line session, you may need to save a screen of data to disk, such as a new host system's commands. *Crosstalk XVI* has an obscure command that saves a snapshot of a screen to an ASCII file: Press <Esc>pi<Enter> during the session, and enter a path and file name.

Susan Keeler
Washington, D.C.



3" x 8" x 11"



THE BRICK™

The fastest 386SX™ with 212 MB HD, 8 MB RAM, 1024 x 768 VGA and a built-in modem weighs just 8.7 lbs.!

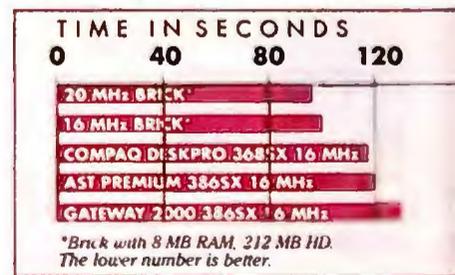
This new generation PC is remarkable for the performance and the practicality it provides. The Brick is powerful enough for the most demanding applications, while its elegance, quietness and size make traditional PC's seem downright obtrusive by comparison.

More Practical Than a Portable

For multisite computing, the Brick offers an alternative to the usual trade-offs of laptops or multiple PC's. Just keep your preferred keyboard and full size monitor, plus power supply at your regular destinations and carry only the 8 lb. Brick in between. You'll save half the cost, half the weight and all the hassle of coordinating files between multiple machines.

Blazingly Fast

Compared to published reports of all 386SX machines tested to date by *PC Magazine* and *Byte*, the Brick offers superior performance on the



Time to complete PC Magazine full benchmark test set.

"A Tote-able that Outperforms the Desktops..."

Consistently outperforms both Compaq's and IBM's 386SX on the PC Labs computer benchmark tests...Ergo's Brick maintains the functionality of a Desktop PC within a small form factor"

— PC MAGAZINE, Sept. 1990



Fits in half a briefcase, leaving room for full-sized folders, notebooks, etc.

aggregate of system, video and hard disk benchmarks.

Massive Hard Disk

Bricks are available with 16 or 20 MHz 386SX, 1-8 MB of RAM, a fast 44, 104 or 212 MB Conner or Teac IDE hard disk, and a 387 coprocessor socket. A 2,400 bps Hayes compatible modem is standard.

The fast VGA graphics feature up to 1024 x 768 non interlaced resolution with a full 1 MB of video memory. In fact, the Brick's video performance is twice as fast as the average of 42 386SX systems tested by *PC Magazine!* This makes an enormous difference in the perceived "response" of the system, especially if you're running graphically intensive applications like Windows or Desktop Publishing.

Surprisingly Expandable

The Brick is only about the size of a ream of copier paper, yet you can still add up to two ISA half cards internally, (one card with a floppy drive). A docking port allows easy, drop-in connection to our Docking Terminal, (\$249, available Q1 1991) which instantly hooks up all cables and provides another 16-bit 3/4 length slot. The "stretch" version of the Brick accommodates full length cards.



Optional back-lit VGA super twist LCD display.

Totally Versatile

When you need to travel, just add the optional VGA LCD module, (\$895, available Q1 1991) and our Brick Bag for a completely self-contained, AC powered portable system.

Satisfaction Guaranteed

Because we are a direct selling manufacturer, we have a direct interest in the complete satisfaction of each and every customer. To ensure that satisfaction, Ergo offers: a 30-day money back guarantee, a One Year Warranty, unlimited 800-line support and our exclusive Advanced Diagnostics via modem.

Free Catalog

You'll find complete information on all Brick systems, plus a full complement of enhancements including monitors, tape backup units, external 5.25" floppies, cases, FAX and network boards and more in our free 32-page catalog. Ergo also offers "traditional" 386 and 486 computers from 16 to 33 MHz, starting at just \$1,895.

Order your Brick today, Factory-Direct! Call us at 1-800-633-1925 (or 508-535-7510) and we'll help select the system that best meets your needs.



\$2,495

Includes

- ▲ 16 MHz Intel 386SX
- ▲ 1 MB RAM, Exp. to 8 MB
- ▲ 44 MB hard disk with password protection
- ▲ 16-bit half card exp. slot

Standard Features

- ▲ 1024 x 768 VGA controller with 1 MB video RAM
- ▲ 2,400 bps modem
- ▲ 3.5" 1.44 MB floppy
- ▲ 2 serial & 1 parallel port
- ▲ 864k DOS capable
- ▲ One Year Warranty
- ▲ Freight included

\$2,695

with 101 Keyboard & 12" Mono VGA Monitor

\$2,995

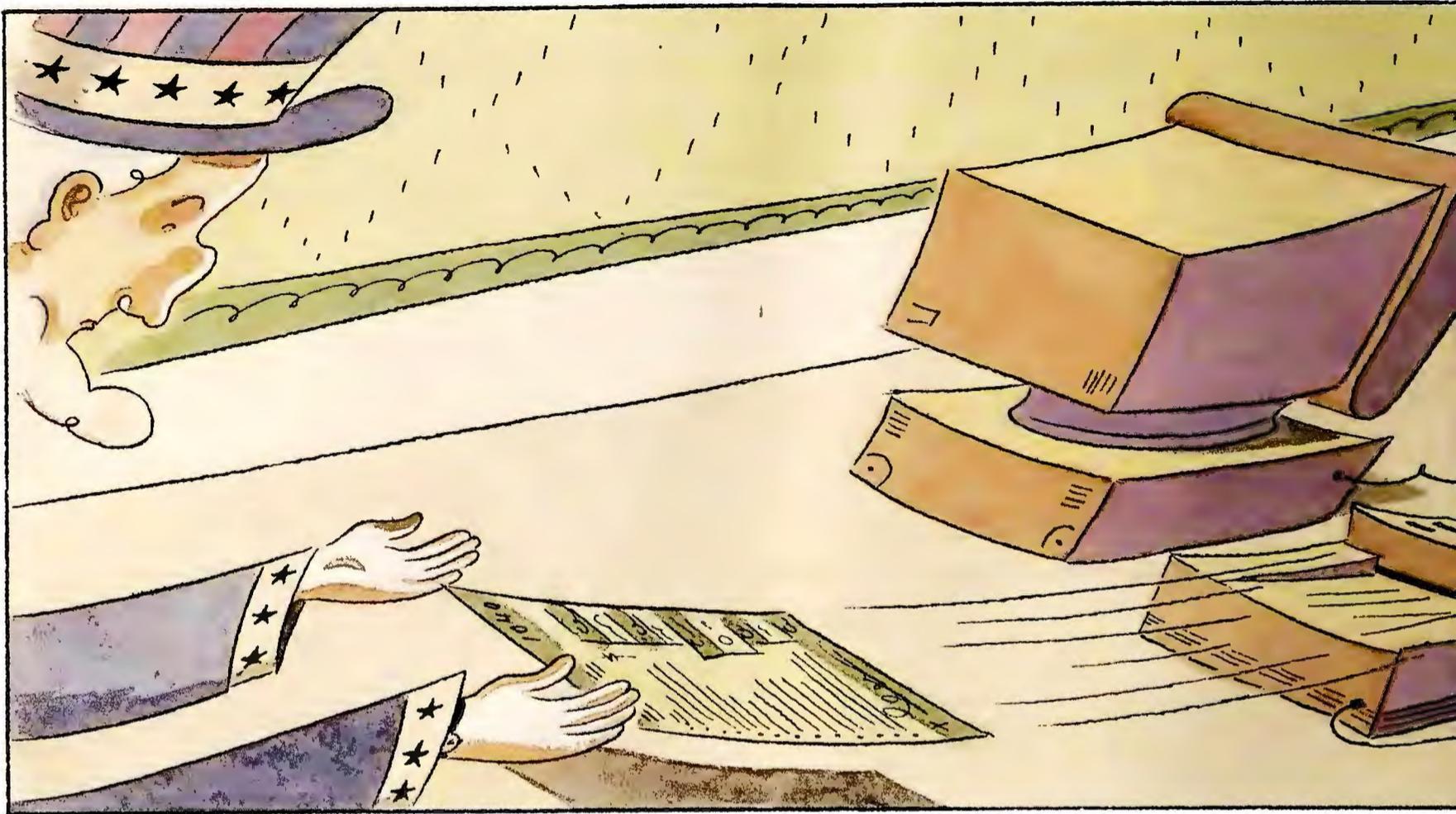
with 101 Keyboard & 14" Color VGA Monitor

One Intercontinental Way, Peabody, MA 01960
Tel: (508) 535-7510 Fax: (508) 535-7512

Ergo
A COMPUTER COMPANY

Order Factory Direct
1-800-633-1925
Free 32-Page Catalog

Circle 64 on reader service card



TAX RELIEF FOR THE REST OF US

It's that time of year again—time to start pulling together receipts from business expenses, totaling up charitable contributions and child care payments, and preparing for the agonizing task of doing your taxes.

Most of us have two basic goals when tax time rolls around: to get the return done quickly and painlessly, and to pay as little as is legally possible. For some people, that means handing everything over to an accountant. But more and more PC-savvy taxpayers are opting for another route: tax preparation software.

Every year tax packages get more capable, adding more forms and schedules and incorporating additional hand-

holding devices. The current generation of tax software doesn't just automate the process—it actually offers tax *advice* along the way.

Will you be one of the converts who throws away the scratch pad and parts company with the accountant in favor of tax software? That depends, say both

tax professionals and software developers, on the complexity of your return, your knowledge of tax law, and the amount of time you're willing to invest.

BEYOND THE 1040EZ

Whether or not tax software can meet your needs depends more on what return you file than on your income level. If you file a 1040EZ return, for example, you probably don't need a tax package. In the time it takes to install and learn the program, you could fill out the one-page form, drop it in the mail, and still have time to work on your backhand.

Similarly, tax packages are of limited



use for anyone at the other end of the spectrum, whose return is so complex that it takes a tax whiz to calculate the liability. A case in point: Many small-business owners must comply with complicated rules for depreciation of capital equipment. And while several packages support IRS Form 4562 for depreciation and amortization, they will not select a depreciation method for you—for that you still need to see an accountant.

“Tax law isn’t an ABC-type thing. It’s subject to interpretation,” acknowledges Mike Chipman, president of *TurboTax* developer ChipSoft. In complicated areas, he notes, “you can ask 50 tax preparers the same question and get 50 different answers.” Obviously, that’s not the kind of uncertainty you want resolved by a computer program.

If, on the other hand, your return is relatively uncomplicated, tax packages “will do an adequate job,” says Paul Cashiola, a Houston CPA and member of the American Institute of Certified Public Accountants’ (AICPA) Tax Computer Applications Committee. An “uncomplicated” return, according to Cashiola, is one limited to W-2 income and itemized deductions such as chari-

table contributions, as well as state and local income tax, local property tax, home mortgage interest, and personal investment interest.

For users who fit into this category—which covers the vast majority of the working population—tax software can be a godsend. It simplifies the preparation process, gives you a better understanding of the implications of your financial transactions, and will very likely save you money. Not only will you be able to forgo the price of an accountant, you may even wind up paying less in taxes, since many packages now include tax-savings tips.

That’s what happened last year when Judith Goebig, who is a word processor and computer bookkeeper in a law office in Philadelphia, decided to do her own taxes using *TurboTax* rather than take them to an accountant. The result? “I saved over \$100, including the price of the program,” says Goebig, who plans to use tax software again this year.

Max Calvert of Fayetteville, Arkansas, is another convert. He used a tax package for the first time last year because he was tired of doing his return manually. “I’m a skeptic, so I [calcu-

**Thinking about
using a tax
package
for your 1990
returns? If your
earnings aren’t
too complex,
you can shave
hours off the
time you or
your accountant
spend on
preparation.**

ROBERTA FURGER



GERRY GROPP

Even with tax software, you have to understand IRS rules, cautions Novato, California, accountant Shari Morgan.



STEVE JENNINGS

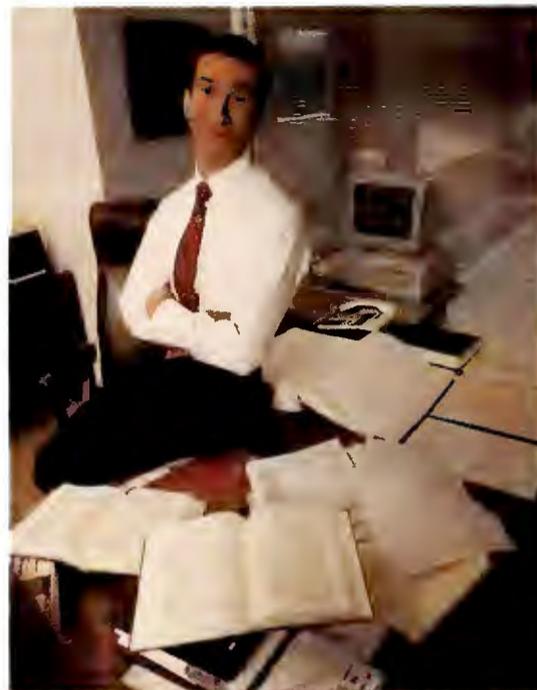
"I got tired of doing my return manually," says tax software convert Max Calvert of Fayetteville, Arkansas.

lated] some areas by hand before having the package do it," says Calvert, who adds that the software's results were identical to his every time.

PROCEED WITH CARE

Calvert isn't your ordinary taxpayer. He's an accountant who's been preparing tax returns for 50 years. And as Calvert and others are quick to point out, the more complicated your finances, the more you'll need to know about tax code. Many tax packages now include multitiered advice designed to help the tax neophyte cut through IRS jargon and figure out his or her return. These additions should provide sufficient information for straightforward returns, but users with more complex tax scenarios may run into problems.

"What makes me nervous is when the user doesn't really know if his or her situation fits into the form," says Shari Morgan, an accountant in Novato, California, and a user of tax software for both personal and professional purposes. "You could prepare your tax return and then get hit a year or two later by an audit because you misinterpreted



DAN FORD CONNOLLY

Houston, Texas, CPA Paul Cashiola finds that tax preparation packages are well suited for users with uncomplicated returns.

the rules, she cautions."

Tax software will never replace a professional's advice and recommendations. If you've always relied on an accountant or a tax attorney to decipher the ins and outs of tax law, your best bet is to continue to do so. "No software can cover the gray areas in tax law," admits Kathy Lane, president of Softview,

Own a Home Business? The IRS Is Watching

A word of advice to home-business owners considering using a tax package for this year's return: Don't say goodbye to your accountant.

Few categories of taxpayers are scrutinized more closely than the owner of a home business. Because of the potential for abuse, the IRS looks upon many home-business deductions with a skeptical eye and will often ask for detailed justification of expenses. So in addition to filling out all the necessary forms, you'll need to maintain detailed records of all expenses.

Several tax packages in the accompanying Buyers' Guide support the basic forms and schedules you'll need to com-

plete your return. Some also feature sophisticated help features to guide you through complex tax regulations and determine your liability.

Even with the extra level of advice, however, no tax package can ensure that your assumptions and interpretations are correct, particularly in an area as tricky as home-business deductions. For that you'll need an accountant.

The two areas where you're likely to run into trouble are determining allowable business expense deductions, such as a portion of your rent or house payment that goes toward your home office, and determining depreciation schedules for equipment used for both personal

and business purposes. Common deductions include cars and personal computers, but both items are classified as property by the IRS and are closely scrutinized. Because these items obviously can be used for more than business purposes, you'll need to document usage carefully—and then have your calculations reviewed by a tax professional.

Once your accountant reviews your expenses and recommends a proper tax strategy, the tax package can do the rest of the work. You'll still save time and money, and you'll have some peace of mind knowing you're covered in the event of an audit. —*Raberta Furger and Suzanne M. Calvin*

In a Hurry for That Refund Check?

Last year for the first time the IRS allowed nationwide electronic filing of tax returns for anyone due a refund. More than 4 million taxpayers seized this opportunity to speed up the delivery of their refund checks.

If you weren't one of the trailblazers who tried out this option last year, here's how it works.

Individual taxpayers can't file electronic returns directly with the IRS. Instead, for a fee (generally around \$25), you send your return to an authorized transmitting service, which then files it with the IRS. Most transmitting services will accept returns either electronically or through the mail, but if you send it via modem you'll have to follow up with a signed copy of the electronic filing form, since the service bureau must have your signature on file before it can submit your return to the IRS.

Electronic filing can speed up your

refund check by as much as several weeks, according to IRS spokesman Frank Keith. He estimates that electronic filers will get their refund checks in three weeks or less—sooner if they opt to have it automatically deposited in their bank account.

But the IRS didn't institute the program just so you could get your refund faster. Electronic filing saves the IRS time and money. Keith estimates that a return filed electronically requires one-tenth the staff to process. It also cuts down on errors associated with manual data entry—both yours and the IRS's. The error rate, according to Keith, drops from approximately 16 percent to 4 percent when you file electronically.

Most of this year's tax packages support electronic filing. But you can file electronically even if you haven't prepared your return with tax software. Several financial institutions, such as

banks and credit unions, will be offering the service to their customers, as will many of the large nationwide tax preparers. Be prepared to pay more than the average \$25 fee, however, if your return is not on disk.

Currently, only taxpayers due a refund can file electronically, but the IRS is testing a program this year that would allow the electronic filing of balance-due returns, with checks sent separately through the mail.

"When we started this program, we assumed there was no market for balance-due electronic filing," says Keith, "but many tax professionals have said they want to be able to send in all their returns at one time."

It's doubtful, though, that many individual taxpayers will choose this option should it become available nationwide. After all, who wants to rush their payment to the IRS? —R. F.

maker of *MacInTax for Windows*. "Sometimes you need to go to a CPA and ask, Is this legal or not, and do I have a legitimate deduction here? Even an expert system can't cover that."

Tax scenarios that fall into the so-called gray area, say many tax experts, include returns involving payment of an alternative minimum tax, oil and gas partnerships, passive activity, complicated rules for depreciation of capital equipment, and investments in publicly traded limited partnerships.

YOU'RE ON YOUR OWN

A bottom-line consideration if you're thinking about tax software is whether you're willing to go it alone. You're the only one who will sign the return, and as one accountant notes dryly, "if the IRS questions something, it won't fly to say the software told you to do it."

Chipman and others say that users

who have very complex returns or are leery of taking full responsibility for their taxes can use tax software as a planning tool. "Collect all the information, and then take it to an accountant for review," advises Chipman.

There's another group of users whom tax software will never fully satisfy: those who expect a refund and want to file early. Although developers issue fall releases of tax packages, these early versions don't include many eleventh-hour changes to tax law. That means if you're one of the estimated 80 million Americans getting a refund and want to send your return in early, you'll have to prepare some or all of it manually.

James Quinlen, a semiretired accountant in San Diego, fell victim to this problem last year. He bought *Andrew Tobias' TaxCut* in November 1989 and was told he'd receive the final version by February 1. It didn't arrive until March.

And MECA Software wasn't the only developer to issue a final release late in the tax season. Several companies had similar problems getting the complete package out the door.

Developers say they're working to get the final versions to users as quickly as possible this year, but be prepared to wait until around February 1.

BUDDY, CAN YOU SPARE THE TIME?

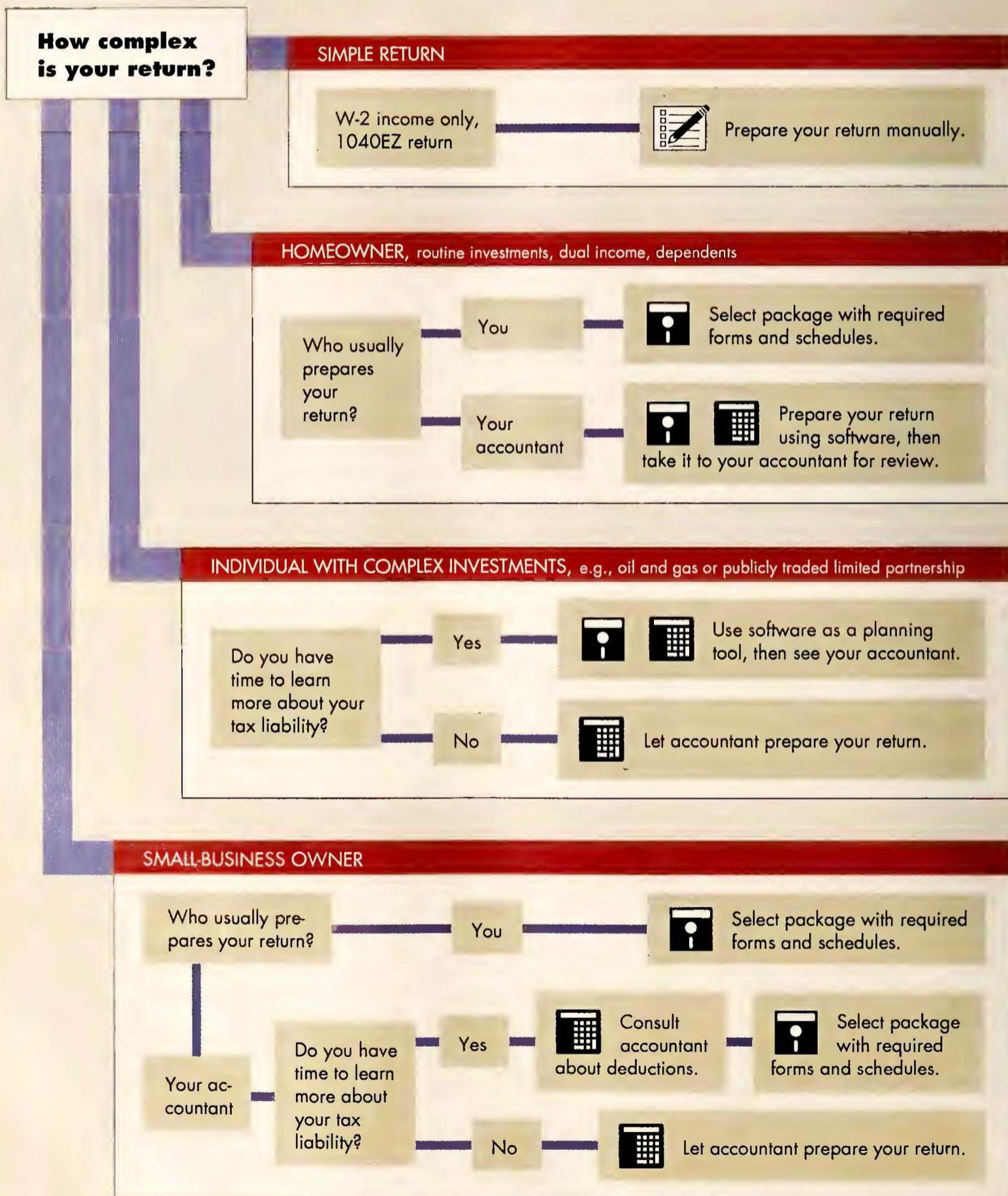
Just how much you stand to gain from using tax software, then, will vary depending on the nature of your return. But if you're willing to invest some time—both in learning a new program and familiarizing yourself with tax law—you may find that tax software can take some of the bite out of April 15. ☺

Roberta Furger is an associate editor for PC World.

KNOW YOUR OPTIONS

Is Tax Software Right for You?

When and how you use tax software depends on which of the four basic taxpayer categories you fall into—and on how much you're willing to learn about tax liability.





DO-IT-YOURSELF TAXES

HOW TO FIND THE TAX PACKAGE WITH THE RIGHT COMBINATION OF FORMS AND FEATURES.

If you've decided to roll up your sleeves, fire your accountant, and prepare your return using tax preparation software, here's the place to find out which tax packages will best meet your needs. Not even a good software package can make tax season fun, but at the very least it should speed up the process and give you a better understanding of your finances.

All the tax packages in this guide are designed for personal rather than professional tax preparation (although some companies also offer more robust versions for professional tax preparers). The least expensive package sells for \$20, with most running about \$75 for first-time users. Upgrades are significantly discounted.

GAUGE YOUR TAX KNOWLEDGE

Before buying a tax package, ask yourself how much help you'll need to complete your return. For many users, explanations of tax regulations and assistance in filling out the requisite forms will be the most important factors.

If you've always relied on a tax professional to prepare your return, look for a package that will point you to the forms and schedules you'll need. Several tax preparation packages now include an interview feature in which you're asked a series of questions to determine which forms you'll have to file. Once

you've completed the interview, packages will either display the first form or bring up a checklist of forms you'll need to complete and then let you fill them out in any order.

Knowing which forms you need is only the first step, though. An equally difficult problem is figuring out *how* to fill them out. Again, the less you know about taxes, the more important the level of assistance. Most of the tax preparation packages include the official IRS instructions—either on line or in a separate manual. Many of the software developers also include best-selling tax guides such as the *Price Waterhouse Personal Tax Adviser* with their packages. Better still, however, is on-line, context-sensitive interpretation and explanation of the tax code.

CHECK PROGRAM FOR CONVENIENCE FEATURES

Other features that will help speed you through your tax return include a built-in calculator (with the ability to override calculations in unique circumstances) and linking between forms so that relevant data is carried over, meaning you don't have to enter the same figures twice. This saves time and reduces the potential for error.

To save you time *after* you've finished entering all your financial data, look for

a package that includes an audit function to check your return for incomplete or conflicting entries, such as a skipped digit in your Social Security number or conflicting data on related forms. The audit detector in some packages will alert you to deductions that might trigger an IRS audit, such as an amount for charitable contributions that exceeds the IRS's generally accepted percentage of income.

LOOK FOR NEEDED FORMS AND SCHEDULES

Even the most advice-oriented tax package is of limited use if it doesn't support all the forms you'll need to prepare your return. To get at least a preliminary list of forms you'll need, check last year's return. Then match your list to the list of forms supported by the various packages. Just because your form isn't supported doesn't mean you can't use the package, but you'll have to complete any unsupported forms manually—and without the tax advice that goes along with supported forms.

Once you've completed your federal return using the software, you may be able to get a state package from the same developer that will automatically read in the relevant data for quick completion of your state income tax return. No package supports all 50 states—although *TurboTax* comes close with 45. You'll also pay around \$50 extra.

SUSAN LUSTY

TAX PREPARATION SOFTWARE

Y = yes
N = no

DM = dot matrix
LP = laser printer
CF = CheckFree

CWP = Andrew Tobias' Checkwrite Plus
DS = Dollars and Sense
MC = MoneyCounts

	AM Tax	Andrew Tobias' TaxCut	J.K. Lasser's Your Income Tax 1991	MacInTax for Windows	Personal Tax Filer	Personal Tax Preparer for 1990	Swiftax	Sylvia Parter's Rapid Tax
Manufacturer	AM Software	MECA Software	J.K. Lasser Institute	Softview	Disk-Count Software	Parsons Technology	Timeworks	DacEasy
STANDARD FEATURES								
Price	\$65	\$90	\$75	\$99	\$20	\$49	\$80	\$80
Upgrade price	\$45	\$50	\$55	\$50	\$20	\$24.50	\$35 ¹	\$35
Memory required	320K	512K	512K	2MB	384K	512K	512K	512K
DOS supported ²	2.0	2.0	2.1	3.0	2.0	2.11	2.1	3.0
Windows 3.0 version	N	N	N	Y	N	N	N	N
TAX HELP								
Interview format	N	Y	Y	Y	N	Y	Y	Y
Identifies required forms	N	Y	Y	Y	N	Y	Y	Y
Tax advisor on line	N	Y	Y	N	N	Y	Y	Y
On-line IRS instructions	N	Y	N ³	Y	Y	Y	Y	Y
Supplemental tax guide included	N	N	Y	N	N	N	Y	N
Tax planner	Y	Y	Y	Y ⁴	N	Y	N	Y
What-if analysis	Y	Y	Y	Y ⁴	N	Y	Y	Y
Audit detector	N	Y	Y	N	N	Y	Y	Y
Audit trail printout	N	Y	N	Y	N	Y	N	Y
PREPARATION TOOLS								
Built-in calculator	Y	Y	Y	N	N	Y	Y	Y
Calculation override	limited	Y	Y	N	N	Y	Y	Y
Automatically recalculates entries after changes	Y	Y	Y	Y	Y	Y	N	Y
Links information between forms	Y	Y	Y	Y	Y	Y	Y	Y
EASE OF USE								
Pulldown menus	N	Y	Y	Y	Y	Y	Y	Y
On-screen forms	Y	Y	N	Y	Y	Y	Y	Y
On-line software help	Y	Y	Y	Y	Y	Y	Y	Y
On-line tutorial	N	Y	N	N	N	N	Y	Y
Imports from personal finance packages	N	MYM, Q, CWP, TT, CF	Q	N	N	MC, DS, Q, MYM	Q, DS, MYM	N
OUTPUT								
Prints accepted IRS forms	DM, LP	DM, LP	DM, LP	DM, LP	DM	DM, LP ⁵	DM, LP	DM
Requires special font cartridges	Y ⁷	N	N	N	Y ⁶	N	N	N
Requires special forms	N	N	N	N	N	N	N	N
Electronic filing	Y	Y	Y	Y	Y	Y	Y	Y
SUPPORT								
Toll-free tech support	N	N	N ⁸	N	N	N	Y	N ⁹
Hours available	12	8	8 ¹⁰	11	9	12.5	8	10
Weekend support	N	Y	Y ⁷	Y	N	Y	N	N
Fax	Y	Y	Y	Y	Y	Y	Y	Y
BBS	N	Y	N	Y	N	N	Y	Y
Reader service number	647	624	648	625	649	650	651	652

¹ Registered users only.
² Earliest version supported.
³ Uses own tax help on line.

⁴ Costs \$79 extra.
⁵ If printer does not have graphic capability, Tax Preparer needs preprinted 1040
⁶ All except 1040 farm.

⁷ LP only.
⁸ 900 number, first minute free, \$1 for each additional minute.
⁹ \$25 for unlimited support.

MYM = Andrew Tobias' Managing Your Money
 Q = Quicken
 TT = TurboTax

Tax Command	Tax Magic Personal	Tax Magic Personal Plus	TurboTax Federal Personal 1040
Practical Programs	TaxByte	TaxByte	ChipSoft
\$80	\$69	\$129	\$75
\$35	\$49	\$99	\$37.50
512K	512K	512K	512K
2.0	2.0	2.0	2.0
N	N	N	N
N	N	N	Y
N	N	N	Y
N	Y	Y	Y
N	Y	Y	Y
N	N	N	N
N	Y	Y	Y
N	Y	Y	Y
N	N	N	Y
N	Y	Y	N
Y	Y	Y	Y
Y	Y	Y	Y
Y	Y	Y	Y
Y	Y	Y	Y
N	Y	Y	Y
N	Y	Y	Y
N	Y	Y	Y
N	Y	Y	Y
N	N	N	Q, MYM, DS
DM, LP ⁶	DM	LP	DM, LP
Y	n/a	Y	N
Y ⁶	Y ⁶	Y	N
Y	N	N	Y
Y	N	N	N
12	10	10	15
Y	Y	Y	Y
N	Y	Y	Y
N	N	N	Y
653	654	654	623

¹⁰ 8 hours of staffed support M-F, automated phone support 24 hours, 7 days a week.

PLAN AHEAD

As part of the trend to go beyond just automating the preparation process, many programs now include some tax planning advice or support for what-if analysis to help you determine the implications of various tax strategies. And if you've been monitoring your finances all year using a personal finance package, look for a program that can import directly from the leading packages. At a minimum, you should be able to import data in ASCII format, but at its best, the link should not only transfer the data seamlessly but also apply it to the appropriate forms.

THINK ABOUT SUPPORT

Despite all the built-in help many packages include, there inevitably comes a time when you'll need to pick up the phone and call the company's technical support staff. Some developers are beginning to offer weekend service or extended weekday hours for technical support—an important option if you won't be doing your taxes during regular

business hours. Keep in mind, however, that tax software developers are generally bombarded with calls from mid-January through March. So look for a company with a toll-free line, or be prepared to rack up a sizable phone bill while you wait on hold for a technician.

EVALUATE OUTPUT OPTIONS

Last year for the first time taxpayers could file their returns electronically, and all but two packages in this guide now support the option. Most developers have established a relationship with an authorized transmitting service and include software to enable you to send your return electronically. You'll have to follow up with a signed copy of Form 8453 (for electronic filing); once that's received, the service bureau will transmit your return directly to the IRS and send you confirmation of its receipt. According to the IRS, you'll receive your refund check within three weeks.

If you plan to file the old-fashioned *(continues)*

WHERE TO BUY

AM Software
 P.O. Box 25010
 Kansas City, MO
 64119

816/426-8361,
 816/452-3183 (fax)

ChipSoft, Inc.

P.O. Box 85709
 San Diego, CA
 92186-5709
 619/453-8722,
 800/755-1040 (fax)

DacEasy, Inc.

17950 Preston Rd.
 #800
 Dallas, TX 75252
 800/877-8088,
 214/248-1239 (fax)

Disk-Count

Software, Inc.
 1751 W. County Rd. B
 #107

St. Paul, MN 55113
 612/633-0730,
 612/633-8678 (fax)

J.K. Lasser Institute

Simon & Schuster
 Software
 15 Columbus Circle
 New York, NY 10023
 800/624-0023

MECA Software, Inc.

327 Riverside Ave.
 Westport, CT 06880
 203/222-9150,
 203/226-2437 (fax)

Parsons Technology

375 Collins Rd. NE
 P.O. Box 3120
 Cedar Rapids, IA
 52406-3120
 800/223-6925,
 319/393-1002 (fax)

Practical Programs, Inc.

P.O. Box 93104
 Milwaukee, WI 53203
 800/776-7047

Softview

1721 Pacific Ave.
 #100
 Oxnard, CA 93033
 800/622-6829,
 805/385-5001 (fax)

TaxByte Inc.

1801 6th Ave.
 Moline, IL 61265
 800/873-2829,
 309/764-0976 (fax)

Timeworks, Inc.

444 Lake Cook Rd.
 Deerfield, IL 60015
 708/948-9200,
 708/948-7626 (fax)

PICK A FORM, ANY FORM

	Forms	Schedules	States
AM TAX	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 2106, 2119, 2210, 2441, 3800, 3903, 4136, 4137, 4255, 4562(23), 4684, 4797, 4835, 5329, 6251, 6252, 8283, 8582, 8606, 8814	A, B, C, D, D1, E, F, R, SE	CA, IL, MD, MO, NJ, NY, OH, VA
ANDREW TOBIAS' TAXCUT	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 1040X, 1099-R, 1116, 2106, 2119, 2210, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8271, 8283, 8453, 8582, 8606, 8615, 8801, 8803, 8814, 8815, 8822, 8824	A, B, C, D, D1, E, F, K1, R, SE	CA, IL, MA, MD, MI, NJ, NY, OH, PA, VA
J.K. LASSER'S YOUR INCOME TAX 1991	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 1040X, 1099R, 1116, 2106, 2119, 2210, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814, 8815, 8824, K-1	A, B, C, D, D1, E, F, R, SE	AL, AZ, CA, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OK, PA, SC, VA, WI
MACINTAX FOR WINDOWS	1040, 1040A, 1040A SCH 1, 1040A SCH 2, 1040A SCH 3, 1040EZ, 1040X, 1040ES, 1116, 2106, 2106-S, 2119, 2210, 2441, 2555, 2688, 3468, 3800, 3903, 4255, 4562, 4684, 4797, 4868, 4952, 6198, 6251, 8283, 8453, 8582, 8606, 8615, 8801, 8806S, 8814, 8822	A, B, C, D, D1, E, F, R, SE short, SE long	CA, CT, DC, IL, MA, MD, MI, MN, NJ, NY, OH, OR, PA, VA
PERSONAL TAX FILER	1040, 2106, 2119, 2210, 2441, 3903, 4137, 4562, 6251, 8606, 8615	A, B, C, D, E, F, R, SE	none
PERSONAL TAX PREPARER FOR 1990	1040, 1040ES, 1040NR, 1040X, 1045, 1116, 1128, 2106, 2119, 2210, 2441, 2555, 2688, 3115, 3468, 3621, 3800, 3903, 3903F, 4136, 4137, 4255, 4469, 4506, 4562, 4684, 4797, 4835, 4868, 4952, 4970, 4972, 5329, 5884, 6198, 6251, 6252, 6478, 6765, 8283, 8396, 8453, 8582, 8582CR, 8586, 8606, 8609, 8611, 8615, 8801, 8803, 8814, 8815, 8822, 8824	A, B, C, D, D1, E, F, R, SE, A (8605)	none
SWIFTAX	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 2106, 2119, 2210, 2441, 2688, 3800, 3903, 4137, 4255, 4562, 4684, 4797, 4868, 4952, 4972, 5329, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814, 8815, 8822	A, B, C, D, D1, E, E1, F, R, SE	AL, AZ, CA, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, NC, NJ, NY, OH, OK, PA, SC, VA, WI
SYLVIA PORTER'S RAPID TAX	1040, 1040A, 1040ES, 2106, 2199, 2210, 2441, 3800, 3903, 4137, 4255, 4562, 4684, 4797, 4868, 4952, 4972, 5329, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814	A, B, C, D, E, F, R, SE	1st: CT, DE, MA, ME, NJ, NY, PA, RI, VT ¹ 2nd: AL, DC, GA, FL, MD, NC, SC, TN, VA 3rd: IL, IN, KY, MI, MN, OH, WI 4th: AR, CO, LA, MO, MS, NM, OK 5th: AZ, CA, HI, ID, OR, UT
TAX COMMAND	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 1040EZ, 2106, 2119, 2441, 3903, 4562, 6251, 8453, 8815	A, B, C, D, D1, E, F, R, SE	IL, WI
TAX MAGIC PERSONAL	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040ES, 1040EZ, 2106, 2119, 2210, 2210F, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4797, 4835, 4952, 4972, 5329, 6251, 6252, 8332, 8606, IRA	A, B, C, D, D1, E, F, R, SE	CA, IL, LA, MA, MD, NC, NJ, NY, OH, PA, VA
TAX MAGIC PERSONAL PLUS	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040ES, 1040EZ, 1310, 2106, 2119, 2210, 2210F, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4797, 4835, 4868, 4952, 4972, 5329, 6198, 6251, 6252, 8165, 8283, 8332, 8582, 8606, IRA, W2, W2P	A, B, C, D, D1, E1, E2, F, R, SE, PA1, PA2	CA, IL, LA, MA, MD, NC, NJ, NY, OH, PA, VA
TURBOTAX FEDERAL PERSONAL 1040	1040, 1040A, 1040A SCH1, 1040A SCH2, 1040A SCH3, 1040ES, 2106, 2119, 2210, 2441, 3800, 3903, 4137, 4255, 4562, 4684, 4797, 4868, 4952, 4972, 6251, 6252, 8283, 8453, 8582, 8606, 8615, 8814, 8822	A, B, C, D, D1, E, E1, E2, F, R, SE	AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, HI, IA, ID, IL, IN, IO, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NY, OH, OK, OR, PA, RI, SC, TN, UT, VA, VT, WI, WV

¹States bundled by region

way, most packages now produce IRS-accepted output, but not all packages support both dot matrix and laser printers. *MacInTax for Windows* prints exact replicas of IRS-approved forms on blank paper. Other packages may require special forms software or font cartridges, however, so check this section

on the table carefully if you want to avoid having to copy the data by hand.

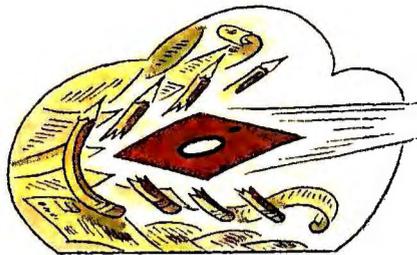
MAKE A LIST OF CRITICAL FEATURES

Every year tax software gets better and better. No one package can satisfy everyone's needs, however. So put together

your list of crucial features and match that against the feature set for each of the packages in this guide.

The payoff can be substantial when tax time rolls around. ☺

Susan Lusty is an assistant editor for PC World.



RATING THE RETURNS

A TAX ACCOUNTANT MATCHES WITS WITH THE TOP TWO TAX PACKAGES.

For years, *TurboTax* has been the undisputed leader among PC tax packages. But last year it got some real competition in the form of a revamped *Andrew Tobias' TaxCut* from MECA Software (see the *Product Outlook* item in this issue).

To see how market leader and repeated World Class winner *TurboTax* stacked up against its biggest challenger, we put the two packages through the paces, running them through three tax scenarios of increasing complexity to see how accurately and easily they prepared our returns.

Our conclusions?

You won't go wrong with either. Both support a wide variety of forms and schedules, offer hypertext help and an electronic filing option, and include many extras such as tax planning capabilities. Remarkably, the two packages came up with the same bottom line in each of our three scenarios.

Despite these similarities and the strength of the feature sets in both packages, *TurboTax* and *TaxCut* are likely to appeal to two types of users, because of their different approaches to entering data and checking your work.

TurboTax 8.0

We began our testing using the 1990 version of *TurboTax*, since final releases of 1991 versions (for the 1990 tax year) are unavailable until after January 1.

Last year's package was competent, to be sure, but unexciting in its approach. Our opinion changed considerably, however, after we booted up the preliminary version of this year's *TurboTax*. An already strong package has been markedly improved.

New in *TurboTax* this year is a Next Step feature that guides you through the entire tax preparation process. Using an interview format, this handholding device moves you from one form to the next. As a result, you can complete your return in an organized manner, without ever feeling "lost" in the software.

After you complete the interview, you can enter any other tax data in *TurboTax's* new Filing Cabinet, which includes an alphabetical listing of all the data required to complete the tax forms in the program. When you select an item from the cabinet, the program jumps to the particular tax form, invokes relevant help text, and then allows you to enter your data.

Once you complete your return, *TurboTax's* audit feature scans it and flags items or amounts that the IRS routinely audits or inquires about. This feature will alert you to potential audit exposures so you can gather adequate supporting documentation before you file your tax return, rather than search for

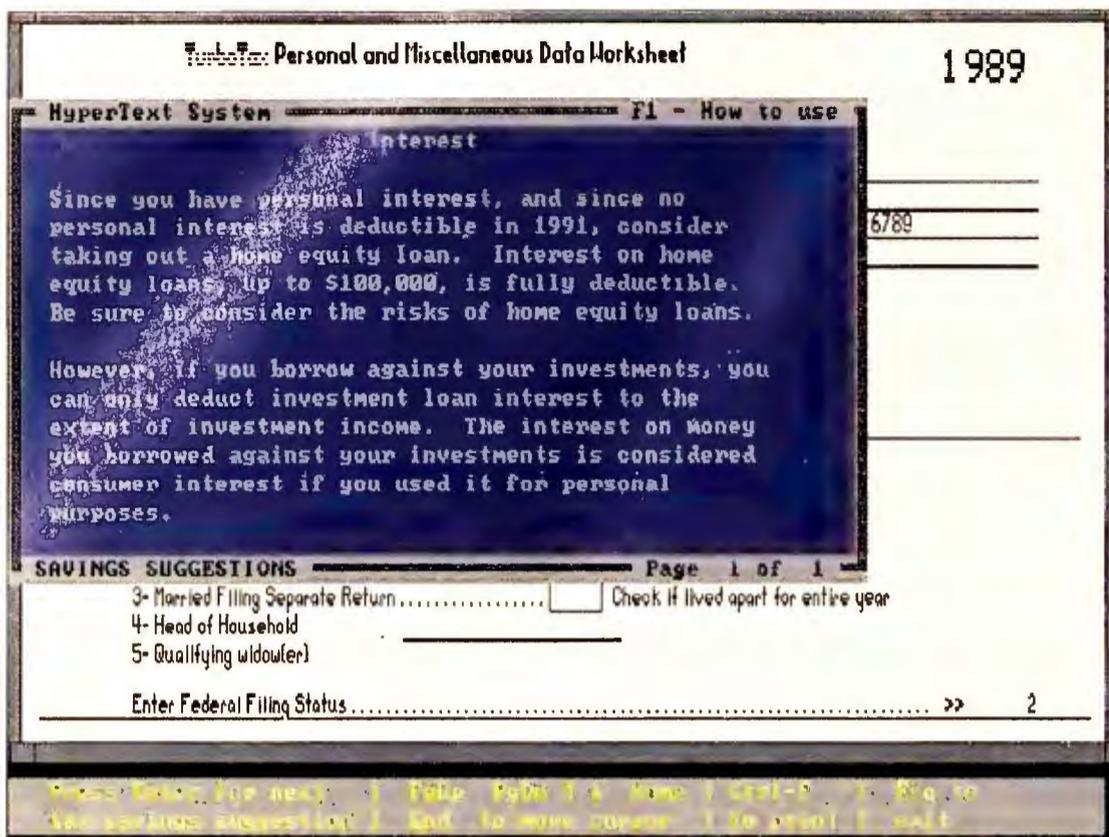
the information years later should you receive an IRS notice.

Andrew Tobias' TaxCut

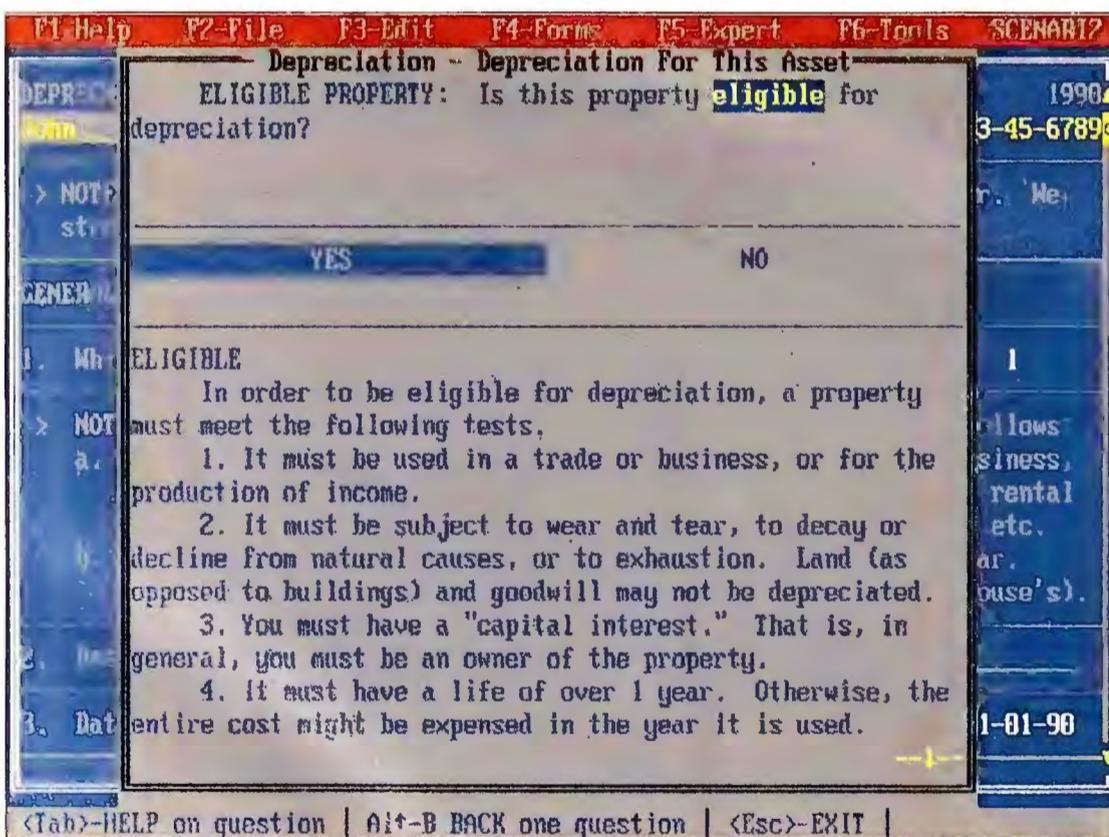
TaxCut really shines when it comes to providing simplified "expert advice." Once you select a specific form to complete, you couldn't ask for better guidance: *TaxCut* will prompt you with easy-to-understand questions and then fill out the form for you. The program does not, however, guide you through the overall tax preparation process (moving from form to form) as clearly as long-time leader *TurboTax*.

When you open up *TaxCut*, you're prompted to review an introductory screen that describes all the steps needed to complete your return. *TaxCut* instructions recommend that you perform four steps: 1) Enter tax documents into the Shoebox (a listing of items needed to complete your return—W-2 forms, bank statements, and so on); 2) complete the Checklist to identify forms you'll need to file; 3) invoke the Expert to get a detailed explanation of most every item on every form; and 4) audit the return. While this road map may be fine for some users, others may find it confusing, since there is no organized format in which to enter financial information. You may end up jumping from one form to the next and end up discovering later that you have skipped a necessary form.

SUZANNE M. COLVIN



The 1991 version of TurboTax from ChipSoft suggests a variety of ways you can save on future taxes by offering different strategies based on your financial situation.



Available at the touch of a key, the Expert function in Andrew Tobias' TaxCut makes filing returns easier with its straightforward explanations of even complex tax issues.

When you evoke *TaxCut's* Expert, you're asked a series of detailed questions designed to elicit all the information needed to fill out the form. As you answer the questions, *TaxCut* fills out the form for you, eliminating the need for you to understand IRS terminology.

This differs from *TurboTax*, where you can invoke tax assistance for any form, but the program never fills in the form for you. Two forms that were much easier to complete in *TaxCut* for this reason were the depreciation worksheet and Form 2119 for the sale of a home. Each of

these forms includes numerous questions that can seem complicated to a novice tax preparer without the benefit of such advice.

Another impressive feature is thorough data integrity checking: *TaxCut* caught more mistakes in our tax forms than *TurboTax's* Data Examiner did. *TaxCut*, in fact, performed data integrity checks on almost every field of the return. When we entered an incorrect year on Schedule D (for capital gains and losses), the program caught the error. It also flagged an incorrect state code and a Social Security number in the wrong format.

Overall, *TaxCut* provides more in-depth assistance for tax novices. It also has a more thorough error-checking feature than *TurboTax*. It does not, however, offer as streamlined a method of completing your returns, so you may get lost in the sea of tax forms, unsure of which to complete next.

YOU MAKE THE CALL

Although both packages are capable of reliably preparing personal tax returns, their divergent approaches make them best suited to different types of users.

Users with little tax background will prefer *TaxCut*. Its Expert function enables you to complete complex forms by answering questions rather than trying to decipher tax code. And its thorough data integrity check ensures that all the forms are filled out completely and correctly. But be prepared to spend some time reviewing the tutorial and supporting documentation.

Choose *TurboTax* if you have a basic familiarity with tax forms. The user interface is more streamlined, and the IRS audit advice is extremely helpful. You'll still have to read over your return carefully before submitting it, since *TurboTax* may not catch small errors such as missing names or incomplete Social Security numbers. ☹

Suzanne M. Colvin, CPA, is a manager with one of the Big Six accounting firms.

FREE GIFT!



And 44% Savings When You Subscribe Now.

The *PC World* see-through solar calculator can be yours FREE, just for subscribing to *PC World*. Your special gift features:

- ▶ Amazing crystal-clear body with invisible circuitry
- ▶ Credit card size convenience
- ▶ Multi-function memory
- ▶ Special function keys: square roots, automatic percentages, etc.
- ▶ Easy-to-read liquid crystal display
- ▶ Advanced solar panel cell—it never needs batteries!

YES! Rush me my FREE GIFT and enter my one year subscription (12 monthly issues) to *PC World* for only \$19.97. That's almost 44% off the annual cover price and over 33% off the regular subscription rate of \$29.90.

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PC WORLD

SAVE
44%

4EJ87



NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

**PC World
Subscription Department
P.O. Box 51833
Boulder, Colorado 80321-1833**

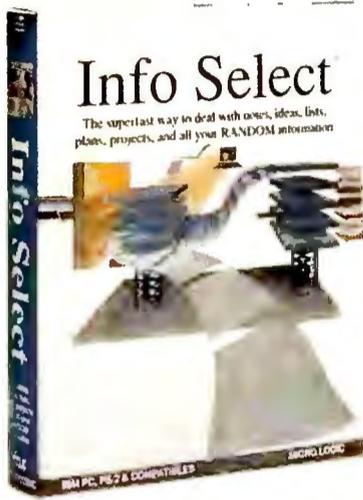


How this \$99 software will:

- 1) Improve the way you work and think,
- 2) Instantly find the info you need, and
- 3) Help you make brilliant decisions ...

The next generation of **TORNADO** is here at last!
 "the most useful software program I have ever owned."
 Steve Gibson, InfoWorld

Surprisingly, there is a whole new world of uses for your computer! You can use your computer to deal with all the countless bits of "random" information scattered across your desk: plans, notes, lists, actions, contacts, ideas,

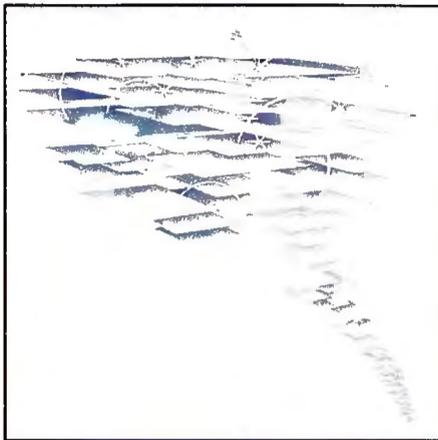


Are you forgetful?

Were you born with a memory situated squarely on the tip of your tongue? Do you forget things like which day you placed an order or important numbers? If you are forgetful you especially need INFO SELECT - the software that remembers almost everything for you.

Thinking tool

Have you ever worked on a complex project and felt lost? With INFO SELECT you'll group, scan, and cross search through all your notes so fast you'll see the big picture in seconds. Will I be better off doing this now or that later? Keeping priorities straight can make or break your career or your business. INFO SELECT lets you keep on top of what's hot. Should you use an east or west coast supplier? To make decisions you need facts. Now you can view the facts any way you like ... as fast as you can think. You'll make the best decisions ever -- and fewer expensive mistakes.



Owners of our TORNADO software (symbolized by the famous "blue tornado") can trade up to the second-generation Info Select under our special offer. There are over 200 improvements.

Feature packed

INFO SELECT is memory resident (if you choose), so you can quickly jump in from other programs. Info Select windows can hold: notes, plans, lists, facts, letters, contacts, and much more. You can search for a window or a group of windows related by a word or phrase. There are five ways to see overviews; hypertext, a fast sort, and line drawing. Save time with the dialer, date tickler; and searching by text or date ranges.

Info Select allows you to: add columns of numbers; store data in EMS; use template or free-form windows; import and export files, screens, and databases; move, join, and duplicate windows and much more.

LAN option

The new LAN version allows integrated E-mail, sharing company rolodexes and distributing company policies. You can share any kind of information. It's your first step into the exciting new world of groupware! Ask about the five node LAN starter pack.

Easy power

Info Select is easy to use yet offers the power you need with infobases up to 10 megabytes; text searches up to 700kb/sec; up to 32,000 characters per window; and up to 64,000 windows per infobase. Even better, Info Select can swap down to as little as 7K memory!

TORNADO owners

INFO SELECT is based on the pioneering TORNADO™ software PC World called "Excellent, Excellent, Excellent, Excellent" and PC Magazine awarded Editor's Choice - twice. Call about our special trade-up offer.

Endless uses

Info Select can do much more than manage all your RANDOM information. Use it to manage business correspondence, sales leads, orders, and client notes. Track facts, plan projects, or interrelate all your ideas. You can catalogue parts, documents, and inventory items. Match buyers and sellers or doctors and patients. Setup an information desk. Edit E-mail. Store notes on magazine articles, software operation techniques, or just names and addresses. Whether you are a lawyer tracking court cases or a zoologist collecting feeding habits you'll find countless uses for Info Select.



Info Select keeps your information in intelligent automatically positioned windows.

Risk-Free Guarantee

Info Select is so effective you will be amazed. That's why we offer our money-back guarantee. Try it for 30 days. If you are not fully satisfied, accept our full prompt refund. Could any offer be more fair?

All for just \$99.95!

INFO SELECT has an introductory price of just \$99.95. You can even try it risk-free with a 30-day money back guarantee. But hurry - this is a limited time offer.

Doesn't it make sense to get the software package that can open up a whole new world of important uses for your computer? Order today. Call toll-free:

(800)342-5930

... and get ready for a new dimension of computing.

MicroLogic

POB 70, Dept. 405
 Hackensack, NJ 07602
 (800) 342-5930 (201) 342-6518
 Fax: (201) 342-0370

Makers of: Tomado, Info Select, Key Watch & Micro Charts

and much more. INFO SELECT™ will not only give you instant access to this important information ... it will help you make better decisions and see important new relationships. Try INFO SELECT risk-free and discover a whole new dimension of computing.

Photographic memory

INFO SELECT is like having a 'photographic memory' that gives you perfect superfast recall of up to 64,000 items of information.

Telephone notes

When Harry calls you on the phone, you'll display the six windows on Harry before he finishes his first sentence! No more embarrassing pauses or scrambling for information.



INFO SELECT is easy to use - yet powerful.

INFO SELECT also includes the world's first "3-D" word processor. You'll be amazed at how it works.

Instead of one window or ten, imagine up to 64,000! The uses are endless.



Phone notes



Client info



Decisions



Management

The #1 PIM

What's all the fuss about PIMs (Personal Information Mangers)? Simple - you probably have more RANDOM information than any other type and you need a PIM to properly handle this kind of information. The right PIM will save you time and make everything you do go smoothly.

Why is Info Select the #1 PIM? Because Info Select is based on ideas you can identify with - like stacks of paper. And it's free-form too. You

won't waste days or weeks learning complex structures. Instead you'll be up and running in minutes. Info Select also does more and costs less than other PIMs.



If you have notes, ideas, contacts or other unorganized RANDOM information, you need Info Select.



"Rarely do I recommend a product as wholeheartedly" David Harvey, Comp. Shopper



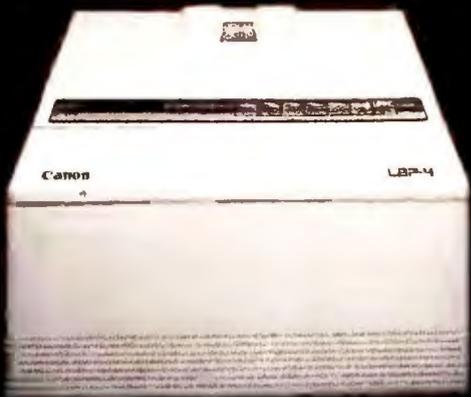
"Beats the pants off just about everything else." Jeffrey Parker, PCM



"As easy as remembering your own name." Patrick Marshall, Info World



Editor's Choice "First rate" PC Magazine



Finding the four best
laser printers is easy.
Choosing *which* Canon
to buy is a little tougher.



Come on, now—we can't do *everything* for you. We've produced a complete line of Canon® Laser Beam Printers for crisp text and stunning graphics. We've given them features unmatched in their price range—such as built-in scalable typefaces that look great from the finest fine print to poster-sized headlines—with legendary Canon quality.

But we can't tell you that what you need is the compact size (and compact price!) of the 4-page-per-minute LBP®-4. You're the only one who knows how convenient its 14" x 16" size and quiet operation would be on *your* home or office desktop. And how can we even guess what you'd do with the standard video interface for fast, high-resolution applications?

We're not going to insist that you should get the LBP®-8 Mark III™ for its 8-ppm speed, or for the ability to boost its standard 1.5MB all the way to 4.5MB. Sure, it can accept our IC cards for additional typefaces and capabilities, but so can the others.

Maybe you never need to print letterhead plus second sheets, or long unattended jobs. So why should we brag about the Mark III™, with dual paper cassettes that can hold up to 400 sheets? Just because it can combine portrait and landscape text? Big deal—that's standard for Canon Laser Beam Printers.

And unless you want the ultimate in capability and convenience, you'd have no interest in the Mark III™, with dual cassettes and duplex printing for newsletters, and lengthy reports. Even though, like the others (yawn), it supports all popular word-processing and DTP software.

Visit your Canon dealer—call us toll-free at 1-(800) 848-4123 for the one nearest you. We've done our part, with four Canon Laser Beam Printers that set a new standard.

But the hard part is up to you.

Genuine Adobe® PostScript® is now available for the LBP-8 Mark III Series printers. And it will soon be offered on the LBP-4 printer, as well.



A printer driver kit is provided free with each printer containing all printer definition files currently available on diskette, plus complete installation instructions.

Canon
LASER BEAM PRINTERS

Working To Improve Your Image.™

From Top To Bottom: LBP®-4 | LBP®-8 Mark III™ | LBP®-8 Mark III™ | LBP®-8 Mark III™
Adobe® PostScript® and the PostScript logo are registered trademarks of Adobe Systems Incorporated in the U.S.A.



101 SECRET TIPS

**UNLOCK THE POWER OF
DOS, WINDOWS, AND YOUR
FAVORITE SOFTWARE.**

T I P S I N D E X

CompuServe170

Corel Draw.....182

Crosstalk Mk. 4.....174

Crosstalk XVI.....174

DataEase.....169

dBASE.....165

Desqview155

DOS155

Harvard Graphics.....180

Magellan.....186

Micrografx Designer185

Microsoft Excel.....162

Microsoft Word158

Norton Utilities185

1-2-3 2.2159, 160

PageMaker178

Paradox.....166

PC Paintbrush IV Plus....185

PC Tools Deluxe.....186

Procomm Plus173

Q&A166

Quattro Pro160, 161

R:base169

Ventura Publisher.....177

Windows 3.0152

WordPerfect156

WordStar.....159





Don't touch that manual! Forget <F1>! This collection of 101 quick

and powerful tips can make you instantly more productive in any of 25 top-selling programs. Whether you use a word



processor, a spreadsheet, a data manager, DOS, *Windows 3.0*, a communications program, a



desktop publishing package, a draw/paint tool, or a

presentation package, digging into this cornucopia of shortcuts, work-arounds, and advice from the experienced can change your computing life for the better.



There's something here for everyone.

PC World went to software masters for these



power tips: contributing editors, the tech support staffs from a dozen

software companies, leading book authors

and consultants, and yes, our many

readers who have spent long days



and nights with the programs covered here.

Their combined efforts have uncovered invaluable nuggets of

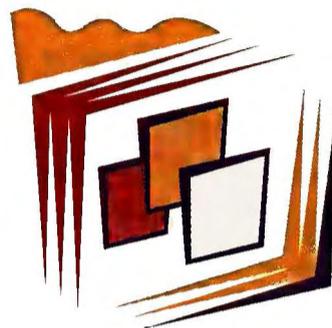


information, many of them buried in or missing from manuals. We hope these hard-won



tips make your PC a more productive, friendlier tool.

OPERATING SYSTEM AND ENVIRONMENTS



WINDOWS 3.0

1

Load Applications Automatically

You can save time by having *Windows* launch frequently used applications automatically at start-up, displaying them as icons, in windows, or full screen. Here's how: With a text editor such as Notepad, open the WIN.INI file in your *Windows* directory. At the top you'll see two lines, 'load=' and 'run='. Add to the 'load=' line the name of each application you want *Windows* to place automatically on the desktop as an icon. Use its full executable file name, including its BAT, COM, EXE, or PIF extension, and include the file's drive and path if the file isn't in a directory listed in the system's PATH. For example, `load=notepad.exe c:\windows\pif\word.pif` tells *Windows* to load *Word for DOS* and Notepad as desktop icons. Notepad hails from the default directory, while *Word* is run from the directory in the (previously created) WORD.PIF. The 'run=' line

works similarly, except that it causes *Windows* to run each listed application in a window or full screen according to the Display Usage setting of the PIF file that controls the application.

You can also list associated data files on the 'load=' and 'run=' lines. When *Windows* starts, it will load or run each data file's associated program and then load the data file (provided the program is in the same directory specified for the data file, the directory specified in the program's PIF file, or a directory listed in the system's PATH). Save WIN.INI, and exit and reload *Windows* for the changes to take effect. —Scott Dunn

2

Quick Program Switching

Although pressing <Alt>-<Tab> toggles you between the two most recently used programs, you can also use it to cycle through every active program. Just hold down <Alt> and press <Tab> repeatedly. If you start from a full-screen DOS program, you'll see a menu bar with an

application title (such as 'Word') at the top of a blank screen. If you start from a windowed application, you'll see the highlight move from window border to icon name. When the desired menu bar, window, or icon appears, release the <Alt> key, and the program pops into view.

—Karl Koessel

3

Copying Files Can Be a Drag

When you drag files between directory windows in the File Manager, *Windows* will either copy or move the files, depending on whether or not you hold down <Alt> or <Ctrl>, and whether the destination is on the same or a different drive. If you find this confusing, you're not alone—but watching the screen carefully can help you remember which keys perform which actions.

When you select a file and drag it to its destination, don't release the left mouse button. Instead, while holding down the button, press and release first <Ctrl> and then <Alt>. Watch the file's icon in its source window. If you release the button while the icon is missing, you will move the file to its new directory. However, if you release the button while the file's icon is visible, you will copy the file and preserve the original.

The file transfer won't take place until you release the mouse button, so you can press and release <Alt> and <Ctrl> in turn until you're sure which command you want *Windows* to carry out. If you decide not to copy or move a file, just drag the mouse pointer to a spot that isn't inside a directory window, and then release the button. —Tom Swan

4

Quickly Switch Tasks

Ever minimize *everything* on the desktop and find yourself staring at *Windows*' wallpaper, wondering what to do next? Ever lose a program in a stack of windows? Don't call Microsoft tech support—just place the mouse pointer anywhere on the desktop's background (visible around the edges of the screen when no application is running full screen or maximized), and double-click. Up pops the Task List, which neatly lists all active applications. Double-click the desired program's name, and its window will move to the top of the stack. Pressing <Ctrl>-<Esc> at any time will also summon the Task List.

—Richard Mann

5

Replace File Manager With Norton Commander

Just because you use *Windows 3.0* doesn't mean you have to settle for the slow and cumbersome File Manager. If you follow these quick steps, you can get instant access to *Norton Commander*, a superior DOS shell, by pressing a key combination.

Run the PIF Editor, and create a PIF for *Norton Commander*. Optimal settings are KB Required, 0; KB Desired, -1; Display Usage, Full Screen; and Execution, Background. Select *Advanced*, and under Other Options, specify <Ctrl>-N as the Application Shortcut Key, then press <Enter>. Save the file as *nc.pif*.

Next, open WIN.INI with an editor like Notepad or SysEdit, and add *nc.pif* to the 'load=' line. Separate it from

other programs on this line with a space. Save WIN.INI, and exit and restart *Windows*. Press <Ctrl>-N, and *Norton Commander* will jump into view. You can use all its features, including the capability to run other DOS applications. This procedure will also work for other file managers and shell programs, such as *Xtree*. —John Walkenbach

6

Attach Icons to Data Files

If you have a document, worksheet, or other data file that you use regularly, you can assign it to an icon that runs the appropriate application and loads that data file. To create a data icon, select the file's name in the File Manager, then select *File Associate*. In the resulting dialog box, type the drive, path, and file name (including extension) of the program that produces the data file, and select *OK*. Then, switch to the Program Manager, select a group for the new icon, and select *File New Program item OK*. For Description, supply a name for the icon; for Command

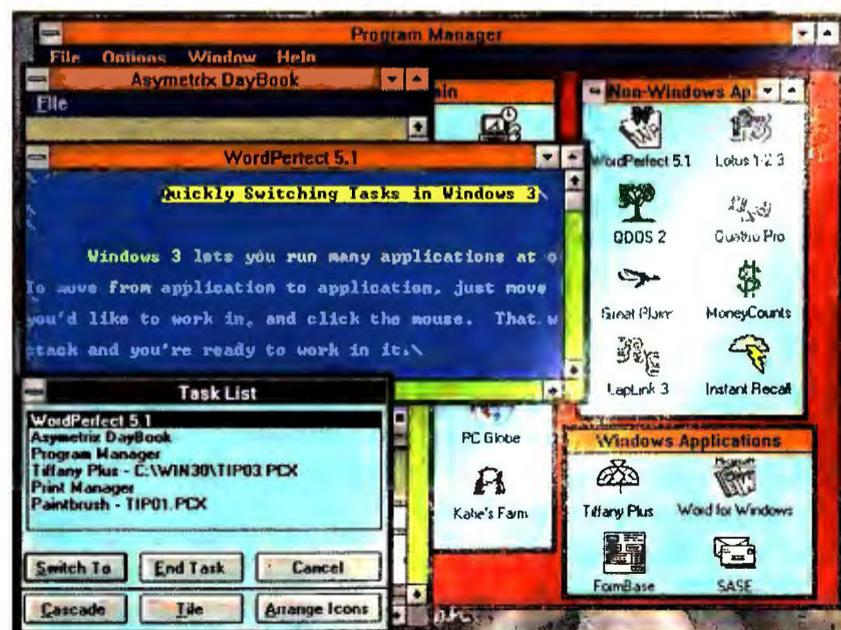
Line, type the drive, path, and file name (including extension) of the data file. Select *Change icon* until an appropriate icon appears, then select *OK*. The data file will materialize on your desktop, ready for work. —R. M.

7

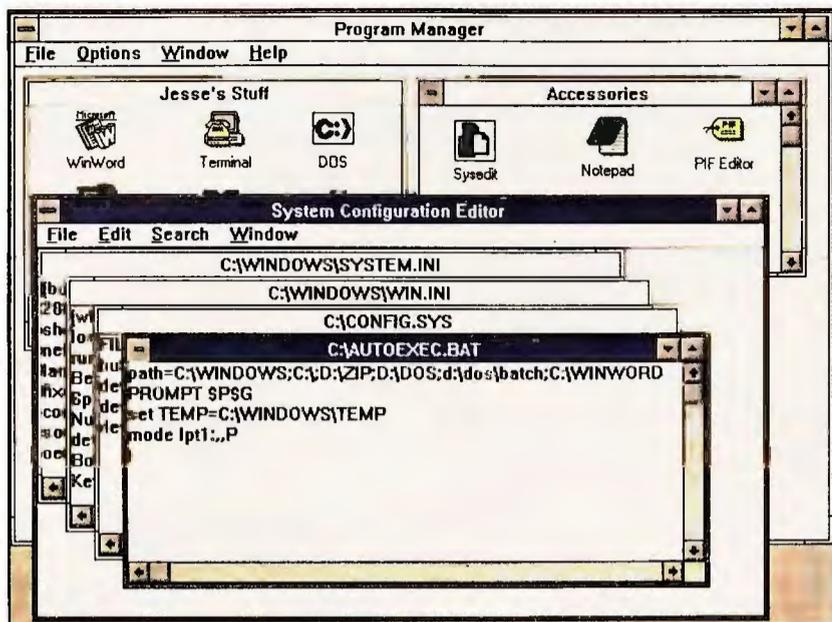
Quick Editing of System Files

For *Windows* users who frequently edit system files, there's a terrific time-saver called SysEdit. In the File Manager, just double-click SYSEDIT.EXE in *Windows*' SYSTEM subdirectory, and up pops a mini-text processor and four overlapping windows holding SYSTEM.INI, WIN.INI, CONFIG.SYS, and AUTOEXEC.BAT. You can jump quickly from window to window, inspect the files, and make changes. Double-click the Control menu box, select *OK*, and your changes are saved.

For some reason, *Windows* doesn't automatically install SysEdit for you. To add it to the Program Manager's Accessories group, take these (continues)



Can't find the tree for the forest? Double-click anywhere on the wallpaper to summon the *Windows* Task List. Double-click the program's name in the list, and its window will come to the foreground.



Run SYSEDIT.EXE in Windows' SYSTEM subdirectory to view and edit important system files. To move an underlying window to the top, just click on it. To save changes, simply quit.

steps: Select the Accessories window, and select *File New Program item*. Type **SysEdit** for Description; for Command Line, type SYSEDIT.EXE's drive, path, and file name, including extension. Click *OK*, and the SysEdit icon appears in the window. Now you're just a double-click away from instant editing. —Jesse Berst

8

Run DOS Programs in Windows—Automatically

If you run DOS programs in sizable windows instead of full screen, you can quickly flip from one program to the next by simply clicking its window. This also eliminates the annoying "screen shudder" that occurs on some systems when you switch from Windows' graphics mode to a DOS application's full-screen text mode.

To automatically run all DOS programs in windows, run the PIF Editor from the Accessories group and open `_default.pif`. This file dictates the default settings for all DOS programs that don't have custom PIF files.

Change Display Usage from Full Screen to Windowed; if you want DOS programs to run in the background, check the Background box. Save the modified `_default.pif` file and repeat these steps for each custom PIF file. The next

time you start a DOS program, it will appear in a sizable window. —T. S.

9

Free Up System Resources

Contrary to popular belief, simply upgrading your computer's memory won't necessarily let you run more applications simultaneously. In addition to the CPU, memory, and disk space, another key factor is "System Resources," an internal limitation that determines how many windows you can have open at once. You can check resources by selecting *About program manager* from the Program Manager's Help menu, or *About file manager* from the File Manager's Help menu. Low resources can limit your multitasking abilities.

To maximize resources, try setting the Wallpaper option to [None], limiting the number of windows you have open within a single application, and reducing the number of groups you use in the Program Manager. —S. D.

10

Free Up Disk Space

If disk space is tight, delete or archive unnecessary or seldom-used files. Print out all TXT files (such as 3270.TXT and WININI.TXT) for future reference, and then delete them. Erase any BMP files you don't want—these are used solely for adding a "wallpaper" image over your desktop. (CHESS.BMP, for example, soaks up over 150K.) Finally, if space is really tight, delete applications (and their help files) that you never



Among Windows' hidden icons you can find the right image for programs you add to Program Manager.

use, such as *Windows Write* (WRITE.EXE and WRITE.HLP), Calendar (CALENDAR.EXE and CALENDAR.HLP), and Solitaire (SOL.EXE and SOL.HLP). You can reclaim up to a megabyte of disk space. —Robert Luhn

11

Communications Without Crashing

Does your DOS communications program make *Windows* crash or slow it to a crawl? Turn off the Detect Idle Time option in the Advanced Options page of the program's PIF file. Otherwise, *Windows* assumes that a program waiting for keyboard input doesn't need much processor time, and so it allocates more processing to other tasks. This poses a problem when a foreground application—like a communications program—runs with little or no keyboard activity. With the Detect Idle Time option on, programs that run for long periods of time without any keyboard input may actually operate faster in the background.

Shutting off the Detect Idle Time option can also cure programs that fall asleep and won't accept keyboard input for several seconds. —T. S.

12

Finding Windows' Hidden Icons

When you add non-*Windows* applications to a Program Manager group, you're offered a choice of eight generic

icons. But other icons are also available if you know where to find them.

Select the application icon you want to change, select *File Properties*, and select *Change Icon*. In the resulting Select Icon window, replace the default PROGMAN.EXE on the File Name line with **control.exe**, **setup.exe**, **winfile.exe**, **swapfile.exe**, or **sysedit.exe**.

Then click *View Next* to flip through the icons hidden in the file. You can also find an icon built into the EXE file of each *Windows* accessory (Calendar, Calculator, Cardfile, Notepad, Paintbrush, and so on). When you find the icon you want, click *OK*.

You can add third-party icons in the same fashion. Check the public file area of CompuServe's *Windows* forum for homemade icons (mostly drawn with *Icon-Draw*, a shareware program also found there) or commercial collections, such as *Icon-Pak I*, available from Software Workshop in Orem, Utah. —R. M.

DOS

13

Turn Off Num Lock

Nothing is more annoying than having to turn off Num Lock mode every time your AT or 386 boots up. However, it's easy enough to create a DOS utility that does the job for you. First, load BASIC, and type in the program in **LISTING 1** exactly as it appears. When finished, double-check the DATA lines, and save the file by typing **save"numlock"** and pressing **<Enter>** on a blank line. Then press **<F2>** (RUN) to create a program called NUM-

```
10 OPEN "NUMLOCK.COM" AS #1 LEN=1
20 FIELD #1, 1 AS CODE$
30 FOR I=1 TO 11
40 READ BYTE%
50 LSET CODE$=CHR$(BYTE%)
60 PUT #1
70 NEXT I
80 CLOSE
90 SYSTEM
100 DATA 184, 64, 0, 142, 216
110 DATA 128, 38, 23, 0, 223, 195
```

LISTING 1: This BASIC program creates NUMLOCK.COM, which turns off Num Lock automatically when you start your PC.

LOCK.COM. Move NUMLOCK.COM to a directory listed in your system's PATH command, and add the line **numlock** to your AUTOEXEC.BAT file after its PATH command. Now when you boot, Num Lock is automatically turned off. —TJ Byers

14

Easy Directory Deletes

Need to nuke a directory quickly—and safely? DOS's repeat command key, **<F3>**, can help by eliminating typing errors. First, ensure that you're not logged on to the directory you want to remove. Then view the files by typing **dir directory**. (After all, you don't want to delete the wrong directory.) To delete all the files in that directory, type **del**, and press **<F3>** **<Enter>y<Enter>**. Finally, to remove the directory, type **rd** and a space, and press **<F3>** **<Enter>**. If you receive an error because the directory still contains a child directory, repeat this procedure for the child directory—type **dir**, press **<F3>**, type **** (a backslash) and the child directory's name, and press **<Enter>**. —Ken Smith

DESQVIEW

15

Easy Word Processor-to-E-Mail Transfers

Here's a trick that will let you easily pour a long document into your E-mail program (or anything else) using a hot key and a couple of keystrokes. First, with your word processor's macro facility, write a macro that, when you press, say, **<Alt>-E**, saves the document as a specific ASCII file in a specific subdirectory, such as C:\MESSAGES\IMPORT.TXT. Then, start your E-mail program. Since most E-mail programs lack a macro processor, pull up *Desqview*'s macro recorder by pressing **<Shift>-<Alt>**. Select *Start script*, then press the key combination you want to assign to the macro (in this case, **<Alt>-E** again). When you're prompted for a script name, type **import Message** and press **<Enter>**. Use the E-mail program's commands to import C:\MESSAGES\IMPORT.TXT. To end macro recording, press **<Shift>-<Alt>**, select *Finish script*, press **<Shift>-<Alt>** again, select *Save scripts*, and press **<Enter>** to save the script under the default name *Desqview* recommends. —William Goodrich

WORD PROCESSING



WORDPERFECT

16

Deleting Consecutive Words

To delete consecutive words in *WordPerfect 5.0* or *5.1*, you would normally use `<Alt>-<F4>` to block the text before deleting it. But there's a quicker way: Place the cursor on the first word to delete, press `<Esc>`, type in the number of words to delete, and press `<Ctrl>-<Backspace>`. You can use this same technique to delete several characters. Just substitute `<Delete>` for `<Ctrl>-<Backspace>`. —George Campbell

17

Doing OR Searches

WordPerfect's search function handles only one search term at a time, a frustrating limitation if you need to sift through long files for several terms. You can do AND searches for multiple words (the found text must include all listed words in a specified order), but you can't perform OR searches (the text can in-

clude any of the words in the search string).

Fortunately, there's a partial work-around: Press `<F5>` to display the current directory in the List Files screen. Mark each file to be searched by pressing * . Press `f` (Find) and then `e` to search the entire contents of each file. At the prompt, type the search terms separated by commas—for example, **IBM,Compaq,Dell**.

WordPerfect will search the files quickly and display any files that contain one or more of the search terms. This method won't show you each occurrence, however. To find the words in the text, you must press `l` to look into each file and then `<F2>` to perform a standard search operation. —George Beinhorn

18

Reversing Directions

You're typing away in *WordPerfect 5.0* or *5.1* when you accidentally press `<Page Down>` or issue a command that moves the cursor far from your original position. How do you get back? *WordPerfect's* Go To command is the answer: To return to the previous cursor position, press `<Ctrl>-<Home>` twice. —G. C.

19

Hiding and Searching for Comments

Most users call on *WordPerfect's* Redline/Strikeout feature for marking work-group revisions, but using nonprinting comments is often more convenient. To create a nonprinting comment, press `<Ctrl>-<F5>c` and type the text.

You don't have to delete comments from a document as you do with redline characters. You can hide them instead: Press `<Shift>-<F1>` to move to the Setup screen, then type `dec` to get to the Comments Display field. Press `n` to hide the comments or `y` to display them again. To remove comments selectively, you can search for and delete them: Press `<F2><Ctrl>-<F5>c<F2>` to search for a comment; press `<Backspace>y` to delete it. —G. B.

20

Mousing Around WordPerfect 5.1

One significant enhancement in version 5.1 of *WordPerfect* is mouse support. Here are some tips to get you started:

- You'll use the mouse more often if the menu bar is visible. To permanently display the menu bar, press `<Shift>-<F1>dmvy<F7>`.
- If you drop down into a menu and then decide not to make a selection, click the right mouse button to return to the editing screen.
- You can use the right mouse button to scroll through a document. Hold down the button while you

drag the cursor to the top or bottom of the screen. The document will scroll until you release the button.

- On a three-button mouse, the middle button acts as the cancel key (`<F1>`). —G. C.

21

Unbreakable Blocks

Sometimes there's a block of text that you don't want split between two pages. To protect the block from a random page break, first press `<Alt>-<F4>` and mark out the block. Then press `<Shift>-<F8>y`. —James Hopkins

22

Quick and Easy Block Print

You want to print a few paragraphs of a *WordPerfect* file, but not the whole file. What do you do? Here are two options. You could block out the paragraphs with `<Alt>-<F4>` and save the block as another file by pressing `<Shift>-<F10>`. You'd then type a new file name, press `<Enter>`, load that file, and print it. An easier way is simply to mark the block and press `<Shift>-<F7>y` to print it. —Lisa Hopkins

23

Reveal More Reveal Codes

If you're desktop publishing with *WordPerfect*, you'll probably spend a lot of time looking at the Reveal Codes window, which can be toggled on



MY FAVORITE TIP

MAKING WORDPERFECT AND WORD DO WINDOWS

24 Both *WordPerfect 5.1* and *Word 5.0* will work under *Windows 3.0*, running either full screen or in scalable windows. However, there are a few potential glitches. Here's some advice to help you avoid problems:

- Never use *Windows*' Control menu to close a word processing session. By default, *Windows* will prevent this, but if you've checked the Allow Close When Active box in the PIF Editor's Advanced Options window for that program's PIF file, you could be inviting trouble. Exit with *Windows*, and not only will you lose data, but *Word* won't update its configuration or delete its temporary files, and *WordPerfect* will probably freeze up the next time you start it. Always quit a DOS program by using the program's exit routine.
- To use a mouse with either *WordPerfect* or *Word*, load the mouse driver in your CONFIG.SYS or AUTOEX-

EC.BAT as you do under DOS. If this causes a conflict, as it does with some non-Microsoft mice, set up your PIF file to run the word processor from a batch file, and load MOUSE.COM from the batch file before starting *WordPerfect* or *Word*. Note: Both programs can use a mouse only in full-screen mode. Put either in a window, and *Windows* takes control of the mouse.

- If you run *WordPerfect* simultaneously with other DOS programs under *Windows*, always launch *WordPerfect* first, or it may freeze.
 - If *WordPerfect* freezes even when it's launched first, you're probably experiencing memory conflicts. Load *WordPerfect*'s PIF file into the PIF Editor, and type '/ne' in the Optional Parameters field. This parameter tells *WordPerfect* not to use expanded memory, which often solves the problem.
 - If you plan to run *Word* in a scalable window, avoid display conflicts with *Windows* by always starting *Word* in character mode. Load WORD.PIF into the PIF Editor, and enter '/c' in the Optional Parameters field. If you run *Word* full screen, however, you can use either character mode or graphics mode.
 - *Word* users normally press <Alt>-<Space> to remove all character formatting. But *Windows 3.0* will trap this key combination and instead bring up the Control menu, putting *Word* in a window. The solution? Type <Alt>-X<Space> to return highlighted characters' formatting to normal.
- George Campbell

and off with <Alt>-<F3>. Moving and copying these codes in the Reveal Codes window is often much faster than using *WordPerfect*'s formatting menus.

If you do a lot of formatting, you can enlarge the Reveal Codes window temporarily. Choose Setup by pressing <Shift>-<F1>, and type der to modify the Reveal Codes Window Size field. Enter a setting (in number of

lines), and press <F7> twice. If you assign 18 lines, for example, 3 lines of the uncoded text remain at the top of the screen when Reveal Codes is displayed. —G. B.

25

WordPerfect's Special Characters Versus IBM's *WordPerfect* can produce an extraordinary range of characters, far outnumbering the

extended IBM ASCII character set. Accented letters, foreign characters, and typographical symbols are among those available. If a character isn't supported by your printer's character set, you won't be able to print it at all using *WordPerfect 5.0*, but version 5.1 will print it as a graphic.

These special characters are grouped into sets, such as mathematical symbols or the Japanese alphabet. To call up a special character; press

<Ctrl>-V, enter the set number; a comma, then the character number. For example, to get a lowercase *n* with a tilde (~) over it, you'd press <Ctrl>-V, type 1,57, and press <Enter>. However, many characters can be composed at the keyboard, obviating the need to remember obscure set and character numbers. To enter \hat{n} simply press <Ctrl>-Vn~, and the character (*continues*)

28

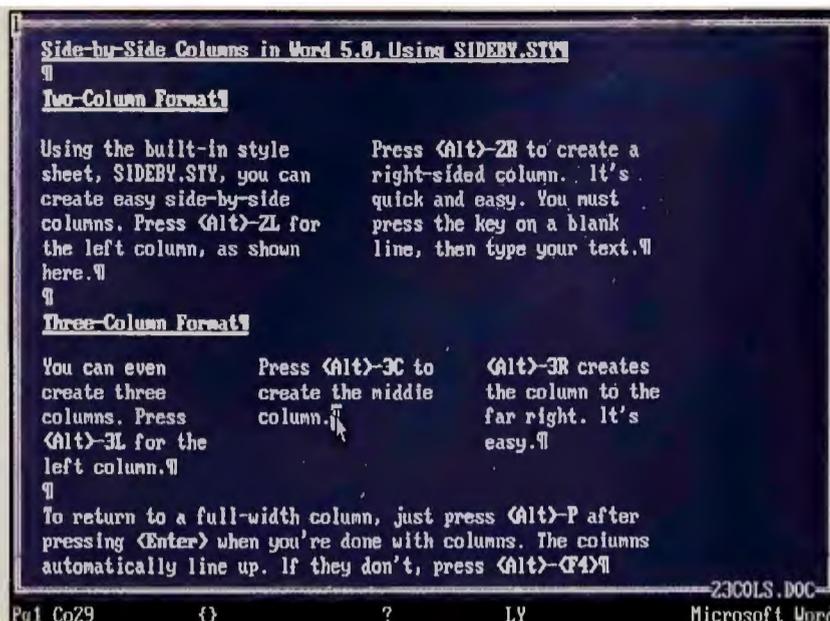
Saving It All

Most *Word 5.0* users automatically save their documents using the <Esc>ts command. But for users who work with several documents on the screen or who often use style sheets and glossaries, there's a better way. If you press <Esc>ta instead, *Word* automatically saves all open documents, style sheets, and glossary files in one step. —G. C.

29

Machine-Gun Formatting

If you prefer typing a document and formatting it afterward to formatting on the fly, you can save keystrokes by using *Word's* <F4> (Repeat) key. Select the first item to be formatted. Press <Esc>f, then press c for character formatting or p for paragraph formatting. Make the desired formatting changes, and press <Enter>. Select the next item to be formatted in



Multiple columns are a snap in *Word* with the right style sheet. Load *SIDEBY.STY* and follow the steps shown here. You can create two- or three-column layouts and even "balance" the length.

ter appears.

WordPerfect cannot display every special character. It displays only ASCII, IBM extended ASCII, and, with the proper video setup, special characters from its FRS screen font files; others are represented by square bullets.

The characters and their associated codes can be found in a file called *CHARACTR.DOC* that is probably in your *WordPerfect* directory. If you print this document—all 12 sections and 33 pages of it—you will have a ready checklist of which characters your printer supports and which codes call them up. —Bob Levine

26

Putting On the Squeeze

Need to squeeze a little more text onto a page or expand text to fit a larger space? A little-known feature in *WordPerfect 5.0* and *5.1* lets you do just that. Called *tracking* in desktop publishing circles, this handy capability is buried three menus deep. Here's

how to use it.

Position the cursor at the beginning of the text you want to track, and press <Shift>-<F8>opw. Press p, and type the percentage of change for spacing between words. Use percentages less than 100 to shrink, or more than 100 to expand. Press <Enter>. Press p, and type the percentage of change for spacing between letters. Press <Enter><F7>. Move the cursor to the end of the section you want to change, and then press <Shift>-<F8>opwo to return to normal text spacing. When you're done, press <Enter>. (Note: On most dot matrix printers, you can expand but not shrink character and word spacing.) —G. C.

MICROSOFT WORD

27

Parallel Columns With Style

Unlike *WordPerfect*, *Word* has no built-in tools for creating side-by-side parallel col-

umns, which are used in such documents as price lists and parts description lists. However, *Word's* *SIDEBY.STY* style sheet can help you do the job.

To use *SIDEBY.STY*, open a new document in *Word*, and press <Esc>fsa. Type *sideby*, and press <Enter>. If *SIDEBY.STY* is not in the current directory, include path information. If you're using version 5.0, press <Alt>-<F4> to display the columns. *Word 4.0* can't display side-by-side columns, but they will print correctly.

To create text in a left-hand column, type in the first paragraph and press <Alt>-2l. Then type text for the right-hand column and press <Alt>-2r. As long as you alternate the commands in this fashion, *Word* will generate balanced columns of equal depth. If you need three columns, use the commands <Alt>-3l, <Alt>-3c, and <Alt>-3r for the left, center, and right columns. If you need two or more paragraphs in a single column, repeat the appropriate command for each paragraph. —G. C.

TABLE 1: SEARCHING FOR INVISIBLE WORD CHARACTERS

To search for and/or replace nonprinting "white space" in *Microsoft Word*, use these special aliases, consisting of a caret and a lowercase character.

To specify	Type
Paragraph marker	^p
New line character	^n
Tab	^t
Soft hyphen	^-
Division or manual page break	^d
Column break	^c
White space	^w
Nonbreaking space	^s

the same way, press <F4>, and repeat this step for each appropriate item.

You can use <F4> to repeat any single editing command, but you can't repeat multiple commands—implementing both character and paragraph formatting, for example. —G. C.

30

Searching for the Invisible

With *Word*, you can search for and replace characters that don't appear on screen, such as carriage returns, paragraph markers, tabs, and page breaks. Because these characters cannot be entered in a search or a replace field, use the appropriate code instead. Each code consists of a caret (^) plus a lowercase letter or symbol (see TABLE 1). —G. C.

31

Coping With Extrawide Documents

Word displays text monospaced at ten characters per inch. If you have a line composed of smaller, proportional type, *Word* wraps the text on screen at an earlier point than the printer will, making it difficult to edit. Fortunately, you can make *Word* 4.0 and 5.0 display the real line endings by pressing <Alt>-<F7> (Show line breaks). Lines longer than your screen's width will extend past the right side of the screen, and you can scroll the screen to view more text

using the <Cursor Right> or <End> key. To switch back to the normal display mode, press <Alt>-<F7> again. —G. C.

WORDSTAR

32

Quick Printing

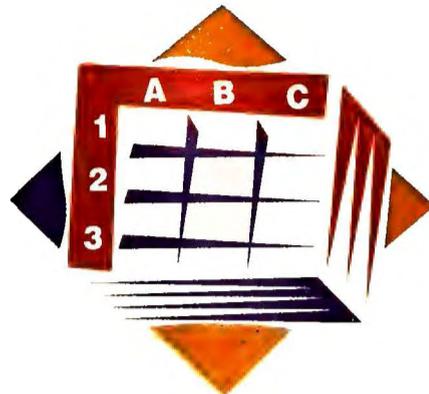
Most *WordStar* users know that they can load a document from the DOS prompt by entering *ws filename d*. (For nondocument files, you'd type *n* instead of 'd'.) But with *WordStar Professional 5.0* and *6.0*, you can print a document in the same fashion. Simply type *ws filename p x*, and press <Enter>. If the file is in another directory, provide the necessary path information before the file name. The file will print using the default printing parameters. —Ken Smith

33

Stop That Dot

All versions of *WordStar* read any line starting with a period as a *WordStar* dot command or a comment and won't print such lines. To prevent words that begin with a dot (such as *.EXE* or *.BAT*) from causing *WordStar* to skip printing a line when paragraph reformatting places such a word at the left margin, prefix the dot with a text attribute, and then turn the attribute off. For example, pressing <Ctrl>-PB twice directly before such a word will ensure trouble-free printing. —Karl Koessel

SPREADSHEETS



1-2-3 2.2

34

Creative Comment

You can create comments in *1-2-3* that don't appear when you print your spreadsheet. To make room for a comment, use */Worksheet Insert Row* to insert a blank row, then enter the comment as a label in the leftmost column of your intended print range. Begin the label with the vertical bar character (|) (for example, |This line is a comment).

Next, define your print range in the usual way with */Print Printer Range*, making sure that the comment begins in the leftmost column of the print range. When you print the report, *1-2-3* will skip the comment row. —Richard Scoville

35

Quickly Unhide Columns

Normally, you have to use */Worksheet Column Display* to view hidden columns in *1-2-3*. A quicker way to view them from anywhere in the worksheet is to hit <Plus> while in Ready mode. All hidden columns and their con-

tents will be temporarily revealed, and you can use the cursor to move around the spreadsheet. Hitting <Esc> twice hides the columns again, removes the plus sign from the Control Panel's entry/edit line at the top of the worksheet, and takes you back to where you began. —TJ Byers

36

If the Range Fits, Print It!

When you print *1-2-3* worksheets using the standard monospaced ten characters per inch on 8½-by-11-inch paper, it's helpful to know that the screen, with its eight columns of nine spaces each, exactly matches the width of a page, with standard margins at 4 and 76.

But what if you're using compressed print mode, a wide-carriage printer, or both? Let's say you're using compressed print at 16.67 characters per inch, and you've reset the margins to 1 and 132. How do you gauge the number of columns that will fit on a page whose lines are 132 characters long? Just make yourself a ruler: In a blank worksheet, enter the (continues)

following labels into cells A1 and A2 (for reasons of space, only the beginning of each label is shown here; repeat the pattern until the labels are about 200 characters wide):
'12345678901234567890...

Now save the worksheet in a file called **ruler.wk1**. Back in your original worksheet, go to the top of the print range, and insert two rows using */Worksheet Insert Row*. Then bring in the ruler worksheet using */File Combine Copy Entire-file*, and enter (or select) **ruler.wk1**. Now move to the right edge of the print range, and read off its character width on your ruler line. Adjust column widths until the print range fits within 132 characters. When you're finished with the ruler, just delete it with */Worksheet Delete Row*. —R. S.

37

More 1-2-3 Files on Your Screen

If you have a lot of 1-2-3 worksheet files in a single directory, the File Retrieve file listing, which displays only

five files at a time, is hardly adequate. Luckily, this display can be expanded easily.

Press <F3> at the 'Name of file to retrieve:' prompt, and you'll bring up a full-screen, alphabetized listing that displays 105 files at a time, with the date, time, and size of the highlighted file at the top of the screen. You can navigate this listing with the standard cursor keys. —Ross Parlette

38

Speed Data Entry

Spreadsheet users know that using the numeric keypad is the fastest way to plug numbers into a worksheet. However, having to constantly toggle <Num Lock> or move your hand to another part of the keyboard for cursor control wastes a lot of time.

The problem can be solved by creating macros that automatically advance the cursor after you enter a value. In a blank worksheet, enter ^a in A1, {?} {down} /xg^a~ in B1, ^b in A2, and {?} {right} /xg^b~ in B2. Then name the ranges using <Home> /nrlr

<Cursor Down> <Enter>.

To run the first macro, go to the top cell of a column in which you want to enter values, and press <Ctrl>-A; then, with Num Lock on, enter your data on the numeric keypad using the keypad's <Enter> key. The data will appear in the cell and the cursor will skip to the cell below (or to the right with the \B macro), ready for the next number. —TJB

1-2-3 AND QUATTRO PRO

39

Dynamic Titles Change With Data

You can create dynamic titles and legends for your 1-2-3 or Quattro graphs. Let's say you're displaying the weights of product samples in a line graph, and you've entered 50 sample weights into cells B2..B51. You'd like the average of the sample weights to appear on the second line of the graph title. In cell C2, enter the formula + "Average Sample Weight: "&@string(@avg(b2.b51),1).

This string formula converts the group average to text with @STRING(); the string operator '&' then joins it to the phrase 'Average Sample Weight'.

Use */Range Name Create* (in Quattro, */Edit Names Create*) to give the cell a range name—for example, **title2**. Select */Graph Options Titles Second* (in Quattro, */Graph Text 2nd line*), and enter \title2. When you view or print the graph, it will display the second title (in

SCREEN 1, 'Average Sample Weight: 147.2'), and if the values in the data range change, the title will recalculate to display the new average. You can use the same trick in graph legends and, with 1-2-3 2.2, in report headers and footers using */Print Printer Options Header* and */Print Printer Options Footer*. —R. S.

40

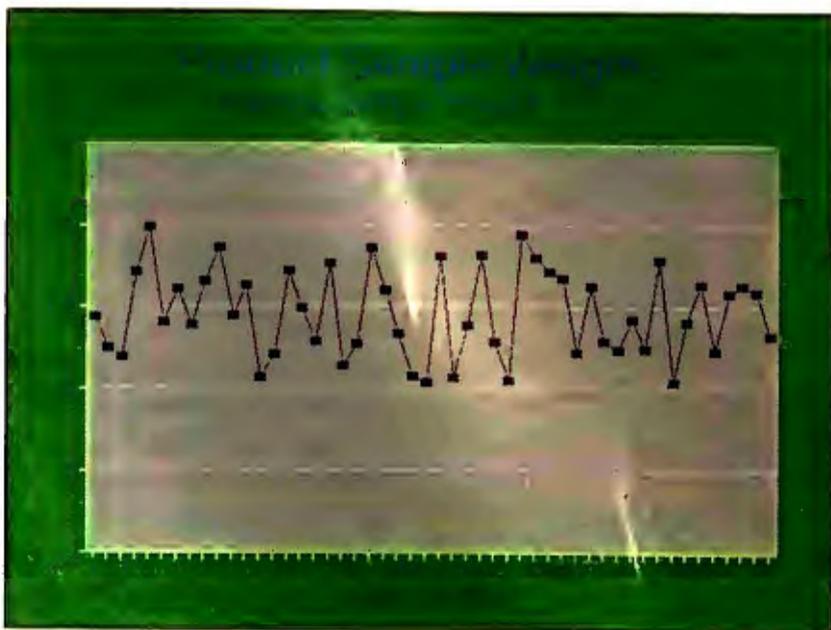
Fast Recals for 1-2-3 Ranges

Using 1-2-3's Calc function (<F9>) to recalculate a range in a large spreadsheet can be time-consuming. For quick range recals when automatic recalculation is off, use the Copy command. Just select */Copy*, and enter the relevant formula cells in both the 'Copy FROM' and 'Copy TO' ranges. When you press <Enter>, the program copies the range onto itself, recalculating all the included formulas in the process. —Frank Miyazaki

41

If It's Thursday, It Must Be 1-2-3 or Quattro

Neither 1-2-3 nor Quattro has a function that plugs the day of the week into a worksheet. Here's a quick formula that trains your spreadsheet to supply this information. Type the following formula into a cell: @choose(@mod(@now, 7), "Sat", "Sun", "Mon", "Tue", "Wed", "Thu", "Fri"); the program will now yield the correct day of the week. —R. S.



SCREEN 1: What if the Average Sample Weight changes from 147.2 to 2001? No sweat—this dynamic graph title will change automatically.

42

Paint Ranges Faster

Suppose you have 150 data values in column B of a 1-2-3 or *Quattro* worksheet, and you want to place copies of a formula beside each one. Here's how to do it with the fewest possible keystrokes: Enter the formula into the first cell in column C, select /Copy, and press <Enter>. For the TO range, press <Period> <Cursor Left> <End> <Cursor Down> <Cursor Right> <Enter>. These keystrokes extend the TO range left over the range of data values in column B, then extend it down to the last data value, and finally un-paint the data values. —R. S.

QUATTRO PRO

43

Find Work Areas Quickly

In a well-organized application, it should be easy to trace the relationships between all the functional areas. But when you're working with many interlinked worksheets, it's easy to lose track of which file contains which table. An easy remedy is a table of contents linked to the various worksheets that lists the major areas of each worksheet and notes their location and contents.

Let's say your application consists of three data sheets—SOUTHEAS.WQ1, NORTHEAS.WQ1, and SOUTHWES.WQ1—that contain details of regional sales, and a summary sheet—SUMMARY.WQ1—that consolidates the regional results. To create a table of contents entry for the southeast region, open the southeast re-

gion worksheet and the summary worksheet, and select SUMMARY.WQ1. Select /Edit Names Create, enter the name **sesales**, and at the Enter Block prompt, click on the title cell in the southeast region sheet. Choose an area in SUMMARY.WQ1 for the table of contents, and enter the formula **@cell("address", sesales)** there. This formula displays the file name and address of its target cell: [SOUTHEAS]\$A\$1. Enter a description in an adjacent cell, and repeat the process for other important work areas.

Because the table of contents is linked to the data sheets, it will maintain the correct reference even if you rearrange or rename the regional worksheets. —R. S.

44

Plot Multiple X-Axis Values

Quattro Pro's graphing function allows you to define only one *x*-axis series of values per graph. Here's a trick that lets you plot multiple *x*-axes against varying *y* values, as long as the data points are within a common range.

Begin by typing in the figures shown in **SCREEN 2**. All the *x*-axis values appear in column A. The first series of *y* values appears in column B, the second series in column C, and the third series in column D. Simply read across the row to find the *x,y* pairs. In row 12, for example, the *x,y* values are 7,6.

Next, select /Graph Series, and enter **b1.b15** as the range for the first series. For the second series, enter **c1.c15**; for the third series, **d1.d15**. Finally, for the *x*-axis, enter **a1.a15** and select *Quit*.



MY FAVORITE TIP

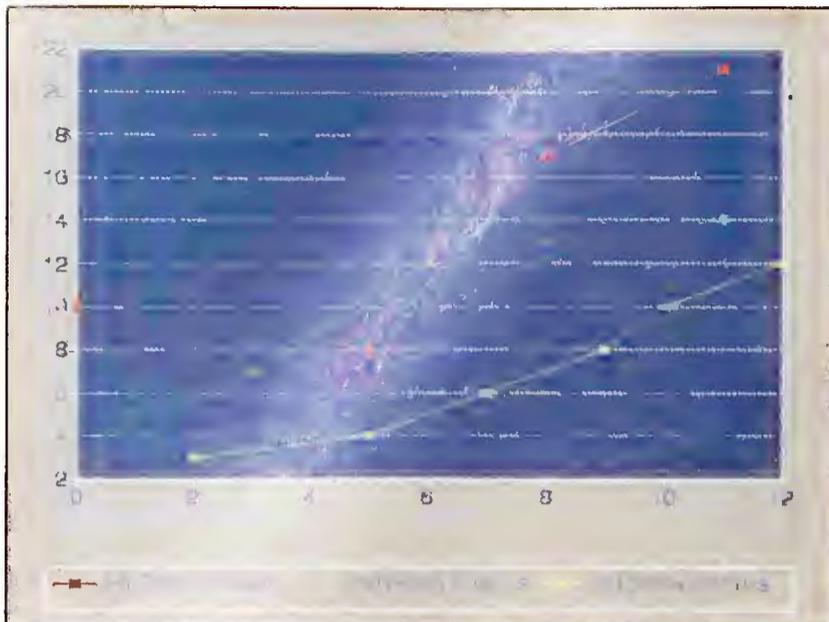
RAPID RUNNING TOTALS IN ALMOST ANY SPREADSHEET

45 Here's a quick way to calculate a cumulative sum in 1-2-3, *Quattro*, or *Excel*. Let's say you need to calculate the year-to-date profit in row 18 of a pro forma balance sheet. Row 17 displays the monthly profit values, beginning in column B. In cell B18, enter the formula '@sum(\$b\$17.b17)' (in *Excel*, it's '=sum(\$b\$17:b17)'). Copy this formula horizontally, and each copy sums a larger range—cell C18 contains @SUM(\$B\$17..C17), cell D18 contains @SUM(\$B\$17..D17), and so on. This method is much faster than creating a unique formula for each cell.

—Richard Scoville



SCREEN 2: You can create multiple *x*-axis graphs in *Quattro Pro* by staggering the sets of *y* values in separate columns and placing their *x* values in a single *x* range. **SCREEN 3** shows the result for this data.



SCREEN 3: Although Quattro Pro allows you to define only one x-axis, you can still create a multiple-x-axis graph (as long as the values are within a common range).

Now view the graph by selecting *View*. You can add a legend like the one shown in SCREEN 3 by selecting */Text Legends* and typing in the text. —Miles Musser

MICROSOFT EXCEL

46

Print Multiple Areas

You can print several noncontiguous areas of an *Excel* worksheet with a single command. Suppose you want to print three ranges named Sales, Expenses, and Cash-Flow. Just select *Formula Define name*, and type *Print Area* in the Name edit box (or select it from the Names in Sheet list box). Then type *=Sales,Expenses,CashFlow* in the Refers To edit box. Finally, choose *File Print*. *Excel* prints the areas in turn, beginning each on a new page. —Charles W. Kyd

47

Create Charts With Less Clutter

Most people use legends and markers to label lines in *Excel* charts. But doing so can often result in a cluttered, unreadable display, as in the chart on the left in SCREEN 4. Instead, you can label the lines with text, as the chart on the right shows.

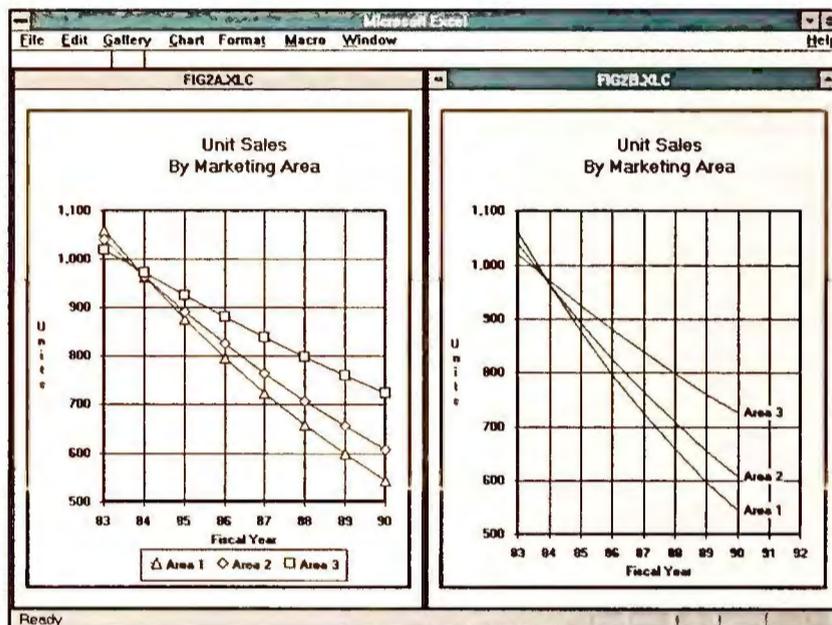
You'll probably need to increase the length of the horizontal axis to provide room for the attached text. Select the axis, choose *Format Scale*, and increase the Maximum value as needed. To attach the text, simply click on the right end of a line, choose *Chart Attach Text*, press *<Enter>*, and then replace the resulting value in the formula bar with the appropriate text. To hide grid lines behind the attached text, select the text area, then choose *Format Font* and select *White out* in the Background box. Repeat these steps for the other lines. Your chart will be cleaner and easier to read. —C. W. K.

48

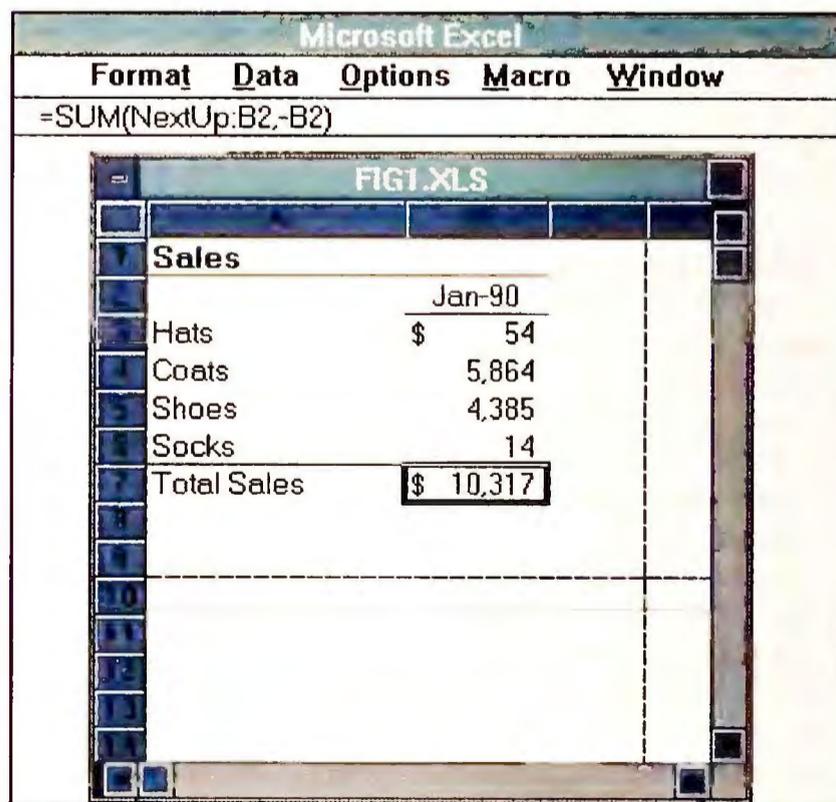
Make SUM Ranges Safer

Most people use the formula *=SUM(B3:B6)* in cell B7 to add up the numbers in cells B3 through B6 (see SCREEN 5). If you insert a new row of data immediately above row 3 or below row 6, however, the SUM formula ignores the new data.

Here's how to create a safe SUM formula. First, enter the numbers in cells B3..B6 as shown in SCREEN 5. Put a date value in cell B2. To define the relative range name NextUp in cell B7, temporarily switch to R1C1 style by choosing *Options Workspace* and clicking on the R1C1 check box. Then, choose *Formula Define name*, and enter (continues)



SCREEN 4: The chart on the right cleans up the clutter found in the chart on the left. Text labels are a quick way to achieve this effect.



SCREEN 5: Create the relative range name NextUp to protect your sum ranges from accidental errors. Note too that you can left-adjust dollar signs to approximate typeset output, as shown here.

The Truth Comes Out.

The new dBASE IV® version 1.1 has been rated the #1 Multiuser Database by Software Digest Ratings Report (Volume 7 Number 3, October, 1990).

Because Software Digest accepts no advertising whatsoever, subscribers pay hundreds of dollars a year to receive their reviews—which are considered highly unbiased and objective.

In summation, their 75-page report says: "Among the top ranking programs, dBASE IV (version 1.1) is the most well rounded, with solid performance, versatility, and usability." Commenting on speed, Software Digest points out that "dBASE IV produces all three test reports as fast as or faster than FoxPro/LAN." As for Ease of Use/Ease of Learning, dBASE IV scored as many times in the Excellent range as any other database product tested.

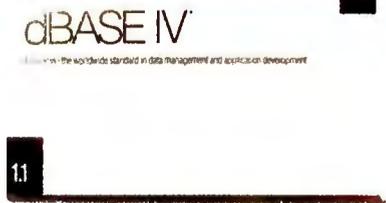
Of course, Software Digest is definitely not alone in its conclusions.

Because consumers have already made dBASE IV version 1.1 the #1 best-selling PC database in the world.

Call 1-800-437-4329 ext. 1407 for more information.

Better yet, call 1-800-2ASHTON now to upgrade.

The truth is, no other database can do so much to improve productivity.



 Ashton-Tate®

Software Digest RATINGS REPORT

Volume 7, Number 13
The Independent Comparative Ratings Report for Selecting IBM PC Business Software

MULTIUSER DATABASE PROGRAMS

Ratings Key: ■ 7.0-10.0 ■ 5.0-6.9 ■ under 5.0

Software Digest Rating	Overall Evaluation	Overall Power	Program Name	Version Tested	Performance	Versatility	Error Handling	Ease of Learning	Ease of Use	Memory Requirement	Price	Volume Purchase Agreements	Page
***	7.0	6.7	dBase IV	1.1	■	■	■	■	■	450KB	\$795	✓	28
**	6.8	5.1	Paradox	3.5	■	■	■	■	■	640KB	\$995	✓	32
**	6.8	7.1	FoxPro/LAN	1.02	■	■	■	■	■	512KB	\$1,095	✓	30
**	6.4	5.1	DataEase	4.2	■	■	■	■	■	640KB	\$750	✓	26
*	5.8	3.6	R:Base	3.0	■	■	■	■	■	520KB	\$995	✓	34
*	5.7	6.0	Clarion Professional Developer	2.1	■	■	■	■	■	512KB	\$845	✓	24
*	5.7	6.6	Advanced Revelation	2.01	■	■	■	■	■	640KB	\$995	✓	22

REPRODUCTION OR QUOTATION IN WHOLE OR IN PART IS PROHIBITED WITHOUT PRIOR WRITTEN PERMISSION. All rights reserved. © 1990 by NSTL, Inc. Plymouth Corporate Center, Plymouth Meeting, PA 19462, 800-223-7093

DOS

stroke stroke stroke
stroke stroke stroke
stroke stroke stroke
stroke stroke stroke
stroke stroke stroke

Direct Access[®]

stroke

Here's a hardworking menu program that really lowers your handicap.

Getting into the programs on your hard disk with DOS commands can take longer than a foursome full of beginners. You should be using Direct Access.

All you do is load it and forget it. Direct Access lines up every program on a menu and lets you create custom sub-menus for related programs and other applications.

It's simple.

And it's complete. With features like user-defined screen blanking, password protection, three-level virus detection, mouse support and a unique feature that automatically tracks all time spent on your programs.

A network version is also available. You can

even customize the menu with your company logo.

The choice is easy. Keep stroking away with DOS commands. Or play through to your programs with Direct Access.

Call now for complete details, volume discounts and your nearest Direct Access dealer. For a limited time, get Pyro![™] The Entertaining Screen Saver for the PC, free! Just write "Pyro" on the Direct Access registration card before you return it.



PC Magazine Editor's Choice

FREE

**GET OUR
POWERBASE*.*
DISK FREE,
COMPLETE
WITH 35 TIPS AND
UTILITIES TO USE
WITH YOUR
SOFTWARE
PACKAGES. TIPS
AND TRICKS FOR:**



- | | | |
|----------------|---------------|-------------|
| ■ WordPerfect | ■ Turbo C | ■ Basic |
| ■ WordStar | ■ Lotus 1-2-3 | ■ And much, |
| ■ Turbo Pascal | ■ Paradox | much more! |

Yes, I want to stay on top with PC WORLD'S concise product reviews, hot news and HowTo tips and techniques. I'll pay only \$19.97 for 12 monthly issues—43% off the annual newsstand price— plus I'll receive FREE PC WORLD's PowerBase*.* Disk.

MAIL THIS CARD OR CALL 800-825-7595

Name

Company

Address

City/State/Zip

Basic annual subscription price is \$29.90. Savings based on annual newsstand price of \$35.40. Please allow 6 to 8 weeks for delivery of your first issue. Offer good only in the U.S. PowerBase*.* diskette is offered solely by PC WORLD Magazine. It should not be confused with 'power-base' which is relational database software offered by Compuware Corporation.

PC WORLD

4EA95



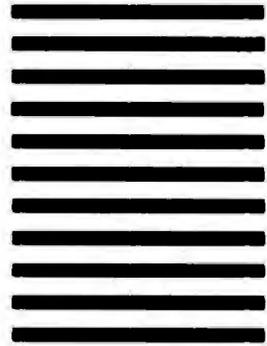
**NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES**

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

Subscription Department
P.O. Box 51833
Boulder, Colorado 80321-1833



NextUp in the Name edit box and **=r[-1]c** in the Refers To edit box. After selecting **OK**, switch back to the A1 style: Choose *Options Workspace*, and clear the R1C1 check box by clicking on it.

Then, in cell B7, enter the formula **=sum(NextUp:b2,-b2)**. Because NextUp is a relative cell reference, it always refers to the cell immediately above the cell containing this SUM formula, no matter how many rows you insert above cell B7. And because the sum range is anchored at the top of the column in cell B2, which contains a date value, the SUM formula subtracts this value to calculate the correct column total. —C. W. K.

49

Custom \$ Displays

When financial data is type-set, it's common to display dollar signs flush left with the first and last values in each column (see **SCREEN 5**). But by default, *Excel* sets the \$ right next to the number. Fortunately, you can easily modify *Excel's* number formats to display the \$ at the left margin.

To format cell B3 as shown, first select the cell, then choose *Format Number*, and select the number format: **\$\$,##0;(\$\$,##0)**. Modify the format in the edit box by inserting an asterisk (the "repeat" character) and a space (the character you want repeated) after both dollar signs, producing this custom number format: **\$* #,##0;(\$* #,##0)**. Press **<Enter>**, and the dollar sign in cell B3 will appear flush left as shown in **SCREEN 5**. —C. W. K.

DATA MANAGEMENT



dBASE

50

Date Stamp in a Flash

For a quick way to place the date in a field, a memo, or anything else, use the command **SET FUNCTION 8 TO DTOC(****DATE()****)** from the dot prompt or in a command file. Then press **<F8>** anytime you want to enter the current date.

To have this function on hand whenever you load *dBASE*, place the slightly different command **F8 = DTOC(****DATE()****)** in your **CONFIG.DB** file. —Alan Schwartz

51

Spell It Out

To save time and space, many *dBASE* users put abbreviations in programs, reports, and screens. But if you're presenting a report to your boss or creating a data entry screen for other users, the meaning of such abbreviations are about as obvious as Latin. Luckily, you can easily convert your abbreviations into full words with the help

of *dBASE* string functions.

Say you have a single-character field called **Colr** that can hold 'R', 'W', 'B', or 'G', abbreviations for red, white, blue, and green. First, create a variable called *ColrWord* containing the text string **Red WhiteBlue Green** (the odd spacing—two spaces after 'Red' and none after 'White'—turns each color name into a five-character "word"). When displaying the contents of **Colr** on screen or in a report, use **SUBSTR(ColrWord,AT(Colr,ColrWord),5)**. This selects a substring that starts at the **Colr** letter and ends five characters later, revealing the entire color name. —A. S.

52

Pop-Up Memo Windows With Clipper

Clipper Summer 87 is versatile when it comes to memo fields, but if you want to create a pop-up memo window, you'll have to jot a bit of code. Thanks to user-defined functions, however, you don't have to write it more than once. By placing the code for **MEMO_POP()** (see **LISTING 2**) in a *Clipper* program, you can easily put a memo window on screen. Just call **MEMO_POP()** using this syntax: **variable = MEMO_POP(T,L,B,R,variable)**, where **T**, **L**, **B**, and **R** refer to the top, left, bottom, and right screen coordinates for the window, and **variable** is a memo field or text variable. (Note: In programs it's always safer to edit a variable and **REPLACE** the field on disk rather than edit the field directly.) —Lincoln Spector

53

Speed Up dBASE IV Queries

If you're sorting a query on a given field (putting 'asc' or 'dsc' under the field's name in the Modify Query screen), (continues)

```
FUNCTION MEMO_POP
PARAMETERS t,l,b,r,memo_text
PRIVATE winbuf
winbuf = SAVESCREEN(t,l,b,r)
@ t,l CLEAR TO b,r
@ t,l TO b,r DOUBLE
memo_text = MEMOEDIT( ;
memo_text,t+1,l+1,b-1,r-1)
RESTSCREEN(t,l,b,r,winbuf)
RETURN memo_text
```

LISTING 2: This *Clipper* function, **MEMO_POP()**, pops up in an on-screen box so you can easily edit memos.



MY FAVORITE TIP

dBASE INDEXES WITH CHARACTER

54 Creating a dBASE index that's keyed directly to a numeric or date field is a common but restricting practice. If you want the flexibility to be able to index on more than one field (for example, to generate an alphabetized list of customer names for a specific day), you must index on character string values. So instead of indexing directly on numeric or date values, index on a function that converts such fields to text.

Writing code that creates such an index file is painless compared to modifying your code later. Numeric fields are easy to convert to text; the command 'INDEX ON STR(numeric_field) TO index_filename' will do the trick. Date fields are more complicated, at least in dBASE III Plus, since you have to extract the year before the month. The command 'INDEX ON STR(YEAR(date_field),4) + STR(MONTH(date_field),2) + STR(DAY(date_field),2) TO index_filename' will generate the desired results. In dBASE IV, FoxPro, and Clipper, date indexes are much simpler: 'INDEX ON DTOS(date_field) TO index_filename' is sufficient. —Alan Schwartz

having an index on that field will get you into and around in that query much faster, but you can't edit data in a sorted query unless the sort was done with an index.

When you're designing a query, select and turn on *Field Select indexes*. This

puts a pound sign (#) in front of every indexed field. If you have index expressions that are more than simple fields, such as 'Lname + Fname' or 'UPPER(Company) + DTOS(DueDate)', these will appear at the end of your query table as virtual fields, prefaced by pound signs. If

you avoid sorting a query on a field—real or virtual—that lacks a pound sign, your queries will be processed faster and will be more flexible.

—Ashton-Tate Technical Support

PARADOX

55

Extracting a Month's Records

You can list all records for a given month by using the wild-card operator '.' for the day portion of a query. From the main menu, select *Ask*, type the name of your table, and press <Enter>. Cursor from field to field, pressing <F6> at each one you want displayed in the answer. Move the cursor to the date field you wish to query on, and type in a date, using the wild card for the day. For instance, to find all the July 1990 records, type 7/./90. Press <F2> to display the query's answer.

—Borland Technical Support

56

Table Quick Sum

It's easy to quickly sum a number field across an entire *Paradox* table. From the main menu, select *Ask*, type the name of the table in question, and press <Enter>. A Query-By-Example table will appear. Press <Tab> or the cursor keys to move to the field you want to sum, type **calc sum all**, and press <F2>. The total will appear in a separate window. —Borland Technical Support

57

Mass-Produced Validity Checks

It's not unusual to add the same picture validity check to more than one field, and an Instant Script can speed up this otherwise tedious task. With *Paradox* in Modify Edit mode, press <Alt>-<F3> to begin recording your keystrokes. Then press <F10> to call up the edit menu, and select *Valcheck Define*. Go to one of the fields where you want to add the ValCheck, press <Enter>, and select *Picture*. Type in the desired picture format, press <Enter>, then press <Alt>-<F3> to stop recording. To add this ValCheck to another field, simply position the cursor in the desired field and press <Alt>-<F4>. —Celeste Robinson

Q&A

58

Print Fields in One Column

Q&A's report generator isn't designed to print fields one below another in the same column, as in a list of names and addresses, but it can be tricked into doing it. For example, load Q&A, select *Report Design/redesign a report*, and load Q&A's sample data base, EMPLOYEE.DTF, which includes typical name and address fields. For the report file name, enter **address list**, then press <F10> to bring up the Column/Sort Spec screen. Enter these field specifications: for Last name, **2,i,as**; for First name, **1,i**; and for Address, City, State, and ZIP, **3,i** through **6,i**. Press (continues)

CheckFree: The Fastest Way To Pay Bills And Handle Finances.



CheckFree®
Electronically Pays All Your Bills
And Automates Your Recordkeeping.
No Checks, No Stamps, No Paperwork.

It Couldn't Be Easier.

All you do is enter payment information, and CheckFree software automatically records, categorizes, and sends the information to the CheckFree Processing Center via modem. Payments are then processed through the Federal Reserve System—the same system that banks use to clear your checks today. Fixed, recurring payments (such as mortgages) can be made automatically; once they're set up, you never have to bother with them again.

Pay Anyone Through Any Bank.

You can pay anyone with CheckFree because the CheckFree Processing Center utilizes electronic transfers as well as laser printed checks to make payments. If a company or individual you are paying is not set up for electronic payment, the CheckFree Processing Center will print and mail a laser printed check for you. Because of its universal payment processing technology, CheckFree can process payments to anyone in the U.S. through the checking account you already have at any bank, credit union, or savings and loan.

No Loss Of Float.

You tell the CheckFree software when you want your bills paid and the CheckFree system pays them on the dates you specify. All we need is a few days advance notice to make sure your payments get processed on time.

Saves Time, Paperwork, And Money.

Your bill paying and other routine financial activities can be reduced to just a few minutes. Paperwork becomes virtually non-existent. Plus, the CheckFree service is only \$9.00* per month—not much when you consider the savings in postage, bank charges, and late fees.

Organizes Your Finances.

CheckFree gives you a completely automated checking account register that's updated automatically with each transaction. You can also record deposits or other non-CheckFree transactions. Checkbook reconciliation is virtually automatic. There's even an easy-to-use package of income, expense, and budget reports that keeps you constantly aware of what's coming in and what's going out.

Completely Secure.

CheckFree is more secure than conventional check writing. Payments are processed through the Federal Reserve System, so CheckFree never requires actual access to your account. Only you have access to your funds and only you authorize payments.

Built Into Other Leading Personal Finance Programs.

CheckFree is the only software package designed specifically for the efficiency of electronic payment technology. Simply put, it's the fastest and easiest way to handle your finances. What if you like the idea of CheckFree electronic bill payment, but prefer to use Managing Your Money®, Quicken®, or Checkwrite Plus®? No problem. CheckFree is seamlessly integrated into these programs, so you can enjoy the convenience of electronic bill payment with your choice of personal finance software.

Backed By The Nation's Leader In Electronic Payment Services.

Checkfree has been the leader in electronic payment processing since 1981, with current payment volume exceeding \$1,000,000,000 annually.

Used By Thousands All Over The U.S.

See what experts have to say:

"The CheckFree electronic bill-paying service belongs to that rare class of product that is forward-looking, universally useful, and available today."



PC Magazine, Best of 1989 Awards
January 16, 1990 issue

"CheckFree makes bill paying a quick, painless task rather than a monthly ritual to be dreaded ... Checkfree Corporation has been handling commercial electronic payments for companies such as CompuServe® for years, and its experience and professionalism showed in all aspects of my dealings with it."

PC Magazine

"...CheckFree did not fail me. When my banking statement arrived the first thing to catch my eye was a CheckFree check...this laser-printed paper check was reassurance that someone else could be trusted to pay my bills..."

Robert Cullen, Home Office Computing

Now that you know all about CheckFree, why would you pay your bills and handle your finances any other way? Why would you burden yourself with checks, stamps, and paperwork while your PC sits idly by? Besides, when you order by phone or mail, CheckFree comes with a money back guarantee. If you're not completely satisfied with CheckFree software, simply return it within 30 days of purchase for a full refund. You've got nothing to lose.

So order today. Call

1-800-882-5280

(Monday through Friday from 9AM to 7PM EST)

or send \$29.95 (plus \$4 shipping and handling) to:

CheckFree Software
P.O. Box 897
Columbus, OH 43216

(Be sure to specify disk size and machine type.)

CheckFree is also available at leading retailers including Egghead Discount Software®, Electronics Boutique®, Babbages®, Waldensoftware®, Software Etc.®, Soft Warehouse®, Radio Shack®, Best Buy®, and Price Club®.



CheckFree®

Client Support: free access via Email **Hardware Requirements:** IBM® PC/Compatibles with 384K usable RAM, MS DOS® 2.1, two floppy drives or a hard disk system – or Macintosh® 512KE or higher, 800K drive. Hayes® compatible modem also required. ***Limitations:** Over 20 monthly transactions involve a nominal surcharge (\$3 per ten payments or portion thereof)

CheckFree is a registered trademark of Checkfree Corporation. All other trademarks are the property of their respective corporations.

Reprinted from PC Magazine, November 14, 1989 Copyright © 1989, Ziff Communications Company
Copyright © 1989 by Scholastic Inc. All rights reserved
Reprinted from the May issue of Home Office Computing

They Left out Features.... We Left out the **COMMA!!**

The only thing missing...

is the comma in the price. If you look at the chart on the right you will see prices charged by our competition. All but one contain a comma. DesignCAD 3D sells for \$399.00. Period. No Comma!

In order to draw the complex pictures shown below it is desirable to have the following 3D features:

- Interactive design with 3D cursor
- Blending of surfaces
- Boolean operations such as add, subtract, and intersection
- Complex extrusions
- Cross sectioning
- Block scaling
- On screen shading
- Shaded output to printers and plotters

All of these competitors left out one or more of these desirable features in their standard package. They didn't forget the most horrible feature - the comma.

DesignCAD 3D offers **ALL** the listed features plus many more!

If DesignCAD 3D has the power to create the 3D objects shown below, imagine how it could help with your design project!

DesignCAD 3D sells for \$399. We left out the comma. We didn't think you would mind!

PC MAGAZINE SAYS...

DesignCAD 3D, the latest feature-packed, low-cost CADD package from American Small Business Computers, delivers more bang per buck than any of its low-cost competitors and threatens programs costing ten times as much. For a low-cost, self-contained 3D package... DesignCAD's range of features steals the show."

\$399

AutoCAD rel. 10	\$3,000.00	AutoCAD AEC \$1,000.00 AutoShade \$500.00
CADKEY 3.12	\$ 3,195.00	Solids \$995.00 IGES translator \$1,995.00
DataCAD with DC Modeler	\$ 3,990.00	DataCAD Velocity \$2,000.00
DesignCAD 3D ver. 2.0	\$ 399.00	NO expensive options! IGES Free, Shading Free
MaxxiCAD 1.02	\$ 1,895.00	N/A
Mega Model	\$ 995.00	MegaDraw \$195, List \$295, MegaShade \$395
MicroStation PC 3.0	\$ 3,300.00	Customer Support Libraries \$1,000.00
ModelMate Plus 2.8	\$ 1,495.00	N/A
VersaCAD Design 5.4	\$ 2,995.00	N/A

Source: Byte Magazine

BYTE MAGAZINE SAYS...

"At \$399, DesignCAD 3D was the least expensive package we saw, yet it was one of the more powerful. ..Don't be fooled by the remarkably low price, this program can really perform!"

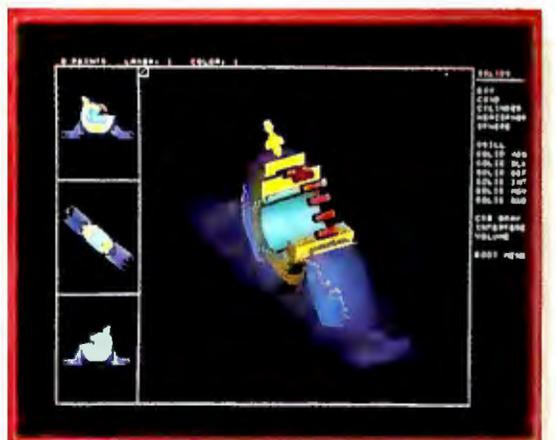
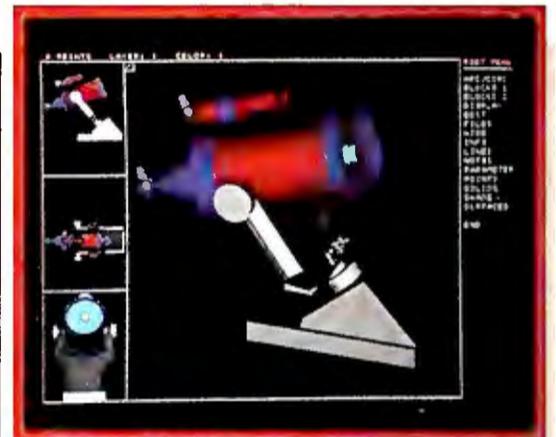
Complete 3-Dimensional design features make it easy for you to construct realistic 3-D models. With full solid-object modeling capabilities you can analyze your drawing to determine the volume, surface area or even center of gravity! DesignCAD 3-D even permits you to check for interference between objects! Aeronautical Engineers can now find the center of gravity for a new airplane design with a couple of keystrokes. The Architect can determine the surface area of a roof for decking in a matter of minutes. The Civil Engineer can calculate the volume of a lake or dam in seconds. The Mechanical Engineer will know for sure if certain parts fit together without interference. The uses for DesignCAD 3-D are only limited by YOUR imagination!

HOW DO I GET ONE?

DesignCAD 3-D and DesignCAD 2D are available from most retail computer stores, or you may order directly from us. If you have questions about which program to purchase please give us a call. All you need to run DesignCAD 3-D is an IBM PC or compatible computer with 640 K RAM memory and a hard disk. Both products support most graphics cards, printers, plotters and digitizers. Free Information and a demo disk are available by faxing (918) 825-6359 or telephoning:

1-(918) 825-4844

American Small Business Computers • 327 South Mill Street • Pryor, OK 74361 U.S.A.



Heading:
Formula: @text(30," ")
Column Spec: 7,i

Heading: 30:Name & Address
Formula: #1+" "+#2+#7+#3+#7+#4+", "+#5+" "+#6
Column Spec: 8,as

FIGURE 1: These two Q&A-derived report columns will let you print a name and an address together in one column.

<F8> to display the Derived Columns screen, and enter the specifications shown in FIGURE 1. When you print the report, the name, address, and so on will appear on separate lines. —Symantec Technical Support

59

Controlling the Q&A Cursor

When designing a Q&A data entry form, you can control how the cursor moves from one field to the next using a GOTO statement. With a payroll form, for example, you could enter a number in the Salary field, have calculated results appear automatically in the Paycheck and Tax fields, and have the cursor skip to the Dependents field.

The steps are pretty simple. Select *File Design file Customize a file*, enter the payroll form file name, and select *Program form*. In the Salary field, type `>#3:#4=#3/26; #5=#4*.3; goto #6`—this identifies field 3, puts the value of field 3 divided by 26 into field 4, puts the value of field 4 times .3 into field 5, and jumps the cursor to field 6. Label the Paycheck field #4, the Tax field #5, and the Dependents field #6. —Jeff Walden

60

Avoid Blank Fields

When designing a Q&A form, how can you make sure an important field isn't left blank during data entry? Select *File Design file Customize a file*, enter a file name, select *Restrict values*, and type `!=` in the desired field, with no value following the equal sign. This effectively tells Q&A that the contents of the field cannot be equal to a blank. During data entry, anyone trying to leave that field empty receives an error message. —J. W.

R:BASE

61

Escaping the Wrap of R:base

When using the SELECT command to query data, you may not want to show the full width of a column. Say you're working with the Company field. If the field is 40 characters long, and you want to display only the first 20, 'SELECT Company=20, Address=30 FROM ComTbl' won't do the job. Long company names will simply wrap onto other lines. To truncate a field, use the SGET() function, as in `SELECT (SGET(Com-`

pany,20,1))=20, Address=30 FROM ComTbl. —Thomas J. Wessel, Jr.

62

Sorting Pop-Up Menu Selections

In R:base 3.0, you can not only add a custom pop-up menu to any field of a data entry form, you can also sort the menu's entries any way you want.

To create the pop-up menu, select *Layout Field settings* from the Forms Create/Modify screen, and pick a field. In the Field Settings window, press `<PageDown>` - `<Enter>` to indicate that you want a pop-up menu. Press `<Enter>` to move from one prompt to the next, and type the names of the table and column where R:base will find the menu options. You also can give the menu a title and specify its screen location now.

To sort the menu's entries, move to the WHERE Clause prompt. Since the WHERE function is designed to filter items, not list them, you have to use a little work-around. Enter the clause `colname is`

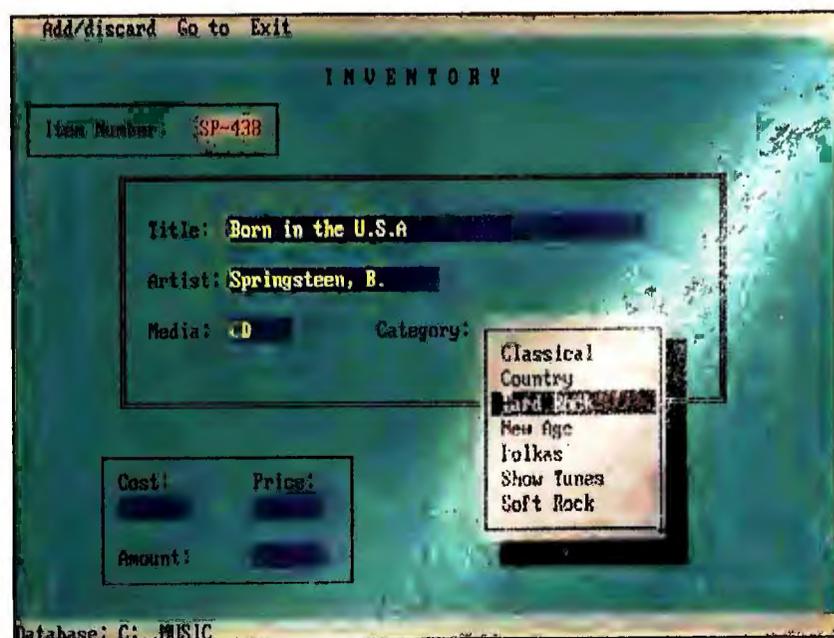
not null or `colname is null order by colname`. The null statements tell WHERE to sort the menu entries. —Micro-rim Technical Support

DATAEASE

63

Rounding It Out in DataEase

DataEase has functions for rounding up (CEIL) and rounding down (FLOOR), but it has no function for rounding to the nearest integer, either up or down. To force a fixed- or floating-point number to round to the nearest integer in field derivation formulas or queries, use `floor(num + .5)`, where `num` is the number field you're operating on. You can use a similar technique to round by larger units. For instance, to round a number to the nearest ten, type `floor((num + 5)/10) * 10`; to the nearest hundred, type `floor((num + 50)/100) * 100`. —DataEase Technical Support (continues)



With R:base, you can add a pop-up menu to any field in a form and even set the order of the menu entries. The process involves a few R:base menu commands and a little bit of code.

64

Odd Sorts in DataEase

Sometimes you need to sort a field in an order other than numeric, alphabetical, or chronological. For example, inventory records for a clothing store might be sorted by size. This can be done by selecting *Dql Advanced pro-*

cessing Define Modify Format. To sort by size and to display style, size, and amount fields, create a query like the one that is shown in **LISTING 3**.

Once the query is designed, you'll want to hide the **IF** field in the displayed query. To do this, select *Define Format* and use the **Cut** command (<**F3**>) to remove the

```
for forma ; list records
  if (Size = "Small", 01,
    if(Size = "Medium", 02,
      03)) in order ;
  Style ; Size ; Amount .
```

LISTING 3: This DataEase query will list data from a clothing store's inventory, sorted by size from small to large.

unwanted column from the report. The data will still be

sorted by size. —*DataEase Technical Support*

COMMUNICATIONS



COMPUSERVE

65

Economical EasyPlex Letters

Many savvy CompuServe users know that the fastest—and therefore cheapest—way to send CompuServe EasyPlex mail is to create letters off line. However, you may not know that you can also address your E-mail off line and save even more time and money. Simply embed addressing information at the top of the letter, and transmit it to CompuServe using EasyPlex's **Compose** option (instead of **Upload**). Here are the steps:

1. Load your word processing software, and on a blank

screen type **to:** followed by a space and your recipient's user ID or on-line name.

2. On the second line, type **subj:** or **subject:**, type a space, and fill in the subject of the letter.

3. Type the letter, and below the last line type **/send**.

4. Save the file in ASCII format.

5. Log on to CompuServe, and type **go mail**. At the EasyPlex menu, press **2** to compose a new message.

6. With your communications software, upload your letter as an ASCII transmission.

CompuServe will send the letter immediately. The only prompt you will see reads 'Are your message and address correct? (Y or N)'. You won't have to spend time responding to address and subject prompts. —*Alfred Glossbrenner*

66

Oops! Undeleting EasyPlex Mail

Have you ever deleted an incoming message accidentally without first saving it to disk? Instead of asking the sender to resend the file, you can call on EasyPlex's handy undelete command. To bring back one or more messages, just type **undelete** followed by a message number or a range. For example, if you accidentally delete all four of your waiting messages, type **undelete 1-4**. The messages reappear, and you can redisplay them or save them to disk. You can undelete as many messages as you want, as long as they were deleted during the current session. —*A. G.*

67

Download EasyPlex Mail Fast

If you have EasyPlex mail and you follow the menus, CompuServe will show you one letter at a time, prompting you for the disposition of each one. A faster, cheaper way to pick up your mail is to open your communications program's capture buffer or ASCII download function and type **receive all** at the EasyPlex main menu prompt. EasyPlex will display each letter followed by a single confirmation prompt. Just press <**Enter**> after each prompt. This way you'll respond to one prompt between letters instead of several.

If you want to delete the letters from your mailbox once you've downloaded them, you can type **delete** at any menu prompt. However, if you (*continues*)

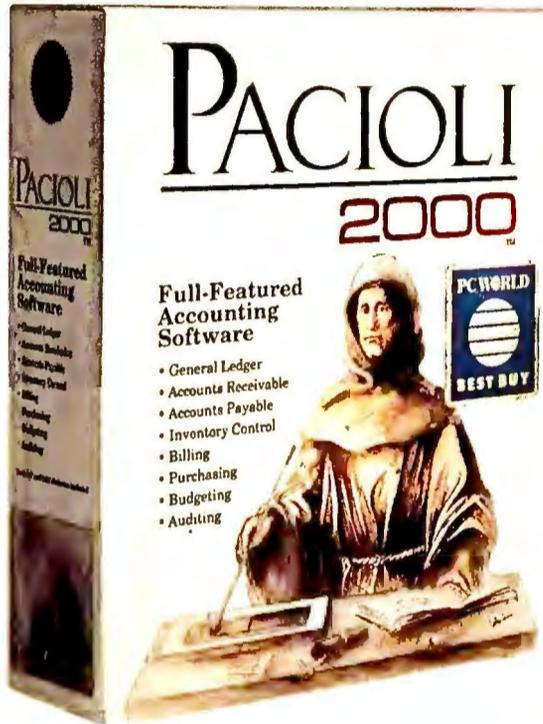
Award Winning Accounting Software

Your Best Buy only **\$49⁹⁵**



The reviews are in and Paciolli 2000™ accounting software has surpassed all expectations. Now, it has been honored by PC World as the "Best Buy". Whether you have already computerized your accounting or you are ready to purchase accounting software, please read on.

Pacioli 2000 is the hottest new accounting package on the market. Designed by J. M. Hurtado, who started the accounting software revolution in 1985 with DacEasy® Accounting, Paciolli 2000 is the FIRST full-featured, network-ready accounting software for only \$49.95. It gives you everything you need while saving you hundreds, even thousands of dollars over other software. But you don't have to take our word for it. Listen to the experts.



"... the best software value of the year."
PC Week, August 27, 1990

"... the equal of other high end accounting programs in every way but cost."

New York Times, July 1, 1990

With all its power, pull-down menus, full mouse support and context-sensitive help, Paciolli 2000 is as easy to use as a checkwriter. You get examples, guides and suggestions, an automatic installation routine, and a file inquiry system that lets you make inquiries or create accounts "on the fly".

Pacioli 2000 integrates all 8 modules into one powerful system: General Ledger, Accounts Receivable, Accounts Payable, Inventory Control (including true FIFO and LIFO), Billing, Purchasing, Budgeting and Auditing. Learn one and you've learned them all.

"... a full-featured package that adds the extra element of network support."

Computer Reseller News, April 23, 1990

Pacioli 2000 is fully networkable, which means one user or any number of users can enjoy the same easy-to-use, powerful features with no additional fees. It is ready to perform as multi-user accounting software that includes multi-level password protection, file and record locking, transparent user management and more.

8 Modules Fully Integrated into One System

• Easy to Install, Learn and Use

• Network-Ready with No Additional Fees

• Free Unlimited Customer Support

• 90 Day Money-Back Guarantee

• Offer for Free Paciolli 2000 Payroll

• Offer for Free Instructional Videotape

For more information call 1-214/931-2033

**TO ORDER CALL OPERATOR 236
1-800-345-4243**

or mail the coupon below.

Yes! Please send me _____ copies of Paciolli 2000, which contains two FREE offers, for only \$49.95 each (Add \$7.50 for shipping and handling. Texas Residents add 8.25% sales tax).

Name _____

Address _____

City _____

State _____ Zip _____

Phone No. (_____) _____

Company Name _____

Amount Enclosed _____

Payment Method (Check One) No CODs please:

Check Visa MC AmEx

Account # _____

Expires _____

Signature _____

Make check payable to and mail to. 236

M•USA Business Systems, Inc.
18111 Preston Rd., Suite 500
Dallas, Texas 75252

Minimum Hardware Requirements: IBM or compatible computer with 640Kb, hard disk, monochrome or color monitor, mouse optional, MS-DOS 2.1 or later for single users (3.1 or later for networks), 132 column dot matrix printer in compressed mode.

M•USA
BUSINESS SYSTEMS, INC.

© Copyright 1990, M•USA Business Systems, Inc. Paciolli 2000 is a trademark of M•USA Business Systems, Inc. All others are trademarks or registered trademarks of their respective manufacturers.

Circle 7 on reader service card



Our Printer Sharing Unit Does Networking!

An Integrated Solution

Take our **Master Switch™**, a sophisticated sharing device, combine it with **MasterNet™** networking software for PCs, and you've got an integrated solution for printer and plotter sharing, file transfer, electronic mail, and a lot more. Of course you can also share modems, minis, and mainframes or access the network remotely. Installation and operation is very simple.

Versatile

Or you can use the Master Switch to link any computer or peripheral with a serial or parallel interface. The switch accepts over 20 commands for controlling the flow of data. It may be operated automatically, by command, or with interactive menus. Its buffer is expandable to one megabyte and holds up to 64 simultaneous jobs. The

MasterLink™ utility diskette for PCs comes with every unit and unleashes the power of the switch with its memory-resident access to the commands and menus.

Other Products

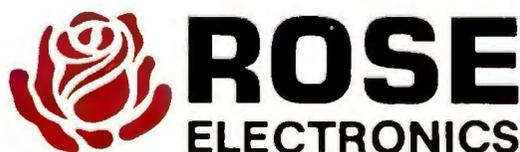
We have a full line of connectivity solutions. If you just want printer sharing, we've got



it. We also have automatic switches, code-activated switches, buffers, converters, cables, protocol converters, multiplexers, line drivers, and other products.

Commitment to Excellence

At Rose Electronics, we're not satisfied until you're satisfied. That's why we have thousands of customers around the world including large, medium, and small businesses, factories, stores, educational institutions, and Federal, state, and local governments. We back our products with full technical support, a one-year warranty, and a thirty-day money-back guarantee.



Call now for literature or more information.
(800) 333-9343

Give a Rose to your computer

do, EasyPlex will prompt you again after showing each letter. To avoid the prompts, type **delete** followed by a space and a range of message numbers separated by a hyphen or a comma. For example, to delete the first three letters, type **delete 1-3**. To delete just the first and third messages, type **delete 1,3**.

—A. G.

PROCOMM PLUS

68

Making Procomm Windows-Friendly

Can't get your copy of *Procomm Plus* to run under Windows? *Procomm Plus 1.0, 1.1, 1.1a, 1.1b*, and later versions all come with PCPLUS.PIF, a PIF file set up with Windows 3.0 in mind. If you don't have this PIF file, create one with Windows' PIF Editor. Make sure you set both KB Required and KB Desired to **256**. Select *Advanced*, and set Background Priority to **100** so when you're running file transfers in the background, *Procomm* won't lose blocks of data. —Judy Heim

69

Modifying Predefined Scripts

Procomm Plus ships with log-on scripts for popular services, but they need to be modified slightly. Fortunately, you don't need to learn the script language to customize them—you can modify a script using *Procomm's* built-in script editor (press **<Alt>-A**) or any other word processor that can save ASCII files.

Editing a sample log-on

script is easy. For example, in order to modify the built-in CSERVE.ASP script used to log on to CompuServe, open the file in the script editor. Then replace the XXXXs following the three ASSIGN codes that start the script with your CompuServe phone number, user ID, and password. Also, if the second-to-last line of the script reads 'SET ENQ CIS', add a **B** so it reads **SET ENQ CISB**. This will let you bypass *Procomm's* download menu. You simply answer CompuServe's download prompts, and *Procomm* will do the rest.

Save the modified script, and go to the dialing directory. To attach the script to the CompuServe entry, highlight the entry, press **r**, move to the Script option, type **cservice**, and press **<Enter>** six times. When you call CompuServe, the script should automatically log you on. —Eric Brown

70

One-Step Communications

Here's a tip that lets you run a script whenever you load *Procomm Plus*—one that automatically logs on to MCI Mail, for example. First, if you don't already have a log-on script for a service, create one. Make sure that the line 'DIAL "x"', where *x* is the entry's dialing directory number, appears toward the beginning of the script.

Then write a batch file like the one that follows, which you might give the name MCI.BAT. As you can see, executing the batch file loads *Procomm* (PCPLUS), bypasses the opening screen (/F), and automatically runs an MCI script (MCI.ASP):

```
cd\pcplus
```

```
pcplus /f mci.asp
```

Save the batch file as an ASCII file, and make sure it's saved in a directory refer-

enced in AUTOEXEC.BAT's PATH command. If you have a script that you want run automatically when you load (continues)



MY FAVORITE TIP

ANALYZING PROCOMM PHONE LOGS WITH SUMMLOG

71 Would you like to know how much time you've spent on line with *Procomm Plus*?

There's a handy public domain utility called SUMMLOG that can dip into *Procomm's* historical logs and break down on-line usage by year or month for each dialing directory entry you call.

You can find SUMMLOG on any major on-line service or BBS—scan for SUMMLOG.ZIP or SUMMLOG.ARC (SMMLOG.ARC on CompuServe's Datastorm forum). Download the file, and unarchive it with the appropriate archive utility.

Before you use SUMMLOG, make sure that *Procomm Plus's* call-logging feature is enabled: Load *Procomm*, and press **<Alt>-SGH**—if it reads off, toggle it to on by pressing the **<Space>** bar. Next, exit to the DOS prompt, and enter 'summlog pcplus.fon c filename'. This command pours a complete summary of calls (name, phone number, number of calls, total time) made since you installed *Procomm* into the file you specified for filename. If you want only the current year, replace 'c' with 'y'; for a month-by-month breakdown, use 'm'. You can then view or print the resulting report that is contained in the output file.

—Judy Heim

Procomm, save the script as **profile.asp** in *Procomm*'s sub-directory, and start *Procomm* using **pcplus /f** instead of a batch file. —*J. H.*

72

Punch Up Procomm Plus's Cursor

Having a hard time seeing the *Procomm Plus* cursor on your laptop screen? Use the command **pcplus /b** to load *Procomm Plus* in black-and-white video mode. Then go to the setup screen by pressing **<Alt>-S**, and save the new setting as the default by choosing *Save setup options*. The next time you load *Procomm Plus*, simply type **pcplus**. The cursor should be more readily visible. —*J. H.*

CROSSTALK XVI

73

Escape From Crosstalk XVI

Occasionally, when you're logged on to a mainframe or a minicomputer, you'll need to send an Escape sequence to grab its attention—if you want, say, to log off or to interrupt a function. To streamline this process, assign the appropriate Escape character sequence to a *Crosstalk XVI* function key. For example, suppose a host system requires you to issue Escape Q in order to exit a function and return to a system-level prompt. To assign Escape Q to **<F10>**, go to *Crosstalk*'s command line, type **FK 10 ^[Q**, and press

<Enter>. Then type **save** and press **<Enter>**. When prompted, enter the name of the XTK file or parameter file for the host.

Since **<Esc>** is normally used as *Crosstalk*'s "attention" key—the key that you press to get a 'Command?' prompt at the command line—pick a different one so that *Crosstalk* won't go into command mode every time you signal the remote computer. At the 'Command?' prompt, type **at**, press **<Enter>**, and then press the key that you'll use for this task. —*J. H.*

74

Keep Script Commands Where They Belong

While some users have discovered that they can insert **WAit** and **REply** instructions at the end of a *Crosstalk XVI* XTK configuration file instead of in an XTS script file, it's not recommended. When the **SAve** command is later used to store any changes made to an XTK file, the script instructions are deleted. Script statements are more efficiently stored in an XTS file with the same name as the XTK file. The script will then run automatically after the XTK file has loaded and connected you to a remote system. —*J. H.*

CROSSTALK MK.4

75

Print a Block of Text

Crosstalk Mk.4's editor lacks an option to print a marked block of text. There is an easy way to do this task, however.

First, mark the block by pressing **<Ctrl>-T** to mark the beginning and **<Ctrl>-B** to designate the end. (Before marking the end, move the cursor to the first character of the next line to include a carriage return/line feed.)

Press **<Alt>-A** to open the editor menu and **bw** to write the block to a file. When *Mk.4* prompts you for a file name, type **prn** and press **<Enter>**. (In versions 1.0 and 1.1, bypass the 'File Already Exists' prompt by pressing **<Enter>** again.) *Mk.4* will "write" the block to the printer, since **PRN** is the DOS device name for the default printer. (Note: If you're running multiple sessions, this trick may interrupt communications.) —*J. H.*

76

A Procomm-Style Dialing Directory for Mk. 4

The most welcome new feature in version 2.0 of *Crosstalk Mk.4* is its *Procomm*-like dialing directory. However, some users may find that the default display is somewhat limited, since each entry shows only the name, description, number of calls, and last time the number was called.

Fortunately, you can modify the display to your liking. Press **<Alt>-Y**, and cursor to the **BookMode** setting in the third column. Press **/**, and you can select from eight pre-fab formats to display the dialing entries' phone numbers, speeds, modules (terminal emulations), attached scripts, and modes (call or answer). Use the **BookSort** setting to specify which field to use to sort directory entries. —*E. B.*

77

A Pop-Up Notepad

Sometimes it's convenient to maintain a running log file to keep notes on each BBS or on-line service you call. By storing a few *CASL* commands to a *Crosstalk Mk.4 2.0* function key, you can create a note file for each service and easily access it while you're on line.

In the dialing directory, highlight the entry for which you want to create a note file. Press **<Alt>-S** for the setup screen, then **<Alt>-K** for the key-mapping screen. Move the cursor to an unused function key entry, and type **@window #14, zone 6 : edit #14, @name+'.NTS' : shut #14**. Then tab to the next field and enter a description.

Press **<Ctrl>-<Enter>** to save the setting. If *Mk.4* prompts you to enter a name for the function key settings file, enter the name of the dialing directory entry—the XTK extension is added automatically. Enter that name under the **Keys** setting in the setup menu; save with **<Ctrl>-<Enter><Enter>**.

Press the function key while on line, and a note file window opens on the upper right side of the screen. The file's name is the same as the dialing directory entry, but with an **NTS** extension. To open the edit menu, press **<Alt>-A**. To close the window, choose *Save*.

You can move the window to different areas of the screen by experimenting with the **zone** command. For example, changing to zone 2 will put the window at the bottom of the screen. You can also add color to the window by adding color commands after the **zone** command—for example, **@window #14, zone 7, color white on blue**. —*J. H.*

(continues)



GUESS WHICH MANAGER HAS CHARISMA

What's most important about a business presentation is how good you look after everybody else has finished. No matter what you know, it's how well you've communicated that usually determines your success. That's why you need Charisma.

Charisma is a complete graphics program for business, combining text charts, graphs, and drawing tools in one powerful package. Switch to Charisma and you can stop switching back and forth between all the other programs to get what you need. Now it's all at your fingertips.

The time and energy you save can be used to refine your presentation. And think of the time your work group will save by only having to be proficient with a single easy-to-learn graphics program.

Another clear advantage is Charisma's compatibility with Windows 3.0 which conveniently pops hundreds of options on the screen for rapid experimentation. Browse through chart types, clip art, 42 outline typefaces, perspective chart effects, colors, gradients, chart templates, and free form layouts, to name a few.

Charisma also includes drawing tools that will help the

beginner and offer the power user maximum control. So finding the combination that gives your presentation the right snap will be quick and easy.

Charisma can import many other graphic and spreadsheet formats, but more importantly, imported text, charts, and graphics arrive as data and can be further manipulated and incorporated.

When boundaries disappear creativity flourishes. The usual can be made unusual. Communication becomes forceful and unique. Charisma turns drudgery into innovation.

Make your next presentation a memorable performance. Ask for Charisma at your local software dealer or through your corporate purchasing department.

Or call MICROGRAFX directly at 1-800-733-3729, ext. 3250 (USA) or 3710 (Canada) for our special free offer of a self-running demo (supplies limited).

MICROGRAFX
CHARISMA

THE LEADER IN WINDOWS 3.0 GRAPHICS

“A STUNNING ACHIEVEMENT IN VALUE.”

—PC Laptop Magazine, October '90 Issue

“...the Tandy® 1500 HD might be one of the most important laptops of the early 1990s.”
—PC Laptop

A 10MHz clock speed and 640K memory (expandable to 1.64MB) deliver power. DeskMate® productivity software comes pre-installed and ready to use.

“The swift (25ms) hard disk loads your favorite programs with no waiting...”
—Portable Computing, Oct. '90

Portable Computing's reviewer also said “it's the slimmest I've seen that supplies what laptop users want: real disks. The Tandy gives you a genuine 1.44MB floppy and 20MB hard drive.”

“The Tandy 1500 HD is the best XT®-class notebook yet.”
—Portable Computing

Tandy Power View LEDs give you a constant readout of your battery status. 640 x 200 graphics, a full-size keyboard, and a removable, rechargeable 3½-hour battery round out the package nicely.

“...a near-ideal machine to take on the road.”
—PC Laptop

It's less than six pounds—and just 1.7" thin. At just 8 ounces, even the AC adapter/charger is travel-size.

“...a terrific value at its low \$1999 price.”
—PC Laptop

Portable Computing concluded: “The Tandy 1500 HD is an outstanding value, and an outstanding notebook computer. Tandy is always a solid contender, but this time it's a winner.”



CREATING NEW STANDARDS

PROVEN LEADERSHIP

Over 7,000 USA locations, 39,000 employees, seven research and development centers, 31 USA and overseas manufacturing plants—NOBODY COMPARES!

GUARANTEED SATISFACTION

Over 35 million customers benefit annually from our satisfaction guarantee. Putting you first has made us #1 in PC compatibles—NOBODY COMPARES!

Radio Shack
AMERICA'S
TECHNOLOGY
STORE™

Prices apply at participating Radio Shack stores, Computer Centers and dealers. Quotations reprinted with the permission of PC Laptop and Portable Computing. XT/Reg. TM IBM Corp. Radio Shack is a division of Tandy Corporation.

Circle 284 on reader service card

DESKTOP PUBLISHING



VENTURA PUBLISHER

78

Easy Overlays

Although *Ventura* is best known as a document processor, it's also a handy tool for producing overhead transparencies. In fact, *Ventura*'s spot color printing feature makes it a snap to produce a series of overlays (transparencies placed one atop another) for, say, displaying successive items on a bulleted list. Here's how.

First, assign a different color to the elements on each separate overlay. For example, on a word chart containing three bulleted items, use the Paragraph Font option to make the chart's title and first item black, the second item red, and the third one blue. (Note: Each bulleted item must have its own style tag.) Then select *File To print*, set 'Spot Color Overlays:' to *On*, and select *OK*. *Ventura* will print a separate transparency (in solid black) containing the text assigned to each color. Finally, mount the first transparency on its frame, and hinge each addi-

tional layer to it with masking tape—your *Ventura*-produced overlay is ready to go. —Richard Jantz

79

One-Step Call-Outs

If you produce documents using a lot of technical diagrams or illustrations, odds are you spend a lot of time drawing rules between each call-out (label) and the part of the diagram it identifies. But there's an easier way to "draw" horizontal rules and automatically link them to call-outs: *Ventura*'s Strike-through feature.

Here's how to place call-outs to the left of your diagram. First, make sure 'Options Show tabs & returns' is activated. Then, in Frame mode, draw a box for the call-out text and rule using the Box Text tool. Switch to Text mode, and specify *Paragraph Alignment Left*. Enter the call-out text, and hit **<Space>** until the end-of-file symbol is next to the item described by the text. Next, select the empty spaces and click on the *Strike-thru* text option in *Ventura*'s Argument List box. Voilà! A solid black rule appears automatically.

To place call-outs to the

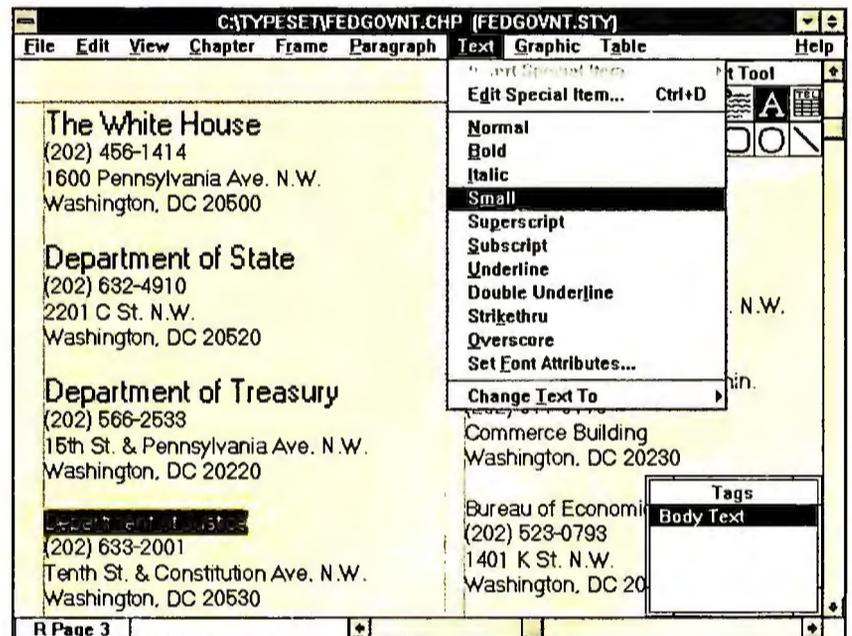
right of a diagram, simply reverse the above procedure, adding spaces in front of the call-outs. Need to change the thickness of the rule? Just select *Paragraph Attribute overrides*, and enter a new value for *Strike-thru height*. —R. J.

80

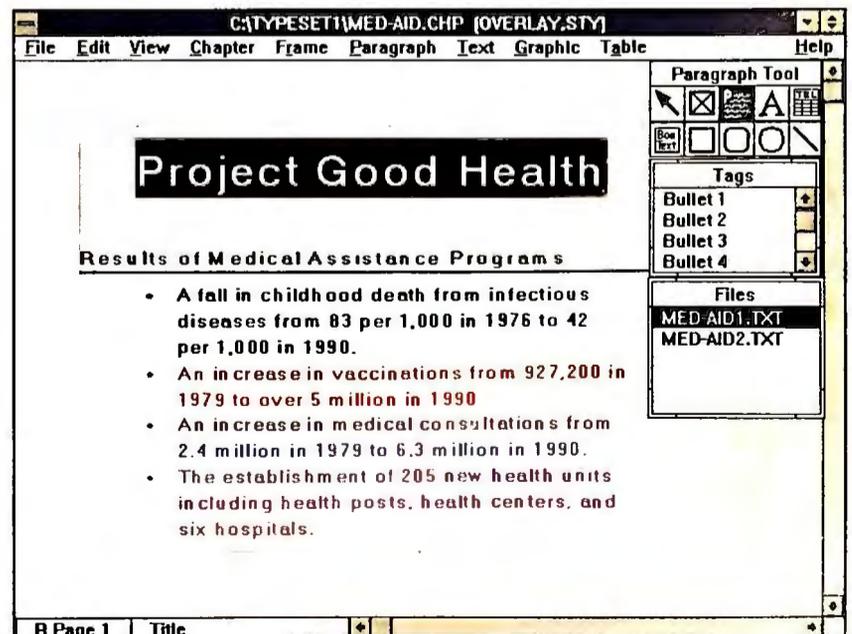
When Small Means Big

Looking for a quick way to enlarge a single character or word, such as an initial capital or a product name? *Ven-*

tura's *Small* text option actually lets you make text bigger without requiring that you use additional style tags or the Set Font button. To use this option, switch to Paragraph mode, and select the paragraph containing the text you want to enlarge. Next, select *Paragraph Attribute overrides*. At 'Small Cap Size:', enter the desired point size (say, 16 points), and click *OK*. Finally, to enlarge text to 16 points, use the Text tool to highlight the text, and assign it the *Small* tag from the Argument List box. —R. J. (continues)



Need to quickly enlarge a small swatch of text? Instead of fussing with fonts, select the text and use *Ventura*'s *Small Cap* command.



Ventura as presentation package? You bet—using *Ventura*'s spot color printing feature, you can assign different colors to elements on the same page and print them out on separate transparencies.



MY FAVORITE TIP

HIDDEN TEXT IN VENTURA

81 Producing complex documents in *Ventura* is rarely a one-person show—and that means keeping track of multiple revisions and editorial changes for all of a document's text files. Fortunately, *Ventura*'s hidden-text feature makes it easy to insert notes or instructions that help track your document's history.

Using your word processor, you can insert hidden text anywhere in a text file. Simply precede the text with *Ventura*'s hidden-text prefix, \$!, then enclose the prefix and text inside angle brackets—for example, '<\$!This section edited 1/15/91 by RJ; still needs description of Figure 10>'. Although you can view the hidden text inside your word processor, it won't display or print in your *Ventura* chapter.

Hidden text is also handy for keeping alternate wording intact within a file, as well as for identifying important or sensitive information. —Richard Jantz

82

Quick Typographic Characters

Can't remember which keyboard shortcuts produce common typographic characters, such as an em dash? Don't reach for the manual. Instead, select *Desk Publisher info*, point at the question mark in the dialog box, hold

down the left mouse button, and drag the pointer to highlight *Ctrl typographic chars*. Let go of the mouse button, and up pops the answer. Information on other keyboard commands for kerning, frame manipulation, and other operations is listed in the dialog box as well. —Karl Anthony

83

Widows Begone

Want a fast way to get rid of a three-character widow (like *ly.*) on the last line of a paragraph? Use *Ventura*'s interactive tracking feature. Just highlight the dangling characters and the previous line in Text mode, hold down <Shift>, and press <Cursor Left>. This reduces the spacing between characters (tracking) in tiny increments, which is often enough to move a few characters back to the previous line while leaving the text readable. —R. J.

84

Hyphenation Made to Order

If *Ventura* insists on hyphenating a word you don't want hyphenated, such as a company or product name (for instance, Foolproof Safes), you can suppress hyphenation by adding the word to the program's exception dictionary *without any hyphens*. First, load *Ventura*'s exception dictionary, HYPHUSER.DIC, into your word processor or

text editor. Several words are already included in this file as examples. Insert alphabetically, on separate lines, and *in lowercase only*, any words you want to add. For example, insert **foolproof** on a line between the words 'fig-ure' and 'gen-er-ator'. After you've finished editing the file, remember to save it in ASCII format; *Ventura* won't be able to use it otherwise. —R. J.

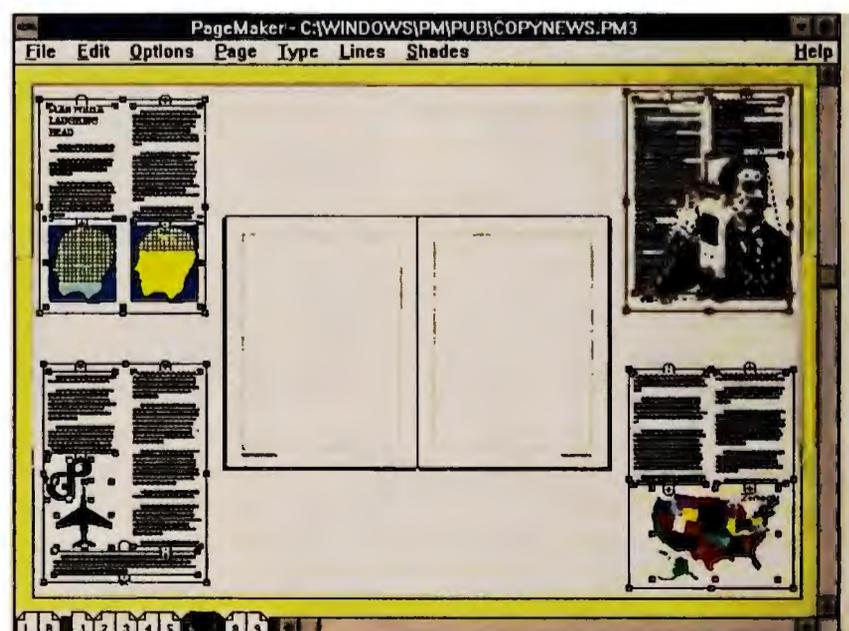
PAGEMAKER 3.X

85

Pasteboard Copy

Want to copy a few pages from one *PageMaker* publication into another? Since there's no way to do it automatically, here's a work-around for moving three or four pages at a time that takes advantage of *PageMaker*'s fit-in-pasteboard feature.

Open the publication you want to copy from, and press <Ctrl>-<Shift>-W to display the entire pasteboard. Use the pointer tool to select an (continues)



Cutting and pasting isn't limited to small items—you can transport entire pages. The secret: Move the pages to the pasteboard, copy them to the clipboard, then reopen the document and paste them in place.

HIGHLY RECOMMENDED

When Accounting Today (May 1990) asked accountants which accounting software package they recommended to their small business clients, an overwhelming 29% said they commend Peachtree Accounting— that's almost double the next largest competitor.

Reseller Management (March 14, 1990) asked resellers which accounting package they recommend and Peachtree came out on top again with 25% of resellers recommending it.

But accountants and resellers aren't the only ones giving Peachtree rave reviews:

"If you could find a definition for Peachtree in the dictionary, it might be 'value for your money.'"—PC Magazine 4/10/90

"It is, I believe, the best accounting package available for the price."—E.J. Bosmeny, CPA, Naperville, IL

"Complete III rivals packages costing 10 times as much."—PC Resource, July 1990

If there's one thing people agree on, it's what a great value Peachtree's Double Bonus Bundle is. That's because it includes two first-rate software packages for one low price—Peachtree Complete III, a full-featured accounting system, and Peachtree Data Query III, a reporting and analysis tool.

Peachtree Complete III includes nine high-powered modules to meet all your business accounting needs.

- General Ledger
- Accounts Payable
- Accounts Receivable
- Payroll
- Inventory
- Invoicing
- Purchase Order
- Fixed Assets
- Job Cost

Peachtree Data Query III gives you custom access to the vital accounting data in your Peachtree Complete III files. Choose from PDQ's predefined reports, customize your own reports (and store the formats for future use), even export data to popular applications like Lotus 1-2-3® and dBASE®, with no risk to your files, and no re-keying of data.

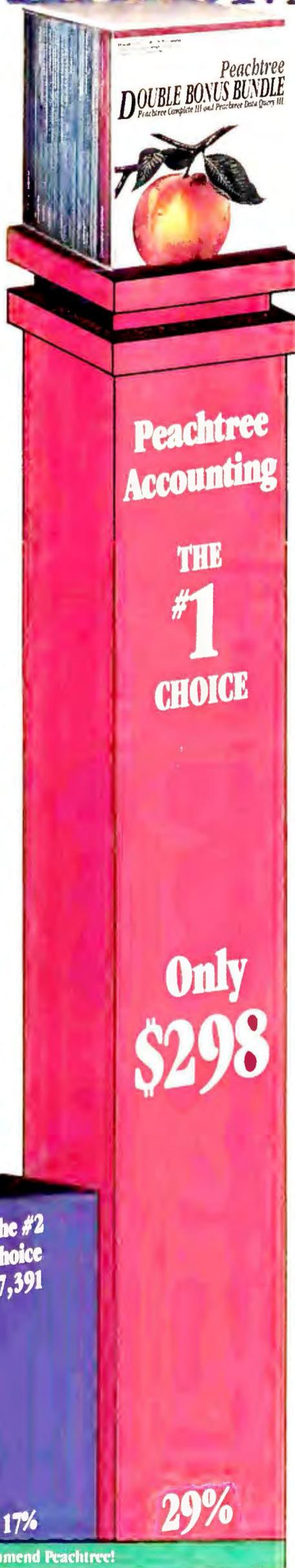
And, Peachtree is the one accounting system you won't outgrow. Install the functions your company needs now and add modules, departments or even companies to the system as your business grows.

"...It is, beyond a shadow of a doubt, the best, easiest to use, most helpful program I've ever had to review."—C. McQuaid, McQuaid & Holland, Inc., Accountants, Geneva, AL

"Installation is easy, data entry is fast...a joy to use."—PC Resource, July 1990

With Peachtree, you don't have to give up ease of use to get the power and performance you need. The Double Bonus Bundle comes with on-line tutorials for each module and thorough documentation—an Accounting Primer, a quick-start installation Guide, and a complete reference library—so you can get up and running quickly. Errors are handled with plain English messages and suggestions. Context-sensitive HELP is on-line, all the time.

"I called the Computer Support in my area...and I was very pleased with the immediate response...having reliable support makes all the difference."—Angela Vamianskis, Computerized Accounting and Payroll, Burbank, CA



More professional accountants recommend Peachtree!

At Peachtree, we make technical support convenient for you with Authorized Support Centers in over 60 cities across the country and directly from Peachtree (support charges based on the length of the call on your credit card). And we stand behind our products with a 30-day money-back guarantee when you buy directly from Peachtree. If for any reason you're not satisfied, just return the package within 30 days for a prompt refund (less a \$25 restocking fee).

"Peachtree Complete III is one of the most full-featured accounting systems in its class."—INFOWORLD February 2, 1990

Features

General Ledger

- Unlimited accounts
- Comparative financial statements—present or back to 2 years
- Prior period adjustments

Accounts Payable

- Partial payment of invoices
- Prints checks
- Prints miscellaneous 1099's

Accounts Receivable & Invoicing

- Maintains open item or balance forward customers
- Unlimited transactional detail

"Ship to" address file

Purchase Orders

- Updates purchase orders and inventory
- Generate A/P invoices from purchase order

Job Cost

- Tracks profitability on a job-by-job basis

Payroll

- Unlimited number of employees
- Accrues sick and vacation time
- Prints checks, W-2's calculates Federal and State payroll taxes

Inventory

- Supports LIFO, FIFO, Specific Unit, standard and average costing methods
- Unlimited inventory items
- Serial number tracking

Fixed Assets

- Handles 13,000 assets and 13 methods of depreciation

PDQ III

- Modify pre-defined reports
- Create your own reports
- Present data in line or bar graphs
- Transfer information to dBASE III® and Lotus 1-2-3®

Hardware Specifications. Requires PC/MS-DOS version 3.0 or higher with 640K of memory and a hard disk. For use with IBM PC, PC XT, PC AT, Personal System/2 and compatibles 3 1/2" media optionally available. Not copy protected. All product prices represent complete accounting systems with modules comparable to Peachtree Double Bonus Bundle.

Lotus 1-2-3 is a registered trademark of Lotus Development Corporation. dBASE is a registered trademark of Ashton-Tate Corporation. IBM is a registered trademark and Personal System/2 is a trademark of International Business Machines.



Peachtree Software

Call Now To Order

or for the name of the dealer near you.

1-800-247-3224

or, 1-404-564-5800

To order by fax 1-404-564-5888

add \$12.50 shipping to fax and mail orders*
(In Georgia, add applicable sales tax.)

*Telephone number required on all orders

1505 Pavilion Place, Norcross, Georgia 30093

Order Peachtree's Double Bonus Bundle NOW! Find out what over 350,000 satisfied Peachtree users already know—why so many people highly recommend Peachtree.

"...It's the only application I recommend. The package is superb..."—Marc Barlow, Executive Vice President, AdMedia, Largo, FL

PCW

entire page (by drawing a dotted line around it), then move the page contents onto the pasteboard. Go to another page or spread, press <Ctrl>-<Shift>-W again if necessary, and repeat the process. You should be able to store an entire 8½-by-11-inch page in each corner of the pasteboard. Next, use the pointer tool to select all contents on the pasteboard, and copy them to the clipboard. Then close the publication without saving it (so the original remains unchanged), and open your new publication. Press <Ctrl>-<Shift>-W to display the pasteboard, and paste the clipboard contents onto it. Now you can proceed to select and move each page off the pasteboard to its new location. —R. J.

86

Cutting Documents Down to Size

While it's a good habit to use *PageMaker's* Save command frequently when working on a publication, it's often better to use the Save As command instead, and select Yes when the program asks if you want to replace the existing file. The reason? The Save command appends changes to the end of the file, which means your document may continue to grow in size even after you've deleted text or graphics. Save As, on the other hand, eliminates all deleted elements from the previously saved version—reducing file size two to three times or more. (Note: Using this technique means you cannot use *PageMaker's* Revert command, which is handy if you make an unrecoverable error and need an earlier version to work on.) —R. J.

PRESENTATIONS



HARVARD GRAPHICS

87

Create Impressive Bar-Chart Buildups

A buildup is a series of charts displayed in a *Harvard Graphics* ScreenShow. Each subsequent chart adds a series.

The trick to buildups is to use the same *y*-axis on all charts. To create a bar-chart buildup, first construct the full bar chart with all series displayed. Note the highest value on the *y*-axis, and enter this number as the maximum value for the *y1*-axis on page 3 of the Titles & Options form. Enter 0 for the minimum value. Now save the chart. To create the remaining charts for the buildup, change the data in one series to zero and save the chart using a different name. Change the next series data to zero, save it, and so on.

To display the buildup, place the charts in your ScreenShow in reverse order. (The chart with all series set to zero should be placed first; the chart with all series displayed should be placed last.) Use a Wipe Up draw transition to display each chart—don't use an Erase transition. When the charts are displayed in the ScreenShow, the bars will grow successively

from the bottom of the chart frame. —Cary Jensen and Loy Andersen

88

Exporting PostScript Pictures

A great way to add top-quality charts and graphs to documents is to create them in *Harvard Graphics*, then export them to your desktop publishing package as Encapsulated PostScript (EPS) files so you can print them on a PostScript printer.

After you select *Harvard's* Export picture option from the Import/Export menu, type in a file name. At the 'Picture quality' option, select Standard (rather than High). A "high-quality" EPS file

uses *Harvard Graphics* fonts, while a "standard-quality" EPS file uses the printer's resident fonts—and PostScript fonts are usually more elegant and legible than *Harvard* fonts, especially in smaller sizes. Another big advantage to using PostScript fonts: The picture file is much smaller (for instance, 10K instead of 148K) and prints much faster. —Richard Jantz

89

Special Slide-Show Buttons

In addition to buttons 1 through 10, you can add seven predefined special buttons (see TABLE 2) to make your slide shows easier to use. To create a special button, use the Draw/Annotate command or the *Draw Partner* drawing program to add a button to a chart, and then assign the button one of the special-button numbers (211 through 217). Because the special buttons' effects are predefined, you'll find them even easier to use than buttons 1 through 10, which you must define from the HyperShow menu. —C. J. and L. A.

(continues)

TABLE 2: HARVARD GRAPHICS' SPECIAL HYPERSHOW BUTTONS

In addition to ten custom buttons, you can add up to seven special buttons with these predefined effects to your chart slide shows.

Button Number	Effect
211	Displays preceding HyperShow slide
212	Displays following HyperShow slide
213	Displays first HyperShow slide
214	Displays last HyperShow slide
215	Pauses HyperShow
216	Displays data form for current chart
217	Terminates HyperShow



Select 5 Books for only \$4⁹⁵

**ENROLLMENT
APPLICATION**

Please accept my membership in The Computer Book ClubSM and send the 5 volumes listed below, billing me \$4.95. If not satisfied, I may return the books within ten days without obligation and have my membership cancelled. I agree to purchase at least 3 books at regular Club prices during the next 2 years and may resign any time thereafter. A shipping/handling charge and sales tax will be added to all orders.

Write your selections here:

Name _____

Address _____

City _____

State _____ Zip _____ Phone _____

Valid for new members only. Foreign applicants will receive special ordering instructions. Canada *must* remit in U.S. currency. This order subject to acceptance by The Computer Book Club.

PCW191B



The Computer Book ClubSM



Select 5 Books for only \$4⁹⁵

**ENROLLMENT
APPLICATION**

Please accept my membership in The Computer Book ClubSM and send the 5 volumes listed below, billing me \$4.95. If not satisfied, I may return the books within ten days without obligation and have my membership cancelled. I agree to purchase at least 3 books at regular Club prices during the next 2 years and may resign any time thereafter. A shipping/handling charge and sales tax will be added to all orders.

Write your selections here:

Name _____

Address _____

City _____

State _____ Zip _____ Phone _____

Valid for new members only. Foreign applicants will receive special ordering instructions. Canada *must* remit in U.S. currency. This order subject to acceptance by The Computer Book Club.

PCW191A



The Computer Book ClubSM

**Money
Saving Offer!**

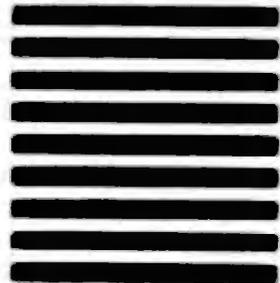


**NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES**

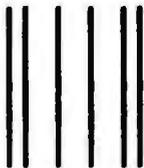
BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 9 BLUE RIDGE SUMMIT, PA 17214

POSTAGE WILL BE PAID BY ADDRESSEE

The Computer Book ClubSM
Blue Ridge Summit, PA 17214-9988



**Money
Saving Offer!**

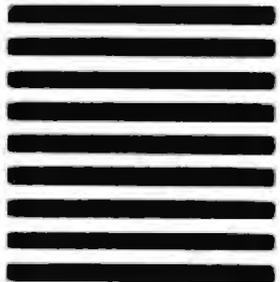


**NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES**

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 9 BLUE RIDGE SUMMIT, PA 17214

POSTAGE WILL BE PAID BY ADDRESSEE

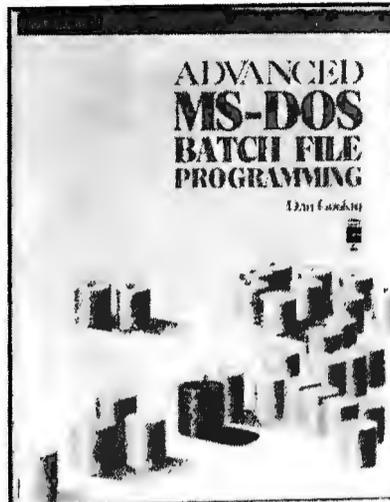
The Computer Book ClubSM
Blue Ridge Summit, PA 17214-9988



SELECT 5 BOOKS

for only \$4⁹⁵

(values to \$143.75)



3197 \$34.95
Counts as 2

When it's new and important in business or personal computing,
The Computer Book Club has the information you need . . .
at savings of up to 50% off publishers' prices!



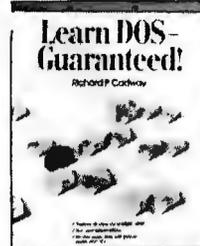
9309P \$28.95
Counts as 2



3422P \$17.95



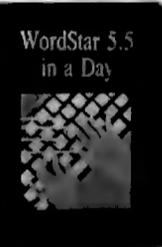
3617 \$26.95
Counts as 2



3331P \$14.95



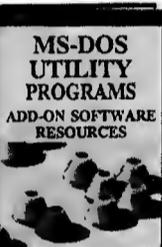
3286P \$21.95
Counts as 2



3330P \$19.95



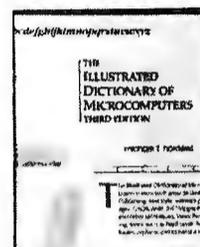
3232P \$17.95



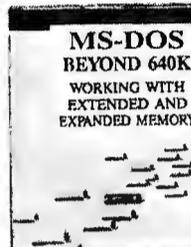
3278 \$34.95
Counts as 2



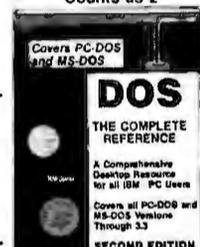
15019P \$21.95
Counts as 2



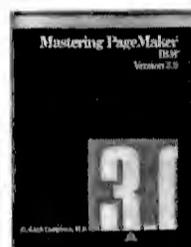
3368P \$19.95
Counts as 2



3239 \$29.95



15013P \$26.95
Counts as 2



3176P \$16.95



3111P \$17.95



3113P \$19.95



3006P \$29.95
Counts as 2



3578P \$16.95



15022P \$22.95



3564P \$19.95



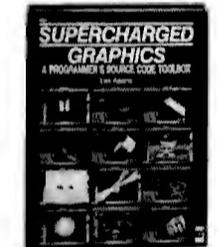
3440P \$17.95



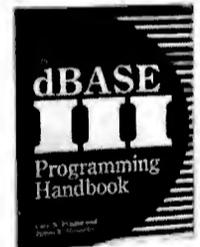
3224 \$31.95
Counts as 2



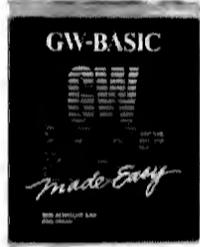
15008P \$24.95



2959 \$29.95



3468 \$26.95



15012P \$19.95



3131 \$26.95



1540P \$17.95

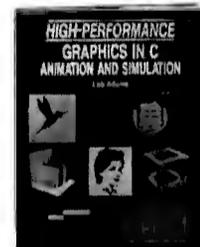


The Computer Book ClubSM

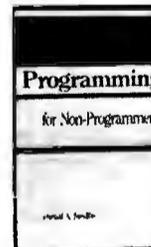
Membership Benefits • Big Savings. In addition to this introductory offer, you keep saving substantially with members' prices of up to 50% off the publishers' prices. • **Bonus Books.** Starting immediately, you will be eligible for our Bonus Book Plan, with savings of up to 80% off publishers' prices. • **Club News Bulletins.** 15 times per year you will receive the Book Club News, describing all the current selections—mains, alternates, extras—plus bonus offers and special sales, with scores of titles to choose from. • **Automatic Order.** If you want the Main Selection, do nothing and it will be sent to you automatically. If you prefer another selection, or no book at all, simply indicate your choice on the reply form provided. You will have at least 10 days to decide. As a member, you agree to purchase at least 3 books within the next 2 years and may resign at any time thereafter. • **Ironclad No-Risk Guarantee.** If not satisfied with your books, return them within 10 days without obligation! • **Exceptional Quality.** All books are quality publishers' editions especially selected by our Editorial Board. PCW191

All books are hardcover unless number is followed by a "P" for paperback.
A shipping/handling charge and sales tax will be added to all orders. (Publishers' Prices Shown)

If card is missing, use this address to join: ©1991 THE COMPUTER BOOK CLUB
Blue Ridge Summit, PA 17294-0820



3049 \$37.95
Counts as 2



8226P \$21.95



3298P \$19.95



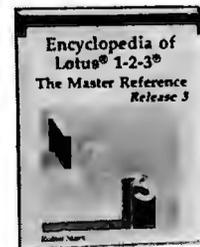
2870P \$16.95



3382P \$29.95



9250P \$19.95



3211P \$24.95
Counts as 2



3558 \$38.95
Counts as 2



3418P \$24.95

DRAW AND PAINT PROGRAMS



COREL DRAW

90

Fonts Unlimited

Why limit yourself to the 35 type families packaged with *Corel Draw* when you can add truckloads more? By using Corel's WfnBoss utility, you can convert fonts from Adobe, Bitstream, Compu-graphic, and other type vendors for use in *Corel Draw*. Once converted, these fonts appear as choices in the program's type selection dialog box, along with Corel's standard fonts.

To use this utility, double-click on the WFNBOSS.EXE file in the *Corel Draw* sub-directory. In the WfnBoss Font Conversion window, indicate which type of font (Adobe or Bitstream, for example) you want to convert, and where the original font files are stored. WfnBoss will then find all fonts available for conversion and prompt you with defaults the rest of the way. To get access to the converted font files, simply exit *Windows* and restart *Corel*.
—Richard Jantz

91

Guidelines to Better Drawing

Create your own guides in *Corel Draw* using lines with a weight of 'None'. Lines with no weight show up in drawing mode, allowing you to use them as points of reference, but they don't print (or display in Preview).

To create guidelines, click the Outline tool and choose a default line weight of *None*. Open the Display menu, and select *Snap to grid* if desired. Then draw straight lines using the Pencil tool, holding down <Ctrl> if you want the lines constrained to vertical, horizontal, or 15-degree increments. Watch the status line to set guidelines at other angles.

If you do technical drawings, you can use this technique to set up major grid lines that give you more immediate visual feedback than *Corel's* status line or rulers do. If your work tends more toward illustration, you can quickly establish guidelines to the vanishing point of a drawing with perspective.

—James D. Larkin

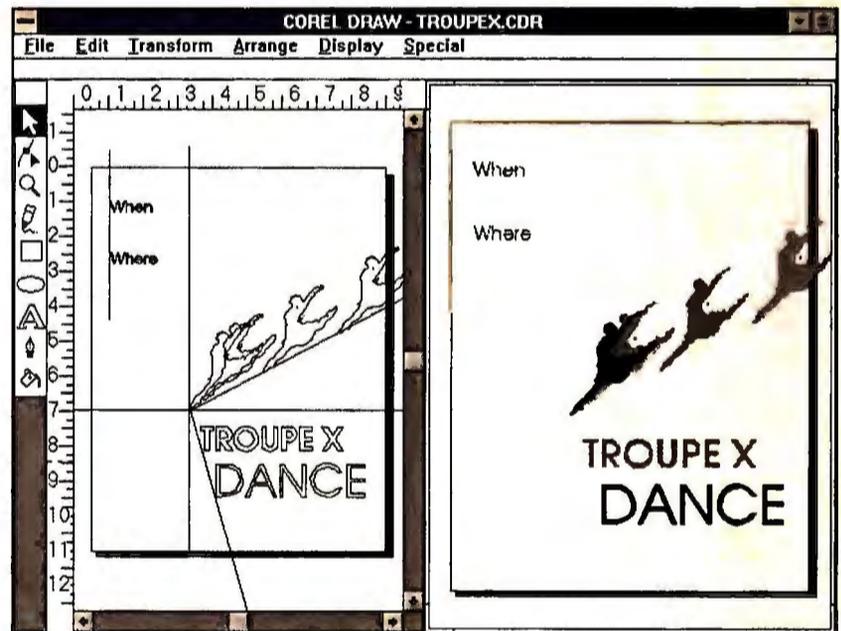
92

Name That Font

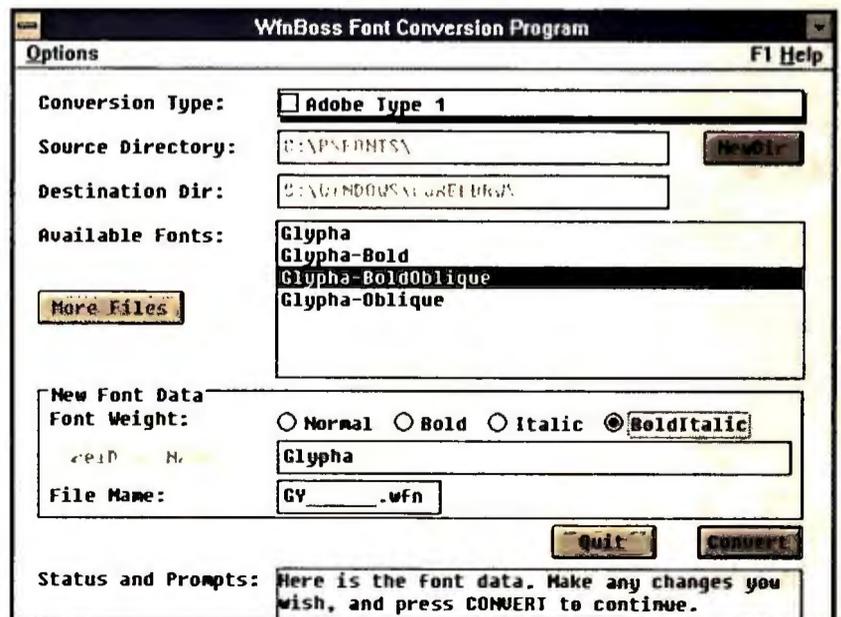
Corel Draw's standard fonts resemble many popular typefaces in everything but name. Since the original fonts are copyrighted, Corel must use different names to identify its knockoffs, and sometimes it's hard to remember that Corel's Ottawa and Toronto are actually versions of Optima and Times. But just because Corel had to use equivalent names doesn't mean you have to. By editing your WIN.INI file, you can give those ob-

scure font names their more common monikers. Here's how to do it.

Using the *Windows* Notepad, open WIN.INI and go to the section titled [COREL-DrwFonts]. Using the *Corel Draw* Typeface Reference Chart as a guide, change each Corel equivalent font name to the common font name (for example, 'New_Brunswick' to **New_Century_Schoolbook**), using the underscore key to indicate spaces between words, if necessary. Do not alter the remainder of each line, however, as it contains
(continues)



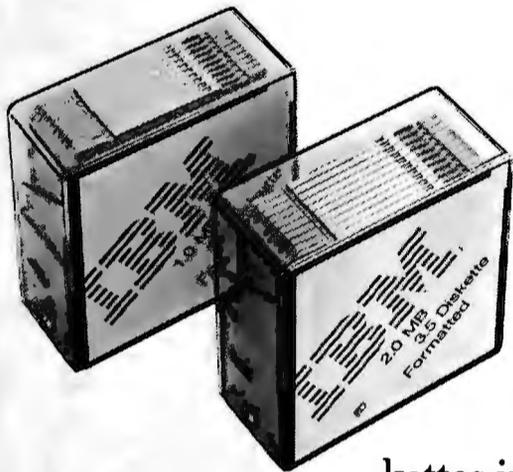
Corel lacks vertical and horizontal drawing guides, but you can make your own by creating lines with a weight of 'None'—this prevents them from printing, but you can use them in drawing mode.



Adding more fonts to *Corel* is a snap with the WfnBoss utility. Simply specify the font type and location and answer a few prompts. Reload *Corel*, and the fonts are at your beck and call.

New from IBM, 3.5-inch Preformatted Diskettes.

They cut drive time so you can
get to your work faster.



Simply insert the new IBM
3.5-inch Preformatted Diskette
into your PC, and you're ready
to go. No time lost
in formatting.
No more delays
when you have
to change dis-
kettes in the middle of

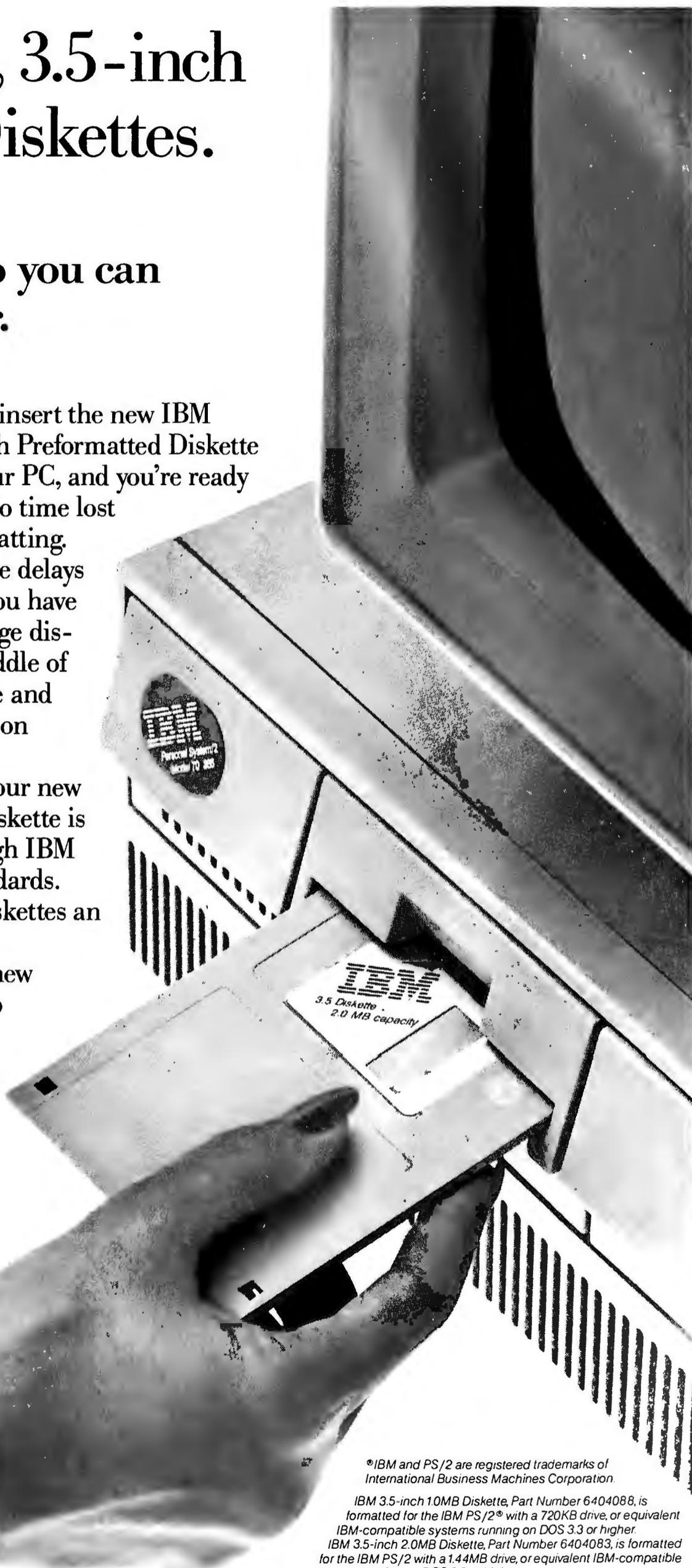
a job. It means a lot more convenience and
productivity—and one less roadblock on
your way to your work.

IBM hasn't bypassed quality with our new
preformatted diskettes. Every IBM Diskette is
road-tested. So it measures up to tough IBM
engineering and manufacturing standards.

And new, low prices make these diskettes an
even better investment than ever.

Go ahead—get your hands on the new
IBM Preformatted Diskettes and keep
your office in the fast lane.

See your local IBM Supplies
Dealer. Or call 1 800 IBM-2468
to place an order or for the
location of a dealer
near you.



©IBM and PS/2 are registered trademarks of
International Business Machines Corporation.

IBM 3.5-inch 1.0MB Diskette, Part Number 6404088, is
formatted for the IBM PS/2® with a 720KB drive, or equivalent
IBM-compatible systems running on DOS 3.3 or higher.
IBM 3.5-inch 2.0MB Diskette, Part Number 6404083, is formatted
for the IBM PS/2 with a 1.44MB drive, or equivalent IBM-compatible
systems running on DOS 3.3 or higher.

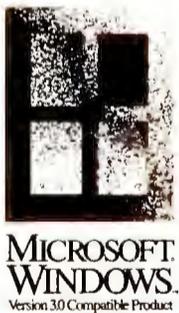
©IBM Corporation 1990



ACCESS SQL



The Graphical Relational Database Management System That Does More Than Windows.



MICROSOFT
WINDOWS.
Version 3.0 Compatible Product

Want a clearer view of your organization's data? New Access SQL Version 1.1 makes it easy.

Access SQL™ is a relational database management system (RDMS) front-end that lets you access, manage, enter, and utilize valuable data from across your organization. Quickly and easily.

Windows. Thanks to the Microsoft® Windows graphical user interface, Access SQL is easy to use from day one. Pull-down menus and dialog boxes make any database operation simple and fast.

Powerful SQL Access without complexity. Whether you are a novice user or a programmer, Access SQL provides simplicity while also providing tools robust enough to satisfy complex requirements. Build queries by simple point and click demands.

Reports and Forms. View and update databases via table format or customized forms, and create polished professional reports in a graphical environment.

Client-Server Architecture. Access SQL uses new client-server architecture to share computer chores between your PC and a centralized database server. This guarantees better performance through reduced traffic on the network and optimizes database speed.

Flexibility. Access SQL features complete SQL (Structured Query Language) support by utilizing a popular SQL database server. Database administration is a snap with user level access control, backup and restore, and powerful table management.

Access SQL will help you see your organization in a whole new light.

For more information and a free demo disk, call Software Products International at **800-937-4774** or **619-450-1526**.

ACCESS SQL is a registered trademark of Software Products International



Software Products International
10240 Sorrento Valley Road
San Diego, CA 92121-1697
1-800-937-4774

Available at:

PC By Root
San Mateo, CA (800) 347-0343

Infomac
Riverwoods, IL (708) 948-5359

Roger Warren Tax Service
San Diego, CA (619) 280-4746

or call SPI for the dealer nearest you.

Circle 249 on reader service card

information the program needs to find the actual font files.

When you're finished, save the edited WIN.INI file and restart *Windows*. From then on, you'll see the common font names listed in *Corel Draw*'s text dialog box rather than all those Canadian place-names. —R. J.

93

Can't Print? Reduce the Nodes!

Getting rid of unneeded nodes in *Corel Draw* speeds up printing and allows you to create more complex drawings than you otherwise could.

For example, say you create a composite path containing a pattern of circles and other ellipses. Each ellipse contains 4 nodes. If the composite path contains 25 ellipses, it holds 100 nodes. When you near 50 ellipses (200 nodes), you run into PostScript-imposed limits on the number of nodes in a single path, and your printer may refuse to print the drawing. Even if you're not printing to a PostScript printer, you may encounter long print times or other problems.

To reduce the number of nodes in an ellipse, create one ellipse of each size and shape you'll need. Convert each ellipse to a path by selecting *Arrange Convert to curves*. Choose the Shape tool, then select two nodes that are opposite one another on an ellipse (hold down <Shift> to select more than one node at a time). Double-click the second node you select, and when the Node Edit dialog box appears, choose *Delete*. Repeat for each ellipse you create. When you delete the nodes,

the shape of the ellipse changes slightly—you may need to adjust the remaining nodes, particularly if you want a perfect circle. —J. D. L.

MICROGRAFX DESIGNER 3.0

94

Fonts and Plotters Don't Mix

If the text in a *Designer* drawing won't print on your plotter, check your fonts by selecting *Text Font*. Chances are you're using outline fonts, which plotters don't recognize. The solution is to convert the fonts to curves by clicking the pointer tool, selecting the text, and selecting *Text Convert to curves OK*. Now your plotter can do its stuff. (Note: Once you convert text to curves, you can manipulate it like any drawing—but the text can no longer be edited.) —*Micrografx Technical Support*

95

Fix Faulty File Imports

Although *Designer* is pretty adroit at importing both vector (draw) and bit map (paint) files correctly, some files take a little work. If you import an *AutoCAD DXF* file and the image is reversed, check the Reverse Black/White box in the DXF input dialog box. If an imported TIFF image is reversed, you probably brought in a *compressed TIFF* file. Bring in the non-compressed version, and the image should be fine. —*Micrografx Technical Support*

PC PAINTBRUSH IV PLUS

96

Optimal Output for Scanned Images

Don't leave output of black-and-white TIFF images to defaults. For sharper print-

outs, do the following: Install *Paintbrush* for 16 or 256 colors. Load the scanned picture, select the image (or a portion), select *Edit Filter*, pick a filter (such as Blend) to enhance the image, and press <Enter>. When you're ready to print, select *File Print Set halftones Bayer OK*. —*Z-Soft Technical Support*

UTILITIES



NORTON UTILITIES

97

Copying What Norton Finds

The *Norton Utilities 5.0* File Find program can list all the files that match a certain criteria—but that's about it. What if you want to copy the files you find to, say, a floppy disk in drive A:?

The trick is turning the file list into a batch file. After you've set your search criteria, selected *Start*, and watched the list roll up in the list box, select *Create batch* from the List menu. Use the default 'filelist.bat' or type in a different file name, and keep the 'Save full path' and 'Directory title line' options on. Under 'Text to put before file names', enter *copy*, and

under 'Text to put after file names', type *a:*. Press <Enter>, and you've created a batch file that will copy all the files that File Find found. To actually copy the files to drive A:, exit to DOS and type *filelist.bat*. —*Peter Norton Technical Support*

98

Quick Disk Navigation

The Explore disk menu's Edit/display item option in *Norton Utilities 4.5*'s NU program lets you examine almost any spot on a hard disk, whether there's a file there or not. But how do you get where you're going? In the Edit/display item module, pressing <F8> pops up a menu asking if you want to examine a drive, directory, file, cluster, sector, or absolute (*continues*)

sector. Once you've made your choice, the desired item will be fetched posthaste. —Peter Norton Technical Support

**PC TOOLS
DELUXE 6.0**

99

Getting It All on Tape

The *PC Tools Deluxe 6.0* PCBackup program is one of the few hard-disk-to-floppy backup programs that also backs up to QIC-40 and QIC-80 tape drives. If you have a tape drive, you can have secure backups without much effort. Here's one method that works great.

In PCBackup, select *Options Backup method Full / append to tape OK*. Next, select *Save setup*, type **weekly**, press <Enter>, and select *OK*. Repeat the process, selecting the Incremental backup method and naming the setup **daily**. Exit from PCBackup and create two batch files, WEEKLY.BAT and DAILY.BAT, which log on to your PCTOOLS subdirectory; then issue the commands **pcbackup weekly** and **pcbackup daily**.

When you're finished working for the day, put a fresh cartridge in your tape drive and run WEEKLY.BAT. Keep that tape in the drive and, at the end of every other workday, run DAILY.BAT. Once a week, after you have run DAILY.BAT, put in a fresh tape and run WEEKLY again. If you use four tapes in rotation, you'll have a reliable archive of your last four weeks' work. —Sarah Lillian Schenkler

100

Make PC Tools Windows Horizontal

When you view files in *PC Tools*' shell program, it typically shows them in a half-screen vertical window. You can zoom the window to full screen, but then you don't have access to the file or directory windows.

If you'd rather view files in a horizontal window, select *Options Setup configuration Viewer cfg*. This option toggles between 'vertical' and 'horizontal' defaults for View Window's window. In horizontal mode, the file view window stretches almost from one

side of the screen to the other. It's not as tall, but you'll be able to read a full line of text. To make this your permanent configuration, select *Options Save configuration file*. —Sally Yee

MAGELLAN

101

The Magellan Garbage Disposal

When your hard disk starts getting crowded, the first thing to do is sift through all of your subdirectories for files

that can be deleted. Likely candidates might be BAK files (BK! in *WordPerfect*), TMP files, and the like.

If you're a *Magellan* user, deleting these files automatically on a regular basis is a snap. Press <F9>n to create a new Explore group. Give the group any name that seems reasonable ("Garbage" comes to mind) and an Explore Path like ***:*\.bk! *.*\.bak *.*\.tmp *.*\temp.***. When your disk gets a little too crowded, simply press <F9>, and select *Garbage*. Once the list of unwanted files is displayed, press <Alt>-<F3>y<F3><Enter>y to erase them all. —Lincoln Spector ☸

Loy Andersen and Cory Jensen are coauthors of *Horvord Graphics: The Complete Reference* (Osborne/McGraw-Hill, Berkeley, California, 1990). Karl Anthony works for Venturo Software's technical support group. George Beinhorn is a freelance writer living in Nevada City, California. Jesse Berst is president and Scott Dunn managing editor of CompuThink Incorporated. Alfred Glossbrenner is the author of the *Complete Hard Disk Handbook* (Osborne/McGraw-Hill, 1990). William Goodrich is a freelance writer in New York. James Hopkins and Liso Hopkins work for WordPerfect Corporation's technical support group. Charles W. Kyd is the author of *The Microsoft Excel Business Sourcebook* (Microsoft Press, Redmond, Washington, 1988). James D. Lorkin is a coauthor of the forthcoming *Inside Windows Guides—Corel Draw* (Microsoft Press). Bob Levine belongs to the NYPC user group. CPA Richard Mann is a coauthor of the forthcoming *Demystifying Windows 3.0* (Tob/Wincrest, Blue Ridge Summit, Pennsylvania). Frank Miyozoki is a member of the Borderline IBM-PC Users Group in

Bellingham, Washington. Miles Musser works for Borland International's Quattro Pro technical support group. Ross Parlette belongs to the Silicon Volley Computer Society. Celeste Robinson is assistant manager of the product support department for Borland's Paradox. Sarah Lillian Schenkler is based in Boston, where she works as a software support specialist. Ken Smith is a support engineer for Hewlett-Packard. Jeff Wolden is a freelance writer and software developer living in Morgan Hill, California. Computer specialist Thomas J. Wessel, Jr., works for the Center for Family Medicine in Greenville, South Carolina. Sally Yee is an electrical engineer specializing in the technical documentation of PC environments.

TJ Byers, George Campbell, Judy Heim, Richard Jontz, Alan Schwartz, Richard Scoville, Tom Swon, and John Walkenbach are contributing editors for *PC World*.

Eric Brown is a senior editor, Karl Koessel technical editor, Robert Luhn a senior editor, and Lincoln Spector an assistant editor for *PC World*.

Why so many people are going to Freelance instead of Harvard.

Lotus Freelance Plus



There's one presentation graphics program that's walked away with virtually every industry award in the past two years.

Freelance[®] Plus, the presentation graphics package by Lotus[®], is the big winner against Harvard Graphics[®], and all others according to the experts at *PC Magazine*, *PC Week*, *PC World* and *Publish*.

Yet, the greatest praise of all comes from the *Software Digest*

Ratings Report dated August 1990, which for the second consecutive year



evaluates Freelance as the top rated presentation graphics program. Freelance 3.01 out scores Harvard 2.3 on many counts, including quality of output, printing speed and overall product quality. Freelance was also rated more powerful than Harvard and praised for its unique link to 1-2-3[®] worksheets.

Clip out our coupon or give us a call at **1-800-872-3387** ext. 520. We'll send you our free demo kit which also includes detailed information on why Freelance is the critics' choice.

See why Freelance is the critics' choice.

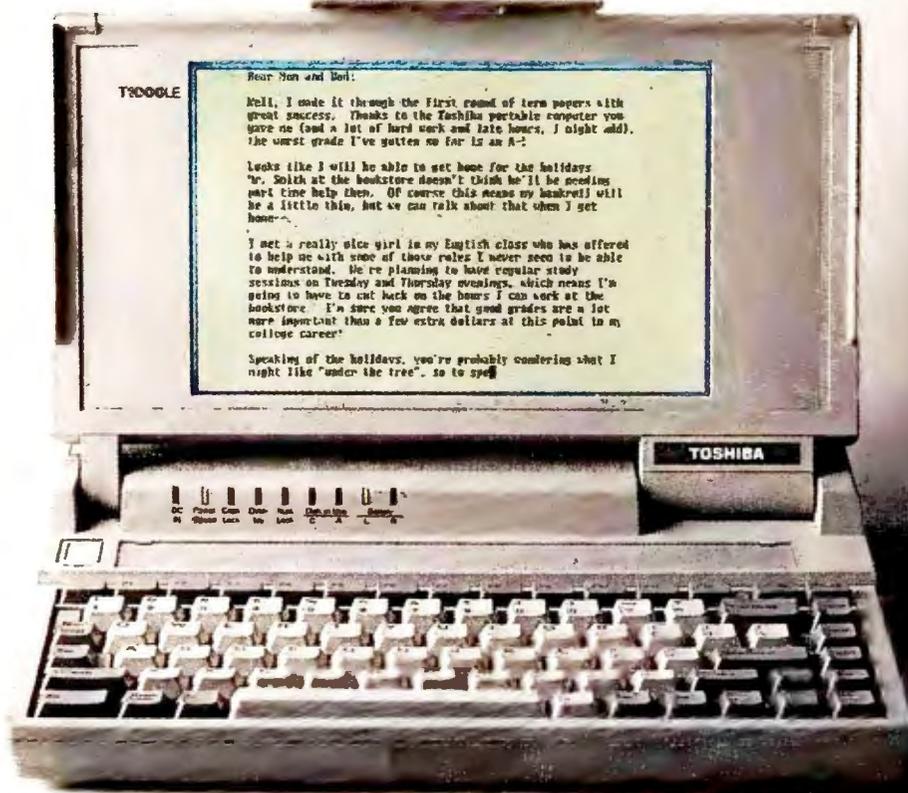
Name _____
 Co. _____ Tel. _____
 Address _____
 City _____ State _____ Zip _____
 Disk format: 5 1/4" Disk _____ 3 1/2" Disk _____

Or call 1-800-872-3387 ext. 520.

Send to Lotus Development Corporation, Freelance Plus Demo Offer, PO Box 4075, Woburn, MA 01888-9822.

Freelance Plus *by Lotus*

THE NEXT TIME SOMEONE ASKS YOU ABOUT AN ENTRY LEVEL NOTEBOOK PC, HAND THEM THIS.



Chances are, people who don't know about PC's are constantly asking you for advice when it comes to their first notebook PC. Which is precisely why this ad comes in handy.

With it, they can learn all about our T1000LE. An exceptional, six-and-a-half pound notebook PC that has a 3.5", 1.44MB floppy and a powerful 20MB hard disk that can store virtually anything from short stories to the complete works of Shakespeare. They'll see that it comes with an adjustable sidelit LCD screen and 640 x 400 bit-mapped graphics. All of which means that the T1000LE isn't only easy to read, but it's easy on the eyes as well.

T1000LE

- 6.5 pounds, 9.5 inches
- hard drive
- 1.44MB 3.5" floppy
- RAM expansion
- compatible
- resolution; 82
- board with eight
- control keys;
- port; removable
- battery; AC

Add to that, a sleek full-function keyboard that feels just like a desktop PC. And, unlike many notebook PC's, the T1000LE allows them to work for up to three hours anywhere they want.

For more information call 1-800-457-7777.

So the next time someone asks you about a versatile notebook PC, you can do one of two things: Send them to their nearest Toshiba dealer. Or, simply hand them this ad.

© 1990 Toshiba America, Computer Systems Division

In Touch with Tomorrow
TOSHIBA

Toshiba America Information Systems Inc., Computer Systems Division.

Circle 256 on reader service card

User Group Tips

Helpful hints from members of the nation's user groups

Taking a Shorter Path

You can shorten your PATH statement and speed up some applications by beginning your PATH command's directory listing with the double-dot directory (PATH ..), which represents the current directory's parent. (You'll also need to establish your data directories below their program directories and launch all your programs from their data directories.) When DOS looks at the PATH's list of directories, it will immediately find the current parent subdirectory, so you will no longer need to include those directories in your PATH.

Paul Curtis

Association of PC User Groups

Scotts Valley, California

Adding Sparkle to Laser Printouts

You can add some sparkle and a flash of color to your printed logos or text: Besides your laser printer, all you need is foil transfer paper and removable tape, both of which are available at your local craft shop. Cut the transfer paper a little larger than the area you want to enhance, and anchor it securely (shiny side up) with the tape—you don't want it to come off inside the printer. Make sure you place it only over the area you want to decorate. Then select the desired page, and place the prepared sheet in your feeder. Issue the print command, and when your page emerges, carefully remove the transfer paper. Voilà! Your printout will sparkle with a flash of your chosen color.

Elena Beck

UCLA PC Users Group

Easy Date-Entry Macro for 1-2-3

Anyone who has used 1-2-3 knows that entering a series of dates can be a pain. This macro eases the task of entering 1991 dates (you can substitute another date in the macro if you wish). In an out-of-the-way cell—G1, for instance—enter '@date(91,{?},{?})~'. Cursor down one cell to G2, and enter '/rfd4~'. Move the cursor to cell H1, and type **Enter date**; press <Cursor Down>, and enter **Format as date 4** in cell H2. The entries in H1 and H2 describe the macro. Now move the cursor to G1, and type /rncd. If your worksheet already has a macro assigned to <Alt>-D, substitute another key for 'd.' Press <Enter>. Highlight range G1..G2 by pressing <Cursor Down>, and press <Enter>. To use the macro, move your cursor to the desired cell, and press <Alt>-D. Type the number of the month and press <Enter>, then type the number of the day and press <Enter>. The cell will display the specified date—May 1, 1991, for example, will appear as 05/01/91. But if you look at the status line, you'll see an @DATE formula, which enables you to use any of your entered dates for calculations.

Roy Rosfeld

Capital PC User Group

Using Delete as a Marker for dBASE Records

Often I have to browse through a dBASE file, select a group of specific records, and assemble them into a new data base. Because these records don't always fall under a single criterion, I can't use the COPY FOR command. So I mark each record as deleted (don't worry, dBASE won't actually delete them until you issue a PACK command), copy all the deleted files to a new file, and then recall the deletes in the original data base (or PACK, but only if I want to remove the records from the original

data base). Of course, for this method to work as intended, there must be no other deleted records in the original data base.

Steve Bass

Pasadena IBM Users Group

CoEdit Advantages for Paradox Data Entry

Paradox's Modify DataEntry mode is, as the name implies, useful only for adding new data. But with Modify Edit and Modify CoEdit modes, you have the option of entering, changing, or deleting data. CoEdit mode was designed for multiuser editing on networks, and as a result, many users don't realize that it may be used by a single user on a non-networked system. Using CoEdit has some real advantages. For one, unlike Edit mode, CoEdit posts changes immediately, without making you press <F2>. Also, there's a security advantage when you work with keyed tables. In Edit mode, if you enter a new record with duplicated key fields, Paradox will replace the old record without warning. In CoEdit mode, however, Paradox alerts you that a record with duplicate keys exists. You then have the choice of keeping either the old record or the new one; or you can change the keys of the new record and try posting it again. If you wish to retain Undo or to use Paradox's ValCheck feature, however, you must work in Edit mode.

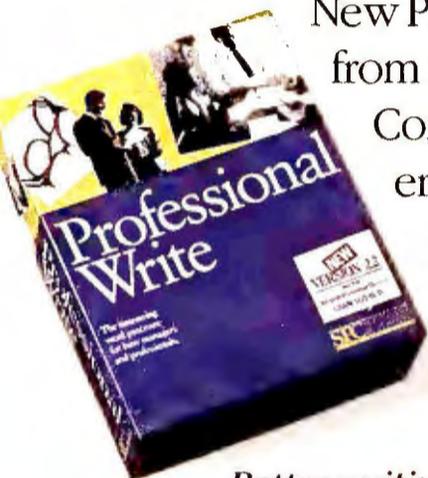
Brian Bushay

Twin Cities PC User Group

Are you a user group member with a tip to share? Send it to User Group Tips, PC World, 501 Second St. #600, San Francisco, CA 94107; Compu-Serve 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). We pay \$50 and throw in a PC World T-shirt for each tip we use—and you get to see your name in PC World. ☺

The software that made writing easier now makes your writing better.

The leading executive word processor now includes a custom integration of the leading grammar-checker – Gram•mat•ik™ IV.



Better writing for busy executives.

New Professional Write® 2.2 from Software Publishing Corporation detects errors in grammar, style, usage and punctuation. Then recommends a way to correct them.

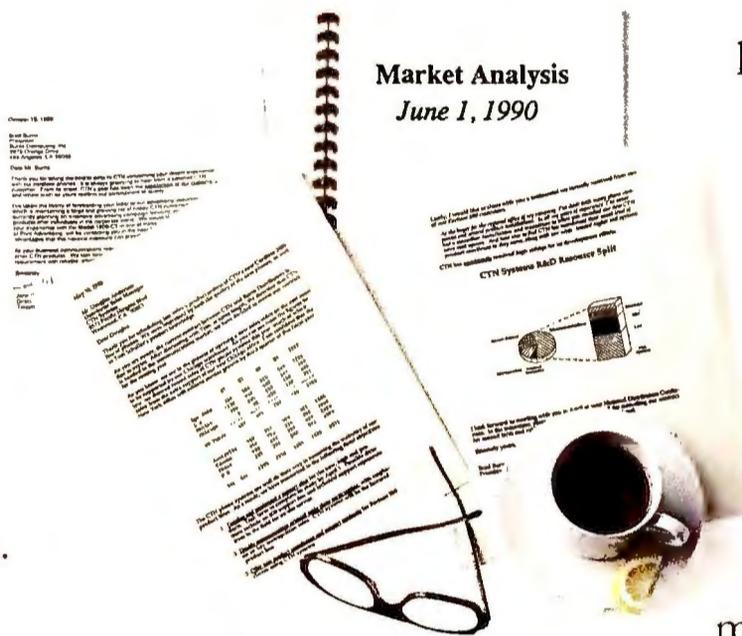
This new version also supports many more printers, including

HP® LaserJet® III, LaserJet IIP, and DeskJet® Plus. And offers a new line of HP font support, as well as the 25 in One!™ III cartridge from Pacific Data Products.

Edit	F4-Format	F5-Spell/Grammar	F6-Addresses
1. Check spelling of word			Ctrl-A
2. Check spelling to end of document			Ctrl-U
3. Find synonyms			
4. Check grammar to end of document			Ctrl-6
5. Show statistics			

Check your grammar as easily as you check your spelling.

That's not all. Professional Write 2.2 has lots of other new features — automatic



Greatly expanded printer and font support.

hyphenation, unlimited document size, enhanced import and export of delimited ASCII files, and much, much more. It's also available in Professional Write's new LAN version.

The best news is that even with all these new features Professional Write is still the word processor that's easy to learn and easy to use. No ten-pound manuals. No training.

Lots of new features without any compromise in ease of use.

The easiest way to prove it, of course, is to show you. Send for your free trial disk today. You'll be a better writer tomorrow.



FOR A FREE TRIAL DISK, CALL 1-800-345-2888, OPERATOR 205, IN U.S. AND CANADA

For upgrade information, call 303-799-4900 (U.S.) and 416-566-0566 (Canada).

Professional Write is a registered trademark of Software Publishing Corporation. © 1990 Software Publishing Corporation, 1901 Landings Dr., Mountain View, CA 94039-7210. Grammatik is a trademark of Wing Laboratories. HP, LaserJet, DeskJet are registered trademarks of Hewlett-Packard Company. 25 in One! is a trademark of Pacific Data Products.



PC WORLD ANNUAL INDEX

This index covers all products, reviews, features, and how to's in the 12 issues of *PC World* published in 1990. Most products can be located under subject headings that describe their function. Boldface page numbers refer to formal product reviews. This index is available on disk from Bayside Indexing Service. For more information circle reader service no. 662.

Bayside Indexing Service, 265 Arlington Ave., Kensington, CA 94707-1401

1-2-3

DataLens Driver for OS/2 SQL Server, Sep 229
Instant Reference Card for, Aug 21
Lotus Spreadsheet for Desk-Mate, Jan 94
macros
delete unused ranges, Mar 221
enter data without using cursor keys, Oct 277
Macro Library Manager tutorial, Mar 204
total numbers quickly, Jul 58
version detector macro, Dec 254
market domination by, Jan 62
release 1-2-3/G, Feb 78
version 1.0, Sep 148
release 2.2, Jan 110, Apr 116
release 3.1, previewed, Sep 113
@SQL, Sep 229
tips/tutorials
data base criteria for record extraction, Oct 247
data base management tutorial, Sep 229
dating reports with @NOW, Aug 207
dynamic file links, Apr 190
dynamic file links with release 2.2, Apr 190
extended ASCII characters with release 2.2, May 186
formula for counting days between dates, Aug 210
highlight cells or ranges, Nov 136

import dBASE files easily, Feb 172
LAN use of, Nov 54
list a full screen of file names, Mar 216
naming ranges, Aug 193
presentations, how to produce, Apr 186
protect against overwriting first data file, Jan 160
text mode installation and EGA/VGA, Apr 76
time counter, Nov 271
World Class Award, Oct 188
See also Spreadsheet Utilities

A

Accounting

Accpac Bedford Integrated Accounting 3.3A, Nov 187
Act 1 Plus, Nov 187
BusinessWorks 7.0, Nov 187
Buyers' Guide for shareware, Oct 220
CheckFree backup procedures, Apr 36
Cyma Professional Accounting Series 2.0, Jun 120
DacEasy. *See* DacEasy Accounting
Finance Manager II 1.3, Oct 220
Financial Manager, Sep 129
Great Plains Accounting Series 5.3, Sep 137
One-Write Plus 2.06C, Nov 187
Pacioli 2000, Aug 90

version 1.02, Nov 187
Peachtree Complete III, Jan 94
Peachtree Double Bonus Bundle, Nov 187
small business packages, Nov 187
spreadsheet utilities for, Apr 183, Jul 184
Takin' Care of Business, Nov 154
See also Personal Finance; Spreadsheet Utilities

Ami. *See under* Word Processors

Application Development.

See Program Development

Assembly Language. *See under* Languages

AutoCAD. *See under* Computer-Aided Design

B

Backup Applications

BackEZ 4.0.7, Jul 149
Back-It
version 3.1, Jul 149
version 4, Dec 120
Distinct Back-Up, Nov 214
Fastback Plus 2.1, Jul 149

Norton Backup
version 1.0, Jul 149
version 1.1, Oct 130
PC Fullbak+ 1.12, Jul 149
PC Tools Deluxe 6.0, Jul 149
reviews of, Jul 149
tutorial on, Sep 217
VCRCopy, Nov 142

BASIC

alarm clock program (WAIT.BAS), Jan 160
BASICA, build a menu tutorial, Oct 227
elapsed-time report (ELAPSED.BAT), May 216
log time spent in directories (LOGGING.BAS), Jun 195
Microsoft BASIC Professional Development System, Apr 98
version 7.1, Dec 142
Microsoft QuickBASIC
batch file menu program (MAKEMENU.BAS), Apr 213
pass arguments to another program, Sep 258
VAL function (XVAL.BAS), Aug 215
PowerBASIC 2.0, May 96
sales grow, Nov 90
<Scroll Lock> for display pause (SCROLOK.COM), correction for, May 216
VAL function interpreted differently by various BASICs, Aug 215
(continues)

WAIT.BAS (alarm clock program), Jan 160

Batch Files

AP.BAT (temporarily add directory to current path), Mar 226
 revised, Sep 44
 AUTOEXEC.BAT
 compare COMMAND.COM for virus checking, Jul 206
 execute commands only once a day (1ADAY.BAT), Apr 213
 multiconfiguration files for, Sep 48
 back up files by date (BACKUP.BAT), Jan 206
 BLANK.BAT (screen-blanking batch file), Feb 195
 BOOT.BAT (multiconfiguration bootup files), Sep 48
 CALL command
 in BAT files, Feb 37
 for subroutines, Sep 248
 CLEAN.BAT/CLEANUP.BAT (delete old files from directories), Jul 199
 compiler for batch files (The Builder), Dec 269
 DATETIME.BAT (add time and date to batch file), Jun 196
 DELDIR.BAT (delete directories and all their files), Jul 204
 delete directories and all their files
 DELDIR.BAT, Jul 204
 RDIR.BAT, Jun 202
 delete old files from directories (CLEAN.BAT/CLEANUP.BAT), Jul 199
 DRAFT.BAT (print on full width of page with the DeskJet), Dec 260
 elapsed-time report (TIMER.BAT), May 216
 execution speedup tip, Sep 174
 FINDTEXT.BAT (search for text strings), Feb 194
 GO.BAT (run application with same name as its directory), Mar 226
 help files, write your own (HELP.BAT), Oct 168
 label printing from DOS (LABEL.BAT), Jun 50
 LOG.BAT (display log information), Jun 195
 MAIN.BAT (call subroutines in batch files), Sep 248
 menu program (MAKE-MENU.BAS), Apr 213
 menu system (Norton's enhanced batch language), Jan 146
 multiconfiguration bootup files (BOOT.BAT), Sep 48
 passing control between BAT files, Feb 37
 passing keystrokes to programs, problems with, Jul 40
 paths, temporary additions to the current path (AP.BAT),

Mar 226
 revised, Sep 44
 print on full width of page with the DeskJet (DRAFT.BAT), Dec 260
 for Procomm Plus and ZMODEM integration (ZMODEM-U.BAT/ZMODEM-D.BAT), May 44
 RAM-resident programs, avoid reloading of, Feb 199
 RDIR.BAT (delete directories and all their files), Jun 202
 reminder for doubling back to DOS from other programs, Aug 209
 repeat DOS commands with different parameters (REPEAT.BAT), Jan 206
 screen-blanking batch file (BLANK.BAT), Feb 195
 search for text strings (FINDTEXT.BAT), Feb 194
 sort text file and back up original data (SORTBAK.BAT), Jun 200
 subdirectory name lister (SUB.BAT), May 216
 subroutines, call in batch files (MAIN.BAT), Sep 248
 time and date, add to batch file (DATETIME.BAT), Jun 196
 for time-logging record (XCD.BAT), Jun 195
 TIMER.BAT (elapsed-time report), May 216
 virus checking through COMMAND.COM, Jul 206
 XCD.BAT (for time-logging record), Jun 195
 for ZMODEM integration with Procomm Plus, May 44
See also Program Listings

Batteries

Last.Bat, Jan 41
 replacing the clock battery in an Epson Equity III+, Jan 41
 tip: mount alkaline batteries outside computer, Sep 25

BBS. *See On-Line Services*

BIOS

shadowing techniques in 386 systems, Apr 140

Boards/Cards

AST FASTboard 486/25, Jan 88
 DrivePort, Sep 129
 Expanz, Sep 133, Dec 182
 FastCache-SX, Dec 207
 IBM Wizard RISC board, Feb 72
 MicroMaster 386/33, May 88
 for networks. *See under Networks*
 TinyTurbo AT, Mar 212
 tips
 16-bit cards in 8-bit slots, problems with, Mar 156
 about upgrades, Aug 180

Books

Inside Lotus 1-2-3 Macros, Apr 182

Bulletin Boards. *See On-Line Services*

Buses. *See PC Buses*

Business Applications (General)

BestChoice3, Apr 106
 Business Wits, Jul 86
 Buyers' Guide for shareware, Oct 220
 Company Ladder, Mar 92
 contact-management software sales grow, May 66
 Expense It, Jun 114
 PercentEdge, Aug 94
See also Accounting; Project Management

Business Graphics. *See Graphics Programs*

Buyers' Guides

16-MHz 386SX systems, Dec 228
 communications utilities, Jul 190
 dBASE utilities, Jul 186
 desktop publishing utilities, Jul 188
 hard disks, 80MB, Sep 205
 input devices, Jun 166
 LaserJet II-compatible printers, Dec 240
 printer sharing, Mar 198
 shareware, Oct 218
 spreadsheet utilities, Apr 180, Jul 184
 super-VGA boards, May 174, Dec 208
 super-VGA monitors, Dec 208
 tape backup systems, Aug 172
 Windows products, Nov 211
 word processing utilities, Jul 182



CD ROM. *See Optical Storage*

Communications

asynchronous communications server, Mar 235
 BBS for in-house use, May 182
 Buyers' Guide for shareware, Oct 220
 Buyers' Guide for utilities, Jul 190
 Carbon Copy Plus, Apr 223, Oct 50
 CompuServe Information Manager, Mar 92, Nov 334
 Connect, set up private conferences on, Jun 189
 Co/Session, Oct 50
 Crosstalk. *See Crosstalk*

Doorway 2.05, May 182, Jul 191
 DSZ, Jul 191
 Revision 02-06-89, Feb 46
 DynaComm 2.1, Jan 90
 DynaComm 3.0 Asynchronous Edition, Nov 215
 E-Z Reader 1.24, Jul 191
 fax. *See Fax*
 for home-office users, Jun 244
 HotKey-Z 5.0, Feb 46
 Hot Line 2.2, Apr 108
 in-house BBS, May 182
 Lotus Express
 look behind the pop-up window, Nov 244
 turn off modem noise, Feb 194
 Maxihost, May 182
 MCI Fax Dispatch service, Apr 108
 Message Stopper, Oct 265
 MicroPhone II for Windows, Nov 216
 Mirror III 2.0, Dec 142
 Mirror III LAN, Feb 98
 modems for. *See Modems*
 MPt Protocol, Jul 191
 pcAnywhere, Oct 50
 version III, Apr 223
 Procomm commercial version. *See Procomm Plus*
 Qmodem password-automation tip, Sep 245
 Remote2, Oct 50
 remote data base access, Oct 50
 remote dial-in access for networks, Apr 223
 Rumba 3.0, Nov 216
 shareware for Windows, Feb 154
 slow down on-line information display, Sep 241
 Smartcom Exec, Nov 152
 Smartcom EZ software, Jun 244
 Takeover, Aug 86, Oct 50
 TAPCIS 5.2, Jul 190, 200
 TeleChart 2000, Jun 190
 tips/tutorials
 BBS for in-house use, May 182
 password-automation tip, Sep 245
 produce beep at other end of line, Apr 226
 set up private conferences on Connect, Jun 189
 Unicom 1.4, previewed, May 159
 for Windows, May 159
See also Modems; On-Line Services

Computer-Aided Design

Ashlar Vellum, Nov 216
 AutoCAD
 release 10 for OS/2, May 164
 World Class Award, Oct 188
 AutoSketch 3, Nov 157
 DesignView 1.0, Feb 166
 Drafix Windows CAD, Mar 88
 Generic CADD and ModelMate based on same core, Jan 192
See also Engineering Applications

Computers. *See Systems (Desktop); Systems (Diskless Workstations); Systems (Transportable)*

Consumer Issues

3Com and dealer-authorization standards, Apr 51
30-day money-back guarantee, not always straightforward, Jun 59
900 number warning, Sep 74
Amstrad color monitor problem, Jan 196
Avery LabelPro problems, Nov 80
CheckFree payments incur late charges, Sep 66
clone buyer's checklist, Aug 167
clones, savings and risks associated with, Aug 165
Colorado Memory applauded for quick service, May 60
CompuSystems owners indicted for mail fraud, May 56
copy-protected software problem, Jan 192
credit card purchases provide extra protection, May 51
Disabilities and Computers SIG, Jan 190
Egghead Discount Software and virus-infected software, Nov 67
Express Micro Mart problems increase, Sep 70
eyestrain and monitors, Dec 210
fax legislation in Connecticut, Jan 187
FCC certification of computers, Mar 51
Class B rating for home use, Nov 74
Fivestar 80386 computer problems, Mar 56
Flight Simulator virus-infection problem, Nov 67
gray-market computers, Feb 53, Jun 64
health problems and video display terminals, Dec 65
insurance problem with equipment in transit, Mar 56
Intel PCEO offers fax service, Jan 190
mail fraud, CompuSystems owners indicted for, May 56
mail-order firm responds to extended-warranty problems, Sep 74
mail-order firms surveyed, Oct 192, 196
MegaMedia, problems with its copy-protected software, Jan 192
monitor failure and PC Tools Deluxe, Nov 67
monitors and health problems, Dec 65, 210
network purchases and selecting a dealer, Apr 51
Novell and dealer-authorization

standards, Apr 51
restocking woes, Jun 60, Oct 82
Safeware insurance problem with equipment in transit, Mar 56
Samsung responds slowly to Multisync monitor problem, May 56
selecting a dealer, Apr 51
service. *See Service and Support*
software distribution channels, satisfaction survey, Dec 66
Sony CPD-1302 monitor problems, Nov 82
support. *See Service and Support*
Toshiba parts-supply shortages causes repair problems, Jul 51
Toshiba T1200 hard disk failure problem, Dec 74
upgrading software, factors to consider, Jul 49
used computers, tips for buyers, Sep 57
virus-infected software troubles, Nov 67
visually impaired users, word processor for (Eye Relief), Jan 190
VLM Computer Electronics, wrong price in ad, Feb 56
warranties
extensions offered through credit cards, Jan 187
limited warranty on Smart-Team modem, Apr 56
mail-order firm responds to extended-warranty problems, Sep 74
manufacturers' warranty policies listed, Feb 54
on gray-market computers, Feb 53
readers share experiences with, Jun 59
RP Systems warranty procedures criticized, Apr 56
start on invoice date, Apr 56
Wells American discontinues operations, Apr 56, Jun 68
Western Digital corrects repair problem, Nov 74
Zenith ZCM-1490-Z monitor, user has trouble getting it fixed, Apr 56
See also Industry

Controllers. *See Hard Disks*

Conversion Programs. *See File Conversion Programs*

CPUs

installed base and projections by CPU family, Oct 100
Intel 486 described, Jun 141
Intel faces competition from CPU clones, Jun 77

Crosstalk
version Mk.4

and asynchronous communication servers, Mar 235
version 2.0, Jul 96
version XVI
and asynchronous communication servers, Mar 235
recapture data tip, Mar 206
for Windows 1.1, Nov 215
ZMODEM protocol for, Nov 267

D

DacEasy Accounting

support problems, Jul 58
version 4.1 Bonus Pack, Nov 187
World Class Award, Oct 188

Data Management

Alpha Four
version 1.0, Mar 164
version 1.1, Apr 108
Arago dBSL, Nov 104
Arago Quicksilver, Nov 104
Buyers' Guide for shareware, Oct 220
Clarion Professional Developer 2.1, May 94
Clarion Report Writer, May 94
Clipper
version 5.0, Feb 96
World Class Award, Oct 188
DataFlex 3.0, Sep 139
DataFlex Database Engine, Sep 139
DataPerfect 2.0, Mar 164
Datatrobe Extract, Sep 233
dBASE. *See dBASE*
dBSL, Nov 104
flat file data base products, Mar 164
FlexQL, Sep 139
forms management. *See Forms Software*
FoxPro 2.0, Nov 104
Omnis 5, Nov 217
PAM 2.0, Nov 152
Paradox. *See Paradox*
PC-File+, tip: duplicate data base format, May 186
PC-File:dB 1.1, Mar 164
print data base files with Ventura, Jun 173
Professional File 2.01, Mar 164
Q&A. *See Q&A*
Quicksilver, Nov 104
R:base
version 3.0, Apr 86
version 3.1, Oct 124
R:base for DOS, multiple commands on one line, Feb 64
Reflex 2.0, Mar 164
satisfaction survey, Jan 190, Jun 60
spreadsheet data base connections, Sep 198
spreadsheet utilities for, Apr 184
SQL. *See SQL Applications*
Superbase 4, Feb 162, Nov 217
ThinX Software
previewed, May 157
version 1.0, Nov 213

tips/tutorials
align columns for proportional printing, Sep 245
data entry screen-design tutorial, Jun 181
lookups and accuracy insurance, Sep 233
remote data base access, Oct 50

dBASE

Buyers' Guide for utilities, Jul 186
CHKDATE.PRG (date validation), Sep 252
Clear 2.1, Jul 187
date validation (CHK-DATE.PRG), Sep 252
dGE graphics library, Aug 195
version 3.0, Jul 187
dQuery 3.0, Jul 187
dSalvage Classic 1.44, Jul 187
editor for Qedit, May 201
Instant Reference Card for dBASE III Plus, Sep 261
market share of, Oct 98
On dMAND (report generator), Oct 253
Qedit 2.1, Jul 186
R&R Relational Report Writer 3B, Jul 187
Saywhat, Jun 181
version 3.6, Jul 186
tips/tutorials
access dBASE files from 1-2-3, Feb 172
data validation tutorial, Aug 195
data validation tutorial correction, Oct 254
date validation (CHK-DATE.PRG), Sep 252
design menu-driven applications with dBASE IV's Apps-Gen, Feb 176
IF command and IIF() function, Nov 259
index tutorial, Oct 253
load dBASE IV quickly, Sep 18
load dBASE IV without Assist, Apr 196
load DOS directories into dBASE files, Mar 221
lookups and foreign-key accuracy, Sep 233
procedure files, Sep 158
recover corrupted memo files, Nov 274
relational data base tutorial, May 201
reverse names in data file, Jan 205
sort uppercase and lowercase letters identically, Nov 201
WordPerfect-to-dBASE merges, Jun 193
UI2 2.1, Jul 186
version IV
version 1.1 previewed, Nov 101
version 1.1 ships, Oct 98
version 1.1 users remain loyal, Nov 89
World Class Award, Oct 188
(continues)

Decision Support Software

BestChoice3, Apr 106

Demographic SoftwareInfomark Express 1.1, May 168
See also Mapping Software**DeskJet.** *See* Hewlett-Packard*DeskJet***Desktop Organizers.** *See**Utilities***Desktop Publishing**Avagio 1.0, Aug 125
Express Publisher, Dec 46
Finesse 3.1, Aug 125
FrameMaker 2.0, May 160
Legend 2.0, Feb 164
low-cost programs, Aug 125
Myriad 1.0, Jan 84
PageMaker. *See* PageMaker
PFS:First Publisher 3.0, May 94, Aug 125
PostScript as top choice for DTP, Sep 170
PostScript gains speed, Sep 106
Publish-It 1.13, Aug 125
tutorials
 graphics and text integration, Nov 263
 headlines, Sep 237
 page design, May 207
 rules, Jun 185
 typefaces, choosing the right ones, Oct 259
 typefaces, working with, Jun 159
 word processor file preparation, Sep 225
Ventura. *See* Ventura Publisher
See also Desktop Publishing
*Utilities***Desktop Publishing****Utilities**Adobe Type Library, Jun 159
Adobe Type Manager Windows Version, Nov 218
Bitstream Fontware, Apr 44, Jun 159
 version 3.0 Starter Kit for Windows, Jun 120
Bitstream Presentations Collections, Jul 189
Buyers' Guide, Jul 188
Command Post 6.2, Jul 189
FontSpace, Oct 260
for LaserJets. *See under*
 Hewlett-Packard LaserJet
 MouseWare 1.0, Jul 188
 PageMaker Portfolio, Jul 188
 Picture Publisher 2.1, Nov 157
 Picture Publishing Plus, Nov 157
 PrintCache 2.2, Jul 189
 Publisher's Powerpak, Jun 159, Dec 46
 Pub Pak 1 Newsletters, Jul 189
 Pub-Star I, Nov 264
 Scrapbook+ 2.0, Jul 189
 Soft Kicker Plus 2.0, Jul 188SoftType, Aug 88
Type Director 2.0, Apr 44, Jun 159
UltraScript PC 2.1, Jul 189
VP Manager, Jun 186
VP Toolbox 3.0 Standard Edition, Jul 188**Desqview**for home-office computing, Dec 322
Quarterdeck works on Desqview/X, Nov 94
tips
 erase old SWAP files, Nov 42
 run Windows Apps inside Desqview/386, Apr 200
 version 2.3, Oct 124
Wyse 2112 computer, problems running Desqview on, Feb 56**Digital Video Interactive (DVI).** *See under* Technology**Diskless Workstations.** *See* Systems (Diskless Workstations)**Display Adapters**1024 x 768 display standards, Apr 62
ATI VGA Wonder, World Class Award, Oct 188
Buyers' Guide for super-VGA boards, May 174
Genoa Model 6400A, Nov 146
Genoa Model 6600A, Nov 146
Hercules Graphics Station Card, Apr 98
post-VGA graphics, Apr 62
Sigma VGA Legend, Nov 146
Splitword J-16, Jun 110
super-VGA board Buyers' Guide, May 174, Dec 208
upgrading from CGA to EGA or VGA, Jun 35
VGA drivers and compatibility explained, Mar 36
Western Digital 8514/A Plus Combo Card, Apr 98**Displays**Amdek AM/738 Smartscan, May 134
eyestrain and, Dec 210
and health problems, Dec 65
IBM Color Display 8515, Aug 88
Leading Technology 1432M, May 134
Mitsubishi FA3415, May 134
multiscan monitors, May 134
Nanao FlexScan 9060S, May 134
NEC MultiSync 2A, May 134
NEC MultiSync 3D, May 134
 World Class Award, Oct 188
Panasonic PanaSync C1381, Nov 154
Panasonic PanaSync C1391, May 134
PC Tools Deluxe and monitor failure, Nov 67Relisys RE5155, May 134
Seiko CM-1440, May 134
Sony CPD-1302 monitor problems, Nov 82
super-VGA monitors Buyers' Guide, Dec 208
Zenith ZCM-1490-Z monitor, trouble getting it fixed, Apr 56**Display Units.** *See* Projection Units**DOS**ANSI.SYS and color-coded prompts, Mar 222
ASSIGN command, Mar 216
ATTRIB command
 for file search, Jul 18
 protect files from deletion, Oct 266
 read-only status for DOS command files, Dec 41
AUTOEXEC.BAT. *See* Batch Files
BACKUP command, Apr 36
B-drive installations made easier with ASSIGN, Mar 216
caching explained, Nov 49
CHKDSK command, Jan 154
 'Invalid media type' message, Nov 52
 and SCSI drives, Apr 36
color-coded prompts, Mar 222
COMMAND.COM
 protect from erasure, Jun 193
 virus-checking procedure for, Jul 206
command length limit, Sep 44
command verification program (VR.C), Sep 247
COMP command, Jan 154
COMSPEC environment variable, for network use, Oct 280
CONFIG.SYS, multiconfiguration files for, Sep 48
convert program disks to 3½-inch format, Apr 40
COPY command
 type directly from keyboard with, Oct 242
 use with binary files, Mar 222
DIR command, Jan 154
 list files by date, Apr 208
 directory organization tip, Dec 41
 dual boot for DOS and OS/2, Jul 32
 erasing files and directories, Feb 206, Jun 202, Jul 204
 FAT and drives larger than 32MB, problems with utilities, Feb 38
 FORMAT command
 for 720K in a 1.44MB drive, Jul 31
 using from drives without hidden system files, May 44
 GRAPHICS.COM command and laser printers, Aug 31
 install dual boot for DOS-OS/2, Jul 32
 Instant Reference Card for, Jun 245
 list files by date, Apr 208
 Mode command, set serial port as standard output device, Jan 44
 MORE command, view file a screen at a time, Oct 271
 MS-DOS compared to PC-DOS, Aug 36
 multiconfiguration bootup files, Sep 35
 step-by-step guide, Sep 48
 NUL can detect files and directories, Apr 216
 <Num Lock> on at start-up, program to turn off (LOCK-KEY2), Aug 40
 'Parity Check' errors, Dec 44
 PATH command, explanation of, Mar 36
 PRINT command, tips for, Sep 245
 Print Screen and laser printers, Aug 31
 PROMPT command, Jan 154
 color-coded prompts, Mar 222
 time display with, Feb 206
 redirection symbol () and commands, Jan 154
 removing directories, Feb 206
 system hangup, save data tip, Dec 168
 time display with PROMPT command, Feb 206
 tips about DOS, Jan 154
 type directly from keyboard, Oct 242
 upgrading DOS
 legally, May 39
 reasons to upgrade, Nov 49
 from version 2.1 to 3.x, Apr 36
 versions of DOS, features table of, Nov 52
 virus-check procedure, additions to Oct 1989 column on, Feb 206
 wild-card characters and DIR, Jan 154
 eliminate use of with some commands, Apr 208
 use explained, Oct 46
 World Class Award, Oct 188
 XCOPY command, Jan 154**Drawing Programs.** *See* Graphics Programs**DVI (Digital Video Interactive).** *See under* Technology**EGA.** *See* Display Adapters**EISA (Extended Industry Standard Architecture).** *See under* PC Buses

Electronic Book Software.

See under *Utilities*

E-mail

AT&T Mail, Nov 334
Da Vinci eMail for Windows
1.70, Nov 224
MCI Fax Dispatch service, Apr
108
MCI Mail, Nov 334
SprintMail, Aug 203
tip: address for MCI-Compu-
Serve mail exchange, Dec 44

Engineering Applications

DesignView 2.0, Oct 128
See also *Computer-Aided Design*

Excel. See *Microsoft Excel*

F

Fax

AT&T Fax Connection, Jan 118
The Complete Fax/9600, Jan 118
The Complete Fax/Portable, Jun
108
Connecticut legislation on un-
solicited faxes, Jan 187
Datacopy MicroFax, Jan 118
EasyGate LANFax, Jan 213
Faxit for Windows, May 90, Nov
215
FaxPress, Jan 213
GammaLink GammaFax CP,
Jan 118
GammaNet, Jan 213
Intel Connection CoProcessor,
Jan 118
The Interpreter Facsimile Serv-
er, Jan 213
legislation on unsolicited faxes,
Jan 187
MCI Fax Dispatch service, Apr
108
NetFax Manager, Jan 213
Panasonic FX-BM89 Plus 2, Jan
118
projections of fax board ship-
ments, Oct 96
technical handicaps overcome,
Oct 96

File Conversion Programs

graphics conversion
AutoWord, Oct 114
Graphics Link Plus+ 2.0, Mar
98
ImPort for Windows, Dec 140
Tiffany Plus, Aug 31, Nov 233
text conversion
AutoWord, Oct 114
Word for Word Professional 4.1,
Jul 182
Word for Word Professional 4.2,
Nov 157

Floppy Disk Drives

3½-inch floppy drives dominate
market, Feb 72

3MB floppy drive, Dec 198
21MB floppy drive, Dec 244
CubeFloppy 1.4, Jul 90
dirty drive can prevent 360K
formatting in 1.2MB drive,
Nov 32
high-capacity drives
MegaMate 2.8, Model U4, Apr
96
StorMor, Jun 112
installation tips, Aug 188
for the Next Computer, Jul 90
Pacific Micro PM 1.44, Jul 90
Practidisk ED, Dec 198
Stor/Mor, Dec 244

Floppy Disks

format 720K in a 1.44MB drive,
Jul 31
magnetism, heat, and data de-
struction, Sep 35
peel-off labels for, Jun 35
placed on top of a modem, Sep
35

Forms Software

FormBase
version 1.0, Mar 164
version 1.1 Windows Edition,
Nov 217
FormTool, suppress form design
at print time, Feb 200
FormWorx System 2, Jun 118
JetForm-Design 2.2, Nov 221

G

Games

Microsoft Flight Simulator,
World Class Award, Oct 188

Graphics Boards. See *Dis-
play Adapters*

Graphics Programs

35mm Express 4.3, Nov 164
Adobe Streamline, Feb 85
Applause II, Jan 88
version 1.0, Nov 164
Arts & Letters Graphics Editor
3.0, Nov 219
business graphics programs,
Nov 164
CA-Cricket Presents 1.2, Nov
164
Colorix 1.2, Mar 180
Corel Draw
version 1.2, Sep 135, Nov 219
Windows required for, Feb 54
dGE graphics library, Aug 195
DrawPerfect 1.1, Oct 120, Nov
164
Freelance Graphics for OS/2,
Nov 117
Freelance Plus 3.01, Mar 46,
Nov 164
Grafplus 5.13, Aug 31
Graph-in-the-Box Executive, Jul
88
Harvard Graphics

version 2.3, Aug 96, Nov 164
World Class Award, Oct 188
HiJaak, Aug 31
Hotshot Graphics 1.7, Aug 31
HotShot Presents, Jun 114
IBM Storyboard Plus 2.0, Feb
38
Inset, Aug 31
Micrografx Charisma, Oct 128,
Nov 214
version 2.0, Nov 164
Micrografx Designer
version 3.0, Jan 92, Jul 96
version 3.01, Nov 219
Microsoft PowerPoint for Win-
dows 2.0, Aug 146, Nov 164,
214
paint programs, Mar 180
PC Paint 3.1, Mar 180
PC Paintbrush
version IV, Mar 180
version IV Plus, Feb 96
World Class Award, Oct 188
Picture Publisher 2.1, Nov 157
Picture Publishing Plus, Nov 157
Pizazz, Aug 31
Pizazz Plus, Aug 31
presentation graphics
programs, Nov 164
satisfaction survey, Jul 62
tutorial, Aug 199
Presentation Team 2.0, Dec 120
QuickGraph, Jul 92
satisfaction survey of presenta-
tion graphics software, Jul 62
shareware for Windows, Feb 154
Show Partner F/X 3.5, Feb 38
Showstopper, Aug 200
Splash, Mar 180
ThinX
previewed, May 157
version 1.0, Nov 213
Tiffany Plus, Aug 31, Nov 233
VGA screen capture, Feb 38
Windows applications increase,
Oct 93
WPDRAW, Jul 183
Xerox Gray F/X, Mar 90

Groupware

About Time 1.0, Jun 125
The Coordinator II 2.01, Jun 122
Finalsoft Synchrony, Jun 132
graphical interface products due
to ship, Jun 132
Hewlett-Packard NewWave Of-
fice, May 151
Higgins 2.3, Jun 122
IBM OfficeVision, May 151
Lotus Notes 1.0, Jun 122
Network Scheduler II 5.0, Jun
125
Office Minder 1.02c, Jun 122
Office Works 1.1, Jun 122
Polaris PackRat for Windows
2.0, Jun 125
Right Hand Man 4.91, Jun 122
scheduling without E-mail, Jun
125
Syzygy
version 1.0, Jan 84
version 1.03, Jun 122
Together, Jun 132

Who-What-When Enterprise
1.0, Jun 125
WordPerfect Office 2.0, Jun 122

H

Hard Disks

80MB drives, Buyer's Guide for,
Sep 205
acronyms explained (RLI,
ESDI, SCSI, IDE), May 39
backup programs. See *Backup
Applications*
bad sectors and defects, Apr 35
Buyers' Guide for 80MB drives,
Sep 205
caching controller market grows,
Jun 86
caching explained, Nov 49
controllers and adapters for
80MB drives, Sep 205
Disktec RHD 20, Dec 195
evolution of circuitry, May 39
formatting and interleave ex-
plained, Jul 135
Hardcard II 40 and 80, Mar 82
Hardcard II 50 and 105, Dec 113
for networks. See under
Networks
program and data file setup, Oct
41
reliability improves greatly, Apr
66
Seagate ST251-1, World Class
Award, Oct 188
storage capacity, figuring out
bytes, Jun 38
utilities for, Jul 109, 133

Hewlett-Packard DeskJet

DeskJet 500, Nov 154
fonts for, Dec 46
market leader, May 64
print on full width of page
(DRAFT.BAT), Dec 260

Hewlett-Packard LaserJet

25 Cartridges in One, Apr 44,
Jun 159
25 Plus/Charisma Master-
Cartridge, Oct 124
Adobe PostScript Cartridge, Oct
113, Dec 193
All-in-One Cartridge, Apr 44
A-to-Z Hardfont Cartridge, Jan
86
A-to-Z HP-Compatible Multifont
Cartridge, Apr 44
Bitstream Fontware, Apr 44, Jun
120, 159
Buyers' Guide for LaserJet II
compatibles, Dec 240
envelope-printing program for,
Jul 152
Freedom of Press 2.2, May 112
Glyphix 3.1, Jul 183
GoScript Plus 2.2, May 112
Grab Plus, Jul 152
Great Start Cartridge, Jun 159
Headlines in a Cartridge, Apr 44
(continues)

IQ Super Cartridge 1, Jun 159
 LaserJet II, World Class Award, Oct 188
 LaserJet IIP, **Mar 126**
 with PostScript, **Sep 161**
 recall of, Oct 78
 World Class Award, Oct 188
 LaserJet III, **Sep 161**
 previewed, Apr 74
 LaserJet IIID, Nov 142
 LaserMaster 1000, Apr 102
 LaserMaster Series III Professional Printer Controller, **Dec 167**
 PacificFive Page P-E, Sep 131
 Pacific Outlines, Sep 131
 PacificPage PostScript emulator, Jan 82, Feb 190
 version 2.58, **May 112**
 PacificPrint, Sep 131
 PostScript emulators, **May 112**
 Premier Collection font cartridge, Apr 44
 PreScript Deluxe 1.11, **May 112**
 ProCollection font cartridge, Apr 44, Jun 159
 Qfont 1.5, Jul 183
 Scalable Typeface Collections, Apr 44
 SETHP utility, **Jul 143**
 soft font collections for, Apr 44
 tip: get more copies out of toner cartridge, Nov 271
 Type Director, Apr 44, Jun 159
 UltraScript PC Plus 2.0, **May 112**
See also Desktop Publishing Utilities

Hypertext

Folio Views 2.0, Sep 141
 SmarText (Samna), Nov 146
 ToolBook (Asymetrix), Jul 78, Nov 213



IBM Computers. *See Systems (Desktop)*

IBM. *See Industry*

Industry

1-2-3 still dominates market, Jan 62
 3½-inch floppy drives dominate market, Feb 72
 3Com, overview of company, Jun 82
 386SX sales grow, Feb 68
 386 system sales projections, Dec 82
 486 systems sell slowly, Dec 82
 Adobe PostScript Level 2, Sep 106
 Advanced Logic Research (ALR), sales growth and public stock offering, Aug 74
 Apple Macintosh sales decline as PC sales increase, Sep 108

Ashton-Tate dBASE users remain loyal, Nov 89
 Ashton-Tate ships dBASE IV 1.1, Oct 98
 AT&T sales slow in office automation, Jul 70
 BASIC's popularity grows, Nov 90
 Businessland profit margins decrease dramatically, Nov 92
 caching controller market grows, Jun 86
 CD ROM drives, sales projections for, Apr 68
 Compaq considers offering peripheral equipment, Jul 68
 contact-management software sales grow, May 66
 cost of
 memory decreases, Jun 86
 PC parts, Jan 59
 PCs plunge, Jun 80
 portables compared with desktop units, Jan 64
 CPU installed base and planned purchases, Oct 100
 dealer profits slide, Nov 92
 discounts on PCs deepen, Mar 72
 Egghead Discount Software posts profits, Dec 80
 Epson America responds aggressively to laser printer market, Mar 66
 Ethernet vendors, worldwide shipments by, Jun 82
 fax board shipment projections, Oct 96
 fax board technical handicaps overcome, Oct 96
 grammar and style checkers sell well, Aug 72
 graphics adapters grow beyond VGA, Apr 62
 graphics software for Windows grows, Oct 93
 growth in shipments for powerful PCs projected, Jun 77
 growth in system sales projected to decline, May 63
 hard disk reliability improves greatly, Apr 66
 Hewlett-Packard leads market in low-end personal laser printer sales, Jun 84
 home PC market and IBM, Aug 81, Sep 101
 homes with computers, Sep 101
 IBM and Microsoft dissolve joint development efforts for OS/2 and DOS, Dec 79
 IBM and the home PC market, Aug 81, Sep 101
 Inacomp Computer Centers, Mar 65
 ink jet printers challenge dot matrix printers, May 64
 Intel faces competition from CPU clones, Jun 77
 laser printer sales of low-end personal printers grow, Jun 84
 leading PC suppliers, Jan 59
 Lotus-Novell merger plans, Jul

67
 Microsoft and IBM dissolve joint development efforts for OS/2 and DOS, Dec 79
 Microsoft and Software Publishing compete for new users, Feb 70
 network sales grow and bring support problems for resellers, Jun 84
 network servers
 competitiveness of 386 servers, Jan 60
 super servers almost ready, software lags, Sep 104
 Next Computer faces troubled times, May 70
 NextStep wins Andrew Fluegelman award, Aug 76
 notebook computers
 growing demand projected, Apr 64
 sales increase, Aug 69
 Novell technical support and upgrade pricing criticized by users, Dec 84
 OS/2 outpaces UNIX, May 68
 PC market diversifies, Jun 80
 PC retailers ranked by number of outlets, Mar 65
 PC sales grow as Macintosh sales decline, Sep 108
 pen-driven PCs expected to be successful, Aug 70
 personal laser printer sales grow, Sep 106
 PostScript gains speed, Sep 106
 profits for software companies, Jul 68
 Quarterdeck improves Desqview, Nov 94
 resellers challenged by network support needs, Jun 84
 RISC board offered for IBM PS/2s, Feb 72
 scalable font manufacturers face competition, Jun 78
 service and support offered by many vendors as sales slow, Apr 64
 small-business hardware purchasing sources, Nov 92
 software bundled with entry-level PCs, Mar 68
 software-only stores face competition from "superstores", Dec 80
 Software Publishing Corp introduces new products, Nov 96
 Symantec-Norton merger, Sep 102
 tax preparation software market competitive, Apr 61
 UNIX market penetration, May 68
 utility product sales grow, Jan 64, Sep 102
 Windows
 attracts more applications, Feb 67
 integration into corporate environments, Dec 202
 sales projections, Oct 93

See also Consumer Issues

Input Devices

bus vs. serial devices, Nov 49
 Buyers' Guide, Jun 166
 Dycam Model 1 (digital still camera), Dec 128
 Isopoint, **Dec 197**
 PC-Trac, Jun 120
 pen-driven PCs expected to be successful, Aug 70
See also Keyboards; Mice; Scanners

Instant Reference Cards

1-2-3 basics, Aug 213
 dBASE III Plus, Sep 261
 for DOS, Jun 245
 Microsoft Word 4.0 and 5.0, Oct 281
 for Procomm Plus, Nov 277
 Windows 3.0, Dec 261
 WordPerfect 5.0 and 5.1, Jul 253

Integrated Applications

Alpha Works 2.0, **Apr 122**
 Enable/BP, May 90
 Enable/OA 3.0, **Apr 122**
 Framework III 1.1, **Apr 122**
 Microsoft Works
 version 2.0, **Apr 122**
 World Class Award, Oct 188
 Microsoft Works and PFS:First Choice compete for new users, Feb 70
 spreadsheet applications, **Apr 122**
 Symphony
 version 2.0 Plus, **Apr 122**
 version 2.2, Jul 94

Investment Software

MetaStock Professional 2.0, Oct 266
 TeleChart 2000, Jun 190



Keyboards

Buyers' Guide, Jun 166
 speed up keyboard response (KBSETUP.C), Dec 251
 Switchboard, Aug 90, **Dec 179**
 UK keyboard and function key problem, Feb 42



Languages

assembly language
 Quantasm Power Lib subroutines, Aug 212
 SETCMD.ASM (pass arguments to another program), Sep 258
 BASIC. *See BASIC*
 C++/Views, Jun 198
 Microsoft C
 DOS command verification

SAVINGS CERTIFICATE

- YES!** I want to save 43%. Send me one-year (12 issues) of PC WORLD for only \$19.97. I'll save 33% off the regular subscription rate, and 43% off the annual newsstand price. PLUS I get PC WORLD's PowerBase *.* macros/utilities disk—FREE—with my subscription.

Name _____

Company _____

Address _____

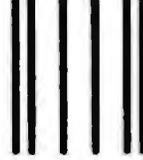
City _____ State _____ Zip _____

*PowerBase *.* diskette is offered solely by PC World Magazine. It should not be confused with 'power-base' which is database software offered by Compuware Corporation.

4EL85

PC WORLD





**NO POSTAGE
NECESSARY
IF MAILED IN
UNITED STATES**

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1262 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

PC World

Subscription Department

P.O. Box 51833

Boulder, Colorado 80321-1833



(VR.C), Sep 247
Professional Development System 6.0, Sep 254
Microsoft QuickBASIC. *See under* BASIC
Microsoft QuickC with Quick-Assembler Development Environment 2.5, Sep 254
Microsoft QuickPascal, display space available on drive/in memory (FREE.PAS), May 213
Turbo C
key scans (GOKEY.C), Nov 276
speed up keyboard response (KBSETUP.C), Dec 251
Turbo C++ 1.0, Sep 254
Turbo Pascal. *See* Turbo Pascal
Zortech C++ 2.0, Jun 198
See also Program Development; Program Listings

Laptops. *See* Systems (Transportable)

LaserJet. *See* Hewlett-Packard LaserJet

LCD Panels. *See* Projection Units

Lotus 1-2-3. *See* 1-2-3



Mail-Order Firms. *See under* Consumer Issues

Maintenance. *See* Service and Support

Mapping Software
MapInfo 4.5, Nov 157
See also Demographic Software

Mass Storage
Bernoulli Transportable/Portable/Dual, Dec 142
See also Hard Disks; Optical Storage; Tape Backup Systems

Mathematics Products
DesignView 2.0, Oct 128
math coprocessors
adding to your system, Aug 186
FasMath, Dec 204
scientific word processors, Jul 44

MCA (Micro Channel Architecture). *See under* PC Buses

Memory Expansion Products
AboveBoard Plus, World Class Award, Oct 188
AMKLY memory boards for

Compaqs, Jul 94
ChargeCard, Dec 59
Compaq memory products compared to third-party products, Jul 32
cost of memory decreases, Jun 86
HiCard, Dec 59
'Parity Check' errors, Dec 44
parity problems reduced by user, Feb 200
switch settings for memory upgrades, Jan 42
Toshiba 768Card, Jul 252
upgrade tips, Aug 186

Mice
Buyers' Guide, Jun 166
Microsoft Mouse
400 Series, Oct 130
World Class Award, Oct 188

Micro Channel Architecture (MCA). *See under* PC Buses

Microsoft Excel
macros, speed up with the ECHO(FALSE) function, Aug 193
OS/2 version 2.2, Sep 148
tips
add text to graphics, Oct 149
correcting crossfoot errors, Jun 180
fast range selection, Apr 58
projecting future values, May 192
saving a group of files, Sep 230
ten common problems and how to solve them, Apr 202
user-defined functions, Apr 194
version 2.1D, Nov 230

Microsoft Windows
application development for, Feb 67, Jul 80, Aug 140
BASIC to be embedded in, Nov 90
Buyers' Guide for Windows products, Nov 211
color PostScript drivers for, May 129
corporate adoption of, Dec 202
displays for, Dec 208
Fireworks, Aug 36
graphics adapters for, Dec 208
hardware for, Dec 148
HIMEM.SYS and Windows/386, Mar 44
Instant Reference Card for, Dec 261
memory manager for, Dec 213
Monitor Saver 2.0, Nov 64
and network memory, Dec 59
portable systems and Windows, Dec 191
screen blanker for Fireworks, Aug 36
Monitor Saver 2.0, Nov 64
shareware
products for Windows, Feb 154

resources, Feb 156
Special Report on, May 149, Aug 139
spreadsheets for, Sep 154
tips
additional COM ports with Windows, Mar 216
application setup for Windows 3.0, Oct 41
delete files/directories without prompt, Oct 236
free more conventional memory for application, Jan 200
installation suggestions, Nov 241
macro to load highlighted file into Notepad, Dec 254
modes of Windows explained, Nov 241
the mouse and loading the environment, May 204
print colors in black and white, Oct 32
run Windows Apps inside Desqview/386, Apr 200
select multiple files in File Manager, Oct 54
size of a group of files with File Manager, Nov 202
soft font renaming, Nov 263
switch applications with Task List, Nov 86
TOPS and Windows/386 problems, Sep 40
version 3.0
for home-office users, Sep 310
previewed, Jul 75
sales projections, Oct 93
word processors for, May 104
workstation buying suggestions, Dec 161

Microsoft Word
Instant Reference Card for, Oct 281
macros
ASCII file conversion, Sep 225
ASCII text import and delete hyphens, Jul 202
date insertion with one keystroke, Feb 48
print current page, Nov 250
printer Escape codes, send to printer, Nov 58
RB Macros, Jul 183
for snaking columns, May 196
tips/tutorials
capturing images and integrating them into documents, Mar 206
changing case of text, Aug 192
columns and indents, Oct 271
counting lines and words, Jun 178
custom form creation, Feb 180
dictionary customization, Oct 242
glossary tutorial, Aug 191
numbering items, Nov 271
sort an item at end of list, Sep 44
synonym searches, Jul 163
version 5.5, Dec 105
Word Companion Disk, Mar 96

Word for Windows, Jan 78, Sep 310
version 1.0, May 104
version 1.1, Nov 234, Dec 142

Microsoft Works. *See under* Integrated Applications

Modems
ATI 2400 etc/e, Apr 144
extension phones, disable with Message Stopper, Oct 265
Hayes modems
Personal Modem 2400plus, Jun 244, Aug 88
Smartmodem 2400, Jun 244
Smartmodem 2400, World Class Award, Oct 188
V-Series Smartmodem 2400 V.42, Apr 144
V-Series Smartmodem 9600, Jun 244
V-Series Ultra Smartmodem 9600, Apr 95, 223
lights on the modem, what they mean, Aug 203
magnetic fields produced by, Sep 35
Microcom AX/2400c, Apr 144
MNP modems, Apr 144
Multi-Tech MultiModem 224E7, Apr 144
Practical Modem 2400SA MNP, Apr 144
Practical Peripherals 9600EX, Dec 140
Practical Peripherals PM9600SA, Dec 140
Prometheus Promodem 2400G, Apr 144
software for. *See* Communications
Toshiba T24D/X cellular modem, Oct 122
U.S. Robotics Courier 2400e, Apr 144
Ven-Tel 2400 Plus II, Apr 144
See also Communications; On-Line Services

Monitors. *See* Displays

Motherboards
Privilege 386-20, Apr 268
upgrade tips, Aug 179

MS-DOS. *See* DOS

MultiMate. *See under* Word Processors

Multimedia. *See* Hypertext; Technology



Network Applications
3+ Open Connection for Net-
(continues)

Ware, Nov 157
 asynchronous communications server, Mar 235
 Automate/Anytime, Oct 46
 Auto-Might, Oct 46
 client-server LAN products described, Feb 211
 Da Vinci eMail for Windows 1.70, Nov 224
 IBM LANACS, Mar 235
 InfoAlliance, Nov 96, 111
 LANmagic, Feb 90
 LANsmart/NV 2.0, Oct 171
 LANSpool 2.0, Oct 171
 Lotus Notes 1.1, Nov 224
 MacLinkPlus/PC, May 219
 Map Assist, Feb 90
 Net-Aware, Nov 54
 NetWare Access Server, Apr 223
 Novell NACS, Mar 235
 Object/1, Feb 211
 Oracle Server, Feb 211
 PC/Focus, Feb 211
 PostScript printers for LANs, Dec 178
 Printer Assist, Feb 90
 version 3.0, Oct 171



OCR Software. *See Scanning Software*

printer utilities, Oct 171
 PS-Print 2.3, Oct 171
 Q Assist 4.0, Oct 171
 SiteLock, Nov 54
 SQL. *See SQL Applications tips*
 multiuser use of non-LAN software, Nov 54
 remote dial-in access, Apr 223
 XtreeNet 2.0, Nov 157
See also Networks

Networks

3Com and dealer-authorization standards, Apr 51
 3+Share 1.51, May 219
 The \$25 Network, Dec 136
 Artisoft Lantastic Ethernet, Mar 96
 Banyan Vines/386 Team, Feb 98
 boards
 32-bit Dual-Speed Token Ring Controller, Aug 94
 Chatterbox Communications Server 80286 User Cluster, Apr 223
 Cubix QuickLink 2286, Apr 223
 EISA add-in products, Jan 75
 IRMAtrac Token-Ring Adapter/Convertible, Oct 122
 Novell WNIM+ board, Mar 235
 DynaNet, May 219
 EISA servers, Jan 70
 Fax gateways for, Jan 213
 hard disks for
 Storage Dimensions LANStor LAN335E, May 30
 Storage Dimensions LANStor LAN3205, May 30

Storage Dimensions SpeedStor AT3205, May 30
 Intel NetPort Print Server, Aug 92
 LANSpace, Dec 59
 Little Big LAN, Dec 136
 Microsoft LAN Manager 2.0, previewed, Apr 80
 Microtest Lanport, Aug 92
 NetFrame, Jan 60
 NF100, Feb 82
 NF300, Feb 82
 NF400, Feb 82
 Novell Advanced NetWare 2.15c, May 219, Nov 150
 Novell and dealer-authorization standards, Apr 51
 Novell Entry Level System NetWare Level 1 V.2.12, Aug 98
 Novell NetWare 386 3.1, Nov 150
 Novell SFT NetWare 2.15c, Nov 150
 Novell's technical support and upgrade pricing criticized by users, Dec 84
 PC-Macintosh LAN connections, May 219
 reader survey results, Oct 196
 SQL server hardware, Oct 151
 T1 links, Oct 50
 tape backup products, Nov 150
 tips

automate rebooting process, Oct 46
 COMSPEC environment variable, log-in script automating, Oct 280
 free RAM for application use, Dec 59
 linking remote Novell networks, Jul 36
 Novell NetWare printing basics, Oct 178
 Novell's new shell available on CompuServe, Dec 59
 Novell upgrade to NetWare 386 and tape backup incompatibilities, Jun 38
 'reinsert boot disk' message, how to avoid, Jun 42
 remote data base access, Oct 50
 speed up server with second adapter card, Jun 36
 TOPS 3.0, Apr 104
 TOPS and Windows/386 problems, Sep 40
 TOPS Network Bundle for DOS, May 219
 TOPS Network Bundle for Macintosh, May 219
See also Network Applications

Notebook Computers. *See Systems (Transportable)*

Novell. *See Networks*

On-Line Services

ABA/net, Aug 204
 Business BBS, Nov 64
 CheckFree payments incur late charges for user, Sep 66

CompuServe
 CompuServe Information Manager, Nov 334
 for home-office users, Oct 338, Nov 334
 World Class Award, Oct 188
 Dialog Business Connection, Nov 267
 Dialog Information Service, Oct 338
 Dun's Direct Access, Sep 242
 E-mail. *See E-mail*
 for home-office users, Oct 338, Nov 334
 NewsNet, Oct 265
 Prodigy, Jul 72, Sep 241, Oct 338
 Toshiba bulletin board, Jul 252
 Trademarkscan, Nov 268
 Windows shareware resources, Feb 156

Operating Environments

AT&T's Rhapsody, Jul 70
 Command Post 7.0, Nov 221
 GeoWorks Ensemble, Nov 123
 Hewlett-Packard NewWave, Jan 134
 version 3.0, Nov 221
 Metaphor, Jan 134
 MS-DOS. *See DOS*
 NextStep wins Andrew Fluegelman award, Aug 76
 PC-DOS. *See DOS*
 Quarterdeck Desqview. *See Desqview*
 satisfaction survey: windowing environments, Feb 56
 Special Report: windowing environments, Feb 147
 UNIX targets OS/2 users, May 68
 Windows. *See Microsoft Windows*

Optical Storage

Alphatronix Inspire, Jun 149
 CD ROM drives
 NEC Intersect CDR-35 (portable), Jan 81
 sales projections for, Apr 68
 erasable-optical drives, Jun 149
 MDI LaserBank 600R, Jun 149
 Storage Dimensions LaserStor Erasable, Jun 149
 Summus LightDisk SO-600, Jun 149

OS/2

DOS compatibility box and DOS software that won't run, Jun 46
 dual boot for DOS-OS/2, Jul 32
 IBM and Microsoft dissolve joint development efforts, Dec 79
 projected market penetration, May 68

Outliners. *See Personal Information Management*

Overhead Display Units. *See Projection Units*



PageMaker

fast formatting, Jun 185
 gray rules with, Sep 237
 load Windows and PageMaker and open document in one step, Aug 194
 reduce file size with Save as command, Dec 60
 speed up font changes with, Feb 199
 utilities for, Jul 188
 version 3.01 for Windows, Nov 218
 World Class Award, Oct 188

Paint Programs. *See Graphics Programs*

Paradox

CoEdit mode for single users, Oct 254
 copy formula, Aug 196
 copy structure quickly, Jun 30
 export fixed-length ASCII files, May 202
 Instant Script feature to speed report design, Sep 245
 Paradox Engine 2.0, Oct 105
 Paradox SQL Link 1.0, Oct 105
 performance maximization, Nov 260
 queries and case sensitivity, Sep 234
 restore a form or report, Jun 182
 restructure tables to reduce fragmentation, Oct 271
 scripts
 Instant Script feature to speed report design, Sep 245
 list record numbers, Jun 193
 print table structure (PR-STRUCT.SC), Apr 216
 correction for, Aug 215
 print table structure (STRUCT.SC), Aug 207
 prompt for user input (BDAY-LIST.SC), Jan 149
 SideWays printing utility and, Mar 218
 tables, working with, Oct 271
 version 3.5, previewed, Oct 105

PC Buses

AT bus still prevalent, Sep 104
 EISA add-in products, Jan 75
 EISA and MCA, performance compared, Jan 73
 MCA clones fail compatibility test, Jan 98

PC-DOS. *See DOS*

PC Tools Deluxe

monitor problems with, Nov 67
 version 5.5, Feb 130
 version 6.0, Jun 118, Jul 109, 119, 133, 149, 166
 World Class Award, Oct 188

Personal Finance

Andrew Tobias' Managing Your Money, Feb 120, Mar 282
CheckFree 1.117, Feb 120
MoneyCounts 6.0, Feb 120
One-Write Plus Money Matters 1.0, Feb 120
Quicken 3.0, Feb 120
World Class Award, Oct 188
See also Accounting

Personal Information Management

Active Life 1.0, Feb 165
Agenda 2.0, Sep 139
Current, Mar 87
version 1.0, May 162
DeskTop Set 3.0, Nov 227
GrandView
version 1.10a, Jul 182
version 2.0, Dec 132
IBM Current 1.1, Nov 224
Info Select, Aug 90
schedulers, Jul 165

Power Supplies

Silencer 150, May 264
Silencer 220, May 264

Presentation Graphics. *See Graphics Programs*

Presentation Manager

products released for, Feb 147
Special Report: windowing environments, Feb 147
spreadsheets, Sep 148

Printers

color
drivers for, May 129
Epson LQ-860, Oct 114
Hewlett-Packard PaintJet XL, May 124
Mitsubishi G330-70, May 124
NEC Colormate PS, May 124
QMS ColorScript 100 Model 10, May 124
Seiko CH-5504, May 124
dot matrix
NEC Pinwriter P2200XE, Feb 86
Okidata Microline 380, Feb 86
Panasonic KX-P1124, World Class Award, Oct 188
ink jet
Canon BJ-10e, Dec 118
DeskJet. *See* Hewlett-Packard DeskJet
Epson EPI 4000, Sep 127
Hewlett-Packard PaintJet XL, Mar 94, May 124
sales of dot matrix printers challenged by, May 64
laser
for \$3000 or less, Sep 161
Adobe unveils PostScript Level 2, Dec 180
ALPS LPX 2020, Apr 96
Apple LaserWriter IINTX, Dec 175
Apple Personal LaserWriter

NT, Nov 144
AST TurboLaser/PS, printing ASCII files with, Jan 45
Buyers' Guide for LaserJet II compatibles, Dec 240
Canon LBP-4, Sep 161
CrystalPrint Express, Nov 144
Epson EPL-6000, Mar 126
Facit P6060, Mar 126
IBM LaserPrinter, Sep 161
IBM LaserPrinter 4019, Jan 81
IBM LaserPrinter E, Jun 92
IBM LaserPrinter E with PostScript, Sep 161
Kyocera Q-8010, May 86, Dec 175
LZR 650, Jun 114
Mannesmann Tally MT906, Jul 88
MicroLaser PS35, May 92
NEC Silentwriter2 Model 90, Nov 144
NEC Silentwriter2 260, Jun 107
NEC Silentwriter2 290, Jun 107
NewGen TurboPS/480, Dec 175
Office Automation LaserPro Exec, Mar 126
Okidata OkiLaser 820, Sep 161
PostScript emulators. *See under* Hewlett-Packard LaserJet
PostScript printers, Dec 175
QMS PS 410, Oct 116
QMS-PS 820 turbo, Dec 175
Qume CrystalPrint Express, Dec 175
Texas Instruments MicroLaser PS17, Sep 161
Texas Instruments OmniLaser 2115, Dec 175
Toshiba PageLaser6, Mar 126
TurboPS/400, Mar 87
LaserTools Printer Control Panel, Jun 159
sales of personal laser printers grow, Sep 106
tips
extend life of ribbons, Nov 271
laser printers and the Print Screen key, Aug 31
printing ASCII files on an AST TurboLaser/PS, Jan 45
send formfeed to printer (FF.COM), Jan 44
stop or reset (RESET.COM), Oct 278
swapping utility for LPT1/LPT2, Oct 42
warped paper and humidity, Aug 204
utilities and add-ons
drivers for color PostScript with Windows, May 129
The Image Printing Utilities 3.29, Jul 183
JetDesk, Dec 46
LaserTwin, Dec 46
LJ Fonts, Dec 46
MSDfonts, Dec 46
network printer utilities, Oct 171
PrintCache spooler, Jun 112
Q-System PC, Jan 88
sharing devices Buyers' Guide,

Mar 198
SuperFonts 25/1, Dec 46

Procomm Plus

and asynchronous communication servers, Mar 235
Instant Reference Card for, Nov 277
Procomm Plus Network, Feb 98
tips
on-line connections recorded automatically, Feb 58
on-line log file, Jul 82
recovering screen text, May 210
speed up MCI ASCII transfers, Apr 210
World Class Award, Oct 188
ZMODEM protocol with, Feb 46, May 44
in Host mode, Nov 273

Program Development

Apex Database Library 1.0, Mar 224
Brief 3.0, Feb 204
The Builder, Dec 269
codeless programming, Jan 134
CodeRunner, Oct 278
compiler for batch files (The Builder), Dec 269
HyperCard, Jan 134
HyperPAD, Jan 134
version 2.0, Nov 152
languages for programming. *See* Languages
object-oriented programming, Jan 134
ObjectVision, Nov 274
Programmer's ROM, Aug 210
ProPak 2.02, Apr 218
Proto Finish 1.0, Mar 224
Qedit, May 201
Spinnaker Plus 1.0 for Windows, Nov 213
ToolBook (Asymetrix), Jul 78, Nov 213
TSR programming, Oct 278
Turbo VMM, Aug 212
user-friendly programming, Jan 134
ZIPwhere 1.0, Mar 224

Program Listings

alarm clock program (WAIT.BAS), Jan 160
batch file menu program (MAKEMENU.BAS), Apr 213
BLANK.COM (screen-blanking program), Jun 196
addition for IBM PS/2, Dec 54
CLEAN.PAS (delete old files from directories), Jul 199
dBASE programs. *See* dBASE
delete old files from directories (CLEAN.PAS), Jul 199
directories, log time spent in (LOGGING.BAS), Jun 195
display space available on a drive and in memory (FREE.PAS), May 213
DOS command verification (VR.C), Sep 247
ELAPSED.BAS (elapsed-time

report), May 216
FF.COM (send formfeed to printer), Jan 44
FREE.PAS (display space available on a drive and in memory), May 213
KBSETUP.C (speed up keyboard response), Dec 251
key scans (GOKEY.C), Nov 276
LOCKKEY2.COM (<Num Lock> on at start-up, program to turn off), Aug 40
log time spent in directories (LOGGING.BAS), Jun 195
MAKEMENU.BAS (batch file menu program), Apr 213
MENU.BAS, Oct 227
menu system (Norton's enhanced batch language), Jan 146
<Num Lock> on at start-up, program to turn off (LOCKKEY2.COM), Aug 40
Paradox scripts. *See* Paradox
pass arguments to another program (SETCMD.ASM), Sep 258
PATCHER.PAS (search for underlines), Jan 205
printers
LPT swapping utility (SWAPLPTS.COM), Oct 42
send formfeed to (FF.COM), Jan 44
stop or reset (RESET.COM), Oct 278
RESET.COM (stop or reset printer), Oct 278
screen-blanking program (BLANK.COM), Jun 196
addition for IBM PS/2, Dec 54
<Scroll Lock> for display pause (BASIC), correction for, May 216
search for underlines (PATCHER.PAS), Jan 205
SETCMD.ASM (pass arguments to another program), Sep 258
speed up keyboard response (KBSETUP.C), Dec 251
SWAPLPTS.COM (printer-swapping utility), Oct 42
VAL function for Microsoft QuickBASIC (XVAL.BAS), Aug 215
VR.C (verify DOS commands), Sep 247
WAIT.BAS (alarm clock program), Jan 160
XVAL.BAS (VAL function for Microsoft QuickBASIC), Aug 215
See also Batch Files

Programming. *See Languages; Program Development*

Projection Units

Focus System 480C PC Viewer, Feb 88
In Focus 480CX PC Viewer, Nov 183

(continues)

Proxima Data Display Versa-Color; Nov 183

Project Management

Harvard Project Manager 3.01, Sep 177

high-end packages (\$1000-\$5000), Sep 190

Instaplan 5000, Mar 98
version 2.0, Sep 177

Microsoft Project for Windows, Aug 149

version 1.0, Sep 177, Nov 227

Project Bridge, Oct 130

Project Scheduler 4, Mar 98
version 2.0, Sep 177

spreadsheet utilities for, Apr 183

SuperProject Expert 1.1, Sep 177

Syzygy 1.0 multiuser project scheduler, Jan 84

Time Line 4.0, Jun 118, Sep 177

World Class Award, Oct 188

tips about planning for, Sep 194

PS/2. *See Systems (Desktop), IBM PS/2*



Q&A

alternative, reusable configurations for, Oct 248

print multiple copies of report (tip), Jan 74

version 3.0, Mar 164

World Class Award, Oct 188

Quattro Professional 2.0.

See under Spreadsheets



R:base. *See under Data Management*

Reference Cards. *See Instant Reference Cards*

Repair. *See Service and Support*



Satisfaction Surveys

data base software, Jan 190, Jun 60

IBM PS/2 systems, May 52

laptop and portable PCs, Nov 68

PC compatibles, Sep 78

PC World survey of user satisfaction with software, Jul 192

presentation graphics software, Jul 62

software distribution channels,

Dec 66

spreadsheet software, Apr 52

windowing environments, Feb 56

word processing software, Mar 52, Oct 70

Scanners

Advanced Vision Research 3000/GS, Sep 133

Complete Half-Page Scanner/400, Aug 134

Epson ES-300C, Oct 126

Handy Scanner 3000 Plus, Aug 134

Howtek Personal Color Scanner, Dec 136

HP ScanJet Plus, World Class Award, Oct 188

Logitech ScanMan Plus, Aug 134

UMAX UC300, Dec 136

Scanning Software

AccuScan, Nov 148

Read-It O.C.R. 2.0, Oct 130

ReadRight for Windows, Oct 120

ReadRight Personal, Oct 120

Scanning Gallery Plus 5.0, Nov 148

Service and Support

Bell Atlantic Business Systems Service, Aug 168

Bull HN Information Systems, Aug 168

Compaq replaces monitor from unauthorized dealer, Apr 56

Compuscience handles repairs for Wells American, Jun 68

Computer Discount Warehouse solves modem problem quickly, Dec 72

dealer-support survey, Oct 215

Dell applauded for technical support, Dec 72

feature story about, Oct 208

Gateway 2000 support pleases reader, Mar 60

GE Computer Service, Aug 168

Hewlett-Packard applauded for printer replacement service, Oct 78

mail-order firm and extended-warranty problems, Sep 74

Micro Express praised for support, Nov 86

Microsoft provides driver for Epson LQ-2550 sheet feeder, Dec 72

modem problem solved quickly, Dec 72

NCR Customer Service Division, Aug 168

network sales grow and bring support problems for resellers, Jun 84

on-site service contracts, Aug 168

Plus Development applauded for service and support, Oct 78

Proteus extends service con-

tract, Feb 86

reader survey results, Oct 196

Sefco customer complains about refund, Oct 82

surveys on support, Oct 208

third-party support services, Oct 69

TRW Customer Service Division, Aug 168

U.S. Robotics applauded for technical support, Dec 72

user group support services, Oct 69

varies among dealers, Apr 51

vendors offer support as sales

slow, Apr 64

vendor support policies listed,

Oct 210

WordPerfect support operation,

Oct 212

See also Consumer Issues

Shareware

4DOS, Jul 129

version 3.02, Oct 222

As-Easy-As 4.00, Oct 223

Automenu 4.7, Oct 222

Browse, Jul 40

Buyers' Guide, Oct 218

for communications utilities, Jul 190

CED, Oct 222

Contact Plus 2.12, Oct 220

DoubleDir 2.5, Oct 222

Fansi-Console 2.00U, Oct 222

File Express 4.32, Oct 220

Finance Manager II 1.3, Oct 220

HomeBase 2.53, Oct 220

Library of Shareware Disks (PC-SIG), Jul 40

List 7.3d, Jul 40, 190, Oct 222

Mark and Release 2.9, Oct 222

Newkey 5.2, Oct 222

Patriquin's Utilities, Oct 222

PC-Calc+ 2.0, Oct 223

PC-File 5.0, Oct 220

PC Outline 3.34, Oct 223

PC-Type II 1.0, Oct 223

PC-Write 3.03, Oct 223

PKZIP/PKUNZIP 1.10, Oct 219

Pony Express 1.104, Oct 220

Power Desk 1.26sw, Oct 220

Procomm 2.4.3, Oct 220

programs for Windows, Feb 154

QEdit Advanced 2.1, Oct 223

Qmodem 4.2, Oct 220

SETHP utility, Jul 143

SETVID, Jul 150

Shez 5.5, Oct 220

StackKey and BatUtil 3.0, Oct 222

TAPCIS 5.2B, Oct 220

where to obtain, Oct 221

WYND-DOS 2.0, Oct 222

Zipkey, Jul 159

Shells. *See Operating Environments; Utilities*

Spreadsheets

1-2-3. *See 1-2-3*

3-for-3, Nov 227

Buyers' Guide for shareware, Oct 223

data base connections with, Sep 198

Excel. *See Microsoft Excel*

financial tools, Apr 183

Improv (Lotus), Nov 134

Lotus 1-2-3. *See 1-2-3*

Lucid 3-D 2.2, Apr 116

Microsoft Excel. *See Microsoft Excel*

OS/2 Presentation Manager spreadsheets, Sep 148

PlanPerfect

version 5.0, Apr 116

version 5.1, Sep 133, Nov 157

print enhancement tools, Apr 182

project management tools, Apr 183

ProQube, Feb 88

Quattro Pro

graphics capabilities of, Nov 179

version 1.0, Apr 116

version 2.0, Dec 91

World Class Award, Oct 188

satisfaction survey, Apr 52

SmartWareII Spreadsheet 1.01, Apr 116

SuperCalc5

revision C, Apr 116

Zenith ZCM 1490 monitor incompatibility, workaround for, Jul 54

tutorials

graphs and charts, Nov 254

lookup functions, Nov 253

maintaining accuracy in spreadsheets, Jun 179

Twindows 1.0, May 166

Twin Level III 3.07, Apr 116

VP-Planner 3D, Apr 126

for Windows 3.0, Sep 154

Wingz

for OS/2 PM, May 74

PC Bonus Pack, Oct 130

version 1.1, Nov 230

See also Integrated Applications; Spreadsheet Utilities

Spreadsheet Utilities

3-2-1 Blastoff, Apr 183

3-2-1 Gosib, Apr 183

3-D Graphics, Nov 254

3-for-3, Sep 114

101 Macros Plus, Apr 182

Allways

getting started with, May 189

World Class Award, Oct 188

@BASE 1.22, Apr 184, Jul 184

Beyond 640, Oct 248

Budget Express, Apr 183, Jul 185

Buyers' Guide, Apr 180, Jul 184

Cambridge Spreadsheet Analyst, Apr 182

tip on working with, Jun 179

Computerized Classic Bookkeeping, Apr 183

data management tools, Apr 184

DAVE 1.1, Apr 182

Deja 2.0, Apr 184

Delta-Manager 1.0, Jul 185

Flash-In 1.12, Aug 194

Impress 2.0, Apr 182, May 189, Jul 185
InWord, Apr 184
Look&Link 1.1, Apr 182, Jul 184
Noteworthy, Apr 182
version 1.01, Jul 184
PrepaTax, Apr 183
Project Calc, Apr 183
Project Scheduler, Apr 183
Q+E 2.1, Apr 184
R&R Worksheet Report Writer 1.0, Jul 184
SeeMore 2.0, Apr 182
Sideways, Apr 182
version 3.21, Jul 185
SQZ Plus, Apr 184
TaxTime 1040 Individual, Apr 183
What-If Analyst, Apr 183
What's Best, Apr 183
for worksheet construction, Apr 182
Worksheet Utilities, Apr 182
version 1.01, Jul 185
Write-In 1.2, Apr 184, Jul 185

SQL Applications

DataEase SQL, Oct 118
Emerald Bay Database Server 2.1, Oct 164
front ends for servers, Mar 70, Oct 160
IBM Database Manager, Oct 151
InfoAlliance, Nov 96, 111
Informix-OnLine 4.0, Oct 164
NetWare SQL, Feb 211
version 2.01, Oct 164
Novell XQL, Feb 211
Novell Xtrieve Plus, Feb 211
Oracle Server for OS/2 1.0, Oct 151
spreadsheet data base connections, Sep 199
SQLBase, Feb 211
SQLBase Server for OS/2 4.0.1, Oct 151
SQL Server, Feb 211
version 1.0, Oct 151
SQLWindows, Feb 211
XDB-Server, Oct 164

Statistics

SPSS for OS/2, Apr 106
SPSS/PC+ V3.1, Apr 106

Stock Market Software. See Investment Software

Symphony. See under Integrated Applications

Systems (Desktop)

16-MHz 386SX systems Buyers' Guide, Dec 228
25-MHz 386 systems, Apr 132, Dec 156
33-MHz 386 systems, Feb 100
386SX sales grow, Feb 68
386SX systems, Aug 108
486 systems, Jun 139

sell slowly, Dec 82
Acer 1100/33, Feb 100
Acer 1100SX, Apr 100, Aug 108
Acer 1200, May 85
ALR FlexCache 33/386, Feb 100
ALR PowerVEISA 486/25, Jul 92
American Mitac MPS 2386, Jan 98
Arche Pro-File 486 Server, Jun 108
Arche Rival 386SX, Aug 108
AST Bravo/386SX, Aug 108
AST Premium 386/25, Apr 132
AST Premium 386SX/16, Apr 100
AST Premium 486/25E EISA, May 85
AST Premium 486/25 ISA, Jun 139
AST Premium 486/33, Oct 116
AST Premium 486/33 ISA, Jun 101
AT&T 6386/25 WGS, Apr 132
Austin 386/33 Cache, Feb 100
BIOS shadowing in 386 systems, Apr 140
Blackship 386SX-16, Aug 108
Blackship 486/25, Jun 108
clones
buyer's checklist, Aug 167
savings and risks associated with, Aug 165
Club American Hawk II, Jun 108
Compaq 386/25e, Dec 156
Compaq Deskpro 386/33, World Class Award, Oct 188
Compaq Deskpro 386s, Aug 108
Compaq Deskpro 386s/20, Aug 83
Compaq Deskpro 486/25, Jan 70
Compaq Systempro, Jan 70
previewed, Mar 76
CompuAdd 316s, Aug 108
cost of desktops compared with portables, Jan 64
cost of PC parts, Jan 59
Dell System 316SX, Aug 108
Dell System 320LX, previewed, May 80
Dell System 425E, Jul 92
Dell System 425TE, Dec 128
Dell System 433TE, Dec 128
EISA servers, Jan 70
EISA systems, Jan 68
Epson Equity II+, Apr 268
Epson Equity III+, replacing the clock battery, Jan 41
Epson Equity 386SX, Aug 108
Everex Step 386/33, Feb 100
Everex Step 486/33, Jun 102
Everex Step Server, Apr 102
Falco Infinity Desktop SX, Dec 124
Fivestar 80386, user reports problems with, Mar 56
Fivestar System 33D, Feb 100
Fortron Netset 386 Model 333, Feb 100
Gateway 2000 386/33, Feb 100
Grid 386MCA, Jan 98
grounding yourself before working on PC, Jun 35

for home-office users, Apr 268
HP Vectra 486 PC, Jan 68
Hyundai 286C, some motherboards defective, Jul 54
Hyundai Super-386c, Mar 88
Hyundai Super-386S, Aug 108
IBM PS/1
marketing strategy, Aug 81, Sep 101
previewed, Aug 79
IBM PS/2
Model 55 SX, Aug 108
Model 65 SX, Jun 91
Model 70 486, Jun 139
Model 70-A21, Dec 156
Model 80 386, Jun 91
satisfaction survey, May 52
Legacy 486, Jun 108
MCA clone systems, Jan 98
Metaphor Workstation 2XP, Jan 134
Micro Express ME 386-33LC, Feb 100
Micro Express ME 386-SX/SL, Sep 131
Mitsubishi MP 386S, Aug 108
NCR 386SX, Jan 98
NCR PC386sx, previewed, May 80
NCR PC486/MC, Jun 139
NCR PC486/MC33, Oct 116
NCR PC925, Apr 132
NEC PowerMate 386/25S, Dec 156
NEC PowerMate 386/33E, Jan 70
NEC PowerMate 486/25E, Jan 70
NEC ProSpeed 386SX, Aug 94
Next Computer, Jan 140
faces troubled times, May 70
Packard Bell Force 386/33, Dec 132
Packard Bell Force 386SX, Aug 108
Packard Bell Force 386X, Dec 132
Proteus 386/33 MX, service contract extended, Feb 68
sales of PCs grow as Macintosh sales decline, Sep 108
satisfaction survey: compatibles, Sep 78
Storage Dimensions FileMaster, Apr 102
Tandon 386/33, Feb 100
Tandon 486/25, May 88
Tandy 1000 RL, Oct 109
Tandy 2500 XL, Jul 90
Tandy 4016 DX, Jul 90
Tandy 4016 SX, Jul 90, Aug 108
Tandy 4025LX, Dec 156
Tandy 4033 LX, Jul 90
Tandy 5000MCA, Jan 98
Toshiba T8500 Model 25, Apr 132, Dec 156
upgrade tips, Aug 179
Wang PC 350/16S, Aug 108
Wyse 2112, problems running Desqview on, Feb 56
WYSEsystem 386 Model WY3225, Apr 132

Zenith Z-386/33E, Jan 70
Zeos 386/33, Feb 100

Systems (Diskless Workstations)

Compaq Deskpro 286N, Sep 127
Compaq Deskpro 386N, Sep 127
Emerald Lanstation I, Jun 110

Systems (Transportable)

286 systems, Mar 140
386SX laptops, Dec 189
386SX notebooks previewed, Dec 99
Agilis System, Jan 82
Airis VH-286, Nov 141
The Brick (Ergo), Oct 128
Compaq LTE, Oct 136
Compaq LTE/286, Mar 140
Model 20, Oct 136
World Class Award, Oct 188
Compaq LTE 386s/20, Dec 99
Compaq Portable 386, World Class Award, Oct 188
Compaq SLT 386s/20, Dec 189
cost of portables compared with desktop units, Jan 64
Dauphin 3000SX, Dec 124
Dauphin LapPro-286, Mar 140
Dell 316LT, Dec 189
Epson Equity LT-286e, Mar 140
Epson Equity LT-386SX, Sep 129, Dec 189
Ergo Brick, Oct 128
Grid 1450SX, Dec 189
Grid 1810, Nov 148
GridCase 1550SX, Dec 118
for home-office users, Jul 252
ITC 386 CEL, Jun 116
NEC ProSpeed 286, Mar 140
NEC ProSpeed 386SX, Dec 189
NEC ProSpeed CSX, Jan 86
NEC ProSpeed SX/20, Sep 119
NEC UltraLite 286V, Sep 119, Dec 117
notebook PCs
demand projected to grow, Apr 64
sales increase, Aug 69
Packard Bell PB286LP, Mar 140
Poqet PC, Aug 92
Regal SX, May 92
satisfaction survey, Nov 68
Sharp PC-4741, Oct 118
Sharp PC-5541, Mar 140
Sharp PC-5741, Oct 118
Sharp PC-6220, Jul 85, Oct 136
size and usability, Aug 69
Tandy 1500 HD, Dec 117
Tandy 2800 HD, Jul 90
Texas Instruments TravelMate 2000, Oct 136
Texas Instruments TravelMate 3000, Dec 99
Toshiba
bulletin board, Jul 252
Desk Station, Oct 122
parts-supply shortages cause repair problems, Jul 51
T24D/X cellular modem, Oct 122

(continues)

T1000, Jul 252
 T1000SE, May 85
 T1000XE, May 85, Jul 252, Oct 136
 T1200 hard disk failure problem, Dec 74
 T1200XE, May 85, Oct 136
 T1600, Mar 140
 T3100SX, Apr 95, Dec 189
 Zenith 286 SupersPort, extra power after low-power alarm, Feb 200
 Zenith MinisPort HD, Sep 125, Oct 136
 Zenith SupersPort SX, Dec 189

Tape Backup Systems

Buyers' Guide, Aug 172
 Coretape Light, Jun 112
 DAT drives, Apr 104
 GigaTrend TurboDat, Nov 150
 installation tips, Aug 188
 Irwin 9221Se, Nov 150
 Maynard MaynStream 1300-DAT, Apr 104
 Tecmar DATAVault, Apr 104
 upgrading to Novell's NetWare 386 and tape backup incompatibilities, Jun 38
 VCRCopy, Nov 142

Tax Preparation Software

for home-office users, Mar 282
 PrepaTax, Apr 183
 Sylvia Porter's RapidTax, Dec 142
 TaxCut, Mar 282
 tax preparation software market competitive, Apr 61
 TaxTime 1040 Individual, Apr 183
 TurboTax, Mar 282
 World Class Award, Oct 188

Technology

Digital Video Interactive (DVI) technology, Mar 191
 multimedia, Mar 191

TOPS. *See Networks*

Trackballs. *See Input Devices*

Turbo Pascal

common compiling problems, May 34
 delete old files from directories (CLEAN.PAS), Jul 199
 display space available on a drive and in memory (FREE.PAS), May 213
 search for underlines (PATCHER.PAS), Jan 205
 virtual memory manager for (Turbo VMM), Aug 212
 World Class Award, Oct 188

Uninterruptible Power Supplies

Inner Source 2210, Jul 86
 PowerSave 500, Sep 131

User Groups

Disabilities and Computers SIG, Jan 190
 listings of, in U.S. and Canada, Aug 53
 support services of, Oct 69
 Windows shareware resources, Feb 156

Utilities

4DOS, Jul 129
 386-To-The-Max, Dec 59
 archiving utilities, shareware Buyers' Guide, Oct 219
 ASCII file reader, Jul 40
 Auto-Might, Jul 172
 AutoSwap, Jul 156
 Avery LabelPro problems, Nov 80
 BackLoader 2.1, Jul 123
 backup software. *See Backup Applications*
 Beyond 640, Oct 248
 BOOT.SYS, Sep 35
 Bourbaki ldir+ 3.03, Jul 119
 Buyers' Guide for shareware, Oct 219
 Calendar Creator Plus 3.0, Jul 165
 CBM Desktop Office 3.0, Aug 153
 CheckIt 2.1, Jul 168
 Command Post 7.0, Nov 221
 Complete Calendar 2.5, Jul 165
 Control Room, Feb 85
 for dBASE. *See dBASE*
 desktop organizers (shareware), Oct 220
 Direct Access 5.0, Aug 98
 Disc Director, Mar 90
 version 1.06, Jul 119
 disk caching software, Feb 130
 Disk Optimizer 4.05, Jul 133
 DOS Partner 1.1, May 96
 Dragnet 2.1, Nov 230
 electronic book software
 ASCII file reader, Jul 40
 Iris, Nov 64
 EMC 1.10, Feb 130
 FAT and drives larger than 32MB, problems with utilities, Feb 38
 file management (shareware), Oct 222
 FirstApps, Nov 233
 FloppyDriver 2.43, Jul 112
 Grab Plus, Jul 152
 hard disk backup software, Jul 149
 hard disk maintenance utilities, Jul 133
 hard disk management utilities, Jul 109
 Htest 3.0, Jul 133

List, Jul 40, 190
 Mace Gold 1.0, Feb 130
 Mace Utilities 1990, Jul 109, 133
 Magellan 2.0, Jun 116, Jul 119
 Manifest, Jul 144
 Marknet, Dec 59
 Memory Commander, Aug 86
 network printer utilities, Oct 171
 Norton Commander
 tip: back up through the Integrator's command stack, Jun 193
 tip: write MCI Mail with any word processor, Oct 167
 version 3.0, Jul 119
 Norton Utilities
 tip: quicker menus, Aug 32
 version 5.0, Jul 114
 Norton Utilities Advanced Edition
 menu system (MENU.BAT), Jan 146
 version 4.5, Jul 109, 133
 <Num Lock> on at start-up, program to turn off (LOCK-KEY2), Aug 40
 Optune 1.2, Jul 133
 PC-Kwik Power Disk 1.0, Jul 133
 PC Tools. *See PC Tools Deluxe*
 personal schedulers, Jul 165
 PFS:Preface, Oct 126
 PKZIP 1.10, Jul 190
 Popdrop, Dec 59
 for printers. *See under Printers*
 QEMM, Jul 144
 and TOPS, Sep 40
 version 5.1, Oct 124
 QEMM-386, Dec 59
 version 5.1, Dec 213
 QRAM, Jul 144
 README Professional, Jul 40
 Relnet, Dec 59
 Reminders 2.1, Jul 165
 review series, Jul 104
 sales grow for utilities, Jan 64, Sep 102
 schedulers, Jul 165
 screen painter (TheDraw 3.3), May 182
 SETHP, Jul 143
 SETVID, Jul 150
 shareware for Windows, Feb 154
 shells for DOS, Jul 119
 shareware, Oct 222
 SideKick for Presentation Manager 2.0, Feb 94
 SideKick Plus
 version 1.0, Jul 165
 World Class Award, Oct 188
 SoftBreeze 3.0, Jul 119
 Speed Cache 1.4.1, Feb 130
 SpinRite II, Jul 133
 version 1.1, Oct 30
 SuperKey, Dec 322
 Super PC-Kwik 3.35, Feb 130
 Switch-It, Feb 90
 TheDraw 3.3, May 182
 Tree86 3.2, Jul 119
 Vcache 4.2, Feb 130
 ViewLink, Jul 122
 Viruscan 2.7V60, Jul 191
 Vopt 2.2, Jul 133

WindowDOS 3.0, Jul 106
 XtreeNet 2.0, Nov 157
 XtreePro Gold, Jan 92
 version 1.4, Jul 119
 Zipkey, Jul 159
See also Spreadsheet Utilities; Word Processor Utilities

Ventura Publisher

Gold Series for Windows, Nov 218
 managing documents with VP Manager, Jun 186
 Professional Extension, create tables with, Feb 184
 Pub-Star I, Nov 264
 tips
 customize page size in, May 207
 data base file publishing with, Jun 173
 header/footer customization, Oct 259
 outline type with, Aug 199
 utilities for, Jul 188
 VP to the Max, Sep 238
 Vtune, May 208
 Windows Edition, Aug 144
 Gold Series for Windows, Nov 218
See also Desktop Publishing Utilities

VGA. *See Display Adapters*

Viruses

compare COMMAND.COM for virus checking, Jul 206
 Jerusalem B virus found in dealer's software, Nov 67
 Virusean 2.7V60, Jul 191
 virus-check procedure, additions to Oct. 1989 column on, Feb 206

Warranties. *See under Consumer Issues*

Windows. *See Microsoft Windows*

Word. *See Microsoft Word*

WordPerfect

Instant Reference Card for, Jul 253
 macros
 for block operations, Oct 277
 for a calculator, Aug 191
 change default drive, Jan 210
 conversion for desktop publishing programs, Sep 226
 convert 4.2 macros to 5.0 macros (MACROCNV.EXE), Jan 43

convert files from other word processor formats, May 195
 envelopes, automate printing of, May 214
 for italics, Nov 282
 keyboard files provided with macros, Sep 226
 password macro, Oct 241
 preview a document before printing, Jul 202
 print running page numbers, Aug 209
 speed up macros, Aug 150
 two-keystroke macros, Jan 156
 WP Macros, Jul 183
 mathematical equations with version 5.1, Mar 35
 Office Editor 3.0, Oct 130
 support operation, Oct 212
 tips/tutorials
 ASCII files, automatically removing hard carriage returns, Jun 177
 ASCII versus WordPerfect's special characters, Apr 210
 block delete quickly, Aug 68
 box drawing with proportional fonts, Aug 207
 cursor size adjustments, Dec 41
 custom dictionary tutorial, Oct 241
 dBASE-to-WordPerfect merges, Jun 193
 deleting text, Jul 46
 hard space and hard hyphen insertion, May 26
 insert quarters and halves in document, Nov 82
 line numbers, pick a font for, Sep 64
 list graphics files, Feb 20
 long-document management,

Nov 249
 Look command shortcut, Sep 66
 parallel column tutorial, Jun 177
 paste from the Shell, Sep 30
 quicker spelling corrections in version 5.0, Apr 142
 repeating text easily, Aug 44
 search contents of almost any file, Jan 160
 snaking column tutorial, May 195
 start-up options for, Nov 249
 thesaurus navigation tip, Jul 208
 turn off print attribute quickly, Sep 60
 vertical lines between columns, May 198
 upgrading information, May 46
 version 5.0, Epson LQ-950 driver for, Mar 40
 version 5.1
 composing mathematical equations with, Mar 35
 release 6/29/90, Sep 133
 World Class Award, Oct 188
 WPDRAW, Jul 183

Word Processors

Ami Professional
 version 1.1, May 104
 version 1.2, Aug 98, Nov 234, Dec 142
 Buyers' Guide for shareware, Oct 223
 ChiWriter, Jul 44
 DeScribe Word Publisher 1.0, Feb 160
 DeskMate Q&A Write, Jan 94
 DisplayWrite 5.0, Aug 96

Exact, Jul 44
 Eye Relief, Jan 190
 Legacy, Nov 234
 Legend 2.0, May 104
 LetterPerfect, Aug 85
 MathEdit 2.0, Jul 44
 MultiMate 4.0, Feb 92
 OfficeWriter, redefine Go key, Feb 32
 PCTeX, Jul 44
 Professional Writer 2.2, Oct 130
 satisfaction survey, Mar 52, Oct 70
 scientific word processors, Jul 44
 tips/tutorials
 prepare documents for desktop publishing programs, Sep 225
 printing a bullet, Jun 72
 for Windows, May 104
 WordPerfect. *See* WordPerfect
 Word. *See* Microsoft Word
 WordStar. *See* WordStar
See also Desktop Publishing;
 Word Processor Utilities

Word Processor Utilities

Buyers' Guide, Jul 182
 Express Art/300 Libraries, Jul 182
 Glyphix 3.1, Jul 183
 grammar and style checkers sell well, Aug 72
 Grammatik IV, Jul 182
 World Class Award, Oct 188
 Grammatik Windows, Nov 233
 The Image Printing Utilities 3.29, Jul 183
 LabelPro, Mar 94
 Microsoft Word Companion Disk, Mar 96
 OverDrive 2, Feb 94
 Perfect Complement 2, Feb 94

Qfont 1.5, Jul 183
 RB Macros, Jul 183
 WPDRAW, Jul 183
 WP Macros, Jul 183

WordStar

macros
 change logged directories quickly, Mar 224
 go to top of file and check spelling, Jan 206
 print marked block of text, Aug 215
 start up in specific user directory, Nov 58
 switch between classic and pull-down menus, Aug 26
 tips
 change logged directory, Jul 40
 faster search-and-replace tasks, Jun 176
 maximum right margins, Sep 157
 recover deleted text by opening a window, Jan 218
 turn off page breaks, Sep 248
 version 6.0, Jul 96

Work-Group Productivity Tools. *See* Groupware

Works (Microsoft). *See* under Integrated Applications

World Class Awards, Oct 188

WORM Drives. *See* Optical Storage

PCWORLD

BACK ISSUES



Is your PC World library complete? Or are you missing a few vital issues? Now's your chance to fill in the gaps with back issues of PC World — the best source for computing productivity. Each issue is available for \$6 per copy, while supplies last, including surface delivery via UPS. For orders of 12 or more issues, you pay just \$2.95 per copy.

For airmail delivery in the U.S. and Canada, please add \$6 per copy. For all other countries, back issues are \$20 per copy, including airmail delivery. Prepayment is required in U.S. dollars.

Simply enclose payment, specify the issues and quantities desired and send to :

PC World, Back Issue Department, 144 Townsend Street, San Francisco, CA 94107

Sorry, credit card orders cannot be accepted. For Express Service call 1-800-395-5763.

The Ultimate

T Y P I S T

What if you could have an electronic assistant, capable of typing 500 words per minute, while sitting quietly at your side, and taking up no more space than a telephone?

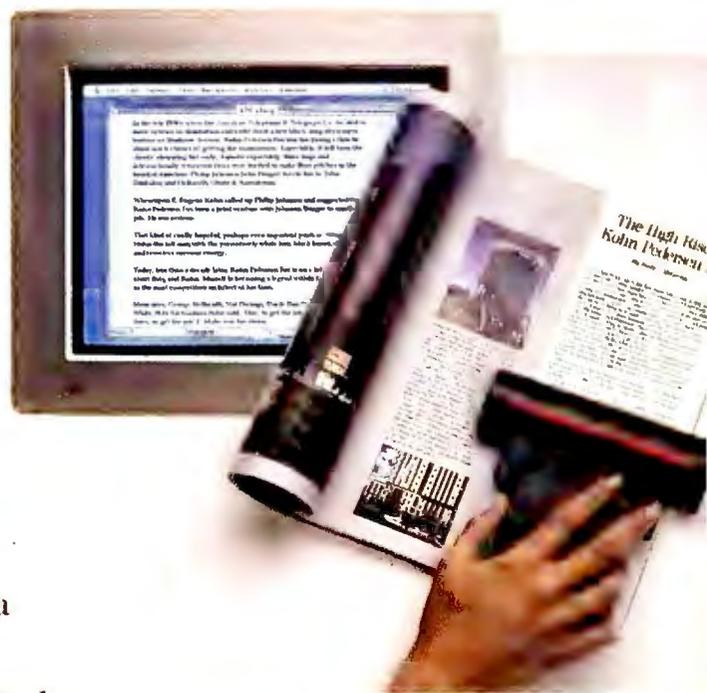
Sound like a great idea?

That idea is now reality with the *Typist*™ from Caere.® Designed to be the ultimate typing machine, the *Typist* is capable of reading any text, no matter what style font, font size or column format, and entering it directly into your Macintosh® or PC compatible word processor, spreadsheet or

database – without interruption. Caere, the company that pioneered Page Recognition with *OmniPage*® has now developed the world's most personal scanner.

The *Typist* works like your own personal assistant, capable of typing 500 words per minute – as well as numbers – entering it directly into your software application just like a keyboard – only faster.

The *Typist* is more than a typical hand scanner, generally suited to scan graphic images, but limited when it comes to text. As the world's most personal scanner, the *Typist* is a sleek, ergonomically



The Typist lets you accurately insert text or numbers directly into a PC compatible or Macintosh word processor, spreadsheet or database – simulating keystrokes effortlessly.

Typing Machine.™



designed peripheral that requires no special training or expertise. Select text or columns of numbers from any document, and the *Typist* enters your selection directly into your word processor or spreadsheet in whatever format you happen to be using – fully simulating your keyboard in every way. Scan up to 2 column inches per second, and the *Typist* will stay fully aligned – even when you scan rows and columns *sideways*. Think of the possibilities. Use the *Typist* as your very own *personal* assistant. Enter rows and columns of numbers from business journals or periodicals, directly into your most critical documents,

including spreadsheets. Develop business reports, presentations, legal contracts, or desktop published documents in a fraction of the time. Further enhance your reports and presentations by incorporating graphics or photo images – the *Typist* makes it easy – improving your productivity whatever the assignment.

To learn more about the *Typist* and how it can be of assistance to you, contact one of Caere's participating dealers. Caere, the Complete Recognition Company.



For more information:

Call: 1-800-535-SCAN
Write: Caere Corporation
100 Cooper Court
Los Gatos, CA 95030



Caere, OmniPage and the Caere logo are registered trademarks of Caere Corporation. Typist, AnyFont technology and The Ultimate Typing Machine are trademarks of Caere Corporation. Macintosh is a registered trademark of Apple Computer, Inc. Printed in the USA. All rights reserved. ©1990 Caere Corporation.

Circle 21 on reader service card

ExcellNET

Networking that makes sense.



Most small businesses can benefit from PC networking but can't justify the costs or overcome their fears. Up until now their only choice was overkill technology which was over their budget. If you have this problem, the common sense solution is ExcellNET.

ExcellNET is a low cost, easy-to-use file transfer and printer sharing network. It connects IBM and compatible PCs using direct cable connections, modems, ISDN, or PBX lines.

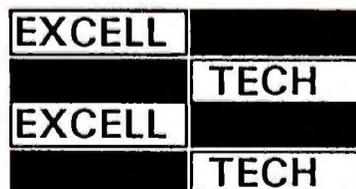
ExcellNET is menu driven and performs its functions in the background,

without disturbing the user on the PC being accessed. This makes expensive training sessions unnecessary. In fact, your office can begin enjoying increased productivity the minute ExcellNET is installed!

If you have any questions, our product support staff is available free of charge to get you going, and our skilled and professional programming team can help customize your software to fit any specific PC needs you have. Give us a call and let us help you with your networking needs. It just makes sense.

For orders and information
call toll free

1-800-284-8509



In the heart of the Silicon Prairie!

EXCELLTECH INC.

300 West 3rd Street, Yankton, SD 57078, Phone 605/665-5811



STAR-DOT-STAR *.*

A global exchange of personal computer discoveries

Forecast into the twenty-first century with a 1-2-3 date macro, make batch file arguments case insensitive, eliminate accidental accents when using HP LaserJet printers, find files quickly and easily, banish WordPerfect underlines from your table of contents, and give your demos the boot.

Edited by Tom Swan

2001: A Worksheet Oddity

Lotus's 1-2-3 recognizes dates in the next century, but only if you type three-digit year values like 101 for the year 2001 or 110 for 2010, or use the full four-digit years. When you're entering a lot of dates, one- or two-digit years like 2 or 12 are much easier to type, but these translate to 1902 and 1912—not years for which you're likely to do much financial planning.

For worksheets that forecast into the next century, I wrote a macro [see FIGURE 1] that lets me enter twenty-first-century dates as two-digit years. The macro works by adding @date(99,12,31) to @date(year,month,day)—where 'year' is the label of a cell that holds a value from 0 to 89—effectively adding a century to the year typed. Because such dates display in Long Int'l format (MM/DD/YYYY), I increase the column width to at least 11 for the macro's target cells.

*David H. Noble
Roanoke, Virginia*

Editor's note: The macro works equally well in 1-2-3 and Quattro Pro. To create it, type the FIGURE 1 macro in six out-of-the-way cells, pressing ' before the last line. Use /Range Name Create to name the first cell \d and to name three other out-of-the-way cells Month, Day, and Year.

To run the macro, press <Alt>-D, then answer the prompts for the month, day, and year values. The current column must be at least 11 characters wide. To see how the macro converts years, run it several times with

such year values as 2, 45, and 91.

I modified Mr. Noble's original macro to recognize values from 90 to 99 as the years 1990 to 1999. Values from 0 to 89 correspond to the years 2000 to 2089. To change this, adjust the expressions at rows 4 and 5. For example, if you want 50 to 99 to represent the years 1950 to 1999 and 0 to 49 to mean the years 2000 to 2049, change '90' to 50 and '89' to 49.

Insensitive Batch File Arguments

It's frustrating to deal with uppercase and lowercase arguments passed to batch files—'PROG file', 'PROG FILE', or even 'ProG FiLe', for example. Testing for all combinations of case (making the batch program case insensitive) usually requires a series of messy IF statements or complex FOR loops.

But I've hit upon an approach that lets batch files convert arguments to uppercase before using them. The technique relies on a side effect of the DOS PATH command, which, unlike other environment variables, automatically converts its contents to uppercase. By preserving the current PATH, assign-

(continues)

	A	B	C	D	E	F
1	\d	{getnumber "Enter Month: ",month}				
2		{getnumber "Enter Day: ",day}				
3		{getnumber "Enter Year: ",year}				
4		{if year<90}@date(year,month,day)+@date(99,12,31)-				
5		{if year>89}@date(year,month,day)-				
6		/rfd4~/rv~				
7						
8	Year	1		11/25/2001		
9	Month	11				
10	Day	25				

FIGURE 1: This 1-2-3 macro lets you enter two-digit values for years in the current and twenty-first centuries.

ing argument strings, and then restoring the PATH, this trick makes a handy case converter in any batch file.

A sample batch file, RUN.BAT [see LISTING 1], converts arguments to uppercase, then runs a program. First, it checks that you've entered at least two items: a program to run, and any arguments for that program. After this, it saves PATH in OLDPATH and sets RUN to the target program's name. A loop then uses SHIFT to build a string in PATH out of each argument. This converts the arguments to uppercase. After the loop, PATH is set to OLDPATH, which is erased to conserve environment space. The %RUN% command then runs the program with the converted arguments.

William T. McGowan III
Columbia, South Carolina

```
echo off
if "%2"==" " goto HELP
set OLDPATH=%PATH%
set RUN=%1
:NEXT
shift
PATH=%1
set RUN=%RUN% %PATH%
if not "%2"==" " goto NEXT
set PATH=%OLDPATH%
set OLDPATH=
%RUN%
:HELP
echo Enter run x arg1 arg2...
echo where x is a program and
echo args are option arguments
```

LISTING 1: RUN.BAT shows how to use PATH as an argument case converter in batch files.

Editor's note: For a sample of how you can use this clever idea, run TESTPROG.BAT (see LISTING 2). The batch file simulates a program that recognizes two fictitious commands, OPEN and CLOSE.

When you enter testprog OPEN or testprog CLOSE, TESTPROG confirms that it received those commands. If you enter those same commands in lowercase, the program displays an error message. But when you use Mr. McGowan's batch file to run TESTPROG, you can

```
echo off
if "%1"==" " goto ERROR
if %1==OPEN goto OPEN
if %1==CLOSE goto CLOSE
goto ERROR
:OPEN
echo You selected OPEN
goto END
:CLOSE
echo You selected CLOSE
goto END
:ERROR
echo Bad or missing command
:END
```

LISTING 2: Running TESTPROG.BAT from RUN.BAT (LISTING 1) lets batch programs use arguments in uppercase and lowercase.

type arguments using any combination of lowercase and uppercase letters.

If you get an 'Out of environment space' message, add the line shell command.com /e:384 /p to the end of your CONFIG.SYS file. When you reboot, DOS will set aside 384 bytes (instead of the default 256) for environment variables. If this is still not enough, try 512 or more. The '/p' makes the change to COMMAND.COM permanent.

Accidental Accents

The standard HP LaserJet character set doesn't include extended ASCII characters. When printing screen dumps or anything from a program without a good LaserJet driver, you end up with a bunch of foreign-accented characters where your lines and boxes should be.

To prevent these accidental accents from appearing when you print, I created two data files, HPLJFONT.STD and HPLJFONT.EXT, that contain the codes for selecting standard and extended character sets. At the DOS prompt, type copy hpljfont.ext prn to get the extended characters; copy HPLJFONT.STD to the printer for the LaserJet's defaults.

J. L. Richards
Richmond, British Columbia,
Canada

Editor's note: To create HPLJFONT.STD and HPLJFONT.EXT, run MAKEHPLJ.BAS (see LISTING 3) using BASICA or GW BASIC. Then copy the two files to any directory, for example, c:\util. Using these files will be simpler if you create two one-line batch files, HPEXT.BAT and HPSTD.BAT, and put them in a directory listed in your PATH command. The contents of these batches should be copy c:\util\hpljfont.ext prn: and copy c:\util\hpljfont.std prn:, respectively.

```
10 GOSUB 20:END
20 F$="hpljfont.ext":GOSUB 40
30 F$="hpljfont.std"
40 OPEN F$ AS #1 LEN=1
50 FIELD #1,1 AS D$
60 READ C:IF C<0 THEN 90
70 LSET D$=CHR$(C):PUT #1
80 GOTO 50
90 CLOSE:RETURN
100 DATA 27,40,49,48,85,-1
110 DATA 27,40,56,85,-1
```

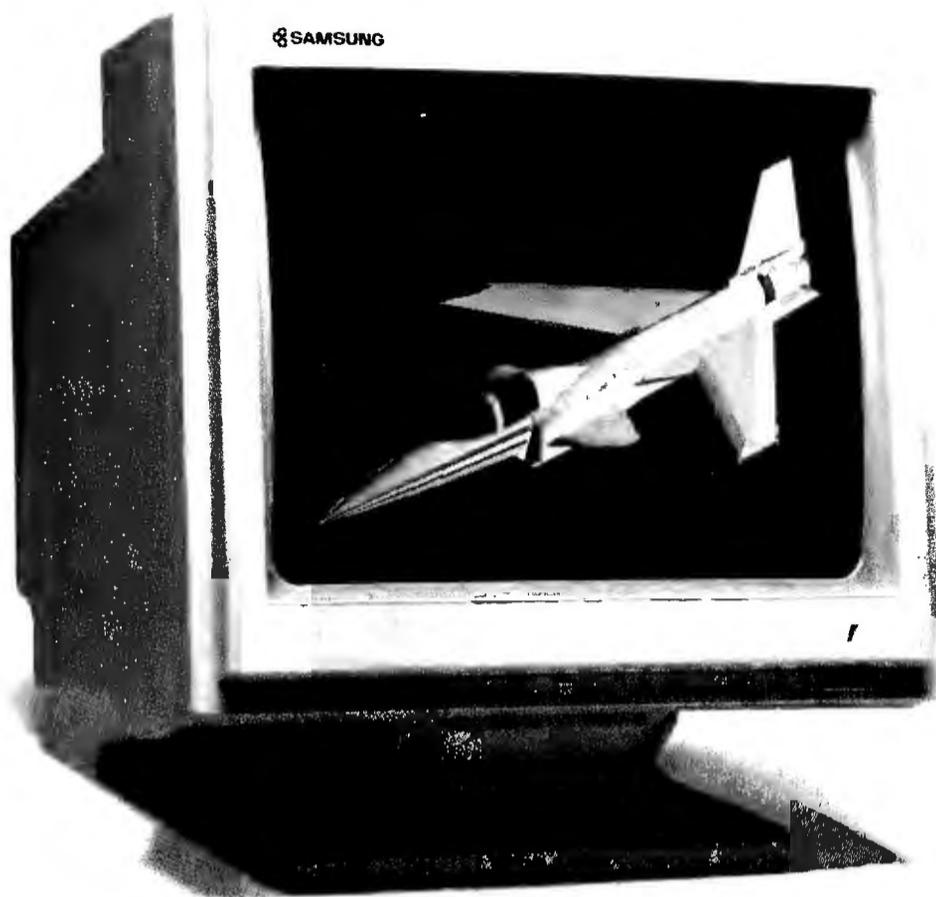
LISTING 3: Load MAKEHPLJ.BAS into BASIC and run it to create HP LaserJet font switchers HPLJFONT.STD and HPLJFONT.EXT.

For a more complete solution, see HPPR.BAT (LISTING 4), which turns on the extended characters, prints up to nine ASCII files, then returns to the printer's defaults. When creating HPPR.BAT, replace the path 'c:\util' on lines 3 and 5 with the actual path to the directory holding HPLJFONT.STD (continues)

```
echo off
if "%1"==" " goto HELP
copy c:\util\hpljfont.ext prn:
print %1,%2,%3,%4,%5,%6,%7,%8,%9
copy c:\util\hpljfont.std prn:
goto END
:HELP
echo Enter prhp file1 file2...
echo to print files using
echo extended ASCII characters
:END
```

LISTING 4: HPPR.BAT prints extended ASCII characters on the HP LaserJet using files created by MAKEHPLJ.BAS (LISTING 3).

A Good Deal.



- 14" Super VGA Color Monitor
- 1024x768 resolution interlaced

SyncMaster2™ (CVB4581)

And a Good Deal More.

When you price Samsung performance, you'll see why we're the world's largest manufacturer of monitors. Case in point: Our SyncMaster2™ delivers almost twice the resolution of the NEC® Multisync 2A™—yet it's priced 20% less. And that's not all, we have a good deal more to show you.

The fact is, we bring you one of the most comprehensive monitor line-ups—from 12" amber to 20" color with 1280x1028 super-high resolution. You can easily satisfy all of your or your company's monitor requirements with Samsung

Samsung Product	Size	Color	Resolution	Other
MA2565/MA2675	12 inch	Amber	720x350 (MDA)	MA2675 – Flat Screen
MZ4571/MZ4575	14 inch	Monochrome	720x350 (MDA), 640x200 (CGA)	Flat Screen
ML2611	12 inch	White	640x480 (VGA)	
ML4571	14 inch	White	640x480 (VGA)	
ML4646	14 inch	Color	640x200 (CGA)	
VGA GraphicsMaster (CJ4681)	14 inch	Color	640x480 (VGA)	
SyncMaster (CT4581)	14 inch	Color	800x600 (Super-VGA)	Multi Scan
SyncMaster2 (CVB4581)	14 inch	Color	1024x768 (Enhanced-VGA)	Interlaced
SyncMaster3 (CVB4587)	14 inch	Color	1024x768 (Enhanced-VGA)	Interlaced
SyncMaster4 (CSA7571)	17 inch	Color	1024x768 (Enhanced-VGA)	Non-interlaced, Flat Screen, Multi Scan
PageMaster (MP5671A)	15 inch	White	1006x1048	Full Page/DTP
PageMaster2 (MU9511)	20 inch	White	Super-high 1280x1024	Dual Page/DTP
DesignMaster (CC9511)	20 inch	Color	Super-high 1280x1024	CAD/CAM

products and be assured that you are getting the most performance for your money. And Samsung is well known for offering the some of the best support in the industry. What else would you expect from the world's 20th largest corporation. Find out why

we're making such a hit with America's PC purchasers. Call 1/800/624-8999, extension 85K for the name of your nearest Samsung dealer. Or write: Samsung, 3655 North First Street, San Jose, CA 95234.

All brand and product names are Trademarks or Registered Trademarks of their respective companies
© copyright 1990 Samsung Information Systems



Technology that works for all of us.

Circle 265 on reader service card

Performance!

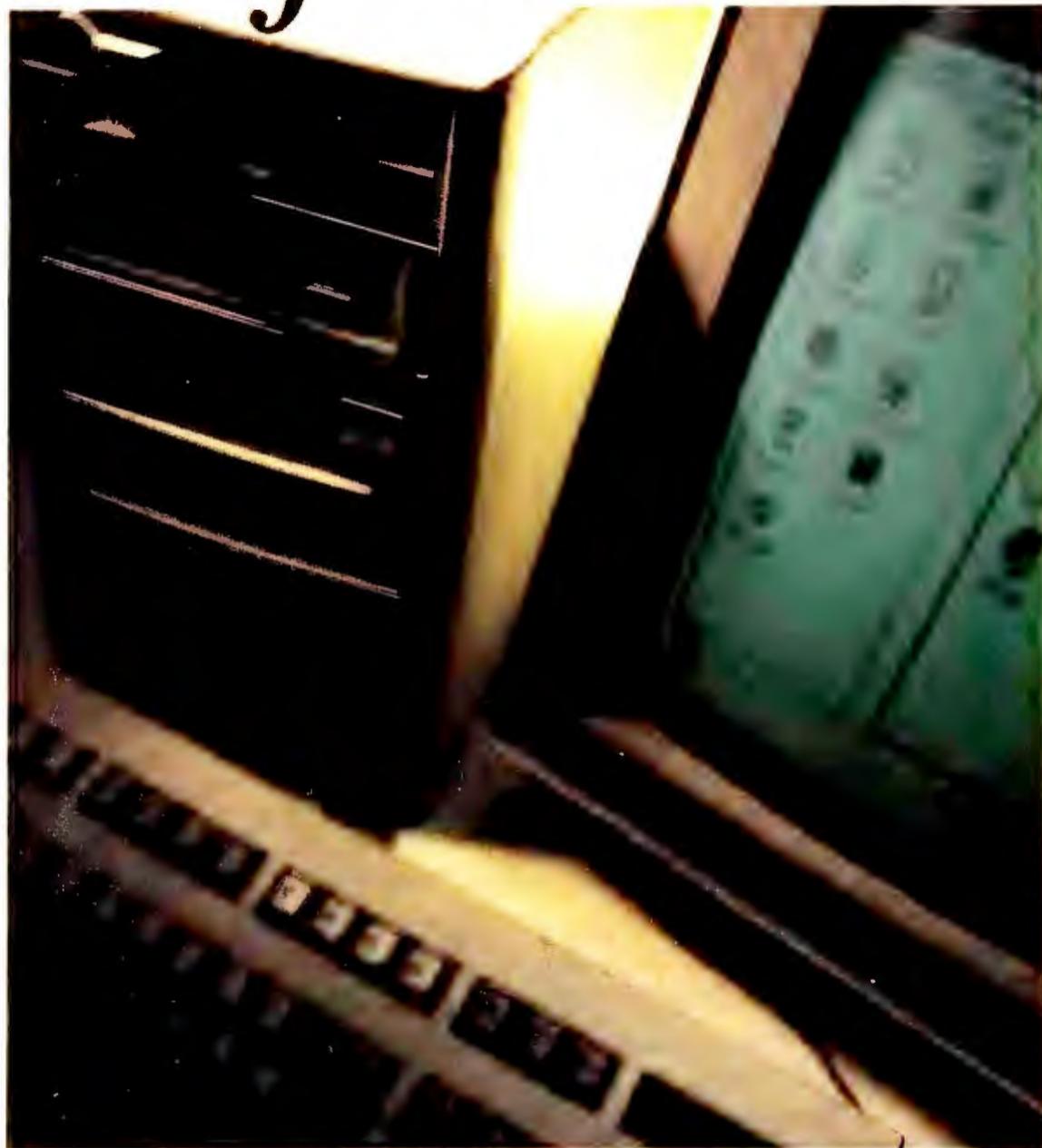
Two Year
On-Site Warranty

24 Hour Tech Support

Free Second-Day Air
Delivery

PERFORMANCE is a direction for a company, a goal for a system, a passion for the people who build our computers. It shows in the quality of the components we use, in our painstaking 72 hour testing program, in the way we protect your investment with two year on-site and second-day air; all at no extra charge to you.

It shows in the quality of our sales and tech staff too, people you'll actually enjoy talking with. And help is here if you need it - now 24 hours



386-SX 20Mhz Only: \$895

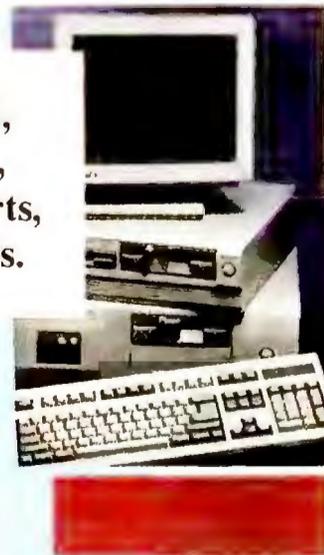
386-SX 16Mhz: \$795

All Computer Systems Include: One Meg RAM, Zero Wait State Operation, 1.2 or 1.44 Floppy, 1:1 IDE Controller, Parallel, 2 Serial, Game Ports, 101 Keyboard, MGP Video, Clock/Cal, Manuals.

386-25 Mhz: \$1199

286-12 Turbo: \$595

1024x768 VGA, \$499
40 MEG, 28ms HARD DRIVE: \$300



NOVA Computers manufactured by: **ComputersFirst** 27 West 20th Street New York, N.Y. 10003

Circle 35 on reader service card

and HPLJFONT.EXT. Also, make sure the DOS PRINT.COM utility is stored in a directory listed in the currently active PATH command. Then type hppr file1 file2...fileN to print your file or files.

Finders Keepers

For years I located files on my hard disk by piping the output from CHKDSK /V through the FIND filter. Recently I stumbled across an alternate method that uses the ATTRIB command from DOS 3.3 or later versions. To find all files ending with DOC, for example, I just enter `attrib c:*.doc /s`.

Gregory W. Dillon

San Francisco, California

Editor's note: This neat trick is definitely a keeper; it's much more versatile than using CHKDSK /V with the FIND filter. ATTRIB's /S option searches all nested paths for files that match the search argument. For example, enter `attrib c:\wp.txt /s` to locate files ending with TXT in C:\WP plus all subdirectories nested inside.*

Contents to Table 1, Hold the Underlines

Whenever I attempted to create a table of contents from a WordPerfect 5.1 document, the Generate command would always recreate my chapter titles' underlining, even when I didn't want it to. By examining hidden codes using the Reveal Codes command (<Alt>-<F3>), I discovered a simple trick that lets me use special formatting without having it appear in the table of contents entries.

The method takes advantage of the order in which WordPerfect inserts codes for titles and table of contents entries. Depending on the order in which you mark entries and underline titles, WordPerfect may reverse these symbols, causing unwanted underlines to print in the table of contents. By always having the table of contents (ToC) codes inside the underline codes, you (continues)

Antidote for host hangups.



There's no better way to reverse the time-consuming effects of host communications than with the Software Carousel/OLE team.

Together, they let you connect to your host. Make a request. Switch to another PC application while the host does its work. Then switch back again to receive your data.

OLE even lets you know when your data is ready, so you can retrieve it when you're ready.*

Which means no more lost time just because your network takes time to work.

Sound like the remedy you need? Call 800-272-9900 and we'll send you complete information. Or see your dealer today. *Requires NETBIOS interface

SOFTLOGIC SOLUTIONS

One Perimeter Road, Manchester, NH 03103

800-272-9900 • 603-627-9900

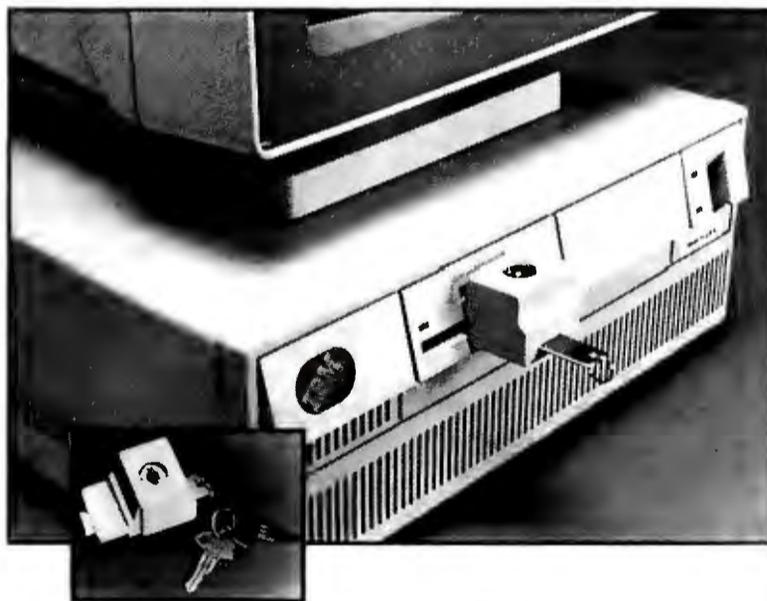
© Copyright 1990 SoftLogic Solutions, Inc.

8

Circle 23 on reader service card

DISK DRIVE LOCK™

PROTECT THE INFORMATION YOU DEPEND ON!



- Prevent anyone from copying your data.
- Protect your data from harmful viruses.
- Prevent the unauthorized use of your drive.
- Installs easily and quickly - just lock it on.
- Removes easily and quickly

Universal model DLK-250 - Fits most 5 1/4" & 3 1/2" drives.
Macintosh models DLK-260 & DLK-261 fit all Mac drives.

Quantity pricing available. Purchase orders accepted. Send for catalog.
Dealer inquiries invited. Shipping not included.

Secure-It, Inc. 18 Maple Ct. East Longmeadow, MA 01028 **\$24.95**
1-800-451-7592 MC/VISA

Circle 31 on reader service card

PC WORLD GIVES YOU A WINNING HAND!



Tired of flipping through user manuals?

Can't *find* the user manual?

Need lightning-quick access to key commands and features?

Need a software reference you can take anywhere?

PC WORLD'S NEW INSTANT REFERENCE CARD IS YOUR BEST BET.

This monthly pullout card gives you a full house of tips on using essential applications. One side provides basic commands that get you started; side two raises the stakes, with advanced pointers to help experienced users squeeze every bit of productivity out of their software and hardware investment.

LOOK FOR THESE INSTANT REFERENCE CARDS:

WordPerfect
Microsoft Word
Windows 3.0
Procomm Plus
Ventura Publisher
Paradox
Excel
PageMaker
1-2-3
DOS
CompuServe
...and more!

<Ctrl>-<F10>	Start macro recorder
<Alt>-T	Select macro key
Header1<Enter>	Give macro a name
<Alt>-<F4>	Turn on block mode
<End>	Mark to end of paragraph
<Alt>-<F5>	Select Mark Text command
11<Enter>	Specify TOC, Level One
<Alt>-<F4>	Turn on block mode again
<Ctrl>-<Home>	Enter two "gotos" to mark
<Ctrl>-<Home>	previous field
<F8>	Underline marked block
<Ctrl>-<F10>	Turn off macro recorder

FIGURE 2: Use this WordPerfect macro to prepare underlined headers that are not underlined in a table of contents.

ensure that *WordPerfect* prints underlined titles in the document but not in the table. The macro [in **FIGURE 2**] automatically marks my titles to produce clean table of contents entries.

Raymond J. Dale
Elkhart, Indiana

Editor's note: Start *WordPerfect* 5.1 and enter a sample chapter title. Move the cursor to the beginning of the title and enter the macro keystrokes, pressing <Enter> only where shown. When finished, load a document and position the cursor on each Level One title. Press <Alt>-T to underline the title and mark it for the table of contents.

To generate the table, move the cursor to the beginning of the document. Make certain the cursor is on a blank line, not on a header. Then press <Ctrl>-<Enter> <Cursor Up> <Alt>-

<F5>dc<Enter> to prepare a page for the table of contents, then <Alt>-<F5>ggy to make the table. In a few seconds, you'll see all your marked titles in the table, sans underlines.

Tom Swan is a contributing editor for PC World and the author of Mastering Turbo Pascal 5.5 and Mastering Turbo Debugger (Howard W Sams and Co., Carmel, Indiana, 1989 and 1990).

Have a macro, batch file, short program, or general tip you're proud of? Star-Dot-Star pays \$25 to \$200 per tip used. Send your tips to Star-Dot-Star, PC World, 501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). We cannot acknowledge submitted materials. ☺

POWER TIP NO. 157

Determining Your ROM BIOS Date

If you are experiencing problems with a hardware upgrade, you can use the DEBUG utility (which came on one of your DOS disks) to check the date of your computer's ROM BIOS. Run DEBUG, and at the hyphen prompt type dffff:5 lb and press <Enter>. Your system's ROM BIOS date will appear on the right side of your screen. Press q<Enter> to get back to the DOS prompt.

Troy Wagstaff
Provo, Utah

BASICS: VENTURA PUBLISHER 2.0 AND 3.0

What to do: This card covers the GEM version of *Ventura Publisher*, versions 2.0 and 3.0. (The Professional Extension module is not covered.) The sections below describe keyboard shortcuts as well as basic operations in Ventura's four major modes. To enter a new mode, click the appropriate mode icon in the upper-left corner of the screen. **Note:** To select a feature, move the cursor to a menu, menu option, or on-screen element and click the left mouse button.

KEYBOARD SHORTCUTS

What to do: Although Ventura is normally used with a mouse, these keyboard shortcuts can be faster.

Frame mode	<Ctrl>-U
Paragraph mode	<Ctrl>-I
Text mode	<Ctrl>-O
Graphics mode	<Ctrl>-P
Normal view	<Ctrl>-N
Reduced view	<Ctrl>-R
Enlarged view	<Ctrl>-E
Save file	<Ctrl>-S

FRAME MODE

What to do: Frames contain the text and graphics that make up a document. They lie on top of the master page frame, which dictates page size, margins, columns, and so on for an entire document. Before you take any of the following actions, be sure to select the Frame icon or press <Ctrl>-U.

Action	Steps
Select frame	Place pointer in frame, click
Add new frame	Add new frame, place mouse pointer on page, hold left button, draw frame
Move frame	Place pointer in frame, hold left button and drag
Size frame	Select frame, place pointer on handle, hold left button and drag to size
Delete frame	Select frame,
Load text/pictures into frame	Select frame, File Load/text picture, pick file type and format, OK, type file's drive and directory, select file, OK

Tip: You can set frame size exactly by selecting *Frame Sizing & scaling* and entering numbers at the Frame Width and Frame Height items. Click *Vert. padding:* to change measurement units.

PARAGRAPH MODE

What to do: Use this mode when typesetting text. Click the Paragraph icon, and style tags appear in the sidebar's Assignment list. Tags specify typeface, point size, style, spacing, and other attributes you can apply to a paragraph. A style sheet is a collection of these tags along with layout settings for the master page. To create a custom style sheet, modify one of the style sheets supplied with Ventura and save it under a different name.

Action	Steps
Select text	Place pointer in paragraph, click
Apply tag to text	Select paragraph, select tag in Assignment list

PARAGRAPH MODE (continued)

Tag multiple paragraphs	Select first paragraph, hold <Shift> and select additional paragraphs, select tag
Add new tag	Select paragraph, Add new tag, type tag name on 'Tag Name to Add' line (to copy values from another tag, type tag name on 'Tag Name to Copy' line)
Modify a tag	Select tag, Paragraph, make changes in Font, Alignment, and other menus
Remove or rename tags	Paragraph Update tag list, select tag, Remove selected tag or Rename tag, OK (if renaming, type new tag name)

Note: Any modification made to a tag is instantly applied globally to text set with this tag.

Tip: To make an exception to tag formatting in a document, you can create a new tag. However, if you're changing only typeface, size, style, or color, you don't need to change tags. Instead, switch to Text mode, select the text, click *Set font*, and make the changes.

TEXT MODE

What to do: Ventura's text mode is for last-minute changes rather than full-scale editing. Before taking any of the following actions, make sure you are in Text Editing mode.

Action	Steps
Place cursor	Place pointer in text, click
Select text	Place cursor at beginning of text, hold left button and drag (or place cursor at beginning of text, hold down <Shift>, point at destination, click)
Cut text	Select text,
Copy text	Select text, <Shift>-
Paste text	Place cursor, <Ins>
Enhance text	Select text, select enhancement from Assignment list

GRAPHICS MODE

What to do: With Ventura's basic polygon, ellipse, and line drawing tools, you can create simple graphics. Select the Graphics Drawing icon, and the tools are displayed directly below.

Action	Steps
Draw graphic	Select frame to attach graphics Select drawing tool, place pointer on page, hold left button, draw graphic
Move graphic	Place pointer inside graphic, hold left button and drag
Size graphic	Select graphic, place pointer on handle, hold left button and drag
Change line attributes	Select graphic, <i>Graphic Line attributes</i> , choose line thickness, color, end style, and so on
Change fill attributes	Select graphic, <i>Graphic Fill attributes</i> , pick fill color, pattern, and transparency

ADVANCED: VENTURA PUBLISHER 2.0 AND 3.0

What to do: The three sections on this card outline the steps for defining the layout of a chapter's master page, paginating a document, and assembling multiple chapters into a publication.

ADVANCED FORMATTING

Note: To define the layout of your master page, you'll need to set up a style sheet. If you plan to make custom modifications or create a new document style, always create a new style sheet from scratch or save the existing style sheet under a new name and make changes to the copy. Ventura automatically records changes to a style sheet whenever you save a document.

Action	Steps
Create new style sheet from scratch	File Load text/picture, select text format, OK, select text file, OK, File Load diff. style, scroll down the list and select DEFAULT.STY OK File Save as new style OK, type name for new style sheet, OK File Save
Define master page	Chapter Page size & layout, modify settings, OK
Define margins and columns	Select Frame mode, select master page, Frame Margins & columns, type desired number of columns, column width, margins, and so on, OK

ADVANCED FORMATTING (continued)

Set custom page size	Select Frame mode, select master page, Frame Sizing & scaling, type custom page width at Frame Width option, type custom page height at Frame Height option, OK
----------------------	---

Tip: Custom pages let you publish odd-sized documents, such as business cards, that print on a standard sheet of paper. By default, Ventura places a custom page in the upper-left corner of the sheet of paper. To move the custom page away from the left edge and top of the paper, change the values following the Upper Left X and Upper Left Y options.

Note: Use the following steps to define attributes of individual paragraph tags when designing a new style sheet from scratch or modifying an existing one.

Action	Steps
Change font attribute	Select Paragraph mode, select paragraph to be formatted, Paragraph Font, select font, size, style, and so on, OK
Change alignment	Select Paragraph mode, select paragraph, Paragraph Alignment, change vertical and/or horizontal alignment, OK
Change spacing between paragraphs	Select Paragraph mode, select paragraph, Paragraph Spacing, enter new numbers at Above and Below, OK
Change spacing between lines (leading)	Select Paragraph mode, select paragraph, Paragraph Spacing, enter new number at Inter-Line, OK
Change paragraph margins	Select Paragraph mode, select paragraph, Paragraph Spacing, enter new numbers at In From Left or In From Right, OK

PAGINATION

Note: To place page numbers in the document, use the Headers and Footers option described below.

Action	Steps
Create headers and footers	Chapter Headers & footers, turn on Usage, select header or footer type under Define, type header or footer text in appropriate Left, Right, or Center line, OK
Add page numbers to headers and/or footers	In the Headers and Footers dialog box, place cursor in appropriate Left, Right, or Center line, move to Inserts and click on Page #, surround with appropriate punctuation and text, OK

PUBLICATION FILES

Note: A chapter keeps track of all the related elements of a document, such as text, graphics, and the style sheet. In long documents with multiple tables, figures, and so on, you may want to join multiple chapter files to form a publication file for easier control over pagination. Here's how to set up and paginate a publication file:

PUBLICATION FILES (continued)

Action	Steps
Assemble chapters into a publication file	Options Multi-chapter, save or abandon changes when prompted, Add Chapter, pick desired chapter, OK, repeat last two steps for each additional chapter, Save/as, type name of publication file, Done

Tip: To order chapters in a publication list, select the chapter name, hold down the left mouse button, and drag the chapter into the desired position.

Note: By default, Ventura numbers pages separately within each chapter (for example, 3-1, 3-2, 3-3). However, you can continuously paginate across chapters so that page numbers continue automatically from the end of one chapter to the beginning of the next. To choose this option, you must first make continuous pagination settings for each chapter in the Chapter/Update Counters dialog box. Then renumber the complete publication in the Multi-Chapter operations dialog box.

Action	Steps
Paginate across a publication	Load first chapter in publication; Chapter Update counters Initial page, select Restart Number at Update Method, type 1 at Restart Number, OK; load each additional chapter in turn, following the same steps, but set Update Method to Previous Number + 1; Options Multi-chapter, select publication file, Renumber OK Done

Fold Here

DEVELOPER'S TOOLBOX

Booting Without DOS

Tom Swan

If you've ever sold or given away a program on disk, you've probably run into somebody who tried to boot your distribution floppy. Beginners are especially likely to make this mistake, and one of the most common questions that software support departments have to handle is, "Why can't I boot your company's disks?"

Of course, most developers know the answer. They can't distribute bootable floppies without paying for an expensive MS-DOS run-time license—assuming they can convince Microsoft to sell them one in the first place. Understandably, Bill Gates is not eager to have millions of copies of DOS floating around on floppies, losing control and revenue as Apple once did with Apple II DOS.

So if you need to create a bootable floppy, the first step is to forget about using MS-DOS. The second is to send off for a copy of General Software's *Booter Toolkit*. This brilliantly conceived *Microsoft C 5.1* and *MASM 5.0* function library gives you all the tools you need to create floppies that boot *without* either DOS system files or COMMAND.COM.

Understanding how this is possible requires a working knowledge of a PC's boot process. When you switch on your system or when you reboot, the BIOS attempts to load the "boot record," a small program stored at sector 0, track 0, and head 0. It tries to do this first from the A: floppy drive and then, if that fails, from a hard drive. If the BIOS can successfully load the boot record, it begins a sequence of events that transfers an operating system into RAM, initializes various system variables, and brings the computer to life.

By replacing the boot record with custom programming, you can take over these actions and convert a PC from a

DOS-based system to a black box that does whatever you want. It's not difficult to write a boot program—anyone with a little *MASM* experience and a good PC reference can do it. But it's the after-booting tasks that make programming minus DOS so difficult. Without DOS, you lose all the usual keyboard, display, and file-handling routines that most DOS applications require. Also, any of your carefully crafted programming libraries that call DOS functions—and that's probably most of them—are useless.

This is where the *Booter Toolkit* comes in. Included with the software are functions for reading and writing files stored on floppies (but not on hard drives or in subdirectories). There's a full set of text window functions that let you design good-looking screens. The tool kit also supports concurrent BIOS calls and OS/2-style multitasking threads. These and other features make *Booter Toolkit* just the ticket for creating self-starting, bootable demo disks, educational "read-only" information software, and even games that don't need DOS.

To get you started, the product comes with a well-organized manual that includes detailed information about the boot process. You also receive sample listings that can serve as templates for your own programs.

I'm planning to use the *Booter Toolkit* to create advertising disks that I'll give away for free and to add short programs to my current nonbooting disks. These will display a brief message telling beginners what to do if they accidentally try to boot from the floppy.

The *Booter Toolkit* is not a replacement for DOS. But if you need to create self-starting, bootable floppies, this tool kit will get you off and booting in a hurry.

Let's talk it over. My MCI Mail han-

dle is TSWAN; my CompuServe ID is 73627,3241. ☺

WHERE TO BUY

Booter Toolkit

General Software

P.O. Box 2571

Redmond, WA 98073

206/391-4285, 206/746-4655 (fax)

LIST PRICE: \$99

REQUIREMENTS: 256K at run time, 512K for development, DOS 2.1 or later version, Microsoft C 5.1 or later version, MASM 5.0 or later version

TECHNICAL SUPPORT: unlimited free support for registered users, toll number, M-F 9-5

OTHER SUPPORT: none

Reader service no. 601

POWER TIP NO. 158

Browsing Windows 3.0 Directories With File Search

Windows 3.0's File Manager has a handy Search command that accepts DOS wild-card file specs. For example, to hunt for all *Excel* files whose names begin with *B*, open File Manager, select *File Search*, and type *B*.XL?*. Make sure Search Entire Disk has an X in its check box; if this option is turned off, File Manager will look only in the current directory. Select OK to begin searching. After scanning the drive, File Manager displays any matching files and their paths in a Search Results window. You can then copy, delete, or perform other operations on selected files.

John Walkenbach
Del Mar, California



If your memory manager has no future under Windows, trade up to QEMM.

Windows 3.0 has driven most memory managers to the junkyard. But not ours.

QEMM 386 v5.1 to the rescue

They said it couldn't be done, but we've updated our QEMM 386 (Quarterdeck Expanded Memory Manager) to run with Windows 3.0's real, standard and enhanced modes.

QEMM 386 v5.1 works with the built-in capabilities of your 80386, 386SX or i486 processor to give you the expanded, extended and high memory your programs need.

One of QEMM 386's most popular features is its high memory management. As you can see in the chart, there are gaps in your PC's high memory (the memory between 640K and 1MB). QEMM 386 finds these idle gaps (on some PCs as much as 130K) and fills them with memory—so you can load TSRs, drivers and parts of DOS there. The result is more memory below 640K for memory-hungry programs; space for larger spreadsheets and data bases.

Windows 3.0 in its standard and enhanced modes didn't let you take advantage of these high memory gaps. QEMM 386 v5.1 gives you back these capabilities.

QEMM-386 System Requirements: 80386, 386SX and i486-based PCs and PS/2s and PCs with 80386 add-in boards. Operating system: PC DOS 2.0-4.0, MS DOS 2.0-4.0, Windows 3.0. Conventional memory requirement 1.7K. Trademarks: Windows: Microsoft Corporation 80386, 386SX and i486: Intel Corporation



Insufficient memory to run application; close one or more applications to increase available memory and try again.

When Windows 3.0 says there's not enough room to run your DOS programs, it's just trying to tell you it needs QEMM 5.1.

QEMM 386 has many more features. For example, there's *Optimize* to assist you in loading programs in high memory. And there's *VidRAM* that lets you use the EGA/VGA (as much as 96K) video area when you aren't running graphics.

Trade in your old memory manager for QEMM 5.1

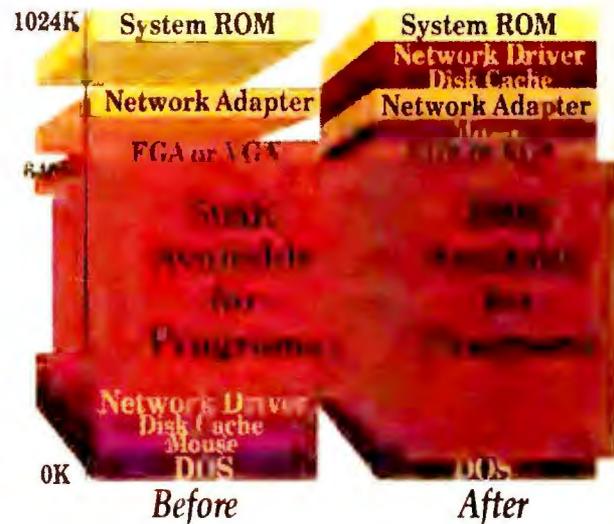
We're providing a second chance for users who picked the wrong memory manager.

We'll include you in our upgrade offer to QEMM 386 v5.1.

Whether you purchased your memory manager or it came with the computer you bought, we'll accept the cover of your user

manual as proof of ownership. Just send it to us with your upgrade payment, and we'll rush you QEMM—the memory manager that sets industry standards.

Quarterdeck is committed to helping you get the most out of the hardware and software you own today. And tomorrow.



QEMM finds the pockets of unused memory in your PC and makes them available.

Yes! I'm trading up to QEMM!

Payment method check Visa MasterCard American Express

Expiration _____ / _____ Card # _____

Name _____

Address _____

City _____

State _____ Zip _____

Please allow 3 weeks for delivery

Qty	Product	5-1/4	3-1/2	Each	Totals
	QEMM 386 5.1			\$99.95	
	Upgrade QEMM v5.0 to v5.1*			\$20.00	
	Upgrade QEMM v4.x to v5.1**			\$40.00	
	Upgrade other to v5.1*** (with proof of ownership)			\$45.00	

Shipping & handling \$5 in USA/varies outside USA
California residents add 6.75%

* If you purchased QEMM 386 5.0 on or after June 19, 1990, you are eligible to receive this upgrade free of charge. Simply send proof of purchase with your registration card.
** To registered owners only.
*** Enclose the original cover of your current memory manager users manual(s) in order to get this special price. Offer expires 12/31/1990. For this upgrade offer, Windows 3.0 is not considered to be a memory manager.



Quarterdeck Office Systems, 150 Pico Blvd., Santa Monica, CA 90405 (213) 392-9851 Fax: (213) 399-3802

CATALOG

PC WORLD

Shop *The PC World Catalog* for fast solutions to your PC needs.

HARDWARE

■ Accessory Boards _____	218
■ Bios Chip _____	218
■ CD ROM _____	218
■ Communications/Modems _____	219
■ Computer Rental _____	218
■ Computer/Systems _____	218
■ Laptops _____	220
■ Memory Boards _____	220
■ Peripherals _____	220-221
■ Plotters _____	221
■ Security _____	221
■ Tape Back-Ups _____	222

■ Laser Fonts _____	229
■ Mailing Programs _____	230
■ Maintenance Management _____	230
■ Manufacturing _____	230
■ Medical _____	230
■ Music _____	230
■ Networking _____	230
■ Productivity _____	231
■ Project Management _____	231
■ Public Domain/Shareware _____	231
■ Real Estate _____	232
■ Security _____	232
■ Statistics _____	232
■ Surveys _____	232
■ Taxes _____	232-233
■ Utilities _____	233
■ Windows _____	233

MISCELLANEOUS

■ Accessories _____	222
■ Bar Coding _____	222-223
■ Business Opportunities _____	223
■ Catalogs _____	223-224
■ Computer Insurance _____	224
■ Data/Disk Conversion _____	224
■ Disk Copy Service _____	224
■ Disks _____	224
■ Supplies _____	225

ADVERTISING SALES STAFF

Sandra Wade - *Catalog Manager*
 Duane Hampson - *Eastern Account Manager*
 Elizabeth Maffly - *Catalog Advertising Coordinator*

ADVERTISING RATES&INFORMATION

The *PC World Catalog* serves as a cost-effective monthly meeting place for advertisers and volume purchasers. *Our readers don't want to shop, they want to buy!* And your message can reach them in two formats—display or text. Both are arranged by product category for easy reference.

Display ads are sold by the column-inch (2-inch minimum). You must supply camera-ready type and artwork. Standard red is available as a second color.

Text ads are sold at a minimum three-time rate of \$475 per issue for a total of \$1,425. You supply copy. We set type.

For further information regarding the *Catalog*, space closings and material deadlines, please call Toll-Free 800/435-7766. Within California, call 800/435-7760.

PC World
 501 Second Street
 San Francisco, CA 94107

PcW PCW Communications, Inc.
 An IDG Communications Publication

SOFTWARE

■ Accounting _____	225-226
■ Business Applications _____	226
■ Church Applications _____	227
■ Construction _____	227
■ Data Base _____	227
■ Data Entry _____	227
■ Discount Mail Order _____	227
■ Educational _____	227-228
■ Entertainment/Games _____	228
■ Financial _____	229
■ Flow Charting _____	229
■ Genealogy _____	229
■ Graphics _____	229
■ Health _____	229
■ Inventory Control/Management _____	229
■ Languages _____	230

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

HARDWARE/ Accessory Boards

Computer Rental

BLAST YOUR MESSAGE THRU

POWER LINE

VOICE MAIL CALL PROCESSING TELEMARKETING

Let Powerline transform your PC/XT/AT/386 into a multi-line voice processing command center. Have your computer intelligently process your sales, inquiries and messages. Complete package.

Single Line (BigMouth) . . . \$295.00
Multi-Line \$895.00

(Developer/OEM packages available)
 VISA • MC • AMEX • COD

Call: (415) 522-3800
 FAX: (415) 522-5556

TALKING TECHNOLOGY, INC.
 1125 ATLANTIC AVENUE, ALAMEDA, CA 94501

CIRCLE 521 ON READER SERVICE CARD

BUY WITH CONFIDENCE!

CATALOG

AWARD BIOS ROM UPGRADES

Upgrade your IBM XT, AT or Compatible with a new AWARD BIOS ROM. Add high density floppies, 101 keyboards, etc. Call for FREE Catalog.

KOMPUTERWERK
 851 Parkview Blvd.
 Pittsburgh, PA 15215
 Orders (800) 423-3400
 Tech. (412) 782-0384

CIRCLE 478 ON READER SERVICE CARD

RENTALS



\$179 per mo

IBM PS/2 30-286

Also Available:

- IBM PS/2
- Compaq
- Macintosh
- Laser Printers
- Laptops
- Portables

And a host of other peripherals!

PC Computer Rental

Next Day Delivery Anywhere in the U. S. A. **Call Toll-Free 800-765-4727**

CIRCLE 545 ON READER SERVICE CARD

Computer Systems

Bios Chip

ROM BIOS UPGRADES
 Complete Upgrades For Your IBM or Compatible

ROM BIOS FEATURES

THE ROM BIOS UPGRADES SUPPORT 360K, 720K, 1.2MB & 1.44MB FLOPPY DISK DRIVES; COMPLETE SET-UP IN ROM; EGA AND VGA SUPPORT; OPTIONAL BUILT-IN DIAGNOSTICS IN ROM (AMI DNLY); NOVELL AND NETWARE COMPATIBLE; SUPPORTS UP TO 48 DIFFERENT TYPES OF HARD DRIVES PLUS TWO USER DEFINED; 84, 101 & 102 KEY BOARD SUPPORT; 100% IBM COMPATIBLE; SUPPORTS SPEEDS UP TO 33 MHz; SUPPORTS 0.1 DR 2 WAIT STATES; FULL OS/2 SUPPORT; FULL MICROSOFT WINDOWS SUPPORT; COMPLETE DOCUMENTATION; LATEST VERSIONS. UPGRADING A BIOS CHIP IS RELATIVELY EASY, EVEN A PERSON WITH NO COMPUTER EXPERIENCE CAN DO IT ALL OUR ROM BIOS UPGRADES COME WITH FULL INSTALLATION INSTRUCTIONS. WE ARE THE LARGEST STOCKING BIOS DISTRIBUTOR IN AMERICA!

XT BIOS UPGRADES

AMI-XT BIOS	49.95
PHOENIX-XT BIOS	49.95
PATERSON-TURBO XT BIOS	49.95

AT 286 BIOS UPGRADES

AMI-286 INTEL BIOS	69.95
AMI-286 CHIP & TECH BIOS	69.95
AMI-286 VLSI BIOS	69.95
AWARD-286 INTEL BIOS	69.95
PHOENIX-286 INTEL BIOS	69.95
PHOENIX-286 AST BIOS	69.95

AT 386 BIOS UPGRADES

AMI-386 INTEL BIOS	69.95
AMI-386 CHIP & TECH BIOS	69.95
AMI-386 VLSI BIOS	69.95
AMI-386-SX INTEL BIOS	69.95
AMI-386-SX VLSI BIOS	69.95
AMI-386-SX CHIP & TECH BIOS	69.95
AWARD-386 INTEL BIOS	69.96
AWARD-386 CHIP & TECH BIOS	69.95
PHOENIX-386 INTEL BIOS	69.95
PHOENIX-386 COMPAQ BIOS	69.95
PHOENIX-386 CHIP & TECH BIOS	69.95
PHOENIX-386-SX INTEL BIOS	69.95

IBM BIOS UPGRADES

PHOENIX-IBM-PC BIOS	69.95
PHOENIX-IBM-XT BIOS	59.95
PHOENIX-IBM-AT BIOS	69.95

KEYBOARD BIOS UPGRADES

AMI-286/386 KEYBOARD BIOS	34.95
AWARD-286/386 KEYBOARD BIOS	34.95
PHOENIX-286/386 KEYBOARD BIOS	34.95

UPGRADES ETC.

15822 N.E. 165TH ST.
 WOODINVILLE, WA 98052
 (800) 541-1943 - ORDERS
 (206) 882-3634
 (206) 881-8294 - FAX

TECH SUPPORT

VISA • MC • COD

- 1 Year Warranty
- 30 Day Money Back Guarantee
- Volume Discounts
- Free Technical Support
- Same Day Shipping
- We Ship UPS & FedEx Express Available
- Authorized Stocking Distributors
- Factory Beats Our Prices We Guarantee It!
- Free Catalog
- Cartridges & Removable PC's Are Welcome!
- Dealers, OEM'S, VAR'S Welcome!

CIRCLE 560 ON READER SERVICE CARD

CD Rom

CD-ROM

BUREAU OF ELECTRONIC PUBLISHING

U.S. History CD-ROM Special

100 U.S. History books including 1,000 images, tables & maps on one CD-ROM disc, an indispensable resource!

U.S. History on CD-ROM disc \$395
 Complete CD-ROM drive kit bundled with U.S. History (Save \$200) 895

CD-ROM Drives

NEC CDR-35 w/ audio for PC	499
Hitachi Drive with audio for PC	699

CD-ROM Titles

Between Heaven & Hell practical/perverse	99
Exotica-ROM exotic adult art by Olivia	189
Microsoft Bookshelf writers reference	199
McGraw-Hill Ref. set 100,000 terms	245
Grolier's Encyclopedia 20 vol. PC & Mac	289
Countries of the World over 100 study books	295
NEC Type Gallery full Adobe type library	319
Programmer's Library 20,000 pages on-line	369

MORE! Over 200 different titles
 FREE subscription to CD-ROM End User
 Money back guarantee Free tech support
 Call - Bureau On-Line CD-ROM Library,
 Free access to 12 different CD-ROM discs
 Guaranteed Lowest Prices

VISA • MC • AMERICAN EXPRESS • DISCOVER

Bureau of Electronic Publishing, Inc.
 Dept. A • 141 New Road, Parsippany, NJ 07054
 Tel: # 201-908-2875

Call: 1-800-828-4766 orders only
 201-808-2700 information

CIRCLE 540 ON READER SERVICE CARD

Tandy Computers

Nationwide Sales - Guaranteed Best Prices

The Canfield Company

1-800-633-0197

400 Pennsylvania
 Holton, KS 66436

A Radio Shack® Dealer

1-913-364-2171
 FAX 913-364-4311

CIRCLE 541 ON READER SERVICE CARD

Complete Systems

386-33 w/64K Cache	\$1730
386-25 MHz	\$1140
386-16 MHz sx	\$790
286-12 MHz	\$535

All systems include

1 MB RAM - 1.2 or 1.44 MB Teac floppy - 101 KB
 1:1 hard/floppy controller - AT I/O (2 S/1 P/1 G)
 Small footprint deluxe case w/230W power supply
 One year in-house parts & labor warranty

Options

Mono display & card	\$95	40 MB	\$230
VGA display & card	\$375	104 MB	\$495
Hi-res VGA & card	\$450	200 MB	\$850

Also available at low low prices

IBM	NEC	Epson	Seagate
Apple	Mitsubishi	HP	Conner
Compaq	Zenith	Toshiba	Maxtor
AST	Samsung	Panasonic	NEC

MICRO BASE TECHNOLOGIES Visa / Mastercard
 (800)345-4479 (408)727-6276 CA
 (408)727-7307 Fax
 3000 Scott Blvd Suite 203 Santa Clara CA 95054

CIRCLE 423 ON READER SERVICE CARD

Great Western Electronics

Lowest Prices on

TANDY® & RADIO SHACK®
 COMPUTERS
 &
 Non-Tandy Peripherals

SAVE 20-50%

Our 8th Year of Discount Sales

1-800-447-4225
 232 Main St.
 Montrose, CO 81401
 (303) 249-9125

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

Laptops

Peripherals

LAPTOPS

800-741-LAPS

TOSHIBA COMPAQ
ALTIMA SHARP
EPSON T.I.

Much More...

We carry a full line of Modems,
Memory Upgrades, Exp. Chassis, Etc...

LAPTOP CITY

3399 N.W. 72 AVE. #106
MIAMI, FL 33122

CIRCLE 421 ON READER SERVICE CARD

Never buy another ribbon!

Over 150,000 sold!!



MacInker™, the Automatic Ribbon Re-inker, re-inks any PC printer ribbon or typewriter (black & color) for 5 cents. Lubricating ink cools printhead, extends its life and yields better-than-new printout. Avge. re-inkings per cartridge: 60-100. **Universal MacInker** (spec. cartridge or spool) \$75.00. **Epson or Imagewr.** \$45.00. Adapters available for any multicolor cartridge, \$40.00. We have a complete range of black, color, heat transfer, special ink cartridges. Satisfaction or 30 day refund. Free key-beeper-flashlight for orders >\$100.00. **Order toll free or call to get full information.**

(800)547-3303 Computer Friends
14250 Science Pk. Dr.
Portland OR 97229
tel. (503)626-2291
fax (503)643-5379

Major credit cards accepted. POs
from National Accounts accepted
Shipping \$5.00. cod add \$3.30

CIRCLE 483 ON READER SERVICE CARD

TDX 9-TRACK TAPE DRIVES

6250 BPI

3200 • 1600 • 800

Auto/Manual Loading
True Start/Stop
Fastest Transfer Rate
Maximum Reliability
Extensive Software

Value = Speed × Reliability²



The Only Intelligent Choice

TDX equipment provides PC users data throughput unmatched by other systems. Many applications requiring hours on other drives are completed in minutes by TDX. In addition, the reliability, cost-effectiveness, and flexibility of TDX drives are second to none. TDX is the only intelligent choice.

Up to 1.0mb/sec. transfer rate
As little as 6.0ms access time

DOS, XENIX,
PC/XT/AT/386,
PS/2 Micro Channel,
SCSI, RS-232
GCR, DDPE, PE, NRZI

Rack Mounts
Desktop Enclosures
7-Track Options

TDX PERIPHERALS

800/842-0708 - 516/273-5900

TDX Peripherals, Inc.

80 Davids Drive
Hauppauge, New York 11788

CIRCLE 497 ON READER SERVICE CARD

PLACE YOUR AD IN
The PC World Catalog TODAY.
800-435-7766
In CA: 800-435-7760

Memory boards

IMPROVE YOUR MEMORY

PS/2

Model 50Z, 55SX
65SX, 70
2 MB \$229

Model 70, 80
2-8 MB Board \$565
4-16 MB Board \$985

HP LASER

Laser Jet II, IID

1 MB \$143
2 MB \$215
4 MB \$430

Laser Jet IIP, II

1 MB \$143
2 MB \$260
4 MB \$520

TOSHIBA

Call for all models

COMPAQ

Desk Pros 386/20
20E, 25, 25E, S
1 MB Module \$140
4 MB Module \$450

Portable 386
1 MB Kit \$280
4 MB Board \$900

System Pro, 386/33L
2 MB \$270
8 MB \$1,600
32 MB \$9,900

5 YEAR WARRANTY
FREE CATALOG
PROFESSIONAL SUPPORT

SPECIALIZED SYSTEMS TECHNOLOGY

We carry all the major types of memories.
Call our knowledgeable staff for the most
current prices and the support you need

1-800-688-8993



CIRCLE 429 ON READER SERVICE CARD

3480 / 9 TRACK

TrackMaster™

The TrackMaster provides you with the most complete solution available. Choose from a wide range of standard or custom systems. We stock what we sell. Kelewan is the only company that can provide you the "Master" solution.

- On-site installation
- 800,1600, 3200, 6250
- On-site service available
- Custom Software Services
- Dos, Unix, Xenix, Novell, Pick
- 486/386/AT/XT/PC and PS/2

800-444-3006

Ph. (619) 679-0400
Fax (619) 748-0280

Kelewan Systems

CIRCLE 409 ON READER SERVICE CARD

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.



Spectacular Performance. Now Playing On 9-Track Tape.

If you're looking to connect 9-track tape to your PC, Overland Data offers an all-star cast of complete subsystems. They are equally at home playing for all IBM PC compatibles or PS/2's, under DOS, UNIX, XENIX or PICK, 800 to 6250 bpi. They perform EBCDIC-ASCII conversions and backup brilliantly. And the supporting cast can't be beat. **Two year warranty on controllers**, one year on tape drives. Expert help by phone. 30 day, money back application guarantee. And ten years experience as founder and leader of the industry. All of which means spectacular performance play after play. To reserve your seat, call us at:

1-800-PC9-TRAK

OVERLAND DATA
San Diego, CA

1-800-729-8725 • 1-619-571-5555 • FAX 1-619-571-0982 • TELEX 754923 OVERLAND

CIRCLE 554 ON READER SERVICE CARD

PICK THE HARDWARE CATEGORY THAT'S RIGHT FOR YOU

Accessory Boards
Bios Chip
Cables
Computer Rental
CD-Rom
Communications/
Modems
Computer Systems
Connectivity
Disk Drives
Expansion Units
Insurance

Laptops
Memory Boards
Memory Chips
Optical
Peripherals
Plotters
Power Supplies
Printers
Security
Speed Devices
Tandy Peripherals
Tape Back-Ups

THE TRUE 100 IPS 9 TRACK TAPE SUBSYSTEM for IBM PC/AT/386

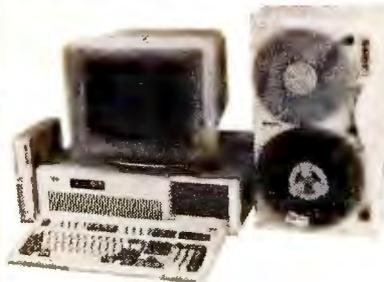
operating at 800*/1600/3200 BPI



You don't have to sacrifice these features:
100 IPS speed... doubles your throughput
Protects tape from dust while running*
Full 1 year Warranty
Tension control to insure IBM interchange
Popular interfaces and mountings
SHOWN W/OPTIONAL PROTECTIVE DUST COVER
AKSystems Inc. *OPTIONAL
20741 Marilla St. Chatsworth CA 91311
TEL: 818/709-8100 FAX: 818/407-5889

CIRCLE 584 ON READER SERVICE CARD

9-Track Tape Subsystem



Now you can exchange data files between your IBM PC/XT/AT and any mainframe or mini-computer using IBM compatible 1600 or 6250 BPI 9-Track tape. Unit can also be used for disk backup. Transfer rate is up to 4 megabytes per minute on PCs and compatibles. Subsystems include 7" or 10½" streaming tape drive, tape coupler card, cables and software.

QUALSTAR

9621 Irondale Avenue
Chatsworth, CA 91311
Telephone: (818) 882-5822

CIRCLE 527 ON READER SERVICE CARD

Plotters

Affordable, Large Format Plotters

Now you don't need a big budget to get quality and performance from your plotter. That's why Zetron's large format plotters are becoming so popular.

Our D size starts at \$1695 and our A F model is only \$2995 direct from Zetron.

Call us today for a free sample plot and info about our money back guarantee. #0491 Encyclopedia Circle, Fremont, CA 94536. In CA (415) 490-8580. FAX (415) 490-3906.

**No Risk
Money Back
Guarantee**

\$1695. - \$2995.
Factory Direct Pricing

(800) 727-8380

CIRCLE 532 ON READER SERVICE CARD

Security

HANDS OFF THE BOARD™ PC SECURITY



½ SIZE SECURITY BOARD

- Stop floppy boot—Require password to boot PC
- Real-time disk encrypt—prevent boot sector virus
- Prevent DOS FORMAT/FDISK and low-level formats
- Set hard disk READ ONLY or turn ON/OFF
- Turn floppies, printers and COM ports ON/OFF
- IBM XT, AT Bus—DOS V3.0+

Price: **\$149.95**

add 5.00—shipping/handling.

Check, Money Order, VISA, MC accepted

Systems Consulting Inc.

412-963-1624

PO Box 111209, Pittsburgh, PA 15238

CIRCLE 515 ON READER SERVICE CARD

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

Tape Back-Ups

9-Track Tape For Your IBM PC/XT/AT/PS-2™



Read 1600 or 6250 bpi 9-track tapes from a micro, mini or mainframe in EBCDIC or ASCII as mirror image or by individual files.

Use the 2000 PC™ for disk backup, data interchange or archival storage. PC/XT/AT/PS-2 are trademarks of IBM. 2000 PC is a trademark of Digi-Data.

DIGI-DATA CORPORATION
5 E. DuPont Highway
Jessup, MD 20794-9990
(800) 782-6395
FAX (301) 498-0771
... First In Value

CIRCLE 428 ON READER SERVICE CARD

Custom Imprinted IBM Key Caps



Hooleon SnapCap
Kits Supporting:
WordPerfect 5.0™
or IBM® 5251
Emulation

For 101-Key Keyboards

Customize Your Keyboard with:

- Custom Key Imprinting
- Keytop Label Kits for Software
- Relegendable Keys for Cherry™, Wyse™ & Key Tronic™
- Custom Keytop Label Imprinting
- Keyboard Protectors & More

Call for your **FREE CATALOG!**

800 937-1337

602 634-7515 FAX: 802-634-4620

Hooleon CORPORATION P.O. B. 230, Dept. PCWD
Cornville, AZ 86325

CIRCLE 518 ON READER SERVICE CARD

**BUY
WITH
CONFIDENCE**

CATALOG
**SHOP
PC WORLD**

Bar Coding

BAR CODE READERS

FOR PC'S:

- PC/XT/AT & CLONES
- PS/2 - ALL MODELS
- TANDY 1000 SX/TX/SL TL/1200/3000/4000
- ZENITH 138/148/151/158/248
- EPSON EQUITY III/I+/II+/III+

- * NO SOFTWARE CHANGES REQUIRED
- * DATA APPEARS AS KEYBOARD INPUT
- * READS CODE 39, I-2 OF 5, UPC A/E, EAN 8/13, CODABAR
- * AUTO-DESCRIMINATES BETWEEN CODES
- * DIRECT FROM MANUFACTURER
- * 30 DAY MONEY BACK GUARANTEE
- * SAME DAY SHIPPING

FOR TERMINALS:

- WYSE 30/50/60/75
- KIMTRON KT7/PC & KT70/PC
- LINK MC-5
- RS-232

BAR CODE PRINTING SOFTWARE:

- MS/PC DOS SYSTEMS
- 9 & 24 PIN DOT MATRIX
- H-P LASER JET/PLUS/SERIES II

RESELLER DISCOUNTS AVAILABLE

AMERICAN MICROSYSTEMS
2190 A REGAL PARKWAY
EULESS, TX 76040 (817) 571-9015
(800) 648-4452
FAX (817) 685-6232

FREE GLOBAL CATALOG

148 page guide
to computer furniture,
supplies and accessories

Dial Toll-Free
1-800-8-GLOBAL

GLOBAL
COMPUTER SUPPLIES
11 Harbor Park Dr.
Port Washington, N.Y. 11050

CIRCLE 50R ON READER SERVICE CARD

TKS Builds a Better Bar Code Reader!

- Excellent first read rate
- Works with any program — no software required
- Plastic wand is rugged, lightweight and comfortable, even after hours of use (stainless steel wand also available)
- Durable extruded aluminum case
- Reads all major bar code types
- 30-day money-back guarantee



EZBarcode PC-WEDGE II

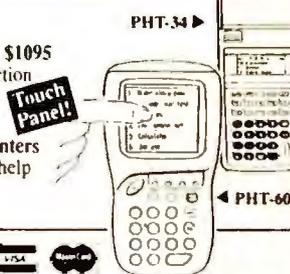
- Free bar code printing utility included
- Complete with wand, it's

only
\$289!

RS-232 version \$319
Macintosh version \$309
Stainless steel wand, add \$60
Mag stripe option, add \$100

Portable Hand held Data Collection Terminals

- Easy-to-use application generated software included free
 - PHT-34: Alphanumeric keypad, bar code wand, 128K memory . . \$1095
 - PHT-60: Graphics touch-sensor LCD display, programmable function keys, bar code wand, RAM card port, 256K memory . . \$1795
- Bar Code Printing Programs . . . \$149 each
- Print Code 39, UPC, EAN, 2 of 5 on dot matrix or Laser Jet printers
- EZBarcode II - Keyboard or text file input, incrementing, on-line help
 - dBARCODE - Prints bar codes from within dBASE
 - EZRes - Memory resident bar code printing program



TimeKeeping Systems, Inc.

1306-W East 55th Street • Cleveland, Ohio 44103 • Phone: (216) 361-9995 • Fax: (216) 361-0030

MISCELLANEOUS/ Accessories

Mouse Pads w/your Logo

Qty.	Canvas	Hard Surface
•12	\$8.50	N/A
•72	\$5.90	N/A
•144	\$4.19	\$5.69
•500	\$3.80	\$5.30
•1000	\$3.49	\$4.99

Canvas: Grey, Red, Gold, Blue, Tan
Hard-Surface: Gray, White, Blue Size:
9.5" x 8" x 3/8" Multi-color OK
SAMPLES with your logo \$12.50 ALL
prices include logo. Entire pad
imprintable. Imprints 100% GUARAN-
TEED

Computer Expressions
3833 Chestnut Street
Philadelphia, PA 19104
800/443-8278, 215/222-4400

FREE CATALOG

COMPUTER SECURITY PRODUCTS

- Theft Protection
- Unauthorized Access/Use Control
- Software Security

1-800-766-LOCK

DOSS INDUSTRIES
1224 Mariposa St. SF CA 94107

PERCON® Bar Code Readers for Apple®, DEC™, IBM®, and Wyse® Computers

Call 1-800-8-PERCON
for more information.

PERCON
INCORPORATED

2190 West 11th Ave., Eugene, OR 97402-3503
(503)344-1189 FAX (503)344-1399
AppleLink: D3857
CONNECT: PERCONENG 1

CIRCLE 427 ON READER SERVICE CARD

BAR CODE & MAGNETIC STRIPE READERS

for the IBM PC & PS/2

Simple & quick installation
No additional software or port
Metal wand & case

Also available:
SmartCard encoder/reader
Bar code printing software
Magnetic stripe encoders
Units for other computers
& terminals

TPS ELECTRONICS
4047 Transport Street
Palo Alto, CA 94303
Telephone: 415-856-6833
1-800-526-5920

Telex (Graphnet) 371-9097 TPS PLA
FAX: 415-856-3843

CIRCLE 522 ON READER SERVICE CARD

CATALOG

PC WORLD

Shop *The PC World Catalog* for fast solutions to your PC needs.

LABELING SOFTWARE

LABELS

BIG TEXT
UPC, MSI, 2 of 5, 128, Code 39
FLEXIBLE FORMAT/SIZE
13 TEXT SIZES, IF NECESSARY
Logos/Symbols



- For Epson, Oki, IBM, and LaserJet
- Flexible design. Any Format or size.
- On-Screen Label Design, WYSIWYG
- 16 text sizes — 3" reads at 100'
- Bar codes: 2of5, 128, UPC/EAN AIAG, MIL-STD, ZIP+4, & Code 39
- Auto-incrementing. File input.
- Logos, symbols — from scanners.
- Reversals, color, soft fonts.
- Powerful, Versatile, Fast, Easy!

- Above label printed with LabelRIGHT™ — \$279
- Other menu driven programs from \$49. XENIX — \$199
- MS-DOS user callable routines from \$179

Portable Readers

- Battery operated reader
- Simple, powerful, 64K memory
- Bar code or keyed input
- MSI, 2of5, UPC/EAN, 128, Code 39
- Easily programmable prompts
- Uploads via RS-232 or keyboard
- Doubles as non-portable reader
- Wand or laser input
- Complete with wand — \$849



Bar Code Readers

for PC, XT, AT, PS/2, Mac and all RS-232 Terminals

- Attaches as 2nd keyboard
- No software changes
- 2of5, UPC/EAN, 128, MSI, Code 39
- Magstripe, laser, or wand input
- Complete with steel wand — \$399



WORTHINGTON

DATA SOLUTIONS

417 Ingalls Street
Santa Cruz, CA 95060

Direct from manufacturer
30 day \$ back guarantee!

800-345-4220
CA 408-458-9938

PC WAND BAR CODE READERS

\$279



NEW
IMPROVED

Starting at \$279 with wand! • Transparent operation. • No software required • PC, XT, AT, Mac, PS2, others. Look into our full line of reliable, competitively priced readers, keyboard and serial wedges, portable data collectors, multi-drop readers, wands, laser scanners, mag stripe readers, and bar code printing software • OEM and reseller discounts. We provide solutions to systems! Custom application software for Data Collections available. Call for details.



INTERNATIONAL TECHNOLOGIES & SYSTEMS CORP.

655-K North Berry St., Brea, CA 92621
(714) 990-1880 • FAX (714) 990-2503
13 Welwyn Ct., Richmond, VA 23229
(804) 741-6725

CIRCLE 501 ON READER SERVICE CARD

Business Opportunities

Software Dealers Wanted

Perfect Care program needs dealers. We teach how to sell, install & support our medical billing sys. to MDs...a profitable high growth service industry. We offer:

- Training & continuous support
- 7 yrs of medical computer exp.
- Protected territories nationwide.

Ted Itzkowitz
STI Computer Services, Inc.
251 W. DeKalb Pike-Concord 107
King of Prussia, PA 19406
215/768-9030

Own a Billing Service!

Great part time PC based business. Provide invoicing and accounts receivable services to small businesses. \$500-\$5000 income monthly. \$249 for complete set-up incl; Software, proven marketing plan, promotional materials, and ongoing support.

Bluejay Systems
Call (508) 531-5256.
41 Driscoll St.
Peabody, MA 01960

Catalogs

VARIANT MICROSYSTEMS
BAR CODE READERS DELIVER
WAND/ LASER/ MAGNETIC
CARD CONNECTIVITY

- Keyboard wedges (Internal/External) for IBM PC/XT/AT, PS/2 and portables.
- RS232 wedges for WYSE, Link, Kimtron terminals
- Autodiscriminate between codes 3 of 9, UPC, EAN, 12 OF 5, Codebar, Code 128
- Interface with wands, Symbol Technologies, Metrologic and Photographic Sciences lasers
- Bar code and label printing software
- Full two year warranty
- 30 Day Money Back Guarantee
- Extensive VAR/Dealer Discounts

VARIANT MICROSYSTEMS
3140 De La Cruz Blvd.,
Suite 200
Santa Clara, CA 95054
Phone (408) 980-1880
Fax (415) 623-1372

CIRCLE 468 ON READER SERVICE CARD

PCjr Owners!!

Everything You'll Ever Need Plus Much, Much More!!

- Memory Sidecars - Expand now to 1.2 MB!
- Second & Third Disk Drives which Snap-on-Top
- 3 1/2" 720K Disk Drives for PS/2 Compatibility
- Speed-Up Boards-Increase Speed to 9.54 MHz
- 20, 30, 40, 60 & 80MB Hard Disk Drive Systems
- 101-Key Enhanced PCjr Keyboards
- Serial Port Compatibility Boards
- Modifications for Tandy Compatibility
- PCjr Compatible Software & Game Cartridges
- PCjr System Units with 128K or 256K
- Diagnostic Service Only \$25
- Replacement Parts and Repair Service

Remember—When you purchase all your PCjr products from PC Enterprises you'll never need to worry about compatibility. Our new full color catalog now features over 300 PCjr products on 56 pages. Call or write for your FREE copy today!!

(800) 922-PCjr (201) 280-0025

PC ENTERPRISES

"The jr Products Group"
PO Box 292 Belmar, NJ 07719
"Dedicated to the Support of the PCjr Since 1984"

CIRCLE 516 ON READER SERVICE CARD



Call Sandie Wade
PC World Catalog Manager
1-800-435-7766
1-800-435-7760 (in CA)

CATALOG

Shop The PC World Catalog for fast solutions to your PC needs.

IBM PCjr Specials

Full line of IBM PCjr hardware accessories including: Memory expansions, Second floppy drive, Hard drives, Cables, Larger keyboards, Modems, Printer expansions, Manuals, & software. Many more items are available. Send today for the complete catalog.

Computer Reset
Dept. PW, Box 461782
Garland, TX 75046-1782
214/276-8072

Computer Insurance

SAFEWARE

Insure your computer. Safeware provides full replacement of hardware, media & purchased software. As little as \$49 a year provides comprehensive coverage. With our blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm EST (Sat 9 to 5)

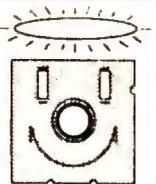
Safeware, The Insurance Agency
2929 N. High St., PO Box 02211
Columbus, OH 43202
800/848-3469, 614/262-0559

Data/Disk Conversion

SCANNING any font or typestyle disk or tape **CONVERSION** **DUPLICATION** any size, any quantity

- Data Entry
- Custom Programming
- Data Management
- Bar Code Conversion

(708) 858-4566



We perform miracles!

MEDIA CONVERSION CORP
Free Tests and Quotations—24 Hour Turn-Time



CIRCLE 462 ON READER SERVICE CARD

9 TRACK MAGNETIC TAPE CONVERSION



If you process fewer than 3 tapes per week*, we can probably save you money and time. With 24 hr. turnaround (6 hr optional), we can provide:

- Tape to Diskette
- 800/1600/6250 BPI
- Database Conversion
- Diskette to Tape
- Tape data recovery
- Mail Lists from Tape
- DEC, IBM & ANSI
- Free compression
- Monthly Activity Summary

AKSystems can also analyze problem tapes for you and retrieve data that otherwise may be lost. Using an extensive array of test equipment, we can determine if tapes you have are written consistent with the appropriate ANSI and IBM interchange standards.

AKSystems Inc. *Call for free cost analysis of tape processing.
Services Division 818/709-8100 (v) 818/407-5889 (f) Chatsworth CA

CIRCLE 567 ON READER SERVICE CARD

Disk Copy Service

Duplication Services

Providing the highest quality disk duplication through state-of-the-art equipment, quality media and attention to detail:

- All 3.5" & 5.25" Formats
- 100% Verification
- Label Print & Assembly
- NO Minimums per run
- 24 Hour Turn-Around
- Customized Services

Duplication Services Corporation
Scottsdale, Arizona
(800) 322-8392 or (602) 451-4648

RG DATA CONVERSION CENTER

Tape, disks, micros, minis, mainframes, word processors, typesetting, and more.

- Same day service
- IBM 4300 on premises
- Conversion to/from all systems
- Hundreds of conversion programs
- Customized programming
- Corporate Accounts Welcomed

(212) 995-1090

Ralph Garner Associates, Inc.
215 Park Avenue South, New York, NY 10003
Professional services since 1967

CIRCLE 408 ON READER SERVICE CARD

TAPE/DISK CONVERSIONS



Conversion services to or from over 2000 computer systems:

- Magtapes • Mini Computers
- Micro Computers • Typesetters
- Word Processors

CALL THE INDUSTRY LEADERS

PIVAR
COMPUTING SERVICES, inc.

800-CONVERT

165 Arlington Heights Rd #W
Buffalo Grove, IL 60089

DUPLICATION FROM \$.59 HIGHEST QUALITY MEDIA

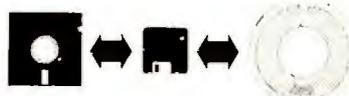
MSDOS duplication from \$.59(5.25") and \$.99(3.5"). Prices go even lower as you continue to order!

- Duplication + 100% Verification
- Custom Labels/Sleeves/Mailers
- Custom Packaging & Assembly
- Colored Media Available
- Special Rates For Demo Software & Site Licensing
- Educational Discounts Available
- 24 Hour Turn-Around
- Guaranteed Products

800-255-3142

Diversified Systems Group, Inc.
PO Box 1114, Issaquah WA 98027

CIRCLE 422 ON READER SERVICE CARD



Incompatible Computers?

We transfer files between incompatible computers, dedicated word processors, and magnetic tape.

Our twelve conversion systems support thousands of different formats.

- Cartridge tapes (Incl. TK-50)
- 9-track tape (800 to 6250 BPI)
- 3 1/2", 5 1/4", 8" floppy disks
- Optical disks; other formats

Disk Interchange Service Co.

2 Park Drive • Westford, MA 01886 • (508) 692-0050

CIRCLE 525 ON READER SERVICE CARD

CONVERTING YOUR DISKETTES?

ENTRUST THEM TO US
2500 Word Processor & Computer formats 3 1/2, 5 1/4, 8" Disks, MAGTAPES, MAGCARDS CARTRIDGES, CASSETTES

DISK DUPLICATION OCR SCANNING SERVICES

Customized conversions too!
Call us for quality, best prices and quickest turnaround time.

COMPANY COMPENDIA, INC
TEL: 312-419-8771 (Chicago)
FAX: 312-419-1390

CIRCLE 561 ON READER SERVICE CARD

Disks

FORMATTED DISKETTES BASF, VERBATIM, SONY

WITH FORMAT	QTY 250 MIX & MATCH	WITHOUT FORMAT
\$.44	5.25" DS/DD	\$.39
\$.73	5.25" DS/HD	\$.59
\$.69	3.50" DS/DD	\$.58
\$1.39	3.50" DS/HD	\$1.25

- FREE FORMATTING on First Order
- TYVEC SLEEVES & Labels Included
- COLORED MEDIA Please Add \$.05
- PRIVATE LABELING Available
- SAME DAY Shipping
- MONEY BACK GUARANTEE

800-255-3142

Diversified Systems Group, Inc.
PO Box 1114, Issaquah WA 98027

CIRCLE 448 ON READER SERVICE CARD

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

Supplies

TONER RECHARGE

• 24 hr. turn around
• Satisfaction guaranteed
• New 50 point inspection test



OMEGA Computer Services

4825 E. Indianapolis Ave. • Fresno, California 93726
We buy empties. **1-800-736-6342**

• Laser/PC copiers
• Color available
• Desk Jet Refills

3995

American Express

CIRCLE 506 ON READER SERVICE CARD

SAVE \$ WITHOUT SACRIFICING QUALITY

TONER CARTRIDGES REMANUFACTURED TO HIGHEST STANDARDS **\$40.00** INCL/5/H

• 100% Money Back Guarantee
• 24 Hr Turnaround
• 20 % More Toner

1-800-336-5790

CARTRIDGE CARE 54 MILLER DR. BOONTON TWSP NJ 07005

CIRCLE 458 ON READER SERVICE CARD

SOFTWARE/Accounting

TONER Cartridges **FREE 2 Day** Remanufactured Return Delivery

• Visa, MC, Amex
• Colors Available
• 24hr Turnaround
• 100% Guaranteed
• NO CHARGE for BAD Drums!

LaserRenew
6 Twin Rocks Rd.
Brookfield, CT 06804

\$44

1-800-347-4221

CIRCLE 401 ON READER SERVICE CARD

TONER LASERQuipt brand cartridge for HP, etc.

24 hour turnaround
100% Satisfaction
Toner for NEC, Ricoh, Panasonic, Qume, etc.

2 DAY AIR Return Delivery

HP II-P cartridges rebuilt: 46.50
New cartridges from 79.50

800-777-8444

• Franchises
• Wholesale

CIRCLE 574 ON READER SERVICE CARD

reconditioned **TONER** cartridges! for laser printers & Canon PC Copiers

BETTER THAN NEW!

- 20% MORE TONER
- DARKER PRINT
- 100% GUARANTEED

From **\$44.95**

We buy empties call for brochure **800-426-8196**

Willow Products Corp.
3857 Willow Ave, Pgh, PA 15234



CIRCLE 535 ON READER SERVICE CARD

Attention RETAILERS
POS with FULL FEATURED ACCOUNTING: Do all your accounting at the sales counter! Sales are posted to all accounting modules. GL, AR, AP, Payroll, and Inventory have been integrated into one outstanding program. Accommodates Cash Drawers, Receipt Printers, Bar Code readers, and LANs. \$1,299.
Xitech, Inc.
P.O. Box 1211
Monument, CO 80132
(710) 481-4900

dBASE Business Tools

- General Ledger
- Accounts Payable
- dInvoicer & A/R
- Sales Analysis
- Order Entry
- Purchasing/Invnty
- Payroll
- Lazar-Forms
- Job Costing
- Job Estimating
- Bill of Materials

\$99 ea. incl. Source Code M/C-AMEX-Visa-Check-COD
Datamar Systems
4876 Santa Monica Ave. #W1
San Diego, CA 92107
800/223-9963, 619/223-3344

MIP Fund Accounting
MIP - Finest fund accounting system for non-profit and governmental organizations. Modules - G/L, Payroll, Accounts Payable, Encumbrance (P.O.), Accounts Receivable, Fixed Assets, Budget Reporting, and Interface. For IBM XT/AT compatibles, most LANs.
Complete training available.
Micro Information Products
505 East Huntland Dr., Ste. 340
Austin, TX 78752
800-647-3863, 512-454-5004

FUND Accounting
Automatically reports your most pressing info needs: Mgt. reports, financial stmts., budget comparisons, project expenses. FREE spreadsheet interface. Integrates with AR, AP, Payroll. PC-Network compatible. Demo, pre-sale set up, post-sale training/installation available. 30-days FREE phone support.
Executive Data Systems, Inc.
1845 The Exchange #140
Atlanta, GA 30339
800/272-3374, 404/955-3374

P.C. Copier & Laser Printer Owners

TONER Service Company



DON'T DISCARD YOUR USED CARTRIDGES GET THEM RECHARGED **\$44.95**

UPS To:
6827 S. Broadway St.
St. Louis, MO 63111

Ricoh Engine Toner \$49.95/cs
New drums available call
(314) 352-8667
800-88-TONER

QUANTITY DISCOUNTS AVAILABLE

CIRCLE 402 ON READER SERVICE CARD

DAISY WRIST REST



Help reduce the trauma of Carpal Tunnel Syndrome by adding the comfort of a wrist support to your computer keyboard. Retail price \$44.90 (quantity discounts available).

Daisy Wheel Ribbon Co., Inc.
3325 E. Shelby Street/Ontario, CA 91764
800-266-5585 FAX 714-989-7251

CIRCLE 454 ON READER SERVICE CARD

THE GENERAL STORE
Retail Store Management

The complete software system for Retail. Multiuser/Network ready. Supports cash drawers, barcode, receipt printers, customer displays, scales and online credit card authorization. Controls all types of retail stores. Multistore, size-solor matrix, parts expolsion and serialized items. Field proven in thousands of installations. Turnkey hardware & software systems.

**ACCOUNTS RECEIVABLE
INVENTORY CONTROL
POINT OF SALE
ACCOUNTS PAYABLE
GENERAL LEDGER
MAILING LIST
• HARDGOODS
• APPAREL**



\$995 Complete system
Dealer inquiries invited.

CRICLOW DATA SCIENCES
804-528-6600 Fax 528-4668

CIRCLE 470 ON READER SERVICE CARD

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

CHECK US OUT

AT COUGAR MOUNTAIN SOFTWARE,
WE OFFER ONLY THE BEST IN
ACCOUNTING SOFTWARE.

- Field tested for over 8 years

General Ledger, Accounts Payable, Accounts Receivable,
Payroll, Check Reconciliation, Inventory, Order Entry/Invoicing,
Purchase Order Tracking, Lynx (ASCII File Converter)

SINGLE USERS

\$199.50
+ 15.50 shipping & handling

LAN VERSION

\$999.50
+ 15.50 shipping & handling



2809 Kootenai, Box 6989, Boise, ID 83707 208-344-2544

1-800-388-3038

CIRCLE 553 ON READER SERVICE CARD



Point Of Sale for PC's

The *ultimate* computer solution for retailers. PC-POS™ offers real time processing of sales transactions, updating inventory records instantly. Up to the minute sales and management reports let you run your business with confidence. Handles all inventory items, customers, vendors, salespersons & commissions, purchase orders, counting & receiving stock, and more. Network available.

Introductory Offer - \$995 Satisfaction Guaranteed
1-800-451-3363 or 214-423-4979 (in TX)

MICROSPEC INC.

840 East Central Pkwy #100 - Plano, TX 75074

CIRCLE 534 ON READER SERVICE CARD

\$45 — Complete Accounting Software

PACIOLI 2000™ CONTAINS: IBM & Compatibles
• Billing, A/R, Inventory, A/P, G/L, Purchasing, Budgeting, Auditing -- All Integrated.
• **FREE** UNLIMITED CUSTOMER SUPPORT.
• **FREE** 2 HOUR TRAINING VIDEOTAPE.
• Use as single-user or multi-user system. (network ready)
"The equal of other high end accounting programs in every way but cost!"
New York Times, July 1, 1990
VISA/MC Orders only: 800-243-1515 Ext. 800 MB Questions: 214-931-2033
Or: Check/MO — Add \$6 shipping to: S Software, 2880 Bergey Road, Dept 800 MB Hatfield, PA 19440

CIRCLE 435 ON READER SERVICE CARD

CheckMaster

Checking Account System
(Home or Business)
• User Friendly
• Help Displays
• Minimum Entry
• Charge Accounts
• Forecast & More ...
\$99 Satisfaction Guaranteed
30 Day Free Trial/Demo \$3 S&H
1-800-526-5911
MIS Contact
P.O. Box 1084
Haverhill, MA 01831

DATASMITH Payroll

Ten years in the field. Pension/cafeteria plans, magnetic filling, multi-states, multi-companies, more. Regular & special deductions with tax treatment control. Exempt/deferred payments. Easy Corrections! Advanced options include Direct Deposit, Benefit Accrual, IMPORT/EXPORT, more. Order demo today!
Datasmith, Inc.
10020 Fontana Lane
Overland Park, KS 66207
913/381-9118

Manatron Inc.

Total Governmental Software Solutions
• Court Automation "Gavel"
• Fund Accounting
• Payroll
• Utility Billing
• Child Support & Enforcement
• Land Information Systems "LIS" Mapping
Since 1968 Manatron has been providing turnkey solutions and software written and designed for government. MS-DOS/OS2/Unix Dealer Inquiries Welcomed. Contact: Doug Peat
Manatron, Inc.
2970 S. 9th Street
Kalamazoo, MI 49009
800-666-5300

EZ-FORMS' DATABASE

Forms & DataBase Management
InFORMATION processing at its best!
Native .DBF file format. Sort, Query, etc. EZFX-Forms processor features: solid lines, fill-out pre-printed too, full math, macros, auto-date/time/number, full printer support, much more... \$239 +\$5&I
• Test Drives \$10 LAN version available.
Other EZ-FORMS™ start at \$69.

EZX, 917 Oakgrove, Houston, TX 77058
Info: 713.280.9900 • BBS: 8180 • FAX: 0525
Orders (D,M,V,AX), Catalog Toll Free
1-800-359-953-9 ext. W1290

CIRCLE 548 ON READER SERVICE CARD

Never lose track of
items discussed in
committee again!

Logic/MM

MINUTE MANAGER

Designed for use within
any organization's
committee structure.

~~\$149.95~~ \$89.95

Limited time only!
Epi-Systematics, Inc.
1-800-648-8070

CIRCLE 456 ON READER SERVICE CARD

Business Applications

Do You Ship by UPS™?

If you do, the Aristo Parcel Shipping System (APSS™) is for you! Meets all UPS requirements. Prints COD & regular labels, Pickup Manifest, etc. Saves customer list. Calculates zones & charges. Flexible setup menu to suit your needs. On-line help. Optional scale interface & other carriers. (RPS, Airborne, Fed EX, USPS, LTLs, etc). 60 Day \$ back Gtd. UPS acceptance gtd. Full featured demo disk: \$4 s/h.
Aristo Computers, Inc.
6700 SW 105th Ave. #307-J
Beaverton, OR 97005
800/3ARISTO, 503/626-6333

What do more than 1400 Government and Nonprofit Organizations Know?

When You Need Fund Accounting Software... You Need American Fundware.

American Fundware provides powerful software solutions — written specifically for the government and nonprofit sectors — that solve your fund accounting needs. Easy to Learn. Easy to Use. Easy to Produce Results.

CALL AMERICAN FUNDWARE TODAY.
1-800-551-4458 or Fax: 1-303-879-6850
P.O. Box 773028, Steamboat Springs, CO 80477

Visit us in booth #2381 at Fall COMDEX

CIRCLE 502 ON READER SERVICE CARD

BUY WITH CONFIDENCE

CATALOG

SHOP PC WORLD

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

Church Applications

CHURCH SOFTWARE

POWER CHURCH PLUS!

Discover for yourself why more churches are choosing **Power Church Plus**. Try out the leading membership and accounting package.

Call today for your **FREE** full-working DEMO.

F1 Software
6300 Variel Avenue, Suite H
Woodland Hills, CA 91367
(818) 888-1800

"church office computing has come of age."
Neil Houk, Church Bytes
October 1988

CIRCLE 562 ON READER SERVICE CARD

DATA ENTRY

Why have over 85% of the largest companies in the U.S. selected the **RODE/PC Data Entry System**?

The answer will be obvious when you call for information and a free demonstration today.



(415) 323-8195

DPX • 490 California Avenue
Palo Alto, CA 94306

CIRCLE 558 ON READER SERVICE CARD

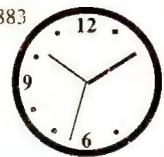
Discount Mail Order



M.E.D., Inc.

The Dr. of Discount Software
Minford Express Data
P. O. Box 156
Minford, OH 45653
Orders 1-800-6484-MED
Tech Support & Questions
1-614-820-2978
Fax: 1-614-820-2883

Time To Go
To The Doctor



CIRCLE 449 ON READER SERVICE CARD

Church Mgm't Systems

Easy-to-use, flexible & integrated. Network version available. Local representatives & toll-free support back a comprehensive line of Church & School products. 1200+ satisfied Church, School & Government users. Write or call,
The Software Library,
3300 Bass Lake Rd.
Brooklyn Center, MN 55429
800/247-8044, 612/566-4212

Church Partner

Written by Computer professionals involved in church management. Skilled users love its power, depth and flexibility. Novices love its ease of use. 13 optional modules with support and upgrades. For IBM compatibles, LANs, Macintosh, XENIX. We understand computers and churches.
Summit Systems, Inc.
Suite 121, 16 Berry Hill Rd.
Columbia, SC 29210
803-798-9749, FAX: 803-731-0349

Data Base

Data* designer

A complete, powerful database for home or business. Create/edit files fast. Design reports/mailling labels. Index, sort, query, search, Import dBase files. 50 field/million rec capacity. IBM/Comp, 512K, 5 1/4 drive, 2.1 DOS or later. Demo \$4.00 \$49.95 + 2.25 sh. NY res. add stx.
Birchwood Software
PO Box 183
Hyde Park, NY 12538
(914) 473-3216

Data Entry

Viking Data Entry

New, professional quality package features:

- Faster, easier keyboard entry, verification
- Advanced data Validation insures accuracy
- Easy access to ISAM or sequential data files
- Available for MS/DOS, UNIX, XENIX, VMS, and AIX operating systems
- Incomparable technical support

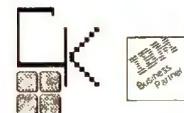
Viking Software Services, Inc.
4808 E. 67th Street, Suite 100
Tulsa, OK 74145
918/491-6144 Fax: 918/494-2701

THE DATA ENTRY EMULATOR™

HEADS-DOWN data entry and TWO-PASS verification. Fast and powerful, of course, but more importantly, extremely easy to use. Paint the screen formatting in minutes. On-line help text, edit language, batch control.

PC from \$395
Also for LAN's.
IBM AS/400™,
IBM S/36

FREE trial!
206/776-6443
800/356-0203



COMPUTER KEYS
21929 Makah Rd.
Woodway, WA 98020

KeyEntry III

- Replace dedicated data input systems
- Front-end mainframe applications
- LAN or stand-alone environments
- Screen Painter and MenuManager included
- Batch Control System and Reformat utility
- Spanish, German, and French versions
- Outstanding customer support
- Thousands of users worldwide
- OS/2 version

FREE 30-day evaluations available for qualified companies.



Southern Computer Systems, Inc.
2732 Seventh Avenue South
Birmingham, Alabama 35233
(205) 251-2985 Fax (205) 322-4851
(800) 533-6879

Educational

PC-Quizzer

Courseware Authoring System. Ideal for home & School. Ask Multiple Choice, True/False, Fill-in & K-type questions. Menu driven, Windows, Music, Speech, Color Text & Graphics. 256 colors on PS/2. Many other features. Improve Grades for only \$59. A Site license is available. \$3 s/h. MC/VISA.
Data Assist
651 Lakeview Plaza Blvd. Suite G
Columbus, Ohio 43085
614/ 888-8088

GRADEBOOK III!

Easy; intuitive. 7 years service. Does everything:

- Excuses Absences
- Ranks
- Auto-averages
- Easy Edits
- 6 Grade Categories - You Pick
- Calculates Course Grades - Your Wts
- Reuses Rosters
- Password Option
- Gives 8 Report Types/86 Options
- And Much More!

Only \$49.50, S/W, Manual, Support; VISA/MC; CALL NOW!
Wren Software, Inc.
P.O. Box 1138 Dept. W
Castle Rock, CO 80104
303/660-0049

Construction

Construction Accounting

Comprehensive, affordable software for builders & contractors. Job cost, billing & draws, payables, check writing, purchase orders, discount & retention tracking, all in one package-\$795. Reviewed & approved by National Assn. of Home Builders. Also available: General Accounting & Payroll.
Yardi Systems, Inc.
813 Reddick Street
Santa Barbara, CA 93103
805/966-3666

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

BS & MS in Comp Sci

The American Institute for Computer Sciences offers an in-depth correspondence program to earn your Bachelor of Science & Master of Science in Computer Science at home. BS subjects covered are: MS/DOS, BASIC, PASCAL, C, Data File Proc., Data Struct. & Operating systems. MS includes SW Engineering, AI and other topics

American Inst. for Computer Sciences
2101-WO Magnolia Ave. So. Ste 200
Birmingham, AL 35205
800/767-2427, 205/323-6191

Entertainment/ Games

Adult VGA Software

Visualize the full potential of VGA/SVGA with these stunning, hi-res, 256 color images.

- Vol 1 Swimsuit (6 dsk)\$13.95
- Vol 2 Au Naturel (6 dsk) 13.95
- Vol 3 Daring (6 dsk) 13.95
- Vol 4 Adults Only (6dsk) 13.95
- Vol 5 Adult VGA Movies (6dsk) 13.95
- Vol 12 More VGA Movies (Long, HOT movies in 3 hi density disks) ... 13.95

Buy 4 vols-get 5th free. Specify 5 1/4" or 3 1/2". Include \$3 S&H. State 21. Check/MO accepted. Send \$5 for 2 sample disks.

CJWare
Dept. CW, P.O. Box 2299
Champaign, IL 61825-2299



Adult Software

Must State Age Over 21

Disk # 1 — An unbelievable visual encounter — MUST SEE !!

Disk # 2 — An encounter game for friends and lovers.

Disk # 3 — An anatomical arcade game with unusual animation.

Disk # 4 — 2 more incredible visual encounters — impress your friends.

Disk # 5 — Create your own Fantasies.

Disk # 6 — View, print, or edit ten gorgeous pinups.

\$7 each, any 3 for \$17, or all 6 for \$32

for IBM and compatibles
CGA, EGA or VGA graphics reqd.
Add \$3 S/H — in OK add tax
3.5" disks or foreign orders add \$2 per disc

VISA/MC Orders only
800-243-1515 Ext. BG

Or check MO to SeXy Software, 2880 Bergey Rd,
Dept. 600BG Hatfield, PA 19440

THE BEST IN ADULT SOFTWARE FOR LESS!!

CIRCLE 523 ON READER SERVICE CARD



1991 VGA SWIMSUIT CALENDAR

12 High-resolution, 256-color pictures featuring the most voluptuous bikini-clad girls (no nudity). Makes a perfect Christmas gift! Functional calendar with full-page month layout for each month.

One 5.25" HD or Three DD disks only **\$14.95** no shipping.
3.5" disk and foreign orders add \$2 - in CA add tax.

Check or money orders to: -----> Cosmetic Imaging, Inc.
309 Santa Monica Blvd.
Santa Monica, Ca 90401

VISA/MC call: **(800)258-2218**

CIRCLE 425 ON READER SERVICE CARD



These HOT graphics require VGA

301 23 Heart Stopping GIF Images	14.95
401 Brilliant Color - Stunning Resolution ...	14.95
402 Super Photographic Quality	14.95
501 "Angel". She's no angel in this movie ...	14.95
502 "Mandy". Sizzling live-action movie	14.95
102 VGA Movie Combo - 501 & 502	24.95
103 \$75 Value Pack - ALL 5 DISKS	49.95

Images also available for CGA & EGA users
Requires high capacity floppy and hard disk
3.5" disk and foreign orders add \$1 per disk
Please include \$3 S&H, FL residents add 6% sales tax

Graph-XXX

We've seen the rest...
We're the BEST

Must state age over 21

STARWARE PUBLISHING CORP
P.O. Box 340203 - DEPT 1
BOCA RATON, FL 33434
407-479-0588

CIRCLE 550 ON READER SERVICE CARD

Largest Selection **Adult Software** Must State Age Over 21



1990 Catalog	\$5.00	Volume I	\$11.95
M1 thru M-20	\$5.00 ea	Volume II	\$11.95
Movies 1 thru 7	\$11.95 ea	Volume III	\$16.95

For IBM PC Compatibles, **No Shipping Charges**
3.5" and foreign add \$1. per disk
CT residents add 8% tax

Send check or money order to: **AOS**
P.O. Box 106-PCN
Marion, CT 06444

CIRCLE 592 ON READER SERVICE CARD



Prepare to meet your NEMESIS™

Go has been a way of life in the Orient for over 4,000 years. As much a philosophy as it is a game, Go is considered by many to be the secret of Japanese success. "the leading Go game for the Macintosh (or ... the IBM PC, for that matter)...Using it is an improvement over learning the game from books or from all but the most patient humans." "This is without question one of the most extraordinary automated aids to go instruction developed." Seiter, MacWorld 6/89

Toyogo, Inc.
(800) Toyogo-9

P. Oo Box F, Dept. W, Kaneohe, Hawaii (808) 254-1166
\$79 NEMESIS Go Master, \$49 Joseki Tutor, \$59 Tactical Wizard+ \$6 US S&H

CIRCLE 565 ON READER SERVICE CARD



HI-TECH LOTTO ANALYZER

Quality Computer-Assisted Number Analyzer

You make your analysis and choose your game-play numbers from computer calculated displays and reports. Data is based on your state's winning number history, using hi-tech statistical methods. You update weekly. Min. 256K. Programs, manual, one state's data, \$44.95 + \$4.00 shipping and handling. Each additional state \$10.95. Credit card: 800/992-4045, ext 439, (CA) 800/777-8814, ext 439 Check/M O

The LOTTO EDGE, ODDS UNLIMITED,
P.O. Box 1223, Addison, IL 60101

PLAY TO WIN
LET YOUR PC DO THE WORK!

CIRCLE 549 ON READER SERVICE CARD

ADULT VGA SPLENDOR

- Only the Best VGA Adult Software at Lowest prices!
- Large Selection: Movies, Slideshows, Games and More.
- VISA/MASTERCARD
- Free Brochures.
- No Shipping Charges.
- Large Selection of Non-Adult Software

6-DISK ADULT SAMPLER.
\$15.00 Please Specify Size
(Please State Age - 18+)

CLEARLIGHT SOFTWARE
P. O. BOX 1411 Dept. W
Wilwaukee, WI 53201

CIRCLE 439 ON READER SERVICE CARD

Adults Only Software (800) 245-BYTE Must Be Over 18 to order!

XoptiX

Color VGA Animations
The Italian Collection-Each volume features Super Hot color VGA animations! Requires VGA monitor and card.

Volume 1 - 5 animations. \$12.00
Volume 2 - 7 animations. \$12.00
Volume 3 - 7 animations. \$12.00
Volume 4 - 6 animations. \$12.00
Volume 5 - 5 animations. \$12.00 (Req: hard drive)

We Have Graphics for Mono, CGA & EGA Systems!

To Order: Send cost per collection (3.5" disks add \$3) plus \$4 for S/H. CA res. add 7% sales tax. We accept most major credit cards. No COD's. Best Bits & Bytes, PO Box 7537-XW, Van Nuys, CA 91409. For IBM/Compatibles.

CIRCLE 576 ON READER SERVICE CARD

Sports Handicapping

\$\$WIN with horse racing & greyhound handicapping software \$32.95, \$52.95, \$67.95, \$77.95 each. Up to 17 entries analyzed: class, speed, times, odds, track, post, stretch, & finish. Pro Football, Baseball, Basketball Software-\$42.95. Handicap races & games in minutes. MC/VISA accepted. Free info.

SOFTWARE EXCHANGE
PO Box 5382-PW
W. Bloomfield, MI 48033
313/626-7208. Orders:
1-800/527-9467

NEW! Compute a win!

Harness handicapping program: Advanced mathematics give comp. time & rating for each horse. Uses fin. time, var., post, 1/4 fin., UDRS, comp. trk. time. Race data storage, retrieval and use Pull-down menus. Experimental option IBM&Xs/DOS2.1 + /512K/3.5" \$199 U.S. + \$5 U.S. S&H/Free Info.
Rob McAuley
P.O. Box 7
Harrowsmith, Ont., Can., KOH 1V0
or FAX (613) 372-5798



BUY WITH CONFIDENCE.

The PC World Catalog

CATALOG

PC WORLD

Shop *The PC World Catalog* for fast solutions to your PC needs.

Financial

Flow Charting

Health

"THE COLLECTOR"™

When you must be accurate!

EXEC-AMORT™
Loan Amortizer Plus™ Software
for IBM-PC, AT, 386, PS2 series & compatibles

Adopted worldwide
by over 3000 Attorneys, CPA's and
over 1000 financial institutions!

- Loan Amortizations
- APR'S that comply to US Regulation Z
- 18 Digit Accuracy
- Fixed & Adjustable Interest Rates
- Irregular Payments
- Recurring extra payments, credits and fees
- Balloon Payments
- Points & Fees
- Prepaid Interest
- Long and short period Interest
- Easy to use menus
- 360, 365 or 360/365 day Interest
- Solve an Unknown
- Present Value
- Future Value
- IRR
- Yield & Loan Price
- User configurable rounding and defaults
- File store & retrieve
- Great for client services
- Network, Site License and corporate versions are available

Only \$149.95 + \$5 S&H.

Demo disk & manual available for \$30+\$5 S&H

ELECTRONICS

36380 Garfield - #1, Fraser, Mich 48026
800/858-8448 or 313/791-0770

Check, Visa, MC, Amex & Discover are welcome.
COD order's add extra \$2.75

60 day money back guarantee!!

CIRCLE 526 ON READER SERVICE CARD

Creative Financing Couldn't Be Easier!

AmortizerPlus 3.0 is used by thousands of professionals to plan investments, prepare taxes, negotiate leases, and evaluate loans.

Loan schedules in seconds

Calculating and comparing different loan options couldn't be easier or quicker.

- Fixed or variable rate
- Fixed principal
- Skipped payments
- Negative amortization
- Balloon payments
- Fiscal or calendar year
- APR
- Wrap notes
- US Rule
- 360/365 days
- Canadian interest

Complete financial analysis

Instantly determine a note's yield, calculate leases, and analyze the value of any security.

Call today and take charge of your business and personal finances for only \$99.95.

1-800-272-4663

GoodSoftware

CORPORATION

Windows Flowcharter\$129

RFFlow 2.0 is a professional drawing tool for flowcharts and org charts. Requires Microsoft Windows 3.0. 100 shapes auto adjust in size. Diagonal lines and curves. Auto line routing and re-routing. Click on a shape to bring up a sub-chart. Move charts to other apps. via the Clipboard. Call for free trial disk.

RFF ELECTRONICS

1053 Banyan Court

Loveland, CO 80538

303/663-5767 FAX: 303/669-4889

Genealogy

Family Roots™

Do it YOUR way! Huge variety & capacity for your family history. Make pedigree charts & descendants charts, group sheets, person sheets, indices, histories, address labels, searches, & much more. Call for FREE information. Satisfaction guaranteed. Any PC or compatible. MC/VISA/AmEx welcome.

QUINSEPT

Box 216

Lexington, MA 02173

800/637-ROOT, 617/641-2930

Graphics

3 Free Slides from your PC

COMPUTER SLIDE EXPRESS

converts your graphic files into 4000 line full color slides, overheads or printouts. All popular programs supported. 24 hour service by modem or disk. As low as \$6.50. Call or FAX for your FREE valuable (\$27.00) coupon & FREE 48 page catalog.

Visual Horizons

180 Metro Park

Rochester, NY 14623

Phone: 716/424-5300

FAX: 716/424-5313

PCXslide

Independent .PCX format slide show. From CGA-EGA to SVGA (800x600) in 256 colors and/or B/W. You may mix all formats and display at any intervals. Best slide presentation. Before to print, to import, to manipulate in DTP or other Graphic Packages: check your pictures with PCXslide. \$24 money order or AmEx
DATALISION, Inc.
9 East 45 Street
New York, NY 10017
212/309-6888 Fax 201/992-0302

Eat Healthier- Get FIT !!



Top-Rated software has best data available for 2400 foods, 30 nutrients. Plan diets, menus, recipes; shows nutrient excess, deficiency, ratios, graphs. Used by thousands: USDA, fitness colleges, hospitals, & home-users
Send Now: FREE Demo Disk !!

ESHA
RESEARCH

PO Box 13028-B
Salem, OR 97309
Ph: (503) 585-6242

CIRCLE 573 ON READER SERVICE CARD

Inventory Control/Management

POINT OF SALE INVENTORY PROGRAM

\$ 89.50 - \$ 189.00

Inventory Control is....



MONEY IN THE BANK

Maintains Inventory
Writes Invoices
Supports Cash Drawer
Receipt Printer & Barcode
Call for Complete List

Freeman Software - Garland, Texas

800-426-6598 214-270-0625

CIRCLE 445 ON READER SERVICE CARD

Mr. QuarterMaster

Providing the IC needs of business, govt. & institution stockrooms since 1983. Features include receipts & issues updating, report generation, issue slip, etc. Price \$140. Manual alone with demo: \$30 deductible toward later purchase. Also available: Sales reporting, PO, Estimating, Retail IC & Multi-whse IC systems.

RJL Systems

106 New Haven Avenue

Milford, CT 06460

203/878-0376

Laser Fonts

\$1.50 FONTS

HP compatible soft fonts for your laser printer. Dozens of type styles, logos, digitized images & custom fonts available.

- Fixed & Proportional
- Portrait & Landscape
- Regular-Bold-Italic-Italic Bold
- Point sizes-6 to 108

For FREE catalog, contact:

EAGLE SYSTEMS

PO Box 502

Moorpark, CA 93021

805/529-6992

CATALOG G

Shop The PC World Catalog for fast solutions to your PC needs.

Languages

FORTRAN

Features • Speed • Tools

LP77 — Full ANSI 77, Debugger, Editor for only \$99

F77L — The experts' choice for DOS 640K compilers

F77L-EM/32 — 32-bit compiler that breaks the 640K barrier

Lahey Computer Systems

P.O. Box 6091

Incline Village, NV 89450

Tel: 702 831-2500 Fax: 702 831-8123

800 548-4778

CIRCLE 552 ON READER SERVICE CARD

ARC TANGENT PROFESSIONAL MAIL

\$695

The most advanced, professional-level mailing list management system available for IBM and compatible microcomputers. Call (805) 965-7277 for free brochure.

- Unlimited number of names and addresses
- Sophisticated merge/purge duplicate detection
- Complete postal presorting and barcoding
- Custom letters, labels, reports
- Convert data from dBase, ASCII, other formats

Arc Tangent, Inc.
121 Gray Avenue
Santa Barbara,
CA 93101-1831
(805) 965-7277

CIRCLE 419 ON READER SERVICE CARD

MAIL MASTER TRY IT BECAUSE...

It's genuinely easy to learn and use • It contains over 200 pre-written letters • Its zip code directory automatically enters most cities and states • It prints labels, letters and reports • It eliminates duplicate records • It supports laser printers • It uses 5 different sorting criteria • It costs only \$99.95 • It holds unlimited records

ThinkSoft Corp., 1220 Broadway, Suite 604, NY, NY 10001

800-533-3466

CIRCLE 433 ON READER SERVICE CARD

Manufacturing

Manufacturing Inventory

Integrated inventory control, bills of material, and purchase order processing. Ideal for small- to medium-sized manufacturing firms. Powerful, yet easy to learn, easy to run. Over 3,000 installed. Just \$1495 with special money-back guaranty! Comprehensive Demo Disk (\$5 ppd) prints sample reports.

Microcomputer Specialists, Inc.
P.O. Box 795
Woodstock, VT 05091
800/833-1500, 802/457-4600

Medical

Medical Systems with ECS

PPM offers a complt. line of med. SW from simple ins. claims proc. to comprh. A/R mgt.

PC CLAIM PLUS - claims proc. w/ECS to 100+ major ins. carriers - 30 day MB Guar.

THRESHOLD - complete A/R, Pt. Bill, comprh. practice mgt stats.

CLAIM NET - Nationwide elctrnc claims clearinghse transmits to 100+ ins. carriers. SW starts at \$459. Dealer inquiries welcome.

Physicians Practice Management
350 E. New York
Indianapolis, IN 46204
800/428-3515, 317/634-8080

Mailing Programs

Today's PC Mail System

Fast! Accurate! Large volume mailers use PostWare software programs to:

- Standardize/correct addresses
 - Add ZIP, ZIP + 4, Car. Rt.
 - Presort 1/2/3 Class
 - Detect duplicates
 - Generate Postnet bar codes
 - Palletize 2/3 Class
 - Qualify for postal discounts
- CASS-Certified. Reported throughputs over 100,000/hr.

Postalsoft, Inc.

4439 Mormon Coulee Rd.
La Crosse, WI 54601-8231
800/831-6245

MAIL ORDER MASTER

Software contains all routines necessary for Home Mail Order Business. Easy to use features include Invoicing, UPS Manifest, Powerfui Database, Daily Report, Statements, Credit Card Printout, Inventory Control, Bulk Mail Sort plus lots more. IBM compatible Priced at \$299

Call/write for Demo at \$15.00

The Marshall Weiner Corp.
1700 Catalina Ave.
Seal Beach, CA 90740
800/874-4656 USA/Canada

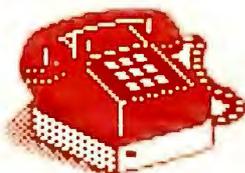
Maintenance Management

Maintenance & Inspection

An integrated maintenance management system, including parts inventory, with clients in Fortune 500 companies, utilities, hospitals, schools, manufacturing & service industries etc. The online system provides operational, planning & analytical reports such as work orders, schedules, skill & inventory requirements, budget reports & reports that summarize history of work performed.

Penguin Computer Consultants
PO Box 20485

San Jose, CA 95160
408/997-7703, Fax: 408/927-0570



Find out more about the
PC World Catalog.
Call Elizabeth Maffly at
1-800-435-7766
1-800-435-7760 (in CA)

Music

SongWright V

MUSIC PROCESSOR prints professional sheet music, songs, scores with text, chords, dynamics. Compose, edit, record, play, transcribe, copy, transpose, extract, import, publish - all in standard notation. Symbol editor/librarian. PC, MIDI or SMF entry & playback. Matrix/laser printers. \$99.95 + \$5 s/h. Free sample output.
SONGWRIGHT SOFTWARE
7 Loudoun Street, S.E., Ste. 5B
Leesburg, VA 22075
(703) 777-7232

\$1995 Test Drive



Don't buy any PC MIDI products before trying the full-line from the industry leader. It's a risk-free way to learn about PC music. Apply the cost if you buy software from us.

Voyetra Dept. PCD, 333 5th Ave
Pelham, New York 10803
(914) 738-4500 Fax: (914) 738-6946
Orders/Free Catalog: 1-800-233-9377

CIRCLE 476 ON READER SERVICE CARD

Make Music

with your computer! Find out how you can record and play music, compose, notate and learn to play your favorite songs on your personal computer. It's easy and fun. Call or write for free catalog of MIDI products:

Passport Designs
Dept. B, 625 Miramontes
Half Moon Bay, CA 94019
415/726-0280

Networking

The \$25 Network

Try the 1st truly low cost LAN

- Connect 2 or 3 PCs, XTs, ATs, PS/2s
- Uses serial ports and null modem cable
- Runs at 115K baud, in only 15k of ram
- Runs in background, totally transparent
- Share any device, any file, any time
- \$25/network, Not Node! Version 2.3m

Skeptical? We make believers!



Information Modes
Drawer F, Denton, TX 76202
817-387-3339 Technical
1-800-628-7992 Orders

CIRCLE 407 ON READER SERVICE CARD

CATALOG G

Shop The PC World Catalog for fast solutions to your PC needs.

Productivity

EXECUTIVE UTILITY



SEE HOW THE MICE RUN

**Executive Mouse Learning Kit—
An Executive Productivity Tool**

- * Avoid DOS prompts without buying software
 - * Create your own menus in less than 5 min
 - * Use what you think is best for you, not what others think is best for you
 - * Avoid purchasing additional memory
 - * Extend the life of your earlier generation personal system
 - * Avoid time consuming file searches—put the file selection in a menu
 - * Engage file search utilities from a menu selection
 - * First of a 3 part series that adapts your mouse to your software
- Complete Kit for \$79.95**
DATA TRANS, INC
 2843 Cedar Lane, Vienna, VA 22180
 (703) 560-0916 1 (800) 727-4DTI

CIRCLE 426 ON READER SERVICE CARD

Project Management

GREATT GANTTS!

Frustrated with slow, limited, or cumbersome gantt charting programs? GREATT GANTTS is a fast powerful, and versatile gantt chart generator for schedules, program mgmt, and more.

- * Selectable options, sorting
 - * Displays 1 mo to 20 yrs on screen width
 - * Rapid charting, editing, scaling
 - * Flexible, easy to use
- PC's \$99. Demo disk \$5.

InverComp Software
 12116 Greenway Ct, Suite 301
 Fairfax, VA 22033
 (703) 591-5395

Public Domain/ Shareware

53 Educational Prog. \$25
 *For ages 3-14 *Many subjects
 *Preschool fun, math, music, spelling, geog, lang, hist, more! I.B.M. Needs dos, gw-basic.

- *Program list with easy-start instr.
- *Send this ad with ck./m.o. for \$25 + \$3 s/h. Circle disk-type desired 3 1/2" 5 1/4" dd hd.
- *46 programs for ages 6-14 \$19 + \$3 s/h

COMPU-ED
 PO Box 358, Dalton, PA 18414
 Visa/MC orders 1-800-563-4460

FLAKEY JAKE'S 47¢ HITS

ABC FUN KEYS
 ACTIVE LIFE V1.2
 AMY'S FIRST PRIMER
 AS EASY AS AUTOMENU
 BAKER'S DOZEN
 BASS TOUR
 BROTHER'S KEEPER
 CHARTS UNLIMITED
 CHOPPER COMMANDO
 COMMAND POST
 CROSSWORD CREATOR
 DOS TUTOR
 DUP V5.7
 FAMILY TIES
 FORMFILL V1.1

FORMGEN V4.0
 HOME HELPER V1.0
 HOVER CRAFT V1.10
 IDEA TREE
 KID GAMES
 KINDERMATH V2.0
 MAHJONGG
 MEDLIN ACCOUNTING
 MORAFF'S BLAST V1.1
 NAMES AND DATES
 PC BROWSE V1.1
 PC CALC
 PC-DRAFT II
 PC-FILE V5.0
 PC JIGSAW
 PC WRITE 3.03

PC-WRITE LITE
 PHARAOH'S TOMB
 PIVOT
 POINT-SHOOT-BACKUP
 PROCOMM
 Q MODEM
 RACE
 READABILITY PLUS
 RESUME SHOP V2.1
 RUBICON PUBLISHER
 SEESPELL
 SHARESPELL
 SPACE SPIRALS
 THE ORDER PRO V2.0
 TREE VIEW

HERE'S AN OFFER YOU CAN'T REFUSE! Get any of my 47 newest and best selling shareware programs for IBM®/clones for only 47¢ per disk, or 3.5" disks for 49¢. Shipping and handling are extra. Because of my volume, I can afford to sell at these incredible prices. You have nothing to lose! My prices will make you forget about all those other distributors. Tell your friends about Flakey Jake. Sorry, credit cards only. I MAY BE FLAKEY BUT I'M NOT NUTS - ORDER TODAY!

CALL ME AT 619 942.9939

Flakey Jake's Shareware Co.

We recommend registration with the authors if you find these programs useful

CIRCLE 413 ON READER SERVICE CARD

MegaBytes-Not MegaBucks!

Latest Versions of Virus-Free Software

25 Megabytes	\$79	150 Megabytes	\$199
50 Megabytes	\$119	175 Megabytes	\$239
75 Megabytes	\$159	200 Megabytes	\$319
100 Megabytes	\$199	225 Megabytes	\$359
125 Megabytes	\$199	250 Megabytes	\$399

Why buy only one program per disk when you can get HUNDREDS of quality programs per order from our Shareware Net. Our Shareware Authors GREATEST SHAREWARE AUTHORS in AMERICA Dups on HD disks. Add \$3.00 post/hand for each Meg increment. Add \$6.00/25 Meg inc for 1.44 disks OK residents add 7% sales tax. Utility disk w/catalog \$10.00 Refund-able with 1st order.

24 HOUR ORDER LINE
1-800-876-8496
SHARENET
 Tech. Assistance/Info (405) 524-7489
 POB 12368, Dept. 1 •Okla. City, OK 73157

CIRCLE 511 ON READER SERVICE CARD

SOFTSHOPPE, INC.

- Selected Programs
- Latest Versions
- As Low as \$1.50
- Same Day Shipping
- No Minimum Order

FREE CATALOG
 IBM PD/SHAREWARE

Call 800-829-BEST (2378)
 Fax 313-761-7639

CIRCLE 436 ON READER SERVICE CARD

FREE SOFTWARE CATALOG

1-800-292-3475

HUNDREDS OF IBM
 PUBLIC DOMAIN AND
 SHAREWARE PROGRAMS.
 LOW AS \$1.29 PER DISK.

PRINCETON SOFTWARE
 200 WALL STREET
 PRINCETON, NJ 08540

CIRCLE 442 ON READER SERVICE CARD

PUBLIC DOMAIN/SHAREWARE
 GREAT PROGRAMS
 ON 5.25" & 3.5" FORMATS

FREE CATALOG
SPECIAL OFFER
 AS LOW AS
99¢ PER DISK

NO MINIMUM ORDER
 WRITE TO:
 JANE SOFTWARE
 8964 EMERSON
 DES PLAINES, IL 60016

CIRCLE 412 ON READER SERVICE CARD

\$1.50 PER DISK!
 (Buy 1 or 100)

**Best IBM Shareware
 and Public Domain
 SOFTWARE**

FREE CATALOG
 (203) 745-5322



**BRIGHT FUTURES
 INCORPORATED**
 P.O. Box 1030, East Windsor CT 06088

CIRCLE 453 ON READER SERVICE CARD

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

Real Estate

Property Management

Comprehensive software for managing residential, commercial, condos & more. Three versions: Basic PM for owner/manager-\$495, Deluxe PM for professional management-\$1,195, Multi-User with Novell network compatibility-\$2,395. Includes check writing, recurring expenses, G/L, management reporting.

Yardi Systems, Inc.
813 Reddick Street
Santa Barbara, CA 93103
805/966-3666

Property Management

Since 1978 over 7,000 users of our software have found it comprehensive, flexible & easy to use. We offer systems to manage the following types of properties: COMMERCIAL/RESIDENTIAL/CONDOMINIUM/HOME OWNERS ASSOC./MINI-STORAGE FACILITIES. For more information & sample printouts call:

Realty Automation, Inc.
11365 Eastshore Drive
Hayden Lake, ID 83835
208-772-3259

• Property Mgt Plus/91 •

New version which looks up tenants & posts rent by Tenant Name. Prints.. Bank Deposit Slips, Rent Statements, & Automatic Checks. Reports.. Late Rents, Vacancies & Expired Leases. Posts Management Fees, Pays Owners & does 1099s. Saves up to 80% of accounting time & is the EASIEST system to use! Special pricing from \$575.

Realty Software
133 Paseo de Granada
Redondo Beach, CA 90277
213/372-9419 or 801/649-6149

Property Managers

Easy-to-use software:

- Rental Manager — general purpose accting for apartments, storage units, etc. Built-in gen. ledger.
- Condo Manager — for community associations. Member payments & charges. Accounting reports.
- Resort Manager — for units rented on behalf of many owners. Timeshare, reservations, statements.

Coleman Business Systems
3654 Arcadian Drive
Castro Valley, CA 94546
415/581-7125

Property Management

Rental-Ease. State of the art software. Extremely fast and easy to learn and use. Everything is included: tenant tracking, repairs and maintenance, income and expense, check writing and recurring bills. No extra modules to buy. The ultimate in property management. \$695 complete. Free brochure, Demo \$10.

Strategic Office Systems
688 North 500 West #61
Mt. Pleasant, UT 84647
800/942-6784 or 801/462-2130

Security



**FIGHT
PIRACY
&
PROTECT
YOUR
PROGRAM
\$\$\$'s!**

Since 1986, companies worldwide have been choosing Az-Tech security products. If you demand the strongest protection available, why not choose one of these "proven leaders":

- EVERLOCK Copy Protection
- EVERTRAK Software Security
- EVERKEY Hardware "Key" Software Security

For IBM and Compatibles.
30 day money back guarantee.
Free info and demo disk available.



Az-Tech Software, Inc.
305 East Franklin
Richmond, MO 64085
(800) 227-0644 (816) 776-2700
FAX (816) 776-8398

CIRCLE 593 ON READER SERVICE CARD

Statistics

NCSS 5.x Series - \$125

Easy-to-use menus & spread sheet. Multiple regression. T-tests. ANOVA (up to 10 factors, rep. measures, covariance). Forecasting. Factor, cluster & discriminant analysis. Nonparametrics. Cross Tabulation. Graphics: histograms, box, scatter, etc. Reads ASCII/Lotus. Many new add-on modules.

NCSS
865 East 400 North
Kaysville, UT 84037
Phone: 801-546-0445
Fax: 801-546-3907

StatPlan IV

Only \$179. Easiest to use statistics program available. Statistics include: curve fitting, crosstabs, correlation, multiple regression, stepwise regression, ANOVA, t-tests, time-series analysis, etc. Graphics with printer/plotter output. Handles up to 30,000 data points. Interfaces directly with Lotus and ASCII files. Demo \$10.

The Futures Group
76 Eastern Boulevard
Glastonbury, CT 06033
203/633-3501

Spreadsheet Statistics

Comprehensive statistics and forecasting modules for analyzing LOTUS worksheets. Low cost \$25 each. Convenient. Easy to use. Includes tutorial. Ideal for vertical markets. Basic and advanced statistics with graphics. Guaranteed best buy. Compare. Nothing else comes close. Free brochure.

StatPac Inc.
6500 Nicollet Ave. S.
Minneapolis, MN 55423
(612) 866-9022

Power Designed to Fit Your Needs

MINITAB is the easy-to-use statistical package that lets you master a broad range of functions within one hour.

- Basic Statistics
- Regression
- Control Charts
- Hi-Res Graphics
- Time Series
- ANOVA and ANCOVA

...and more

CALL 800-448-3555

MINITAB

STATISTICAL SOFTWARE

Minitab Inc.
3081 Enterprise Drive / State College, PA 16801

CIRCLE 566 ON READER SERVICE CARD

Surveys

The Survey System

A complete, easy-to-learn package for the entry, editing, processing & presentation of questionnaire data. Produces banner format crosstabs & related tables, statistics (incl. regression) & bar charts. Also codes & reports open-ends. All reports are camera-ready. CRT interviewing option available.

Creative Research Systems
15 Lone Oak Ctr., Dept. W
Petaluma, CA 94952
707/765-1001

Taxes

TaxEase
SYSTEM

TAX PREPARATION SOFTWARE

FEDERAL & STATE RETURNS on a single disk. Easy to use. Calculates automatically, performs complex "what-if" options, prints IRS approved forms. Available for 25 states. Requires Lotus 1-2-3 or compatible spreadsheet. Standard Program \$89; Professional Program \$159; Corp, S-Corp, Partnership, Fiduciary, Employer's Rtn \$159 ea.; Tax Planner \$79; Financial Planner \$179. M/C, Visa. Add \$4 S&H

Available From
Park Technologies
P.O. Box 1317 Clifton Park, NY 12065
518/877-5881

CIRCLE 457 ON READER SERVICE CARD

FREE MARKETING INFORMATION

Call your PC WORLD representative for actual response numbers our advertisers are receiving in your Category

CATALOG

800-435-7777, 800-435-7760 in CA

CATALOG

PC WORLD

Shop The PC World Catalog for fast solutions to your PC needs.

W2/1099 Software

Major companies and CPA's rate our software tops! Create forms on HP LaserJet or use any preprinted forms. Creates IRS ready diskettes. Convenient data entry or import from any other software. W2 & all 1099's. Easy to learn & use - great support! (Programmers - ask about our Laser Forms Toolbox!) \$129.00
Newport Wave Software
 10 Savannah
 Irvine, CA 92720
 (800) 999-2611 (714) 544-1099

Depreciation Plus

Since 1984, we have been saving TIME & MONEY for anyone who needs to deal with fixed assets.

- Organizes & Tracks All Assets
- Computes ALL types of Depreciation & IC Recapture
- Prints 7 Tax Summary Reports
- Maintains & Updates Records
- Make Projections and Estimates
- Menu-Driven, Manual & More \$49.95 Visa/MC/Check/COD

T. Engel & Associates
 R. 1 Box 175
 Radcliffe, IA 50230
 515/899-2308, 515/859-7151

TaxBreak for Income Tax

With pull-down menus, TaxBreak makes tax preparation easy, taking you through, step by step. It supports 1040, 1040ES, 1116, 2106, 2119, 2210, 2210F, 2441, 3468, 3800, 3903, 4136, 4137, 4255, 4562, 4684, 4797, 4952, 4972, 5329, 6251, 6252, 8606, 8615, 8814 and schedules A, B, C, D, E, F, R, SE. \$59.95 for IBM Compatibles.
Digital Frontier Corporation
 PO Box 173, Westford, MA 01886
 Tel: 1-800-34-TAXES
 Fax: (617) 861-1037

Utilities

Opt-Tech Sort/Merge 4.0

Extremely fast Sort/Merge program. Run as a DOS command or CALL as a subroutine. Unlimited filesizes, most languages, datatypes & filetypes supported including Btrieve & dBASE. Advanced features include record selection, record reformatting & much more! Call or write for more info. MS-DOS \$149, OS/2, Xenix, Unix \$249.
Opt-Tech Data Processing
 PO Box 678
 Zephyr Cove, NV 89448
 702/588-3737

COPYWRITE

CopyWrite
 Removes
 Copy Protection.
 No more diskettes, manuals or code wheels. \$75. U.S.
 1000's of products copied.
Quaid Software Limited
 45 Charles St. E. 3rd Fl. Dept. W
 Toronto, Ontario M4Y 1S2
 416/961-8243, FAX 416/961-6448

BREAK 640K!

Out of memory? VRAM™ (\$49+4sh) creates 32M of memory by turning disk space or extended memory into expanded! VRAM/plus (8 utilities/\$99+5sh): HRAM creates 944K of DOS memory, min-mem frees memory used by TSRs, Diskpack backs up 10M to 2 disks, COMx connects PCs (w/32ft cable), and more. 30-day grt.
Biologic
 7950 Blue Gray Circle
 Manassas, VA 22110-2829
 703-368-2949 (703-361-8251 fax)

It's 3 A.M. — what is your PC doing?

Probably nothing. But it could be working for you. While you sleep, your computer could:

- ✓ Run unattended Network Backups
- ✓ Initiate Communications Sessions
- ✓ Print Lengthy Reports
- ✓ Execute Batch Files
- ✓ Run any Time-Consuming Task

Auto-Might™ simulates you typing at the keyboard, feeding keystrokes to the system at a time you desire. The leader in unattended processing, Auto-Might, is "perfect as a way to run a series of time-consuming tasks at 3 o'clock in the morning."
 John C. Dvarek, PC Magazine, 8/2/88

Auto-Might never forgets to do an important task.
 \$99.00 + s/h
 VISA or MC accepted

PC MAGAZINE EDITOR'S CHOICE

For Demo call 1-800-263-4759, ask for disk #2040 (\$10, credited toward purchase)

The Pendulum Group, Inc. • 333 W. Hampden Avenue, Suite 1015 • Englewood, CO 80110 • (303) 781-0575

CIRCLE 405 ON READER SERVICE CARD

MacMillan

Easily load and backup frequently used files onto the Ram disk. Includes a file manager, text editor, file browser, Ram disk manager and a Quick tree viewer. All in an optional Tsr which uses only 6k of Ram. Similar Windows and OS/2 interface with pulldown menus, multiple, resizable windows with full mouse support. Uses LIM EMS if installed. \$59
Clay Riley Computing
 P.O. Box 28026
 Queens Village, NY 11428
 (800) 243-1515 Ext. 850

Windows

PALSOFT - WINDOWS

Windows Spell \$95.00

Spell checker for PageMaker, Excel, Write, Designer, Graph Plus and more.

Windows Filer \$195.00

Flat data base that incorporates graphics and text into the data base.

WinText \$195.00

Windows based full function word processor.

Palsoft
 4455 S. Padre Island Dr. Ste 43
 Corpus Christi, TX 78411
 (512) 854-8788 Fax (512) 853-1541



CIRCLE 486 ON READER SERVICE CARD

AM-TAX

The fast, easy, accurate way to prepare your 1990 tax return.

Personal-1 Version: (IBM w/256K)
 Calculates 1040, A thru SE, 2106, 2119, 2210, 2441, 3903, 4562, 6251, 8615, 8814. All printed forms (incl 1040) appr by IRS.
Only \$40

Personal-2 Version: (IBM w/320K)
 Calculates more forms (all above plus 1040A, 3800, 4136, 4137, 4255, 4684, 4797, 4835, 5329, 6252, 8283, 8582, and 8606).
Only \$65

State programs for CA, MD, MO, NY, NJ, OH, IL and VA. Data auto-transferred from federal tax forms. \$30 each.

Professional Version with client letters and billing (\$125), Laser Forms (\$100), and Electronic Filing (\$395) are available.

MasterCard & Visa accepted.

AM SOFTWARE
 P.O. Box 25010
 Kansas City, MO 64119
 MC/VISA (816) 426-8361
 FAX (816) 452-3183

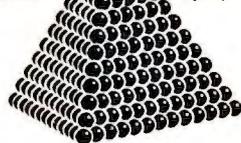
CIRCLE 455 ON READER SERVICE CARD

Ammunition to conquer your biggest problems!

without V-EMM (640 kilobytes)



with V-EMM (32 megabytes)



- The Virtual Expanded Memory Manager provides your EMS applications with up to thirty-two megabytes of LIM EMS 4.0 expanded memory.
- It turns PC/AT or PS/2 extended memory into expanded memory.
- It turns hard disk storage into expanded memory.
- It's compatible with most EMS applications, including 1-2-3.
- Only \$89.95. 30-day money-back guarantee



V-EMM™ Fort's Software
 P. O. Box 1295
 Loveland, CO 80539
 (303) 663-5629

CIRCLE 551 ON READER SERVICE CARD

EZ-COPY

+, Duplicates Disks Fast!
 • 2X+ faster than DOS • Read diskette once, then • Quickly, accurately mass duplicate 5.25" & 3.5" disks (360K, 720K, 1.2M, 1.44M) on your own PC/XT/AT/etc. • Supports up to 4 drives with automatic start and switching. • Formats, copies, verifies, etc. • Faster partial copies too. • Even faster with pre-formatted disks. • Serializes disks and/or labels, in 1 smooth operation. • Save disk images to HD, more... • Replaces hardware worth \$1000s.
Only \$495 +s/h NCP, for up to 10mach.

EZX, 917 Oakgrove, Houston, TX 77058
 Info: 713.280.9900 • BBS: 8180 • FAX: 0525
 Orders (D,M,V,AX), Catalog Toll Free
1-800-359-953-9 ext. W1090

CIRCLE 589 ON READER SERVICE CARD

FREE MARKETING INFORMATION

Call your PC WORLD representative for actual response numbers our advertisers have received in your Category.

See how well the CATALOG performs.

CATALOG

800-435-7766
800-435-7760 in CA

Richard J. Marino
Associate Publisher

ADVERTISING SALES

National Accounts Manager
Mark Glasner (415/978-3178)

Eastern Advertising Manager
Jeff Edman (201/587-0090)

Western Advertising Manager
Sharon Van Leuven (415/243-0500)

Mid-Atlantic/Manhattan
John Grogan, Northeast Account
Manager (201/587-0090)

Midwest/Chicago
Mark Taussig, Midwest Account
Manager (708/827-4477)

New England/Boston
Bob Ostrow, Senior Account Manag-
er (508/820-0440)

**Northern California/San
Francisco**
Ellen Levin, Account Manager
(415/243-0500)

Northwest
Greg Mason, Account Manager
(415/243-0500)

**San Diego/Southwest/Orange
County**
Renee Callahan (714/250-8081)

San Jose
Susan Simmons, Account Manager
(415/243-0500)

Southeast/Atlanta
Judy Sutter, Senior Account Manag-
er (404/394-0758)

**Southern California/Los
Angeles**
Denise Pilnak, Account Manager
(213/312-8008)

Texas
Harvey Diamond, Account Manager
(214/233-3492)

PC World Catalog

Catalog Advertising Manager
Sandie Wade
Catalog Coordinator Elizabeth
Maffly (800/435-7760 in California,
800/435-7766 outside California)

Circulation

Vice President, Circulation
Heather Martin
Single Copy Sales Director
George Clark
Single Copy Sales Rep. Martin
Garchar
Financial Analyst Madeleine
DiSalvio
Circulation Promotion Manager
Ellen DiMatteo
Circulation Business Manager
Noël White
Renewal/Billing Coordinator
Jennifer Paday
Circulation Assistant
Jane Kratochvil
Subscriber Service Roe Anne
Prince

Marketing & Research

Product Marketing Manager
Nola Armijo
Direct Marketing Manager
Ben Delaney
Assistant Research Manager
Bill Segovia
Reprints Coordinator Scott Shores
Marketing Assistant Ina Krips

Production

Director of Manufacturing Linda
Manes
Production Manager Laura Smith
Advertising Billing & Booking
Coordinator Scott Danish
Advertising Traffic Coordinator
Paul O'Neil

Administration

Director of Finance Vicki Peilen
Human Resources Director
Richard Willoughby
Director of Information Services
Walter J. Clegg
Corporate Business Manager
Christina Spence
Accounting/Operations Manager
Pat Murphy
Accounting/Facilities Manager
Michelle Reyes
Human Resources Administrator
Thalia Ohara
Human Resources Assistant
Amy Marks

ADVERTISER INDEX A TO Z

Get more information—circle the
appropriate number on the read-
er service card.

Reader Service Number	Page Number
3	Acer America Corp. 65
20	Advanced Computer Products. 250
14	Alban Inc. 237
306	American Small Business Computers. 168
—	Anthro Corp. 26
19	Applied Creative Technology . . . 90
8	Arlington Computer Products. 249
18	Artisoft, Inc. 12
—	Ashton Tate 163
302	ATI Technologies, Inc. 134
99	Autodesk 103
—	Bell Atlantic 242
1	Blackship Computer 30
86	Brown Wagh Publishing 87
215	Buffalo Products 63
24	Bulldog Computer Products . . . 252
17	Caere Corp. 58-59
21	Caere Corp. 204-205
47	Canon USA 150
—	Check Free 167
44	Chipsoft, Inc. 20-21
91	Citizen America Corp. 67
—	Compaq Computer Corp. 88-89
33	CompuServe 97
213	Computer Direct 244
200	Computer Discount Warehouse. 238-239
35	Computers First, Inc. 210
48	Corel Systems 69
62	Crosstalk Communications. 57
—	Curtis Manufacturing. 5
94	Dac Software, Inc. 44-45
74	Dell Computer Corp. C5-8
55	Digital Research, Inc. 95
113	Elite Business Applications . . . 84
—	Epson America Inc. 72-73
64	ERGO 136-137
83	Excelltech 206
77	Falco Data Products 60
100	Fast Micro 79-83
70	Fifth Generation Systems. 164
84	Finalsoft Corp. 34
153	Formworx Corp. 22
148	Funk Software. 24

Reader Service Number	Page Number
134	Future Soft Engineering, Inc. 109
—	Gateway 2000 37-40
133	GE Information Services 27
110	Great American Software. 99
79	Haventree Software 28
—	Hewlett Packard 10-11,104-105
—	IBM Corp. 183
96	InstaPlan 117
109	Intel Corp. 100-101
41	Kenosha Computer 247
—	L A Trade 243
—	Lotus Development Corp. 42,187
170	MacMillan Computer Publishing. 92-93
162	Magee Enterprises 56
169	Manzanita Software 29
195	Micro Professionals. 246
168	Microbiz Corp. 253
—	Micrografx. 175
—	MicroLogic 149
—	Microsoft. C2-P1,48-49
172	MIS Computer Systems. 47
7	M-USA Business Systems . . . 171
187	NEC Home Electronics. 16-17
182	NEC Home Electronics. 120-121
163	NSI Computer Products. 248
231	Panasonic 31-33
233	Patton & Patton Software. 50
—	PC Connection 110-115
144	Peachtree Software. 179
211	Power Up! Software Corp. 133
—	Quarterdeck Office Systems. . . 216
229	Reasonable Solutions. 251
239	Rose Electronics 172
266	Samsung 23
265	Samsung 209
252	Samtron. 8
31	Secure-It 211
248	Softlogic Solutions. 56
23	Softlogic Solutions. 211
249	Software Products Int'l 184
—	Software Publishing. 18,190
246	Software Publishing 55
284	Tandy/Radio Shack 176
178	Telemart 240-241
295	Texas Instruments 107
49	The Computer Book Club. 181
260	Timeworks. 77
287	Timeworks. 70
257	Toshiba 6-7
285	Toshiba 51-53

PC World is a publication of International Data Group, the world's largest publisher of computer-related information. International Data Group publishes more than 130 computer publications in more than 40 countries. Nineteen million people read one or more International Data Group publications each month. International Data Group's publications include: ARGENTINA's Computerworld Argentina; ASIA's Asian Computerworld; AUSTRALIA's Australian Macworld, Australian PC World, Computerworld Australia; AUSTRIA's Computerwelt Osterreich; BRAZIL's DataNews, PC Mundo; CANADA's ComputerData; CHILE's Computacion Personal, Informatica; COLOMBIA's Computerworld Colombia; DENMARK's CAD/CAM World, Computerworld Danmark, Macworld Danmark, PC World Danmark, Unix World; FINLAND's Mikro PC, Tietoviikko; FRANCE's Distributique, Info PC, Le Monde Informatique, Télécoms International; HUNGARY's Computerworld SZT, Mikrovilág; INDIA's Computers & Communications; ISRAEL's People & Computers Weekly; ITALY's Computerworld Italia, PC World Italia; JAPAN's ComputerWorld Japan, InfoWorld, Publish!; KOREA's Hi-Tech Information/Computerworld; MEXICO's Computerworld Mexico, PC Journal; THE NETHERLANDS' Amiga World, Computerworld Netherlands, PC World Benelux; NEW ZEALAND's Computerworld New Zealand, PC World New Zealand; NIGERIA's PC World Africa; NORWAY's Computerworld Norge, Macworld Norge, PC World Norge; PEOPLE'S REPUBLIC OF CHINA's China Computerworld, China Computerworld Monthly; POLAND's Computers; SPAIN's Amiga World, CIMWorld, Computerworld España, Comunicaciones World, PC World España; SWEDEN's Computer Sweden, Mac World, MikroDatorn, PC/Nyheterna, Svenska PC World; SWITZERLAND's Computerworld Schweiz; TAIWAN's Computerworld Taiwan, PC World Taiwan; UNITED KINGDOM's Graduate Computerworld, ICL Today, Lotus, Macworld, PC Business World; UNITED STATES' AmigaWorld, CIO, Computerworld, Digital NEWS, Federal Computer Week, GamePro, InCider/A+, InfoWorld, International Custom Publishing, Macworld, Network World, PCGames, PC World, Portable Computing, Publish, Run, Sun Tech Journal; USSR's Manager, Network, PC Express, PC World USSR; VENEZUELA's Computerworld Venezuela, Micro Computerworld; WEST GERMANY's Amiga Welt, Computerwoche, Information Management, Macwelt, PC Welt, PC Woche.

FREE PRODUCT INFORMATION

PC WORLD

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP (required) _____

TITLE _____ PHONE () _____

Circle the number corresponding to the product or product category you need to know more about. Manufacturers will rush product information directly to you.

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350										

CATALOG SECTION

401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560
561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600

Check this box for your subscription to *PC WORLD*. You will be billed \$19.97 for a 1-year (12-issue) subscription (U.S. only).

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

For information on an entire category of products or all of the products mentioned in an article, circle the appropriate number below.

Editorial Features (See Article for Number)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950										

Advertised Products

Computers	951	Network Products	957
Data Management (PIMs)	952	Operating Environments	958
Desktop Pub./Graphic Software	953	Printers	959
Financial/Accounting	954	Scanners	960
Memory Boards	955	Video Boards	961
Monitors	956	Word Processing	962

Jan.  1991

Expires 05/14/91

S1

Free Product Information



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 758 PITTSFIELD, MA

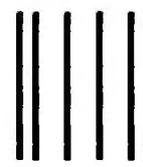
POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

Product Information Center
P.O. Box 5330
Pittsfield, MA 01203-9871



Free Product Information



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 758 PITTSFIELD, MA

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

Product Information Center
P.O. Box 5330
Pittsfield, MA 01203-9871



FREE PRODUCT INFORMATION
PC WORLD

Circle the number corresponding to the product or product category you need to know more about. Manufacturers will rush product information directly to you.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP (required) _____

TITLE _____ PHONE () _____

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350										

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

For information on an entire category of products or all of the products mentioned in an article, circle the appropriate number below.

Editorial Features (See Article for Number)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950										

Advertised Products

Computers	951	Network Products	957
Data Management (PIMs)	952	Operating Environments	958
Desktop Pub./Graphic Software	953	Printers	959
Financial/Accounting	954	Scanners	960
Memory Boards	955	Video Boards	961
Monitors	956	Word Processing	962

CATALOG SECTION

401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560
561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600

Check this box for your subscription to **PC WORLD**. You will be billed \$19.97 for a 1-year (12-issue) subscription (U.S. only).

Reader Service Number	Page Number
256 Toshiba.....	188
— United Computer Express....	245
310 Universal Memory Products...	237
300 Via Fax.....	54
— WordPerfect Corp.....	15
206 ZSoft Corp.....	118

ADVERTISER INDEX BY PRODUCT CATEGORY

Get more information—circle the appropriate number on the reader service card.

Reader Service Number	Page Number
-----------------------	-------------

HARDWARE

Boards/Cards/Chips

14 Alban Inc.....	237
302 ATI Technologies, Inc.....	134
310 Universal Memory Products...	237

Connectivity

19 ConnExperts.....	90
239 Rose Electronics.....	172

Local Area Network

18 Artisoft, Inc.....	12
215 Buffalo Products.....	63
19 ConnExperts.....	90
239 Rose Electronics.....	172

Monitors/Display

187 NEC Home Electronics.....	16-17
265 Samsung.....	209
252 Samtron.....	8

Printers/Plotters

47 Canon USA.....	150
91 Citizen America Corp.....	67
— Epson America Inc.....	72-73
— Hewlett Packard.....	10-11,104-105
231 Panasonic.....	31-33

Computers

3 Acer America Corp.....	65
20 Advanced Computer Products.....	250
1 Blackship Computer.....	30
— Compaq Computer Corp.....	88-89
35 Computers First.....	210
74 Dell Computer Corp.....	C5-8
64 ERGO.....	136-137
77 Falco Data Products.....	60
100 Fast Micro.....	79-83
— Gateway 2000.....	37-40
109 Intel Corp.....	100-101
168 Microbiz Corp.....	253
172 MIS Computer Systems.....	47
182 NEC Home Electronics...	120-121
266 Samsung.....	23
284 Tandy/Radio Shack.....	176
295 Texas Instruments.....	107
257 Toshiba.....	6-7
285 Toshiba.....	51-53
256 Toshiba.....	188

Scanners/Digitizers

21 Caere Corp.....	204-205
--------------------	---------

SOFTWARE

Accounting/Financial

— Check Free.....	167
44 Chipsoft, Inc.....	20-21
94 Dac Software, Inc.....	44-45
110 Great American Software.....	99
169 Manzanita Software.....	29
7 M-USA Business Systems.....	171
144 Peachtree Software.....	179
287 Timeworks.....	70

CAD/CAM

306 American Small Business Computers.....	168
--	-----

Communications

— Bell Atlantic.....	242
62 Crosstalk Communications.....	57
83 Excelltech.....	206
134 Future Soft Engineering, Inc.....	109
— WordPerfect Corp.....	15

Database Management

— Ashton Tate.....	163
--------------------	-----

Desktop Publishing

48 Corel Systems.....	69
153 Formworx Corp.....	22
211 Power Up! Software Corp.....	133
— Quarterdeck Office Systems...	216
246 Software Publishing.....	55
260 Timeworks.....	77
206 ZSoft Corp.....	118

Fontware

113 Elite Business Applications.....	84
--------------------------------------	----

Graphics

99 Autodesk.....	103
— Lotus Development Corp.....	187
— Micrografx.....	175
— Software Publishing.....	18

Integrated Software

249 Software Products Int'l.....	184
----------------------------------	-----

Management

— Bell Atlantic.....	242
— MicroLogic.....	149

Optical Character Recognition

17 Caere Corp.....	58-59
--------------------	-------

Presentation Graphics

86 Brown Wagh Publishing.....	87
-------------------------------	----

Project Management

79 Haventree Software.....	28
96 InstaPlan.....	117
233 Patton & Patton Software.....	50

Operating Systems

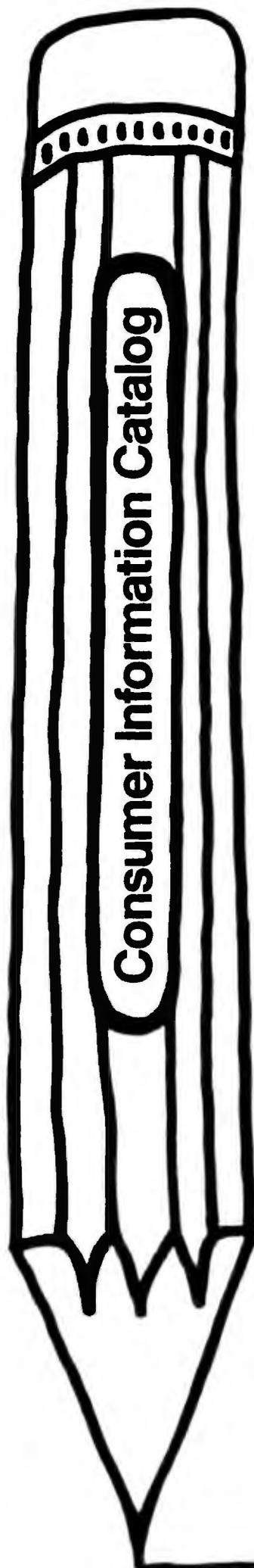
55 Digital Research, Inc.....	95
-------------------------------	----

Spreadsheets/Templates/Forms

— Lotus Development Corp.....	42
-------------------------------	----

Utilities

— Check Free.....	167
70 Fifth Generation Systems.....	164
84 Finalsoft Corp.....	34



Reading
worth
writing
for.

If you're looking for some good reading, you've just found it. The free Consumer Information Catalog.

The Catalog lists about 200 federal publications, many of them free. They can help you eat right, manage your money, stay healthy, plan your child's education, learn about federal benefits and more.

So sharpen your pencil. Write for the free Consumer Information Catalog. And get reading worth writing for.



Consumer Information Center
Department RW
Pueblo, Colorado 81009

A public service of this publication and the Consumer Information Center of the U.S. General Services Administration.

Reader Service Number	Page Number
148	Funk Software..... 24
162	Magee Enterprises..... 56
248	Softlogic Solutions..... 56
23	Softlogic Solutions..... 211
Windows	
134	Future Soft Engineer..... 109
—	Micrografx..... 175
—	Microsoft..... C2-P1
Word Processing/Aids	
—	Software Publishing..... 190
—	Microsoft..... 48-49

MISCELLANEOUS

Computer Accessories

—	Anthro Corp..... 26
—	Curtis Manufacturing..... 5

Mail Order

8	Arlington Computer Products..... 249
24	Bulldog Computer Products... 252
213	Computer Direct..... 244
200	Computer Discount Warehouse..... 238-239
35	Computers First, Inc..... 210
—	Gateway 2000..... 37-40
41	Kenosha Computer..... 247
—	L A Trade..... 243
168	Microbiz Corp..... 253
195	Micro Professionals..... 246
163	NSI Computer Products..... 248
—	PC Connection..... 110-115
229	Reasonable Solutions..... 251
178	Telemart..... 240-241
—	United Computer Express... 245

Other

170	MacMillan Computer Publishing..... 92-93
-----	--

Reader Service Number	Page Number
On-Line Services	
33	CompuServe..... 97
133	GE Information Services..... 27
300	Via Fax..... 54
Periodicals/Subscriptions	
49	The Computer Book Club..... 181
Security	
31	Secure-It..... 211
Supplies	
—	IBM Corp..... 183

PRODUCTS FEATURED IN EDITORIAL

Get more information—circle the appropriate number on the reader service card.

Reader Service Number	Page Number
Add-On Board	
615	Nextdimension board, Next Computer..... 91
626	Pacific Connect, Pacific 4 Memory; Pacific Data Products..... 106
638	SixPak 286, AST Research... 119
Communications	
635	Co/Session, Triton Technologies..... 102
642	HP NewWave Mail, Hewlett-Packard..... 119
Computer System	
618	AST Premium II 386SX/20, AST Research..... 116
620	CompuAdd 333, 333T; CompuAdd..... 116
660	IBM PS/2 Models 90 XP 486 and 95 XP 486; IBM..... 74

Reader Service Number	Page Number
615	Nextcube, Nextstation, Nextstation Color; Next Computer..... 91
622	Sanyo MBC-17NB, Sanyo Business Systems..... 116
616	Wyse Decision 486/33E, Wyse Technology..... 96
Desktop Publishing	
621	Express Publisher 2.0, Power Up Software..... 98
Development Tool	
601	Booster Toolkit, General Software..... 215
Fax	
619	SatisFAXtion board, Intel PCED..... 108
Font	
605	Adobe Type Manager for Windows 1.0, Adobe Systems..... 124
606	FaceLift 1.0, Bitstream..... 126
607	Fontware 3.0, Bitstream..... 127
608	Publisher's Powerpak, Atech Software..... 128
609	SoftType 1.01, Z-Soft..... 129
610	SuperPrint 1.0, Zenographics..... 130
611	Type Director 2.0, Agfa Compugraphic Division..... 131
Graphics	
645	Aldus Persuasion 2.0 for Windows, Aldus..... 85
Information Management	
639	TMI Key Results Advanced, TMI (North America)..... 119
Language	
617	Turbo Pascal 6.0, Borland Int'l..... 106
Operating System/Environment	
661	OS/2 1.3, IBM..... 76
Printer	
633	IBM PS/1 Printer, IBM..... 98

Reader Service Number	Page Number
637	QMS ColorScript 100 Model 10, Model 30i; QMS..... 119
Printer Accessory	
626	PacificPage PE 4.0, PacificType; Pacific Data Products..... 106
Printer Utility	
630	PrinTools, Insight Development..... 96
Security	
604	Anchor Pad, Anchor Pad Int'l..... 254
603	Care-Free Security System, Byte Brothers..... 254
602	Kablit, Secure-It..... 254
Tax	
647	AM Tax, AM Software..... 143
624	Andrew Tobias' TaxCut, MECA Software..... 94, 143, 147
648	J.K. Lasser's Your Income Tax 1991, J.K. Lasser Institute... 143
625	MacInTax for Windows, Softview..... 94, 143
649	Personal Tax Filer; Disk-Count Software..... 143
650	Personal Tax Preparer for 1990, Parsons Technology..... 143
651	Swiftax, Timeworks..... 143
652	Sylvia Porter's Rapid Tax, DacEasy..... 143
653	Tax Command, Practical Programs..... 143
654	Tax Magic Personal, Tax Magic Personal Plus; TaxByte..... 143
623	TurboTax Federal Personal 1040, ChipSoft..... 94, 143, 147
Utility	
628	BlueMax, 386Max 5.0; Qualitas..... 102
Word Processing	
636	DeScribe—Word Publisher 2.0, DeScribe..... 119
640	OfficeWriter 6.2, Software Publishing..... 119

Q.

“Where Do I Turn For More Information?”

A.

1. Turn to the Reader Service Card at the back of this issue of *PC World*.
2. Find the Reader Service number of the product you want in the product or advertiser indexes.
3. Circle the number, fill out the postage-paid card and send it in. It's that simple.

In return, our advertisers will send you more information on the products you want. It's just another way that *PC World* helps you make the best buying decisions for your company.

PC WORLD MAIL ORDER Shopping Guide

*Buy with
Convenience*

*Buy with
Confidence*

COPROCESSOR SPECIALIST

INTEL		
8087	5MHZ	78.
8087-2	8MHZ	109.
8087-1	10MHZ	145.
80287-8		177.
80287-10		197.
80387DX-16		299.
80387DX-20		340.
80387DX-25		420.
80387DX-33		519.
80C287A-12		245.
80287XL		189.
80287XLT		189.
80387SX-16		269.
80387SX-20		289.
CYRIX		
X83D87-16		259.
X83D87-20		295.
X83D87-25		368.
X83D87-33		448.
X83S87-16		230.
X83S87-20		252.

AMD	
AM80C287-10	with manual & disc \$ 99.00 !

IIT	
2C87-8	164.
2C87-10	178.
2C87-12.5	189.
2C87-20	239.
3C87-16	259.
3C87-20	279.
3C87-25	359.
3C87-33	449.
3C87SX-16	298.
3C87SX-20	CALL

WEITEK	
3167-20	340.
3167-25	569.
3167-33	699.
4167-25	747.
4167-33	990.

ANN & ANTHONY (DAI)

2464 El Camino Real, Suite 420, Santa Clara, CA 95051
Tel: (408) 988-5083 Fax: (408) 988-3986

Circle 14 on reader service card

UNIVERSAL MEMORY PRODUCTS

1378 LOGAN AVE UNIT E COSTA MESA CA 92626
PHONE 800-678-8648
714-751-9445 FAX 714-751-2023
OPEN 7AM-5PM M-F 8AM-2PM SAT

VISA/MC
AMEX
PO'S FROM
QUAL FIRMS
UNIV & GOVT
COD

IBM PS/2 MEMORY	
6450604.....	\$139
2MG SIMM FOR 55SX, 50Z, 70E61/121	
6450608.....	\$149
2MG FOR 70A21	
6450379.....	\$209
2MG FOR 80-111/311	
6450375.....	\$135
1MG FOR 80-041	
34F2933.....	\$409
4MG MODULES	
30F5360.....	\$149
2MG KIT FOR 30-286	
6450606.....	\$460
2-8MG BRD W/2MG MODEL 70 & 80	
34F5311.....	\$920
4-16MG BRD W/4MG	

COMPAQ MEMORY	
1MG MOD...\$119	
4MG MOD.. \$329	
1MG EXP BRD \$239	
4MG EXP BRD \$679	
SYSTEM PRO 2MG \$269	
4MG \$1599	

INTEL MATH CO	
80287-6.....	\$120
80287-8.....	\$179
80287-10.....	\$203
80287-12.....	\$305
80387-20.....	\$350
80387-25.....	\$450
80387-33.....	\$549
80387SX.....	\$299

IIT MATH-COS	
2C87-8.....	\$169
2C87-10.....	\$195
2C87-12.....	\$255
2C87-20.....	\$289

HEWLETT PACKARD LASERJET MEMORY	
SERIES II & IID	
1MG.....	\$89
2MG.....	\$155
4MG.....	\$254
SERIES IIP & 3	
1MG.....	\$95
2MG.....	\$149
4MG.....	\$249

IBM LASER PRINTER	
4019	
1MG \$135 2MG \$229	
3.5MG \$269	

CYRIX MATH CO	
83D87-16.....	\$277
83D87-20.....	\$317
83D87-25.....	\$387
83D87-33.....	\$477
NEW FOR 386SX	
83S87-16.....	\$270
83S87-20.....	\$350

AST RAMPAGE PLUS 286	
2-8MG FOR AT ONLY \$269	
W/2MG \$379	
RAMVANTAGE 3MG EXTENDED MEMORY FOR AT	
W/128K \$47	
SIXPAK PLUS 286	
UP TO 4MG FOR AT'S ONLY \$119	
W/2MG \$229	
W/4MG \$449	

ORCHID RAMQUEST	
EXTRA 16/32 FOR PS2'S ONLY \$309	
W/2MG \$419	

BOCA AT PLUS	
2-8MG LIM 4.0 EXP BRD FOR 286 OR 386	
ONLY \$119	
W/2MG \$227	

TOSHIBA LAPTOP MEMORY	
1600SE/XE	
1MG.. \$267	
2MG.. \$329	
T1500	
2MG.. \$193	
T3100SX	
2MG.. \$183	
4MG.. \$399	
T3200SX	
2MG.. \$183	
4MG.. \$499	
T5200	
2MG.. \$275	

FULL 5 YEAR WARRANTY ON PRODUCTS!!!

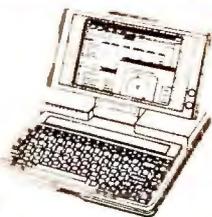
Circle 310 on reader service card



COMPUTER DISCOUNT WAREHOUSE™



Panasonic
Office Automation



Panasonic CF-170 Notebook Size Laptop Computer

Features: NEC V20 Processor • 10 MHz Speed
• 640 KB Memory Standard, Expandable to 1.6 MB Using
1 MB Simm Module • 1.44 MB 3.5" Disk Drive Standard • 20 MB Hard Drive
Standard • 25 MS Access Speed • CGA Display • Parallel Serial Ports
• 84-key Keyboard • Expansion Slots for Internal Modem and 1 MB RAM
Module • MS-DOS 3.3 and GW-BASIC • Nicad Removable 4 Hour Battery
with AC Adaptor/Charger • Weighs Just Over 6 Lbs.

CDW™ Price **\$1439.53**

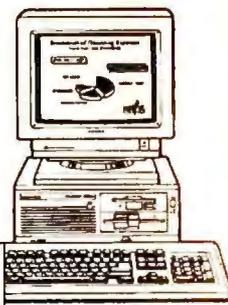
WHY PAY RETAIL?

CDW™ Sells For Less

AND SERVICES YOU BETTER

MAXSTATION 386SX Today's Best Computer Value

Features: 80387SX Microprocessor, 16 MHz • 1 MB RAM • 5 Slots 4 16 bit,
1-8 bit • One Parallel Port, One Mouse Port,
One Serial Port • MS-DOS® 4.01 •
Alphaworks integrated productivity package
version 2.0 • 1 Year Limited Warranty on
Parts and Labor • 16 Bit VGA Card • 80
Meg Hard Drive • 3.5 & 5.25 Floppy Drive



CDW™ Price
\$1479.56

MAGNAVOX

HARDWARE, SOFTWARE & PERIPHERALS AT DISCOUNT PRICES

NETWORKING PRODUCTS



SMC Coax Intelligent Hub, 8 Port	\$446.35
SMC Twisted Pair Intelligent Hub, 8 Port	558.11
SMC T100 Toshiba Laptop Arcnet Board	348.23
SMC LC100 Arcnet Laptop Connection	367.05
SMC Arcnet PS110 MCA Board	310.58
SMC 3008TP 10 Base T Ethernet TP, 8 Bit	199.50
SMC 3016 10 Base T Ethernet TP, 16 Bit	253.52
SMC10 Base T 3508 TP Concentrator	744.70
ARTISOFT E143 Ethernet Adaptor Kit	249.41
ARTISOFT LANtastic Ethernet Starter Kit	517.64
ARTISOFT LANtastic 2M bps Starter Kit	376.47
ARTISOFT LANtastic 2M bps Adaptor	195.35
INTEL Net Port Printer Sharer	454.02
NOVELL NE/2 Ethernet MCA	268.23
PRACTICAL PERIPH. P/NET Server	1044.50
PRACTICAL PERIPH. P/POD	119.10
PROTEON P1308 Boards	389.82
PROTEON P2612 12 Node Wire Center	735.47
THOMAS CONRAD 6042 TP+ Arcnet	119.20
THOMAS CONRAD 6046 PS/2 Board	239.08
THOMAS CONRAD 6150-10 8 Port Smart Hub	524.50
THOMAS CONRAD 6150-11 16 Port Smart Hub	698.88
3COM 3C505B Ethernet Plus	607.95
3COM 3C523 MCA Ethernet	337.58
3COM Ethernet Repeater	898.81
3COM 3C501 Ethernet Board	745.50
WESTERN DIGITAL TP Ethernet Board	316.09
WESTERN DIGITAL 10 Base T Ethernet Board	239.76
WESTERN DIGITAL Ethernet Plus/A MCA	262.94
WESTERN DIGITAL 16 Bit Ethernet Plus	248.10

NETWORKING SOFTWARE



WordPerfect
CORPORATION

ASHTON TATE dBase IV LAN Pak	\$626.37
BORLAND Paradox Network 5 User	614.40
BORLAND Quattro Pro Network Node 5 User	193.18
BRIGHTWORKS PS Print	243.68
CC Mail Products	CALL
DELTA TECH Direct Net Menu	149.22
HARVARD GRAPHICS LAN Pack	CALL
LOTUS 1-2-3 2.2 Server	486.66
LOTUS 1-2-3 2.2 Network Node	282.88
LOTUS 1-2-3 3.0 Server	563.33
LOTUS 1-2-3 3.0 Network Node	349.50
LOTUS Freelance+ Server	456.93
LOTUS Symphony Server	599.13
MICROSOFT Rbase V.2.11 LAN 6 Users	616.84
MICROSOFT Word 5.0 Network Node	185.39
MICROSOFT Excel Network Nodes	255.60
NANTUCKET Clipper V.5.0	485.50
NORTON LAMBERT PRODUCTS	CALL
NOVELL Network Access Server	CALL
ONTRACK Disk Manager For Novell	98.65
SOFTWARE PUB. Professional LAN Pack	309.13
WORD PERFECT 5.1 Network Node	164.11
WORD PERFECT Office File Server V3.0	96.31
WORD PERFECT Plan Perfect Server	269.21
WORD PERFECT Plan Perfect Add. Nodules	109.75
WORD PERFECT Office Add. Stations 5PK	298.55
WORD PERFECT Draw Perfect Server	269.53
WORD PERFECT Draw Perfect Add. Station	165.93
XTREE Network	209.96

TAPE & FLOPPY DRIVES



IRWIN 145C 40MB Internal	\$329.51
IRWIN 2020 20MB Internal	252.80
IRWIN 2040 40MB Internal	332.50
IRWIN 2060 80MB Internal	423.59
IRWIN 2120 120MB Internal	507.53
IRWIN 445A 40MB External	449.60
IRWIN 485A 80MB External	533.70
IRWIN 6151 250MB Internal	879.33
IRWIN 6451E 250MB External	1069.77
IRWIN 785SP 80MB External	559.79

Call For Controllers, Accessory Kits and Tapes.



MOUNTAIN 300MB External Filesafe	\$249.18
MOUNTAIN 2.2 Gigabyte Ext. Tape Drive	4427.60
MOUNTAIN 80MB External Backup	599.30
MOUNTAIN 80MB Internal Backup	484.33
MOUNTAIN 1.2 Gigabyte External Filesafe	CALL
MOUNTAIN 40MB Internal Tape Drive	249.80
MOUNTAIN 40MB External Tape Drive	448.88
MOUNTAIN 150MB Internal Filesafe	1026.90
MOUNTAIN 150MB External Filesafe	1384.30

Call For PS/2 Drives, Controllers, Accessory Kits and Tapes

PRINTERS

CANON BJ10E Bubble Jet	\$330.68
CITIZEN GSX 140	295.55
CITIZEN GSX 200	CALL
SEIKO Smart Label Printer	169.45

Manufacturers Genuine Ribbons
Starting at \$1.99

EPSON, OKIDATA, IBM, NEC, PANASONIC & More

COMMUNICATIONS PRODUCTS

AST 5251 11+ Enhanced Local	\$497.75
AST 5251-11+ PS/2 MCA Local	497.75
AST 5251-12 Remote	462.84
DIGIBOARD PC/At Intelligent 8 Serial	799.60
DIGIBOARD PC/16i Intelligent 16 Serial	1172.34
DIGIBOARD PC/4 4 Serial Ports	286.10
DIGIBOARD PC/8 8 Serial Ports	424.73
DIGIBOARD PS/2 Multi Serial Boards	CALL
EVEREX 2400 Internal Modem	109.75
EVEREX 2400 External Modem	165.36
EVEREX 2400 External MNP w/St.	189.88
EVEREX 2400 MNP Internal	145.34
EVEREX 2400 PS/2 Internal	168.60
IRMA III 3270 PS/2 MCA Board	412.35
IRMA III 3270 XT/AT	409.60
IRMA SNA Remote Board	539.32
WORLD PORT 2400 Modem	247.12
WORLD PORT Modem/Fax Ext	474.55
MULTITECH MODEMS	CALL

MISC ACCESSORIES

BROWN-WAGH Sound Blaster	\$155.55
CH PRODUCTS PS2 Gamecard III	47.25
CH PRODUCTS XT/AT Gamecard III w/Y Cable	36.50
CH PRODUCTS Flight Stick	47.00
CH PRODUCTS Roller Mouse	85.40
CH PRODUCTS Mach III Joystick	31.20
ROLAND Sound Card LASY5	388.63
SOTA 286i-12 Accelerator	260.45
SOTA 386i-12 Accelerator	465.70
WESTERN DIGITAL 1:1 1006 MM1	79.00
WESTERN DIGITAL 1:1 1006 MM2	89.00

Call For Current Pricing On Market
Fluctuating Products

Memory

256K DRAMS, 1MB DRAMS, 256K Simms, 1MB Simms
Diskettes - Sony, 3M, Maxell, Verbatim
Tape & Removable Cartridges
3M, Sony, Iomega

7 GOOD REASONS TO BUY FROM CDW™

- 1 CDW™ means Service
- 2 CDW™ means Savings
- 3 CDW™ means Frequent Buyer Program
- 4 CDW™ means Experience
- 5 CDW™ means Technology
- 6 CDW™ means Networking
- 7 CDW™ means Computing

SURGE SUPPRESSORS

CURTIS Ruby Plus	\$57.60
DATASHIELD S100	59.55
DATASHIELD S85	53.95
KENSINGTON 450 Power Backup	263.73
KENSINGTON 520 Power Backup	342.20
KENSINGTON 360 Power Backup	239.50
KENSINGTON Power Tree 10	16.30
KENSINGTON Remote	98.75
TRIPPLITE Isobar 4 Outlet	44.25
TRIPPLITE Isobar 6 Outlet	49.10
TRIPPLITE Isobar 8 Outlet	57.30

**MOST ORDERS RECEIVED
BY 5:00 P.M. C.D.T.
SHIP SAME DAY.**

IF YOU FIND A BETTER PRICE CALL US BEFORE YOU BUY
2840 MARIA, NORTHBROOK, IL 60062 FAX (708) 291-1737

**PC Magazine says... "You may find a
better deal here than anywhere else."**

WHY WAIT? CALL COMPUTER DISCOUNT WAREHOUSE™ NOW!

PCW 181

CDW™ EXTENDED HOURS
Sales 7:30-7:30 CST Mon-Fri
9:00-3:30 CST Sat.
Tech Support 9:00-5:00 CST Mon-Fri



(800) 359-4CDW

In Illinois FAX
(708) 498-1426 (708) 291-1737

Credit card
charges are not
submitted until
time of shipment



High Volume Bids Invited

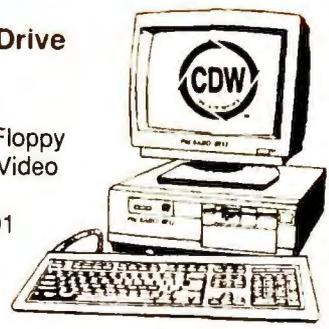


PB FORCE I

40 MB/28 MS Hard Drive

- 80286/12 MHz CPU
- 1 MB RAM Standard
- One 5.25", One 3.5" Floppy
- 800 x 600 Res. VGA Video
- Parallel/Serial Ports
- LotusWorks, DOS 4.01
- Monitor Optional

\$1095.75



WHY PAY RETAIL?

CDW™ Sells For Less

AND SERVICES YOU BETTER

LTE 286 Mdl 20.....	\$2443.45	DP38620E Mdl 1.....	\$2445.45
LTE 386 30MB OR 60MB.....	CALL	DP38625E Mdl.1.....	3727.32
LTE 286 Mdl.40.....	2778.20	DP386N PC Mdl.1.....	CALL
DP386S20 Mdl.1.....	1995.20	SLT 386S20 Mdl.60.....	4736.26



EPSON

LX810.....	\$169.00	LQ510.....	\$259.00
LQ850.....	429.00	LQ950.....	432.00
FX850.....	287.00	LO1050.....	569.00
FX1050.....	399.00	LQ2550.....	849.00
LQ1010.....	368.00	EPL 6000 Laser.....	789.00

PACKARD BELL

America grew up listening to us. It still does.
NOT AFFILIATED WITH ANY FORMER BELL SYSTEMS ENTITY

HARDWARE, SOFTWARE & PERIPHERALS AT DISCOUNT PRICES

COMPUTERS

PACKARD BELL

PB 286, 40 MB VGA Laptop.....	\$2159.33
FORCE 1, 286/12, 40 Meg, 1 MB.....	1095.75
FORCE 1, 1Dx, 286/12, 1 MB.....	727.27
FORCE 386SX, 16 MHz, 124 MB, VGA 2MB.....	1772.68
FORCE 386SX, 40 MB, VGA.....	1323.59
FORCE SX, 84 MB, VGA.....	1546.63
PB 386/33.2 MB, 3.5" & 5.25" Drives.....	\$2115.90

Panasonic

CF170 XT 10MHz 20MB Notebook Laptop.....	\$1439.53
CF 270 286 16MHz 20MB VGA Notebook.....	1937.11

IBM

PS/2 30286 30MB \$1738.89	PS/2 65SX 60MB.....	\$3575.82	
PS/2 50Z 30MB.....	1839.21	PS/2 70E 60MB.....	2927.79
PS/2 55SX 30MB.....	2427.47	PS/2 55SX 60MB.....	2719.49

COMPAQ

LTE 286 Mdl. 20.....	\$2443.45	DP386/20E Mdl 1.....	2445.46
LTE 386.....	CALL	DP38625E Mdl.1.....	3727.32
LTE 286 Mdl.40.....	2778.20	DP386N PC Mdl.1.....	CALL
DP386S20 Mdl.1.....	1995.20	SLT 386S20 Mdl.60.....	4736.26

SAMSUNG

S-3000VE, 4.77/10 MHz.....	\$349.50
SD700SX 2MB RAM, 16 MHz, 386 SX.....	919.21
SD-630 286 12MHz 640K.....	579.81

MAGNAVOX

MAX STATION 286 40MB VGA.....	1095.75
MAX STATION 386SX 80MB VGA.....	1479.56

TEXAS INSTR. TRAVELMATE 2000.....\$2549.50

HP, IBM & COMPAQ MEMORY

1MB Module CPQ - 386, 386S, 20E/25E.....	\$115.66
4MB Module CPQ - 386, 386S, 20E/25E.....	388.60
4MB Exp. Bd. - 386S, 20E/25E.....	441.30
2MB Upgrade LaserJet II / IID.....	194.00
1 MB Upgrade LaserJet IIP / III.....	122.75
2MB Upgrade LaserJet IIP / III.....	222.60
4MB Upgrade LaserJet II / IID.....	362.25
2MB Upgrade Toshiba 5200.....	190.33
2MB Upgrade Toshiba 1200XE.....	190.00
2MB Upgrade Toshiba 3100SX.....	190.00
Toshiba Laptop Memory.....	CALL
IBM Personal System II Memory.....	CALL

WYSE TERMINALS

WYSE 50/60 Amber or Green.....	\$349.11 / 286.95
WYSE 85 / 30 Amber or Green.....	359.00 / 282.10
WYSE 185 VT320 Amber, Green or White.....	361.79
WYSE 150 Amber, Green or White.....	272.45

CD-ROM & WORM DRIVES

HITACHI 3600/3650.....	\$456.81 / 530.68
NEC External / Portable.....	646.67 / 406.80
PANASONIC LF5010 WORM.....	2089.91
HITACHI 1503S External.....	471.59
TOSHIBA CD-ROM External.....	585.22

PLOTTERS, DIGITIZERS & SCANNERS

CalComp

1023.....	CALL	12 x 12.....	CALL
1025.....	CALL	12 x 18.....	CALL

KURTA

1212IS1.....	\$396.59	12 x 17.....	\$598.35
--------------	----------	--------------	----------

Summagraphics

Summagraphics Summa II 12 x 12.....	\$342.60
Summagraphics Summa II 12 x 18.....	567.41
PANASONIC FX-RS307U 600x600 Scanner.....	955.20
COMPLETE PC Full Page Scanner.....	533.30
COMPLETE PC Half Page Scanner.....	177.27

HEWLETT PACKARD

HP7575A.....	\$3388.70
HP7475A.....	1357.69
HP7550A.....	2695.56
HP7570A.....	2729.30
HP7576-EXL.....	4456.04
HP SCANJET +.....	1073.62

DOT MATRIX & LASER PRINTERS

EPSON

LX810.....	\$169.00	LQ510.....	\$259.00
LQ850.....	429.00	LQ950.....	432.00
FX850.....	287.00	LQ1050.....	569.00
FX1050.....	399.00	LQ2550.....	849.00
LQ1010.....	368.00	EPL6000 Laser.....	789.00

CALL FOR ACCESSORIES
CDW™ stocks all cut sheet feeders and ribbons.

NEC

P2200XE.....	\$251.68	P6300 New Model.....	\$626.90
P6200 24-pin.....	467.70	LC290 Postscript.....	2472.52

DICOMINIX by KODAK

150 Parallel / 150 Serial.....	\$329.07 / 339.07
--------------------------------	-------------------

OKIDATA

ML182 Turbo.....	\$229.48	ML390+.....	\$457.30
OKILASER 400.....	629.08	ML391+.....	599.74
OKILASER 800.....	955.31	ML380.....	285.39
OKILASER 820.....	1266.30	ML393+.....	948.90
OKILASER 840.....	1919.64	ML393 + Color.....	999.50
ML320.....	319.68	ML321.....	444.94

Panasonic

1124.....	\$285.69	1624.....	\$367.39
1695.....	398.90	1180/1191.....	149.99/219.12
4420 Laser Printer.....	799.50		

HEWLETT PACKARD

H-P LaserJet Model IIID.....	CALL
H-P Deskjet 500/H-P Laserjet IIP.....	489.50/959.95
H-P Laserjet III.....	CALL
H-P Deskwriter.....	732.10
H-P Paintjet.....	960.55
H-P Paintjet XL.....	1685.78

PACIFIC DATA

PACIFIC DATA 25 in 1 Cart. LAS3.....	\$309.67
PACIFIC DATA Page Postscript 4 HP LAS3.....	356.75
PACIFIC DATA Plotter in a Cartridge.....	235.40
PACIFIC DATA 1 MB Upgrade for LaserJet II.....	149.60
PACIFIC DATA 1 MB for 2P III.....	CALL
POSTSCRIPT CART. W/2MB HP LAS2.....	308.04

CPI JETMEMORY 1MB for HP/II/III/IIID.....\$159.60
CPI JETPAGE for HP II/III/IIID Postscript.....323.52
CPI SUPERSET+ 425 Fonts for all HP Lasers.....279.65

BOARDS & CO-PROCESSORS

AST Six Pack 286 512K.....	\$137.60
AST Rampage Plus 512K.....	374.76
CYRIX FasMath 16 MHz/20 MHz.....	286.90/326.19
CYRIX FasMath 25 MHz/33 MHz.....	410.72/502.39
INTEL Above Board Plus 512K.....	329.66
INTEL Inboard 386/PC.....	497.60
INTEL SatisFAXtion Fax Board.....	374.50
INTEL 8087-2.....	115.90
INTEL 80387-SX \$294.82	
INTEL 287-XLT.....	193.55
INTEL 80387-16.....	325.60
INTEL 80287-XL.....	189.50
INTEL 80387-25.....	468.92
INTEL 80387-20.....	382.65
INTEL 80387-33.....	568.20

DRIVES, TAPES & CARDS

CONNER 40 MB 104 MB.....	\$339.29	569.58
CONNER 84 MB / 200 MB.....	526.74	895.34
IOMEGA B144I/B44 Trans.....	916.85	987.73
IOMEGA B244X Dual 44MB.....	1809.40	
PLUS II 80 Meg Hard Card.....	647.77	
SYSGEN 5.25" 3.5" External Floppy.....	209.25	
PACIFIC RIM 5.25" External Floppy for Laptops.....	185.56	
TEAC and SONY Floppy Drives.....	CALL	

Seagate

ST225 20 MB.....	\$182.35	SEAGATE 4096 80.....	\$539.74
ST238 30 MB.....	198.82	SEAGATE ST-251-1.....	243.10
ST4383E 329 MB 1392.94		ST1126A 111 MB.....	552.32
ST4182E 160 MB.....	881.39	ST1162A 143 MB.....	708.13
ST2383A 338 MB 1327.90		ST157A 44 MB 3.5.....	241.17
ST1100 MFM 88MB 3.5.....	586.04		
ST1144A 120MB IDE.....	495.10		

MICROPOLIS

1654-7 182MB HH \$890.90	1355 142 MB.....	\$889.40
1664-7 345MB HH \$1399.14	1558 338 MB ESDI.....	1475.43

NOVELL NETWORKING

SOFTWARE STARTER KITS

Entry-Level 286 Starter Kit, 4 Users.....	CALL
Entry-Level 286 Starter Kit, 8 Users.....	FOR BEST
NOVELL Netware 386 V.3.1.....	NOVELL
NOVELL 286 Advanced Netware V. 2.15.....	PRICING
NOVELL SFT Netware V. 2.15.....	AUTHORIZED
NOVELL Netware Assurance.....	SALES & SERVICE

INTERFACE CARDS

3COM 3C503 ETHERLINK.....	\$249.30
ARCNET PC270E Twisted Pair Board.....	CALL
ARCNET PC130 LANboard.....	98.50
ARCNET PC130E LANboard.....	CALL
ARCNET SMC 16-Bit File Server Board.....	289.73
ARCNET SMC 16-Bit Workstation Board.....	228.60
ETHERNET Interface Connector (NE1000).....	167.50
SMC Active Hub 8 Port.....	289.63
SMC 10Base-T Ethernet Products Available.....	CALL
NOVELL NE2000.....	199.40
THOMAS CONRAD 6142 Arcnet 8-Bit.....	119.30
THOMAS CONRAD 6045 Arcnet 16-Bit.....	259.80

MODEMS & COMMUNICATIONS

intel

2400 Internal.....	\$145.75	2400 External.....	\$169.94
2400B MNP.....	193.72	2400 External MNP.....	217.11
9600 External.....	495.40	PS/2 Internal 2400.....	223.22

PRACTICAL PERIPHERALS

2400MNP Int.....	\$169.11	2400 Int.....	\$128.88
2400SA MNP.....	199.50	2400SA.....	167.97
9600 V.32/42bis.....	447.67	Pocket 2400.....	99.50

HAYES

2400 External.....	\$325.84	2400B Internal.....	\$224.45
ULTRA 9600 Ext.....	765.55	2400 PS/2.....	334.40

Robotics

Courier 2400.....	279.60	2400B.....	199.70
Dual 14,400 HST.....	809.65	14,400 HST.....	586.75

MEGAHERTZ CORPORATION

2400 for TOSHIBA, 139.33	2400 for COMPAQ/LITE.....	\$149.65
CPI VIVA 2400 Internal.....		\$89.98
CPI VIVA 2400 External Faxsend Modem.....		129.65
CPI VIVA 2400 External Hardware MNP.....		159.33

MISC. & ACCESSORIES

AMERICAN

AME-1200VX.....	\$735.95	AME-520ES.....	\$314.60
AME-360SX.....	207.86	AME-800RT.....	552.50
AME-450AT.....	261.79	AME-600LS.....	449.19

DataShield

S100.....	\$59.55	6 Outlet Surge.....	\$27.85
-----------	---------	---------------------	---------

Durant Technologies, Inc.

BPS-300.....	\$195.14	BPS-500.....	\$331.46
BPS-800.....	539.50	BPS-1200.....	717.60

IBM

BC-450.....	\$298.50	4 Outlet.....	\$44.25
BC-1200.....	620.22	LC-1200.....	139.77
BC-2000.....	1179.80	LC-1800.....	189.77

MISC. & ACCESSORIES

A-B Switching Box (AB X Box).....	\$28.00 / 34.95
INTELLICOM Long Link.....	117.70
KENSINGTON Masterpiece/Plus.....	89.99 / 98.40
KEYTRONICS 5151 IBM or AT&T.....	126.70
KEYTRONICS 101.....	89.50
5TH GEN. Logical Connection 256K / 512K.....	CALL / 438.59
Electronic 4-Way Switchbox Parallel.....	89.50
PRACTICAL PERIPH. 32K Inline Parallel Buffer.....	123.60
PRACTICAL PERIPH. P/LINK Parallel Extender.....	99.50
Electronic 4 to 2 Parallel Box.....	99.50
XT Power Supply 165 Watt.....	59.00
COMPLETE PC Communicator.....	426.13
COMPLETE PC Portable Fax.....	307.67
Complete Fax 9600.....	\$399.50
SHARP FO-215.....	\$538.89
JTFax 9600.....	527.65
SHARP FO-333.....	699.50

SOFTWARE

MICROSOFT Windows 3.0.....	\$93.79
ALDUS Pagemaker 3.01.....	496.62
ASHTON TATE dBase III+ / dBase IV.....	324.00 / 479.77
BORLAND Quattro Pro 2.0.....	299.22
CENTRAL POINT PC Tools V.6.0.....	82.95
COREL SYSTEMS Corel Draw.....	324.60
DELTA TECH. Direct Access.....	53.69
DMP PC Anywhere IV.....	98.85
LAN Spool / LAN Space.....	265.10 / 319.10
LOTUS 1-2-3 5/25" / 3.5" V2.2.....	349.12
LOTUS 1-2-3 V.3.1.....	399.66
MICROCOM Carbon Copy.....	109.37
MICROSOFT Excel for Windows.....	299.09
MICROSOFT Powerpoint for Windows.....	299.65
MICROSOFT Project for Windows.....	419.77
MICROSOFT Word V.5.....	212.77
MICROSOFT Word for Windows.....	304.89
NORTON Advanced Utilities V.5.0.....	113.60
PROCOMM Plus.....	56.12
SOFTWARE PUB. PFS: Write.....	154.30
SOFTWARE PUB. First Choice w/Prodigy.....	84.75
SYMANTEC Q&A.....	

A Decade of Experience Delivers

PRICE

A DECADE OF THE LOWEST PRICES

SHIPPING

MOST ORDERS SHIPPED IN 24 HOURS

CONFIDENCE

WE DO NOT CHARGE YOUR CREDIT CARD UNTIL YOUR ORDER IS SHIPPED

CONVENIENCE

EXTENDED HOURS LATE NIGHTS, SATURDAYS AND SUNDAYS

Where smart buyers find smart buys.

COMPUTERS

ALR	Power Flex 286/40MG	\$1139
AST	All Models	Call
Texas Instruments Laptop	Model 12	1969
Model 25		2275
Toshiba	T-1000 SE	1159
T-1000 XE		1589
Epson	Equity Laptop 286E-12	2140
Equity Laptop 386SX-16		2895
Other Models		Call

MIT PRODUCTS

286/12 1FDD 40MB OOS	\$1021
386SX/16 1FDD 40MB DDS	1271
386 25NC 40MB DOS	1743
All Models	Call
Modem 1200B	58
Modem 2400B	100
Keyboard	50
150MB Hard Drive	896
Mono 12" Monitor	85
Mono 16" Monitor	109
EGA Monitor	229
VGA Monitor	345

TERMINALS

Wyse	30 Amber	\$289
50 Amber		369
60 Amber, No Key Board		289
85 Green		355
150		275

SOUND BOARDS

Creative Labs	Sound Blaster	\$149
Ad Lib	Music Synthesizer Card	109

BOARDS

AST	RAMPAGE + 286W/512K	\$385
Six Pack 384K		219
Other Models		Call

ATI	VGA Wonder + 256K w/Mouse	189
VGA Wonder + 512K w/Mouse		225

Everex	RAM 3000 Deluxe	79
RAM 8000		175

Hercules	Color Card	100
Graphics Card Plus		175
Other Models		Call

Intel	Above Board + 512K Plus	329
Above Board + w/2MG P/S		525
Above Board + w/2MG	expands to 8 MG	499
Inboard 386 PC (1MG)		539
Other Models		Call

Orchid	Pro Designer II	275
Tiny Turbo 286		205
Tiny Turbo Xtra		259
Other Models		Call

Paradise	VGA + 256K	129
VGA + 16		175
VGA 1024 512K		239

Video 7	1024 I w/256K	219
Other Models		Call

HARD CARDS

Plus Development	20 Meg	\$485
40 Meg II		349
80 MG II		649
Other Models		Call

DISK DRIVES

Omega (Bernoulli)	40 Meg (Dual 20 MG)	\$1739
Beta 88 MG Dual 44		1809
Beta EXT 20 MG		1079
Beta 44 MG Insider		899
Other Models		Call

Colorado Memory Systems	(With Tape)	
Jumbo 40/80 INT		299
Jumbo 40/80 EXT		415

Irwin Tape Back-up	20 MG INT	265
40 MG INT		349
80 MG INT		439

Seagate	20 MG w/Controller	259
20 MG EXT Drive, For PS2		235
30 MG w/Controller		279
40 MG w/Controller		335
40 MG 251-1		275
80 MG		639
Other Models		Call

Teac	5.25 1.2 MG AT	75
5.25 360K XT		65

Toshiba	3.5 720K	69
3.5 1.4 MG		75

FAX BOARDS

Complete	4800	\$145
9600		289
Communicator		405
PG Portable Fax		285

PRINTERS

Cannon	LBP-4 Laser	\$919
LBP-8 Laser		1479

Citizen Printer	1200	135
1800		149
GSX 140 Color		295
Other Models		Call

Diconix	150 Plus	335
---------	----------	-----

Epson	FX 850	280
FX 1050		439
LO510		260
LO850		420
LO1050		639
LO2550		935
LX810		169
Other Models		Call

Hewlett Packard	Laser Jet IIP	989
Laser Jet III		1719
Other Models		Call

IBM	Pro Printer II XL	345
Pro Printer II		269

NEC	LC260	1699
P2200XE		255
P6200		Call
P6300		Call

Dkldata	182 Turbo	230
320		315
321		445
390 Plus		469
391 Plus		599
393 Plus		1065
Other Models		Call

Panasonic	1124	285
1180		165
1191		239
1624		365
1695		419
4420 Laser		829
Other Models		Call

Seiko	Smart Label Printer	159
-------	---------------------	-----

Star Micronics	NX 1000 Rainbow	195
NX 1000 Ver. 2		139
Other Models		Call

Texas Instruments	Micro Laser Postscript 35 Font	1819
Micro Laser 17 Font		1519

OCR/SCANNERS

HARDWARE

Complete	400 Hand Scan	\$145
Full Page		515
Half Page 400 DPI		169

DFI	Scanner HS-3000+	156
Logitech	Scanman + XT/AT	169
Scanman + PS2		209
Scanman + Catch WRO Bnd		275

SOFTWARE

Cal Reader 1/2 Page	\$159
Cal Reader Full Page	225
Complete Pro OCR/FP	289
Complete 45 OCR/HP	175
DFI DCR	65
DFI QCR Deluxe	125

MODEMS

Anchor	1200B w/Software	\$59
1200 EXT		89
2400B w/Software		85
2400 EXT		115

ATI	2400 ETC INT w/SW	169
2400 ETC EXT		189

Everex	Evercom 12 INT	49
Evercom 24 INT		105
24 + INT		139
24 + EXT		189
Other Models		Call

Hayes	1200 B	135
2400 B		219
2400 EXT		319
9600V Series EXT		609
Other Models		Call

Intel	2400 Classic	139
2400 EXT		165
2400 PS/2		225

Practical Peripheral	2400	125
2400 INT (w/MNP)		159
Other Models		Call

Prometheus	1200B w/Software	49
1200 EXT Pro Modem		205
1200G EXT		89
2400 w/Software		99
2400 EXT Pro Modem		295
2400G EXT		145
Pro Modem 9600 + EXT		645

U.S. Robotics	Courier 2400 EXT	265
Courier 2400 E(MNP)		315
Courier 9600 HST		569

ACCESSORIES

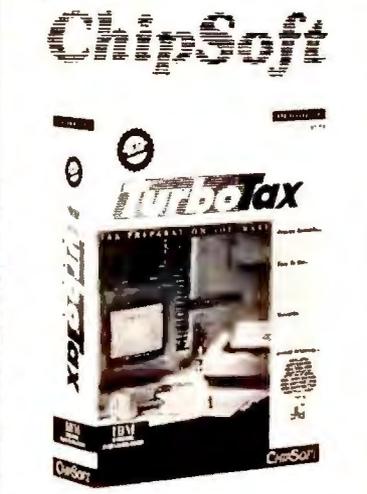
Logical Connection 256K	\$445
Logical Connection 512K	422
Logical Connection Plus	559
Masterpiece	82
Masterpiece Plus	93
Masterpiece Remote	99
Summasketch 12x12 II	335
Summasketch 12x18 Pro II	582
4 Button	582
Summasketch 12x18 Pro II	599
16 Button	599

FONT CARTRIDGES

Pacific Data 25 IN I III	\$209
Pacific Data 1-2-4 Plus 4 MB	345
Pacific Data 1-2-4 Plus 1 MB	164
Pacific Data 1-2-4 Plus 2 MB	235
Pacific Data 2 Plus 2 4 1 MB	129
Pacific Data 4 2 MB	Call

LOWEST PRICES

The products you want at the prices you like to pay.



ChipSoft
TurboTax
The fastest, easiest way to prepare your taxes.
\$39



Microsoft
Project for Windows
With Microsoft Project you can manage schedules and resources across projects.
\$425

MOST RELIABLE
10 Years of Mail Order Excellence

TAPE BACKUP

Colorado Memory System	Jumbo 40/80 EXT w/Tape	\$415
Jumbo 40/80 INT w/Tape		299
Irwin	20 MG Internal	265
40 MG Internal		349
80 MG Internal		439

1-800-634-9270

VARs/Dealers • Call 1-800-537-6753

NOW ACCEPTING INTERNATIONAL ORDERS • Call our FAX (602) 944-1510

• No Charge for VISA and MASTERCARD.
• We Do Not Charge Your Card Until Your Order is Shipped.
• You Pay The Ground Shipping 1-10 # \$8.00, 11-20 # \$12.00 (Except Alaska & Hawaii). We Pay the Air Difference.
• Free Air Applies ONLY to Domestic Orders Over \$100

• All products including D.O.A.'s carry only manufacturer's warranties. We do not honor guarantees, rebates, trial period privileges or promotional programs offered by manufacturers.
• No returns on used or misordered product.
• We do not guarantee machine compatibility.
• Machine compatibility disclaimer does not apply to MIT Systems

MEMBER
MMC
of the Direct Marketing Association, Inc.
"Serving the Direct Buyer"



BUYERS CHOICE



When you see the symbol, you're assured these products have been purchased most often by **telemart**'s national customer base.

All these products have been top ranked because you, the buyer, have selected them based on their performance and the **telemart** price.

You'll see the symbol in each category and know you can make the same smart choice.

MICE

Kensington Expert Mouse PS/2	\$95
Logitech Serial Mouse	
New Hi-Res XT/AT	65
Logitech Bus Mouse	
New Shape Hi Res	74
Logitech Serial	
New Shape w/Paint	89
MS Bus or Serial Mouse 1.0	109
MS Bus or Serial w/Windows 3.0	145
Microspeed PC Trac 8us	82
Microspeed PC Trac Ser	70
Microspeed PC Trac PS/2	70
Omni Mouse II 8us	55
Omni Mouse II Serial	38
PC Trac 8all Serial	46
PC Trac 8all 8us	64
Trackman 8us	81
Trackman Serial	75

MONITORS

Amdek	
All Models	Call
Goldstar	
12" Amber	Call
14" CGA	Call
14" EGA	Call
14" VGA	Call
16" VGA	Call
Mitsubishi	
20" 3905 ATK	1559
XC 1410 C EGA	329
XC 1429 C VGA	385
Diamond Scan 14"	495
Diamond Scan 16"	1009
NEC	
Multisync 2A	459
Multisync 3D 14"	659
Multisync 4D	1139
Multisync 5D	2335
Multisync GS-2A	205
Princeton	
All Models	Call
Sony	
Multiscan 1304 HG 14"	669
Multiscan 1302A	595
Zenith	
ZCM 1492	589

BEST SELECTION

We have the product you want.

CO-PROCESSORS

Intel	
80287-6	\$125
80287-8	190
80287-10	215
80387-16	329
80387 SX-16	265
80387-20	375
80387-25	469
80387-33	579
8087-1	155
8087-2	119
NEC	
CD RDM CDR-72	\$635
Panasonic	
Worm 940 M8	2199
Storage Dimensions	
All Models	Call

CD ROM

NEC	
CD RDM CDR-72	\$635
Panasonic	
Worm 940 M8	2199
Storage Dimensions	
All Models	Call

KEYBOARDS

Keytronics	
K85151	\$115
K85153	145
K8101Plus	86

DISKETTES AND TAPES

Sony	
3.5 D/S D/D Case Disks	\$75
3.5 H/D (Case Only)	145
5.25 D/S D/D Disks (100)	50
5.25 High Density (100)	90



July 1990
MIT 386/25

PCW191

HOME OFFICE PUBLISHING

Express Publisher	\$85
Finesse	89
Newsmaster II	43
Newsroom Pro	24
PFS First Publisher	82
Print Shop	35
Publish It! v1.2	132
Publishers Power Pack for 1st Publisher	43

PROFESSIONAL DESKTOP PUBLISHING

Adobe Illustrator/Windows	\$279
Freedom of Press	239
Pagemaker 3.01	489
Ventura Publishing Gold/WIN	530
Ventura Publishing Pro	345

FORM PROCESSING

Form Base	\$295
Form Filler	79
Formtool Gold	53
Formworks w/Fill & File	79
Perform Filler	69
Perform 2.1	157
Perform Pro	263

WORD PROCESSING

AMI Professional	\$289
Grammatik/WIND	48
Language Master	53
Lotus Manuscript	309
MS Word	210
MS Word Companion Disk	27
MS Word for Windows	305
Multimate 4.0	245
PC Outline	54
PFS Professional Write 2.2	140
Right Writer 4.0	53
Volkswriter 4	105
Volkswriter Deluxe Plus	78
WordPerfect 5.1	245
WordPerfect Executive	129
WordPerfect Office	80
Wordstar 5.5	205
Wordstar 6.0	264
Wordstar 2000+ (Personal)	295
XY Write 3 Plus	199

GAMES

688 Attack Sub	\$18
Abrams Battle Tank	19
Chessmaster 2100	30
Falcon AT	30
Harpoon	36
Hunt for Red October	19
Leisure Suit Larry I, II, III	Call
LHX Attack Chopper	36
Playroom	25
Red Storm Rising	29
Sim City	28
Their Finest Hour	36
Trivial Pursuit	24

SPREADSHEET

Lotus 1-2-3 Ver. 2.2	\$335
Lotus 1-2-3 Ver. 3.1	410
Lucid 3-D	54
MS Excel for Windows	299
MS Multiplan	119
Plan Perfect v5.1	255
Quattro	84
Quattro Pro	310
See More Lotus 1-2-3	53
Supercalc 5	290
VP Planner 3D	133

TAX PROGRAMS

JK Lasser/Your Income Tax	\$42
Tobias Tax Cut	Call
Turbo Tax 1990	39

UTILITIES

BACK UP

Back It v4.0	\$70
Fastback Plus	109
Norton Backup	83
PC Fullback Plus	47

GENERAL

Copy II Option Board Deluxe	\$103
Copy II PC v6.0	25
Mace Vaccine	59
Norton Editor	47
MS Power Point for Windows	305
Sidekick Plus	129
SPF/PC	143

HARD DISK MANAGEMENT

Check It!	\$79
Disk Optimizer	37
Disk Technician Advanced	89
Disk Technician	59
Fastrax	32
Lotus Magellan	96
Mace Utilities 1990	89
Norton Utilities 5.0	109
Norton Utilities	63
Dptune	43
PC Tools Deluxe 8.0	82
SpinRite II	65
XTree	24
XTree Pro	53
XTree Pro Gold	79

LAPTOP

Battery Watch Release II	\$27
Brooklyn Bridge	84
DeskLink	96
Laplink Release III	85
Software Bridge	72
VGA Dimmer	19

MEMORY MANAGEMENT

386 Max 5.0	\$89
Above Disk	55
Headroom	68
Hyper Pad	79
Memory Mate	38
Move 'Em	46
PC-Kwik Power Pak	69
Qemm 386	53
Dram	43
Super PC-Kwik	44

MENUING SOFTWARE

1 Dir Plus	\$45
Auto Menu	35
Direct Access	53
Power Menu	54

PRINT

Go Script	\$88
Go Script Plus	175
Impress	69
Print D	71
Sideways	37

EDUCATION & TRAINING

Chuck Yeager Flight Simulator	\$19
Designasaurus	19
Math Blaster Plus	28
Math Blaster Plus Mystery	28
Mavis Beacon Teaches Typing	30
MS Learning PC DDS	31
MS Flight Simulator	37
PC Globe, PC USA	35 ea.
Personal Lawyer	35
Reader Rabbit	24
Typing Tutor IV Plus	27
Carmen San Diego	34
Where in USA, World, Europe, Time	29 ea.
Will Maker	34

PROGRAMMING & LANGUAGES

MS Basic	
Pro Development System	\$299
MS C Compiler	305
MS Cobol Compiler	555
MS Fortran Compiler	273
MS Macro Assembler	91
MS Pascal Compiler	182
MS Quick Pascal	61
MS Quick Basic	61
MS Quick C	62
Turbo C++	105
Turbo C++ Pro	155
Turbo Pascal 2nd Edition	159

OPERATING ENVIRONMENTS

Carousel v4.0	\$48
Desqview 386 v2.3	116
MS Excel for Windows	299
D DDS II	34
HDC Windows Express	48
MS Windows Ver. 3.0	91

FREE

FASTEST DELIVERY



FEDERAL EXPRESS
You Pay The Ground Shipping
We Pay The Air Difference

LAN & NETWORKING SOFTWARE

Above LAN	\$234
ACCPAC 8PI Network	229
Artisoft	
Lantastic	Call
Data Ease LAN 3-Pak	439
DBase IV Lan	636
Foxbase Plus LAN	285
Harvard Graphics LAN Server	624
MS Excel Exec License Pack	245
MS Word License Pack	245
Novell	
Adv NW/286	1877
ELS I	470
ELS II	1074
Paradox Network 3.5	666
O & A Network Pack	252
R-Base 3.0	466
R-Base 3.0 LAN	645
Supercalc 5 LAN Pack	295
Ventura Publishing Network	759
WordPerfect Additional User	155

DOS

IBM DS/2 1.2 Extended	\$725
IBM DS/2 1.2 Standard	297
MS DDS 3.3	69
MS DDS 4.01	69
PC DDS 4.01	125

CAD & ENGINEERING

Auto Sketch 3.0	\$141
Design CAD 3-D	188
Generic CAD 5.0	225
Generic CAD Starter Kit Level II	110
Math CAD	305
Turbo Cadd	67

DrawPerfect
Presentation Graphics Software for IBM Personal Computers and PC Networks

Create charts, graphs, slides & more... **\$263**

WordPerfect CORPORATION

Microsoft
Microsoft PowerPoint for Windows

Microsoft PowerPoint for Windows **\$305**

1-800-634-9270

CORPORATE ACCOUNTS • Call 1-800-752-0561

INTERNATIONAL ORDERS • Call (602) 944-0402/FAX (602) 944-1510

•Now accepting International Orders

•Call our FAX at (602) 944-1510

•International Orders Add 5%

•Call Before Submitting P.O.'s. Ask for National Accounts.

•Personal & company checks will delay shipping 3 weeks

•Prices, terms, availability & specifications are subject to change without notice.

•Add 5% for C.O.D., A.P.O. & F.P.O. Orders

•Mailing Address: 8804 N. 23rd Ave. Phoenix, AZ 85021.

•In Arizona Call (602) 944-0402.

•Order Line Hours Mon-Fri 6am-10pm, Sat 8am-5pm, Sun 10am-3pm

•Order Processing (602) 944-1037

10am-3pm Mon-Fri

•Money Back Guarantee

Software ONLY

30 Days from date of invoice period

Refund ONLY on product price

Product must be in resalable condition.

Call for return authorization number

Must be in original packaging. Software is the latest available.

Circle 178 on reader service card

Where smart buyers find smart buys.



Until now, you've only seen a tulip standing in a vase. Until now, there's only been one way of looking at data. Now there's **ThinX™** software. The revolutionary Windows* program that finally links graphic images with databases and spreadsheets and lets you see data in a whole new way. 1-800-688-4469.

WE ACCEPT PO'S
FROM QUALIFIED FIRMS

MEMORY

NO SURCHARGE
FOR MC, VISA & DISCOVER

★★ CALL TOLL-FREE 800-433-3726 ★★

Individual D-RAM Chips

	MEMORY FOR IBM & APPLE					
	60NS	70NS	80NS	100NS	120NS	150NS
1Meg x 1	8.50	6.00	5.25	5.25	5.00	—
4Meg x 1	—	—	59.00	—	—	—
1Meg x 4	—	—	59.00	—	—	—
1Meg x 4 (Zip Pack)	—	—	49.00	—	—	—
256 x 4	8.00	6.50	6.25	6.20	5.75	—
256 x 1	3.00	2.90	2.25	1.90	1.80	1.70
64 x 4	—	—	3.25	3.00	—	—
64 x 1	—	—	—	1.50	1.40	1.30

SIMM MODULES (Add \$5⁰⁰ for SIPP)

	60NS	70NS	80NS	100NS	120NS	150NS
1Meg x 9 (IBM)	79.00	54.00	49.00	48.00	47.00	—
1Meg x 8 (Apple)	77.00	52.00	47.00	46.00	45.00	—
4Meg x 9 (IBM)	—	399.00	329.00	—	—	—
4Meg x 8 (Apple)	—	389.00	319.00	—	—	—
256 x 9 (IBM)	26.00	25.00	19.00	18.00	17.00	16.00
256 x 8 (Apple)	25.00	24.00	18.00	17.00	16.00	15.00
Mac Classic 1meg-3meg Exp Bd w/ 1meg-149.00; 2meg-289.00						

INTEL Math Chips

8087	79.00	80287-XLT —	204.00
8087-2	104.00	(50% faster)	
8087-1	159.00	80387-16	299.00
80287-6	124.00	80387-16SX	299.00
80287-8	195.00	80387-20	355.00
80C287A	269.00	80387-25	455.00
80287-10	205.00	80387-33	555.00
80287-XL	199.00	(50% faster)	

AST MEMORY MODULES

MODEL#	AMT. UPGRADED	AST PART#	PRICE
Premium 386/25, 16 SX	1Meg	500718-001	79.00
Premium 386/33	1Meg	500718-002	89.00
Premium 486/25T, 25TE,	1Meg	500718-002	89.00
25, 25E	2Meg	500718-004	299.00

ZENITH MEMORY UPGRADES

MODEL#	AMT. UPGRADED	ZENITH PART#	PRICE
Z386/33	1Meg	ZA3800ME	129.00
	2Meg	ZA3800MG	199.00
Z386/25,20	1Meg	ZA3600ME	124.00
	2Meg	ZA3800MG	199.00
	4Meg	ZA3800MK	419.00
Z248, Z286LP Z386SX	2Meg	Z-605-1	239.00
Turbo Sport 386, 386E	1Meg	ZA3034ME	499.00
Super Sport	1Meg	ZA180-66	219.00
	2Meg	ZA180-64	499.00

HP VECTRA MEMORY UPGRADES

MODEL#	AMT. UPGRADED	HP PART#	PRICE
486PC	1Meg	2150A	109.00
486PC	4Meg	2151A	519.00
486PC	8Meg	2152A	1495.00
386QS/25	2Meg	D2381A	249.00
All Others Call			

SUN MICRO MEMORY UPGRADES

MODEL#	AMT. UPGRADED	SUN'S PART#	PRICE
3/60, 3/80, 4/80 SPARC 1	4Meg	X104C,G,H	449.00
4/110	16Meg	X116D	1595.00
4/330, 4/370	8Meg	X108E	995.00
4/330, 4/320, 4/60	16Meg	X116H	1795.00
SLC420	4Meg	X105Z	429.00

IBM PS/2 SIMM MODULES

IBM PART NO.	WORKS WITH MODEL NO.	L.A. TRADE'S CDMPT. PRICE
30F5348 (512K)	30-286	45.00
30F5360 (2Meg)	30-286, 50 MTHR BD.	139.00
6450375 (1Meg)	80-041	119.00
6450379 (2Meg)	80-111, 311	199.00
6451060 (4Meg)	80-A21, 80-A31, 80-111, 80-311	395.00
6450603 (1Meg)	50Z, 55SX, 70-E61, 0-61, 70-121, P-70	79.00
6450604 (2Meg)	50Z, 55SX, 70-E61, 0-61, 70-121, P-70	119.00
6450605 (2-8Meg)	603, 604	479.00
6450608 (2Meg)	70-A21, A-61, B-21, B-61	129.00
78X8955 (128K)	25	35.00
30F2933 (4Meg)	65SX, 55SX, MTHR BD., 34F3077, 3453011, EXP. BD.	395.00
34F3077 (2-16Meg)	EXP. BD. 603, 604, 34F2933	640.00
34F3011 (4-16Meg)	EXP. BD. 603, 604, 34F2933	945.00
1383679 (512K)	P/S1	109.00
(2Meg)	P/S1	219.00

Other PS/2 models not shown please call for quote
Please call for any questions on these SIMM Modules

COMPAQ MEMORY MODULES

MODEL#	AMT. UPGRADED	COMPQ PART#	PRICE
System Pro	2Meg Module	115144-001	179.00
	8Meg Module	116561-001	
	32Meg Module	116568-001	
DeskPro 486/25	2Meg Module	115144-001	179.00
	8Meg Module	116561-001	
DeskPro 386/33	2Meg Module	115144-001	179.00
DeskPro 386/25	1Meg Module	113131-001	105.00
	4Meg Module	113132-001	249.00
DeskPro 386/20	1Meg Module	113131-001	105.00
	4Meg Module	113132-001	249.00
DeskPro 386S	1Meg Exp Bd	113633-001	209.00
	4Meg Exp Bd	113634-001	459.00
	1Meg Module	113646-001	109.00
	4Meg Module	112534-001	279.00
DeskPro 386/20E	1Meg Exp Bd	113644-001	209.00
DeskPro 386/25E	4Meg Exp Bd	113645-001	459.00
	1Meg Module	113131-001	105.00
	4Meg Module	113132-001	249.00
DeskPro 286N	1Meg Module	118688-001	129.00
	4Meg Module	118690-001	469.00
DeskPro 386N	1Meg Module	118688-001	129.00
	2Meg Module	118689-001	195.00
	4Meg Module	118690-001	469.00
DeskPro 386/16	1Meg Kit	108071-001	149.00
	4Meg Kit	108072-001	349.00
	1-2Meg Exp Bd	108069-001	359.00
	4-8Meg Exp Bd	108070-001	929.00
DeskPro 286E	1Meg Module	113131-001	105.00
	4Meg Module	113132-001	249.00

MEMORY UPGRADES FOR COMPAQ PORTABLES AND LAPTOPS

Portable 386	1Meg Kit	107651-001	239.00
	4Meg Exp Bd	107653-001	849.00
	4Meg Daght. Bd	107654-001	849.00
Portable III	2Meg Kit	107332-001	199.00
Compaq SLT/286	1Meg Module	110235-001	209.00
	4Meg Module	110237-001	799.00
Compaq SLT/386	1Meg Module	118303-001	279.00
	2Meg Module	118304-001	495.00
Compaq Lte 286	1Meg Bd	117081-001	139.00
	2Meg Bd	117081-002	269.00

TOSHIBA LAPTOP MEMORY

LAPTOP MODEL #	AMT UPGRADED	TOSHIBA PART #	L.A. TRADE'S CDMPT. PRICE
T1000SE/XE	1Meg	PC14-PA83110	199.00
	2Meg	PC14-PA83120	299.00
T1200XE	2Meg	PC13-PA83060	179.00
T1600	2Meg	PC8-PA83020	169.00
T3100E	2Meg	PC9-PA80410	169.00
T3100SX	2Meg	PC15-PA83080	169.00
	4Meg	PC15-PA83100	469.00
T3200	3Meg	PC6-PA71370	299.00
T3200SX	2Meg	PC12-PA83070	169.00
	4Meg	PC12-PA83090	469.00
T5100	2Meg	PC7-PA8301U	179.00
T5200	2Meg	PC10-PA83040	179.00
	8Meg	PC10-PA83040	995.00
T8500	2Meg	—	179.00
	8Meg	—	995.00
Zenith Supersport 286	1Meg	—	159.00
NEC Prospeed 286	1Meg	—	219.00
NEC Prospeed 286	4Meg	—	629.00
NEC Prospeed 386	2Meg	—	319.00
NEC Prospeed 386	8Meg	—	1195.00
Sharp PC-6220	1Meg	CEB210	249.00

IIT ADVANCED MATH CO-PROCESSOR

- 5 year warranty • 2-3 times faster than Intel
- Plug & object code compatible with Intel

2C87-8MHz	169.00	2C87-12.5MHz	219.00
2C87-10MHz	189.00	2C87-20MHz	289.00

CYRIX FASMATH PROCESSOR

- 5 year warranty • Programs executed up to 3 times faster
- Plug & object code compatible with Intel
- PC Week-rated it -1 over all math chips

83D87-16MHz	279.00	83D87-33MHz	489.00
83D87-20MHz	299.00	83D87-16SX Version	279.00
83D87-25MHz	389.00	83D87-20SX Version	Call

H.P. LASER JET II, IID & IIP, III, IIID Memory Upgrades

	II, IID	IIP, III, IIID
1Meg Upgrade	89.00	99.00
2Meg Upgrade	139.00	149.00
4 Meg Upgrade	229.00	239.00
Panasonic KX-P4420/4450I	1Meg-219.00; 2Meg-299.00; 4Meg-419.00	

H.P. COMPATIBLE FONT CARTRIDGE

Turbo 25 contains every English language font in Pacific Data's current 25 CARTRIDGES IN ONE!™ Cartridge, plus 2 Headline Fonts with 6 Additional U.S. Fonts 149.00
Turboscript™ gives you 47 scalable fonts in any point size. 12 more than Pacific Data or HP Adobe Postscript, supports the very latest Adobe Type 1 Font Formats 299.00

IBM LASER PRINTER, Model 4019

1 Meg 1039136	169.00	2 Meg 1039137	219.00
	3.5 Meg 1038675	399.00	

Please call for speeds you don't see. PLCC, SOJ, Zip, Flat Packages also available. Price and availability are subject to change. California Orders, please add 6.75% sales tax. Returned orders are subject to a 20% re-stocking fee. **No surcharge for MasterCard, Visa or Discover.** Prepaid orders, MC, Visa, Discover, Fortune 500, Government, Institutional P.O.'s & P.O.'s from Qualified Corporations

ALL CREDIT CARD CHARGES VERIFIED FOR FRAUDULANT USE
SORRY, NO REFUNDS AFTER 30 DAYS—EXCHANGES ONLY.

MEMORY BOARDS

IBM Compatibles, Compaq & PS/2

BOCA AT PLUS

16 BIT MEMORY BOARD FOR 286, 386 AT
 OK-8Meg Board • 4.0 LIM Compatible • New 5 Year Warranty
 Conventional, Expanded and Extended Memory
 Supports DDS, OS/2, LIM/EMS & EEMS
 Versatile Split Memory Addressing
 Operates with CPU Speeds to 33 MHz
 Supports Desqview, Multitask operations
 OK — \$129.00 2 Meg — \$219.00
 4 Meg — \$309.00 8 Meg — \$489.00
 Board made by Boca Research, AT plus
 BOCA AT PLUS I/O 1 par., 1 ser., 0-4 meg 159.00
 BDCA AT I/O 44 2 ser. ports, 2 par. ports 119.00

BOCA XT 8 BIT BUS

Expanded memory for XT • Lim 4.0 compatible
 0-2Meg • Uses 256x1-150
 O-K \$109.00 1Meg \$170.00
 2Meg \$225.00

BOCA 50Z

0-2Meg for PS/2 50, 50Z, 60 • 0 wait state ram • Uses 1Megx1-80NS
 O-K board only \$149.00 2Meg with board \$243.00

• WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE •

All products Brand New & Guaranteed • We Buy Excess Inventory
 Trademarks are registered with their respective companies



20950 S. Normandie, Unit M • Torrance, CA 90502

EVEREX

EV-3000, EV-159
 0-3Meg, 4.0 Lim compatible • Uses 256x1 chips \$99.00
EV-8000, EV-178
 0-8Meg, 4.0 Lim compatible • Uses 1Megx1 chips • Supports multi-tasking & DMA multi-tasking in hardware \$219.00

ORCHID RAM QUEST 16/32

0-8Meg of Backfill, Expanded or Extended Memory
 Works with P/2 Models 50, 50Z, 55SX, 60, 70, 80
 Full Support for LIM/EMS 4.0 and OS/2 — 0 Wait State Ram
 4 Year War. — Comes w/Ser, Par Ports and Free Ser Cable
 USING 1 MEG x 9-10
 OK — \$319.00 2 Meg — \$415.00
 4 Meg — \$511.00 8 Meg — \$703.00

AST 6-PK. MEMORY BOARDS

AST 6-Pak Plus for PC, XT, 64K 129.00
 Same as above w/384K 159.00

213-782-2880
 FAX: 213-782-0240

CALL
 TOLL FREE

1-800-433-3726
 (US and Canada)

ESTAB.
 1985

Mon-Fri, 8:00 a.m. to 5:00 p.m. PST
 Sat. 10:00 a.m. to 12:00 noon

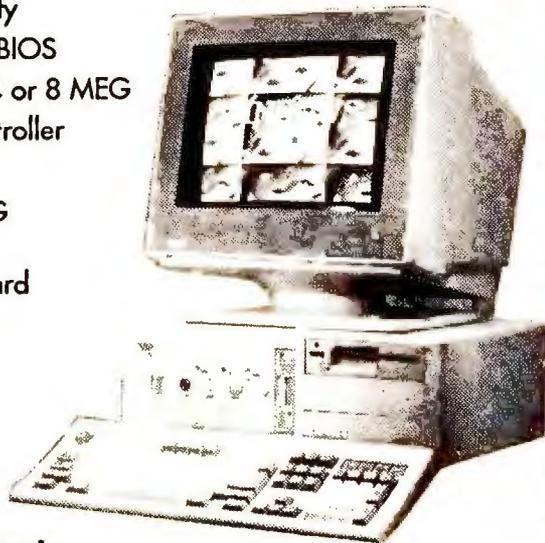
SAVE UP TO 70% EVERYDAY!

ON COMPUTERS, SOFTWARE & ACCESSORIES

CALL 1-800/BUY-WISE EXT. 35 ▼ FOR FAX ORDERING 708/382-7545

INTRODUCING 4 NEW VIP COMPUTERS WITH STATE OF THE ART IDE CONTROLLERS

- Complete AT® Compatibility
- Microprocessors with AMI BIOS
- 512K RAM* - Expand. to 4 or 8 MEG
- Dual Floppy Hard IDE Controller
- Parallel and Serial Ports
- Choice of 1.2 or 1.44 MEG Floppy Drive
- 101 Key AT® Style Keyboard
- 200 Watt Power Supply
- 386 20MHz - 1 MEG RAM



Systems Include:

▼ MS-DOS

▼ IDE Drives by Seagate

Increases your data transfer rate up to 100%. Exclusively on our VIP specially equipped personal computer systems.

Monitor Optional

BASE PRICES

- 1) 286-12MHz Mfr. Sugg. Retail \$799.95..... **\$499⁹⁵**
- 2) 286-16MHz Mfr. Sugg. Retail \$899.95..... **\$599⁹⁵**
- 3) 386SX-16MHz Mfr. Sugg. Retail \$999.95..... **\$799⁹⁵**
- 4) 386-20MHz Mfr. Sugg. Retail \$1499.95..... **\$999⁹⁵**

SYSTEMS - JUST ADD TO BASE PRICE

MONITORS ► ▼ HARD DRIVES	MONO	MONO VGA	RGB	EGA	VGA	SUPER VGA
HARD DRIVE NOT INCL.	\$190	329	340	425	520	709
20 MEG	\$420	559	570	655	750	939
48 MEG	\$490	629	640	725	820	1009
71 MEG	\$600	739	750	835	930	1119
111 MEG	\$890	1029	1040	1125	1220	1409

VGA MONITORS

- AOC 12" AMBER TTL Non-glare CRT type.....\$79.95
- HEADSTART VGA FLATSCREEN High-Res.....\$139.95
- MAGNAVOX VGA COLOR .42mm dot pitch....\$279.95
- MAGNAVOX VGA COLOR .39mm dot pitch....\$329.95
- AOC 14" MULTISCAN .31mm dot pitch.....\$399.95
- MAGNAVOX SUPER VGA .28mm dot pitch.....\$429.95

MODEMS

- 2400 BAUD INTERNAL Modem Software Included.....\$74.95
- 2400 BAUD EXTERNAL 100% Hayes Compatible.....\$87.95
- 2400 BAUD SEND-FAX Transmit data & FAX.....\$124.95

Offer Good Through Manufacturer

★ PRODIGY
Interactive Personal Service

Now you can get FREE software and try the service absolutely RISK-FREE!

SEAGATE & TEAC DRIVES

- FLOPPY DRIVES.....AS LOW AS \$61.95
- HARD DRIVES (WITH CONTROLLER)...AS LOW AS \$218.95

Call for LOW Prices on Our Complete Line of

Seagate & TEAC Products

NEW! 180cps PRINTER WITH NEAR LETTER QUALITY

- ★ Rear Feed - Reduces Paper Drag!
 - ★ Single Sheet Auto Load & Paper Parking
 - 8K Print Buffer
 - Pressure Sensitive Controls
 - Lifetime Warranty on Printhead
- Mfr. Sugg. Retail \$299.95



NLQ 180-III

\$149⁹⁵

HIGHEST QUALITY ▼ LOWEST PRICE!

5.25" DS/HIGH DENSITY FLOPPY DISKS as low as **34¢** each

30 DAY HOME TRIAL

90 DAY IMMEDIATE REPLACEMENT GUARANTEE

TECHNICAL ASSISTANCE 708/382-2882

COMPUTER DIRECT, INC.

22292 N. Pepper Road Barrington, Illinois 60010

"We Love Our Customers"

CALL FOR YOUR FREE CATALOG!

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd Day or Overnight delivery available. We ship to all points in the US, Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands & APO-FPO. Illinois residents add 6.5% sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors or omissions.



UNITED COMPUTER EXPRESS

724 7 AVE, NEW YORK CITY, NEW YORK 10019

1800-448-3738 212-397-1081

ALL UNITS ARE TESTED AND FORMATED BEFORE SHIPPING

IBM

ORIGINAL IBM AT 25 PC PRO PACKAGE
80286 Processor • 640K RAM
5 1/4 • 3 1/2 Floppy Drive • Segate
40 Mg H.D. VGA Adapter • VGA
Color Monitor • Software Bundle
10 Diskettes

\$2399

**IBM AT 339—512K RAM—1.2MB
F/D—30MB H.D.—101 KB** \$1288
IBM AT 339—USED \$1148
**IBM AT 068—256K RAM—1.2MB
F/D—84KB** \$899
**IBM XT—256K RAM—360K F/D—10MB H.D.
• 84 KB** \$799

EPSON

EPSON EQUITY 386/20

80386-20MHZ • 2MB RAM
40MB,HD • 101 KB
MONO SYSTEM

\$1499

**EQUITY II+ 640 KB RAM
• 1.2 MB FD.** \$688

**EQUITY 1+ 640 KB RAM •
360K RAM** CALL

**EQUITY 386/SX • 1 MB
RAM • 1.2 MB FD/101 KB.** \$1299

**EQUITY IE 640 KB RAM •
360K 101 KB.** \$529

IBM

IBM PERSONAL SYSTEM II

MODEL 30-286 w/30MB CALL
MODEL 502 w/30MB CALL
MODEL 55SX w/60MB CALL
MODEL 65SX w/60MB CALL
MODEL 65SX w/120MB CALL
MODEL PORTABLE P70-031 CALL
MODEL 70-E61/60MB CALL
MODEL 70-121 w/120MB CALL
MODEL 70-B61/60MB CALL
MODEL 70-B21/120MB CALL
MODEL 80-071 w/70MB CALL
8513 COLOR MONITOR CALL
8515 COLOR MONITOR CALL

LEADING EDGE
a Daewoo telecam company
Authorized Dealers

\$487

D/86 8086 - 640K • 720K FD - VGA
D2/LPS 80286 - 1MB RAM •
144MB FD - VGA CALL
D3/SX 80386 - 16M#2 - 1MB RAM •
12MB FD - VGA CALL
D3/20 80386 - 20 MHZ • 1MB FD •
1.2MB FD - VGA CALL
D3/25 80386 - 25 MHZ • 4MB RAM •
1.2MB FD - VGA CALL

PACKARD BELL
America grew up listening to us. It still does.

FORCE 1 Authorized Dealers
Power Computing Value

- 80286 microprocessor operating at 6/12 MHz
- Optional hard disk drive configurations include:
40MB/28ms or 84MB/20ms
- 1 MB of RAM standard on the motherboard
- One 5 1/4" 1.2 MB floppy disk drive
- One 3 1/2" 1.44 MB floppy disk drive

CALL

FORCE 386X
386SX Power Computing at its Best

- 80386SX microprocessor operating at 8/16 MHz
- 1 MB of RAM standard on the motherboard
(2 MB of RAM standard on the 124 MB HDD
configuration).
- Hard disk drive configurations available:
40 MB/28ms, 84 MB/20ms or, 124 MB/20ms
- One 5 1/4" 1.2 MB floppy disk drive
- One 3 1/2" 1.44 MB floppy disk drive

Call

FORCE 386/33
High Capacity Multitasking
Technology and Performance

- 80386 microprocessor operating a 8/33 MHz
- 2 MB of RAM standard on the motherboard
(4 MB of RAM standard on the 124 MB HDD
configuration).
- 64 KB/35ns cache memory
- Optional 124 MB hard disk drive configuration
available
- One 5 1/4" 1.2 MB floppy disk drive
- One 3 1/2" 1.44 MB floppy disk drive

CALL

Magnavox

HEADSTART 300

80286 • 12.5 MHZ • 1MB RAM
1.2 MB F/D • 1.44 MB F/D
4 0MG H/D, VGA System •
Software Bundle

CALL

HEADSTART 300CD

80286 • 12.5 MHZ • 1MB RAM
1.44 MB F/D • 680MB CD RAM
40MG H/D, VGA System • Software Bundle

CALL

HEADSTART 500

80386 • 16MHZ • 1MB RAM
1.44 MB F/D • 1.2MB F/D • 80MB H/D
VGA System • Software Bundle

CALL

HEADSTART 500CD

80386 • 16MHZ • 2MB RAM
1.44MB RAM • 680MB CD RAM • 80MB H/D
VGA System • Software Bundle

CALL

HEADSTART LXCD. \$999
HEADSTART 111. \$1299
HEADSTART TURBO 286. \$1499

LAPTOPS

SHARP

PC-4741 CALL
PC-5741 CALL
PC-6220 \$2699
SHARP 386 COLOR. CALL
MZ-100 CALL
PC-4601 \$899

EPSON

LT-20 \$1288
LT-286E/20 CALL
LT-286E/40 CALL
LT-386 SX/20 CALL
LT-386 SX/40 CALL

TOSHIBA

T-1000 \$528
T-1000 SE \$1048
T-1000 XE \$1648
T-1200 XE \$2288
T-1200 HB \$1499
T-1600/20 \$2488
T-1600/40 \$2788
T-3200 SX \$3899
T-3100SX \$3788
T-3100SX/80 CALL
T5200/100 \$4999

LAPTOPS

COMPAQ

LTE-20 \$1995
LTE286/20 \$2599
LTE286/40 \$2999
SLT-286/20 \$3899
SLT-286/40 \$4199
SLT-386 CALL

ZENITH

286/20 \$2299
286/40 \$2499
286E/20 \$2799
286E/40 \$2999

PACKARD BELL

PB-286/40 \$1999
PB-286 VGA40. \$2499

MITSUBISHI

L286/20 \$1799
L286/40 \$1999

TEXAS INSTRUMENTS

LT-286 Model 12 CALL
LT-286 Model 25 CALL
LT-286 Model 45 CALL
LT-2000 CALL

PANASONIC

CF150B \$728

LEADING EDGE
LAPTOP D/LT 386SX
80386 • 16MHZ • 1 MB
RAM • VGA SYSTEM

\$2488

WE CARRY A FULL LINE OF
MEMORY MEMORY UPGRADE, CASES
& BATTERY PACKS

1200/2400/9600 Internal
MODEMS For Your Laptop
External Floppydrives Available

COMPAQ

DESKPRO 286E—80286 • 40MB HD • 101 KB \$2248
**DESKPRO 386S—80386 • 16MHZ • 40MB HD
• 101 KB** \$2648
**DESKPRO 386E—80386 • 20MHZ • 110MB HD
• 101 KB** \$3948
**DESKPRO 386/25—80386 • 25MHZ • 80MB HD
• Mono System** \$6195
PORTABLE III—w/40MB HD \$4148

Panasonic

PANASONIC FX-1650
IBM XT Compatible \$328
8086 • 640K • 3 1/2 H.D. • Monitor

PANASONIC FX 1950
IBM AT Compatible \$1299
80386 • 20 MHZ • 2 MB RAM
C-1381 Multiscan Monitor CALL

P R I N T E R S

EPSON	PANASONIC
LX-810 \$159	KXP-1180 \$159
LQ-510 \$287	KXP-1191 \$215
FX-850 \$129	KXP-1092 \$229
LQ-1050 \$129	KXP-1124 \$295
LQ-850 \$448	KXP-1524 \$499
LQ-950 \$479	KXP-1595 \$415
LQ-1050 \$619	KXP-1692 \$399
T1000 CALL	KXP-1695 \$429
L1000 CALL	KXP-1624 \$876
LQ-2550 \$899	KXP-4420 \$878
AP-2000 CALL	KXP-4450i \$1299
AP-4000 CALL	KXP-4455i \$1995
AP-4500 CALL	
ACTION LASER STAR CALL	
NX-1020R CALL	200-GX \$179
NX-1000 II \$179	GXS-140 \$309
NX-1000 RAINBOW \$199	HSP-500 \$369
NX-2400 \$269	HSP-550 \$489
XB-2410 \$269	COLOR K 17 CALL
NX-2420 CALL	
XB-2415 \$519	P-6300 CALL
XB-2410 CALL	P-2200 \$288
XR-1000 \$339	P-6200 \$499
XB-1500-WC \$219	

**HEWLETT
PACKARD**

HP LASER JET Series II \$1188
HP LASER JET II P \$928
HP LASER JET Series III \$1548
HP DESK SET 500 \$538
HP Desk Jet Plus \$685
HP Paint Jet \$988
HP Laser Jet II D \$2188
HP Laser Jet III D \$2998

1 MG RAM IIP, III, II \$189
2 MG RAM IIP, III, II \$288
4 MG RAM IIP, III, II \$469
25 in one Font Cart CALL

FAX SHARP

FD-215 \$579
FD-333 \$749
FO-510 \$810
UX-111 CALL
UX-190 \$728
UX-350 \$869

PANAFAX

PD-120E \$629
PD-160E \$719
PD-170E \$899
UF-160 \$729
UF-170 \$949
UF-270 CALL
UF-620 CALL

EPSON

1000 \$499
2000 \$599
3000 \$749

FAX CANON

FAX 15 \$499
FAX-20 \$639
FAX-23 \$829
FAX-26 \$959
FAX-35 \$969

MURATA

M-900 \$469
M-1100 \$569
M-1B50 \$789

F-25, 37, 45, 55 CALL

RICOH

RF-810 \$469
RF-860 \$599
RF-910 \$599
RF-920 \$799
FAX-B0,85 CALL

FAX PANASONIC

KXF-50 \$499
KXF-90 CALL
KXF-220 \$988

TOSHIBA

30100 \$479
3700 \$599
3750 \$649
TF331 \$999

COPIERS CANON

PC-1 \$498
PC-2 \$598
PC-7 \$988
PC-11 \$1028

SHARP

Z-50 \$479
Z-55 \$538
Z-70 \$589

Premier

INNOVATIONS
FREE one year onsite in Home/Office
Service Contract from TRW Nationwide

Premier 1400 Authorized Dealers
80286 • 12MHZ • 1 MG RAM •
1.2 MG FD • 1.44 MG FD • Segate 40MG H/D
ZERO WATT STATE • VGA Graphic

CALL

Premier 1500 Authorized Dealers
80386 • 16 MHZ • 1 MG RAM • 40MG H/D
1.2 MG F/D • 1.44MG FD •
ZERO WATT STATE 101 Key Board

CALL

ALL IBM COMPATIBLE COMPUTERS AVAILABLE WITH 20/30/40/60/80 HARD DRIVES ALL SYSTEMS SUPPORT MGA/CGA/VGA/MULTISCAN PACKAGE DEALS AVAILABLE ON ALL SYSTEMS!!

WE WELCOME GOVERNMENT & CORPORATION FIRMS OPEN 7 DAYS A WEEK FROM 9-10WE ACCEPT P.O. # W/APPROVAL CALL TOLL FREE 1-800-448-3738 NY RESIDENTS/INFO CALL (212)397-1081

Use M/C, Visa, AMEX Or Send Money Order, Certified Checks All Merchandise Brand New Factory Fresh. Shipping Charges Non-Refundable. For Mail Orders Please Call Before Sending in Money Order. All Prices Subject to Manufacturers Increase/Decrease. Refunds Within 7 Days Only With Original Packaging & Unfilled Guarantee Card. No Refunds Accepted Without Prior Verbal Authorization. Customer Service Between 12pm-6 pm. Pictures Are For Illustr. Purposes Only. Not Responsible For Typographical Errors. Prices Good For Mail Orders Only. Shipping, handling and insurance charges are extra and non-refundable. Returns are subject to a restocking charge.

FAX NUMBER (212) 397-3056



ORDERS ONLY: 1-800-800-8300

GoldStar

GS230 \$1299



- 16 MHz AT with 1MB RAM
- One Each 1.2 MB and 1.44 MB Floppy
- 40 MB Hard Drive, IDE .28 MS
- 1 Each Serial and Parallel Ports
- VGA Video Adaptor
- 101 Key Keyboard
- MS DOS 3.3, G.W. Basic
- Alpha Works Software
- 12 Month Carry-in Warranty
- VGA Monitor GS-1460 14" Display
- 4 Month On-site Warranty

386 \$1899

- 20-MHz 80386
- 1MB High Speed RAM expandable to 10MB
- 1.2 MB 5 1/4" FDD
- 1.44 MB 3 1/2" FDD
- 40 MB High Performance Disk Drive
- High Performance VGA Interface
- 14" VGA Display Model GS 1460
- 101 Style Keyboard
- MS-DOS 3.3 and GW-BASIC
- One Year Warranty
- Bonus! 120 Days of On-site Service at No Charge!
- Free! Alpha Works Integrated Software Package



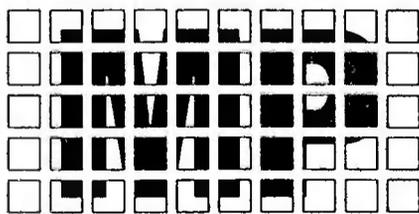
	PRO-386/25	PRO-386-25C	PRO-386/33C
Processor	Intel 80386 running at 25MHz	Intel 80386 running at 25MHz	Intel 80386 running at 33MHz
Memory	2MB standard. Expandable to 8MB on board (or to 16MB using 32-bit expansion board); PRO-386/25 non-cache system direct support LIM/EMS 4.0 from hardware	2MB standard. Expandable to 8MB on board (or to 16MB using 32-bit expansion board); PRO-386/25 non-cache system direct support LIM/EMS 4.0 from hardware	2MB standard. Expandable to 8MB on board (or to 16MB using 32-bit expansion board); PRO-386/25 non-cache system direct support LIM/EMS 4.0 from hardware
Cache		64K direct map set-associative cache using 35ns RAMs	64K direct map set-associative cache using 25ns RAMs
Coprocessor Support	Intel 80387; Weiteck	Intel 80387; Weiteck	Intel 80387; Weiteck
Other Features (All Computers)	5 1/4" 1.2MB or 3 1/2" 1.44MB floppy disk drive IDE controller supports 2FDD/2HDD Two serial, one parallel port Six 16-bit, two 8-bit, one 32-bit expansion slots Real-time clock/calendar with battery backup AMI BIOS 101-key enhanced keyboard		
Optional	Chinon Internal CD-ROM	Chinon Internal CD-ROM	Chinon Internal CD-ROM
Power Meter 1.2	4.04 MIPS	5.80 MIPS	7.63 MIPS
Basic w/VGA Monochrome & 40MB IDE Hard Disk	\$1659	\$1959	\$2259
Basic w/VGA 1024x768 Color & 40MB IDE Hard Disk	\$1899	\$2199	\$2499
Basic w/VGA Monochrome & 80MB IDE Hard Disk	\$1839	\$2139	\$2439
Basic w/VGA 1024x768 Color & 80MB IDE Hard Disk	\$2079	\$2379	\$2679
Basic w/VGA Monochrome & 200MB IDE Hard Disk	\$2329	\$2629	\$2929
Basic w/VGA 1024x768 Color & 200MB IDE Hard Disk	\$2569	\$2869	\$3169

	PRO-286/16	PRO-386SX/16	PRO-386SX/20
Processor	80286 Microprocessor running at 16MHz with zero-wait state	Intel 80386SX Microprocessor running at 16MHz with zero-wait state	Intel 80386SX Microprocessor running at 20MHz with zero-wait state
Memory	1MB standard Expandable to 4MB on board (or to 16MB using 16-bit expansion board); Supports LIM/EMS 4.0	1MB standard Expandable to 4MB on board (or to 16MB using 16-bit expansion board); Supports LIM/EMS 4.0	1MB standard Expandable to 4MB on board (or to 16MB using 16-bit expansion board); Supports LIM/EMS 4.0
Coprocessor Support	Intel 80287	Intel 80387SX	Intel 80387SX
Expansion	Five expansion slots	Six 16-bit and two 8-bit	Six 16-bit and two 8-bit
Other Features	5 1/4" 1.2MB or 3 1/2" 1.44MB floppy disk drive Two serial, one parallel port Real-time clock/calendar with battery backup AMI BIOS 101-key enhanced keyboard Shadow RAM Support		
Basic w/VGA Monochrome & 40MB Hard Disk	\$1109	\$1249	\$1394
Basic w/VGA 1024x768 Color & 40MB Hard Disk	\$1319	\$1459	\$1604
Basic w/VGA Monochrome & 80MB Hard Disk	\$1289	\$1429	\$1574
Basic w/VGA 1024x768 Color & 80MB Hard Disk	\$1529	\$1669	\$1814

9 LOCATIONS NATIONWIDE!

**Hours: Mon.-Fri. 7 A.M.-9 P.M.
Sat.-Sun. 8 A.M.-3 P.M.**

- Prices and availability subject to change without notice
- Not responsible for compatibility problems and types
- Purchase orders accepted from Fortune 1,000, Government institutions, schools and universities
- Minimum shipping charge is \$8.00
- Allow 14 days for personal checks to clear
- Due to Micro Professional's low pricing we cannot offer a free trial period. All returns will be exchanged for like product only, and must be in original box with all materials. Incomplete merchandise will not be accepted for return. Defective products will be repaired or replaced at Micro Professional's discretion
- We do not charge your card until your order is processed
- All orders are shipped within 24 hours on In stock items
- All non-defective products returned will receive a 15% restocking fee
- We ship to the 50 states, APO, FPO, AK and HI add 5% to the total order to cover PAL and Insurance. No sales tax outside of IL



MicroProfessionals
Mailing Address Only:
19621 Burnham, Suite 100
Lansing, IL 60438

AT&T

40 MB Internal tape back-up, diagnostic software, compatible with PC AT and 386, genuine AT&T quality and service **\$199**
AT&T Full Page Scanner with "Page Power Software"
Edge Feed Scanner, (200 dpi) runs OCR software **\$199**

GENOA SYSTEMS

VGA 6300, 1024 X 768, 16 Bit, 256K **\$129**
VGA 6400, 1024 X 768, 16 Bit, 512K **\$145**

ATI TECHNOLOGIES

Wonder Card 16 Bit, 256K, 1024 X 768 ... **\$189**
with Mouse **\$209**
Wonder Card 16 Bit, 512K, 1024 X 768 ... **\$215**
with Mouse **\$235**
Small Wonder 16 Bit, 256K, 640 X 480 ... **\$139**

WESTERN DIGITAL IDE

Hard Drive and Controller in One **\$239**
40 MB, 3 1/2" 28 MS **\$239**
80 MB, 3 1/2" 28 MS **\$409**

CHINON Floppy Drives

3 1/2" C354, 720 KB **\$58**
3 1/2" C359, 1.44 KB **\$74**
5 1/4" C502, 360 KB **\$54**
5 1/4" C506, 1.2 MB **\$68**

MICROSCIENCE

5 1/4" Hard Disk Drives
HH 1050 - 45 MB, 28 MFM **\$299**
HH 1060 - 65 MB, 28 MS, RLL **\$309**
HH 1090 - 80 MB, 28 MFM **\$349**
HH 1120 - 122 MB, RLL **\$365**
HH 2120 - 122 MB, 28 MS, (ESDI) **\$489**
AT Hard Drive Controller Kit **\$79**

HITACHI

The Hitachi 1483 Outlasts and Outperforms the NEC 3D **\$525**
14" Super High Resolution, Multi-frequency VGA for Analog Inputs. Supports VGA, Super VGA, 8514/A, 1024 X 768, and Mac II. Horizontal Scan Rate: 30 to 40 kHz. Vertical Scan Rate: 50 to 100 kHz. .28 mm Dot Pitch. 2 Year Warranty

CM2085M Superscan **\$1799**

20" Ultra high resolution, multi-frequency color monitor with RGB analog input; supports VGA, Super VGA, 8514/A, 1024 X 768, 1280 X 1024 and Mac II; auto-scanning, auto-syncing from 30 to 64kHz (horizontal) and 50 to 120 kHz (vertical), .31 mm dot pitch; state of the art silica-coat anti-glare treatment; tilt/swivel base and front mounted controls; one year warranty.

SEAGATE Hard Disks

5 1/4" ST225, 20 MB, 65 MS **\$195**
5 1/4" ST238R, 30 MB **\$209**
5 1/4" ST251-1, 40 MB, 28 MS **\$269**
3 1/2" ST157A, 40 MB, IDE, 28 MS **\$299**

PARADISE Video Cards

VGA 1024 X 768 with 256K **\$235**
VGA 1024 X 768 with 512K **\$269**

NEC Monitors

Multisync GS2A 800 X 600 VGA Mono **\$219**
Multisync 2A 14" 800 X 600 VGA Color **\$435**
Multisync 3D 14" 1024 X 768 VGA Color ... **\$599**
Multisync 4D 16" 1024 X 768 VGA Color .. **\$1129**

DIAMOND

SpeedStar VGA/512K (upgradeable to 1MB) ... **\$189**
SpeedStar VGA/1MB **\$209**

BROTHER Dot Matrics

M-1809 360 cps **\$335**
M-1909 360 cps **\$425**
M-1824L 270 cps **\$445**
M-1924L 270 cps **\$569**
HL-8E Page Printer **\$1350**
HL-8PS Post Script Printer **\$2795**

PANASONIC Printers

KXP 1180 192 cps, 80 col., 9-pin **\$159**
KXP 1124 192 cps, 80 col., 24-pin **\$279**
KXP 1624 192 cps, 132 col., 24-pin **\$349**
KXP 1695 330 cps, 132 col., 9-pin **\$389**
KXP 4420 Laser, 8 pp. per minute **\$799**
KXP 4450i Laser, 11 pp. per minute **\$1199**

Circle 195 on reader service card

EPSON PRINTERS

LX 810 — 200 cps, 30 nlq \$173
 FX 850 — 264 cps, 54 nlq \$289
 FX 1050 — 264 cps, 54 nlq \$399
 LQ 510 — 225 cps, 75 nlq \$259
 LQ 850 — 330 cps, 88 nlq \$435
 LQ 860 — Color \$549
 LQ 950 — 330 cps, 88 nlq \$439
 LQ 1010 — 225 cps, 75 nlq \$369
 LQ 1050 — 330 cps, 88 nlq \$579
 LQ 2550 — 400 cps, 108 nlq ... \$859
 EPL6000 — Laser Printer \$799
CALL FOR OPTIONS AND RIBBONS

KENOSHA COMPUTER CENTER

SALES LINE OUTSIDE WISCONSIN

1-800-255-2989

Shipping, customer service &
technical assistance call
414-697-9595

Fax 414-697-0620



AST COMPUTERS

286 Premium — 40 MB hard drive &
monochrome monitor \$1699
 386 5V — 386 SX, 40 MB,
VGA card & monitor \$2099
 386C — 20Mhz, 40 MB,
monochrome monitor \$2999
 386 — 25Mhz, 40 MB,
monochrome monitor \$3499
 386 — 33Mhz, 40 MB,
monochrome monitor \$4099
 AST 486 — All Models CALL

COMPAQ

286N w/40MB \$1599
 286N w/100MB \$1999
 386S w/40MB \$2199
 386S w/110MB \$2595
 386E w/40MB \$3295
 386E w/110MB \$3695
 386 25E w/100MB \$4599
 Portable III, 20MB \$3549
 SLT 286 Laptop CALL
 SLT 386 Laptop CALL
 Compaq LTE CALL
 Compaq LTE 286 \$2499
 Compaq LTE 386 CALL

FOR ALL YOUR LASER PRINTER NEEDS

HEWLETT-PACKARD

LaserJet II w/toner . CALL LaserJet III w/toner . CALL
 LaserJet IIP w/toner \$989 DeskJet Plus 500 \$549

PACIFIC DATA PRODUCTS

25-In-1 Font \$249
 172 fonts & symbol sets
 Pacific Page \$339
 PostScript® language
 emulation in a cartridge
 Headline Cartridge .. \$199
 Large fonts for all applications
 Plotter in a Cartridge \$229
 Plotter emulation for the
 LaserJet Series II™

1 MB Upgrade \$139
 2 MB Upgrade \$189
 4 MB Upgrade \$349

Outlines 1 & 2 CALL
 Scaleable font for Laser III

Memory for Epson,
 Toshiba, AT&T, Packard
 Bell, Mansman Tally,
 NCR Call for Price

Mac Page \$389
 Pacific Page for the Mac

EVEREX TAPE DRIVES

Excel 40AT/80 MG Int. w/Media. \$249
 Excel 40T Int./Ext. \$529/\$599
 Excel 60T Int./Ext. \$589/\$679
 Excel 60AT/120 MG Int. w/Media \$279

MODEMS

Everex 2400 Int. \$119
 w/MNP-5 \$159
 Everex 2400 Ext. \$169
 w/MNP-5 \$199
 Everex 2400 PSII Int. \$179

VIDEO & MEMORY BOARDS

Viewpoint VGA 16-bit w/256K ... \$179
 w/512K \$229
 Everex VGA VRAM CALL
 Ram 8000/10000 \$249/\$159
 Fax Modem 9600 \$279

LANTE LAPTOP MODEMS

All models 2400 Baud

Toshiba T1000 \$159
 Toshiba 1200 & 1600 \$159
 Toshiba—All Other Models \$149
 Toshiba 2400w/MNPS \$299
 Zenith Supersport \$159
 Compaq SLT \$169
 Compaq LTE \$169
 NEC ProSpeed \$169
 Sharp, Epson, Apple & all others CALL
 Ethernet & Token Ring CALL

LAPTOPS

TOSHIBA

T1000SE \$1149
 1600/3100E \$2299/\$2799
 3100SX/3200SX \$3899/\$3999
 5200 40/100 CALL
 All Other Models CALL

NOTEBOOKS

Sharp 6220 CALL
 Panasonic CF 170 \$1389
 Panasonic CF 270 \$1869
 Texas Instruments CALL

LAPTOP MEMORY

1 MB Compaq LTE 286 CALL
 2 MB Compaq LTE 286 CALL
 1 MB Compaq SLT 286 CALL
 2 MB Toshiba T1600 CALL
 2 MB Toshiba T3200SX CALL
 2 MB Toshiba 5100 CALL
 2 MB Toshiba 5200 CALL
 All other models CALL

PRINTERS

OKIDATA

ML320 \$319 ML380 \$289
 ML321 \$439 ML391 \$619
 ML390 \$439 ML393 \$929

PANASONIC

1124 \$279 1624 \$349
 1180 \$159 1695 \$399
 1191 \$229 4420 \$799

44501 Laser...\$1199
CALL FOR OPTIONS

HARD DISKS

SEAGATE

20MB w/contr. ST225 \$239
 30MB w/contr. ST238 \$259
 40MB for AT ST251-1 \$279
 40MB 157A Kit \$259
 80MB for AT ST296N Kit \$379
 71MB IDE \$549
 138MB ESDI-SG1156E \$899

PLUS HARD CARDS

20MB/40MB \$489/\$549
 80MB \$589
 Other models CALL

CONNER

40MB/100MB \$349/\$549

TAPE BACK UP

Everex — See box at right
 Maynard 60MB External \$829
 Mountain 40MB Internal \$359
 Mountain 40MB External \$559

MONITORS

Mitsubishi EGA \$339
 Mitsubishi Diamondscan \$489
 Mitsubishi HL 6605 16" \$1049
 Mitsubishi HL 6905 20" \$1799
 NEC Multisync IIA \$469
 NEC Multisync IIID \$599
 NEC Multisync IVD \$1150
 NEC Multisync VD \$2299
 Panasonic C1381 1024x768 \$399
 Panasonic C1391 1024x768 \$499
 All Goldstar Monitors CALL

Prices and
 availability
 subject to
 change

CMS ENHANCEMENTS

Int. and ext. hard drive kits AT
 and XT compatible from \$249
 PS/2 Internal hard drive kits
 20MB and up from \$329
 PS/2 external hard drive
 90MB and up from \$1049
 External floppy drives for PS/2
 AT, XT and laptop from \$179
 Laptop hard drive for Tandy, NEC,
 Toshiba, Zenith, Compaq CALL
 Fax Modem and Pocket Fax.. CALL

GRAPHICS CARDS

ATI Basic 16 \$99
 ATI Wonder Plus VGA \$219
 Everex Viewpoint VGA \$179
 Everex VGA VRAM CALL
 NEC Graphic Engine \$899
 Orchid Pro Designer II \$299
 Orchid Pro VGA w/512K \$289
 Paradise VGA 1024 \$189
 Paradise VGA Plus \$159
 Paradise VGA Plus 16 \$199
 Vega VGA \$199
 Vega VRAM VGA w/512K \$419

LOGITECH

Trackman Stationery Mouse \$89
 Scanman 400 DPI Scanner \$169
 High Resolution C9 Mouse \$69
 Finesse Desktop Pub. Software \$95

DIGITIZERS

Summasketch 12x12 \$319
 Summasketch 12x18 \$529

FAX MACHINES

Sharp FO-215 \$579
 Sharp FO-230 \$629
 Sharp FO-333 \$749
 Sharp FO-510 \$799

intel CHIPS



8087-3/8087-2 \$99/\$119
 80287-XL \$189
 80387-16MHz/SX \$319/\$299
 80387-20MHz \$359
 80387-25MHz \$439
 80387-33MHz \$549
 Intel 9600 Modem \$499
 Multifunction Boards CALL
 Satisfaction (Fax Modem) \$399

MEMORY & MULTIFUNCTION BOARDS

COMPAQ UPGRADES

386 1MB/4MB \$199/\$399
 Portable 386 1MB \$399
 SLT 1MB \$249
 386-33 2MB \$349

IBM UPGRADES

30-286 512K \$99
 PSII 50 & 60 2MB \$399
 Model 70 & 80 2MB \$399
 All others CALL

CHIPS & MULTIFUNCTION

64K or 256K Ram Chips LOW
 256K Simms/1MB \$30/\$69
 1MB DRAM CALL
 AST 6 Pack Plus w/384K \$169
 AST 5251-11 Plus Enhanced \$489
 Intel Above Board 286 Plus \$329
 Intel Plus 8 w/2MB \$479
 Irma Board \$409

MODEMS

Everex See box above
 Hayes 2400 ext \$339
 Hayes 2400B w/software \$279
 Hayes V Series 9600 \$549
 Intel 9600 Modem \$499
 US Robotics 2400 Int/ext. \$149/\$169
 US Robotics Cour. 2400 \$279
 US Robotics HST 9600 (14400) ... \$579

No charge for MasterCard or Visa; American Express add 5% We will ship COD on a cash or cashier's check basis only Shipping & handling 3% — \$6 minimum; AK and HI slightly higher. 15% restocking charge on returned items. Purchase orders accepted from Fortune 1000, Government institutions, schools and universities 2% shipping discount available on orders over \$2000 if prepaid by check.

**KENOSHA
COMPUTER CENTER**
 2133 91st St.
 Kenosha, WI 53140

ORDER TOLL FREE 800-345-5568

At NSI we are committed to giving our customers the lowest possible price on the highest quality products. Here are some examples of how you can save...

FAX CARD SALE

fax96

- 9600, 7200, 4800, 4200 Baud Rate • Full Background Operation
- Serial Broadcasting • Delayed Dialing • 5 Year Warranty
- Money Back Guarantee • Automatic Cover Sheet

NOW ONLY **\$169.00**



2 YEAR WARRANTY MONEY BACK GUARANTEE

FAX 96 - 1 Liner

- Detects Incoming Voice Calls
- Allows You To Retrieve Faxes From Remote Locations.

NOW ONLY **\$219.00**

16 BIT MEMORY BOARD

Works with 286 & 386 systems • 0-8 Meg • 4.0 LIM compatible, conventional, expanded and extended memory

OK — 119.00 4 Meg — 319.00
2 Meg — 219.00 8 Meg — 499.00

AST ADVANTAGE/2

0-8 Meg board for PS/2 Model 50 & 60
★ 2 Year Warranty ★

512K — 99.00 4Meg — 299.00
2Meg — 199.00 8Meg — 479.00

HP LASER JET MEMORY

Works in HP IIP, II, III & IID

★ 5 Year Warranty ★

1Meg — \$89.95 2Meg — \$129.95
4Meg — \$204.95

SIMM MODULE

1Meg X 9 — 80ns for IBM Type Machines

NOW ONLY **\$47.95**

Add \$1.00 for SIPP Module

MEMORY PRODUCTS

DRAM CHIPS

DESCRIPTION	150	120	100	80	70	60
64 X 1	.90	1.20	1.50	—	—	—
64 X 4	—	2.00	2.15	2.35	—	—
256 X 1	1.25	1.40	1.60	1.85	—	—
256 X 4	—	5.00	5.25	5.60	6.25	7.50
1 Meg X 1	—	4.75	5.00	5.35	6.00	7.00

SIMM MODULES

DESCRIPTION	150	120	100	80	70	60
256 X 8	15.00	17.00	19.00	22.00	—	—
256 X 9	17.00	19.00	21.00	24.00	—	—
1 Meg X 8	—	43.00	45.50	46.00	55.00	65.00
1 Meg X 9	—	45.00	46.50	47.95	58.00	68.00
4 Meg X 8	—	—	299.00	349.00	429.00	499.00
4 Meg X 9	—	—	319.00	369.00	449.00	519.00

Add \$1.00 for SIPP Module

IBM PS/2 MEMORY

PART NO.	DESCRIPTION	LIST	NSI
78X8955	128KB Upgrade PS/2 M25	50.00	28.00
30F5348	512K8 Upgrade PS/2 30 286	200.00	54.00
30F5360	2M8 Upgrade PS/2 30 286	795.00	168.00
6450372	2MG Memory Adapter 6450367	1,295.00	395.00
6450603	1MG SIMM PS/2 70-E61; 121	450.00	82.00
6450604	2MG SIMM PS/2 50-70	950.00	129.00
6450608	2MG SIMM PS/2 70	950.00	150.00
34F2933	4M8 SIMM PS/2 55SX; 65SX	2,195.00	420.00
6450375	1MG Memory 8D PS/2 80-041	675.00	96.00
6450379	2MG Memory 8D PS/2 80 111-321	950.00	179.00
6451060	4MG Mem 8d PS/2 80-A21; A31	1,895.00	479.00
6450605	2-8MG Mem Xpand PS/2 70&80 w/2MG	1,295.00	39.00
34F3077	2-14MG Mem Xpand PS/2 70&80 w/2MG	1,295.00	498.00
34F3011	4-14MG Mem Xpand PS/2 70&80 w/4MG	2,595.00	750.00
1457208	2-8MG Mem Xpand PS/2 70&80 w/2MG	1,350.00	480.00

LASER PRINTER MEMORY

DESCRIPTION	WORKS WITH	YOUR PRICE
1M8 33474A	HP Laser Jet IIP and III	89.95
2M8 33475A	HP Laser Jet IIP and III	129.95
4M8 33477A	HP Laser Jet IIP and III	204.95
1M8 33443B	HP Laser Jet II and IID	89.95
2M8 33444B	HP Laser Jet II and IID	129.95
4M8 33445B	HP Laser Jet II and IID	204.95
1M8 1039136	IBM Laser 4019	129.00
2M8 1039137	IBM Laser 4019	175.00
3.5MB 1038675	IBM Laser 4019	219.00
1M8 M6005	Apple LaserWriter II/NTX	85.00
4M8 M6006	Apple LaserWriter II/NTX	319.00
1M8 S63-1300	Canon LBP-8II Laser Printer	149.00
2M8 S63-1880	Canon LBP-8II Laser Printer	219.00
4M8 Part no. N/A	Canon LBP-8II Laser Printer	399.00

AST MEMORY

PART NO.	DESCRIPTION	LIST	NSI
500510-000	512K8 Kit Fastram, Rampage/2, Xformer 286 Advantage, Advantage Pak, 6PakPlus	149.00	54.00
500510-001	512 Upgrade AST Premium 286-Fastram	155.00	54.00
500510-002	2MG Upgrade AST Premium W.S. 386SX Bravo 286-386SX, RPPLUS 286, Advantage 2 Advanced Fastram	260.00	99.00
500510-033	1MG Upgrade AST Premium 386, RPPLUS-MC Advantage 386	260.00	99.00
500510-004	4MG Upgrade AST Premium 386, RampagePlus/MC Advantage 386	790.00	336.00
500510-007	1MG Upgrade AST Premium 386C, 386-16	260.00	99.00
500510-008	4MG Upgrade AST Premium 386C, 386-16 W.S., 386SX, Fast8d/386, Adv Fastram, RP 286	675.00	299.00
500510-010	512K Upgrade AST Premium W.S. 286, W.S. 386SX Bravo 286, Bravo 286, W.S. 386SX, Advantage 2	135.00	26.00
500510-011	128KB Upgrade Astravro 286	50.00	26.00
500709-001	512KB Upgrade Advantage 2, Rampage PC	325.00	54.00
500709-003	512KB Upgrade RampagePlus-MG	135.00	54.00
500718-002	1MG Upgrade SIMM Ast Premium 386-25 486-33, 386SX-16, 486-25T-25E	195.00	89.00
500718-004	2MG Upgrade SIMM AST Premium 486	650.00	269.00

HEWLETT-PACKARD MEMORY

PART NO.	DESCRIPTION	LIST	NSI
D1354A	2MG Upgrade Vectra QS 16S, ES 12PC	950.00	199.00
D1540A	1MG Upgrade Vectra QS 16S	495.00	138.00
D1542A	4MG Upgrade Vectra QS 16S	1,950.00	379.00
D640A	1MG Upgrade Vectra QS 20PC, RS 25PC-20PC	450.00	198.00
D1642A	4MG Upgrade Vectra QS 20PC, RS 25PC-20PC	1,950.00	390.00
D2150A	1MG Upgrade Vectra 486 PC	450.00	129.00
D2151A	4MG Upgrade Vectra 486 PC	1,250.00	239.00
D2152A	8MG Upgrade Vectra 386 25PC, 486PC	5,095.00	1,099.00
D2381A	2MG Upgrade Vectra 386 25PC	995.00	198.00

ZENITH DATA MEMORY

PART NO.	DESCRIPTION	LIST	NSI
Z-605-1	2MG Upgrade Z-386/SX	1,255.00	194.00
ZA-180-64	2MG Xpand Supersport SX, 286E	1,095.00	379.00
ZA-180-66	1MG Xpand Supersport 286, 286E	650.00	209.00
ZA-180-86	2MG Xpand Alpha Zenith, Supersport SX	1,095.00	379.00
ZA-3600-ME	1MG Upgrade Z-386/20, 25, 33, 33E	650.00	99.00
ZA-3600-MG	2MG Upgrade Z-386/20, 25, 33	1,250.00	169.00
ZA-3800-MK	4MG Upgrade Z-386/20, 25, 33, 33E	2,295.00	479.00

WE ALSO CARRY MEMORY EXPANSION. CALL FOR LOWEST PRICE.

COMPAQ MEMORY

PART NO.	DESCRIPTION	LIST	NSI
107331-001	512K8 Upgrade Portable III	269.00	54.00
107332-001	2MG Upgrade Portable III	1,100.00	245.00
107651-001	1MG Upgrade Portable 386	650.00	205.00
107653-001	4MG Memory Xpand Portable 386	2,395.00	630.00
107654-001	4MG Memory Xpand Portable 386	2,395.00	630.00
108069-001	1MG Memory Xpand DP386-16	650.00	264.00
108070-001	4MG Memory Xpand DP386-16	2,395.00	630.00
108071-001	1MG Memory Upgrade DP386-16	635.00	120.00
108072-001	4MG Memory Upgrade DP386-16	2,550.00	360.00
110235-001	1MG Memory 8d Sit 286	650.00	180.00
110237-001	4MG Memory 8d Sit 286	2,195.00	949.00
112534-001	4MG Module DP386S-16	1,950.00	299.00
113131-001	1MG Module DP286E, 386 20-25E	450.00	96.00
113132-001	4MG Module DP286E, 386 20-25E	1,950.00	269.00
113633-001	1MG Memory Xpand DP386S-16	650.00	175.00
113634-001	4MG Memory Xpand DP386S-16	2,395.00	390.00
113644-001	1MG Memory Xpand DP386 20E, 25E	650.00	144.00
113645-001	4MG Memory Xpand DP386 20E, 25E	2,395.00	390.00
113646-001	1MG Module DP386S-16	450.00	110.00
115144-001	2MG Module DP386 33, 486 25, Syspro	950.00	180.00
116561-001	8MG Module 486 25, Syspro	4,495.00	1,325.00
116568-001	32MG Module DP486 25, Syspro	19,995.00	5,795.00
117077-001	512K8 Memory 8d Portable LTE	295.00	139.00
117081-001	1MG Memory 8d Portable LTE 286	650.00	129.00
117081-002	2MG Memory 8d Portable LTE 286	1,250.00	190.00
118688-001	1MG Upgrade DP286N, 386N, 386S-20	275.00	119.00
118689-001	2MG Upgrade DP386N, 386S-20	575.00	205.00
119688-001	4MG Upgrade DP386N, 386S-20	1,095.00	480.00

TOSHIBA MEMORY

PART NO.	DESCRIPTION	LIST	NSI
PC10-PA8304U	2MG Memory Card Portable T5200 Toshiba Desktop T8500	950.00	189.00
PC12-PA6307U	2MG Memory Card Portable T3200SX	990.00	189.00
PC13-PA8306U	2MG Memory Card Portable T1200XE	1,195.00	309.00
PC14-PA8311U	1MG Memory Card Portable T1000SE-XE	650.00	275.00
PC14-PA8312U	2MG Memory Card Portable T1000SE-XE	1,195.00	359.00
PC15-PA8308U	2MG Memory Card Portable T3100SX	950.00	189.00
PC15-PA8310U	4MG Memory Card Portable T3100SX	4,395.00	589.00
PC6-PA7137U	3MG Memory Card Portable T3100	1,590.00	299.00
PC7-PA8301U	2MG Memory Card Portable T5100	1,190.00	189.00
PC8-PA8302U	2MG Memory Card Portable T1600	1,190.00	189.00
PC9-PA8340U	512K Memory Card Portable T3100E	350.00	119.00
PC9-PA8341U	2MG Memory Card Portable T3100E	1,190.00	189.00

LIQUIDATIONS

DAISY WHEEL PRINTER

- Fully IBM Compat • Superscripts/Subscripts
- Centronics Parallel Interface
- 14 CPS Bi-directional Printing

RETAIL: \$1195.00 NOW ONLY **\$98.00**

INSTA-COM MODEM

- 2400 Baud • Internal Modem
- Fully Hayes Compat. • Includes Software
- Selectable to COM 1, 2, 3, & 4 • 5 Yr. Warr.

NOW ONLY **\$58.00**

60 MEG TAPE BACK-UP

- Includes: 60mg Internal Drive, Controller Card w/Cables, QIC-60 Software, DC-600 Tape, Complete w/Document.
- Complete Kit - Ready to Install • 1 Yr. Warr.

RETAIL: \$1295.00 NOW ONLY **\$348.00**

40 MEG TAPE BACK-UP

- Includes: 40mg Internal Drive, 5/4" Bracket w/cables, QIC-40 Software, 5/4" & 3/2" Disks, Complete with Documentation • Ready to Install • 1 Yr. Warranty

RETAIL: \$995.00 NOW ONLY **\$178.00**

AT&T SCANNER

Complete w/Interface & Cable, AT&T PagePower Software; Package Includes: Draw Module, Scan Module, Fax Module, Microsoft Runtime Windows

A \$2000.00 Value NOW ONLY **\$248.00**

SABA PAGE SCANNER

INCLUDES OCR SOFTWARE 200 DPI SCANNER (BY CANON) • IBM Interface Card, Cable, OCR Software (Text Only) • 1 Yr. Warr.

RETAIL \$1195.00 NOW ONLY **\$298.00**

HIGH SPEED SCANNER

300/200/150/100/75 DPI • 6 sec./page • 32 level gray shades • without controller card

RETAIL \$1495.00 NOW ONLY **\$298.00**

CANON IX-12F

FLATBED SCANNER 300/200/150/100/75 DPI • 6 sec./page • 32 gray shades • w/out controller card

RETAIL \$1895.00 NOW ONLY **\$498.00**



We buy and sell excess inventories. call or fax list.

20308 Gramercy Place • Torrance, CA 90501

(213) 328-3344 FAX: (213) 328-2907

(800) 345-5568 (ORDERS ONLY)

• TERMS: AE (add 4%), VISA, MC, COD, PO's from qualified firms. 20% restocking fee on all non-defective returns. All returns/adjustments must be made within 15 days. CA residents Add 6 3/4% Tax — Prices Subject to Change!

\$8.50 MINIMUM SHIPPING

PC Magazine says "... Arlington offers worry-free mail order purchasing at reasonable rates!"

IBM PERSONAL SYSTEM II

Model 30, 286, 40 MB, w/Monitor	\$1899
Model 55SX, w/60 MB w/Monitor	\$2799
Port. 70/120	\$5795
Model 70, w/60 MB and Monitor	\$3299
Model 70, w/121 MB and Monitor	\$3899
Model 70-A21, w/121 MB and Monitor	\$5299
6 Month Warranty	

COMPAQ 286N

(12 MHZ) 40MB, 1MG Memory,
Mono VGA Card & Monitor ... \$1699

COMPAQ PORTABLES

LTE 20	\$1949
LTE 286 20/40	\$2499/\$2849
LTE 386 S/20-30 MB	\$4749

COMPAQ 386

Model 386S MOD I	\$1799
Model 386S w/40 MB (16 MHZ)	\$2199
Model 386E w/40 MB (20 MHZ)	\$3295
Model 386E w/100 MB	\$3495
Model 386 25E w/100 MB	\$4599
Model 386-33 w/84 MB	\$6999
6 Month Warranty	

BRAND NAME COMPUTERS

286E, 12 MHZ, 1 MG Memory, 40MG
Drive, Mono Card & Monitor . \$1099

386SX, 16 MHZ, 1MG, 40MG,
Mono Card & Monitor\$1395

386E, 20 MHZ, 1MG, 40MG,
Mono Card & Monitor\$1799

AST PREMIUM

286 — 512K, 40 MB, mono monitor	\$1449
386 5V — 386SX, 40 MG, VGA, mono monitor	\$2099
386C — 20 MHZ, 40 MB, mono monitor	\$3199
386 25 MHZ — 40 MG, mono monitor & card	\$3599

PANASONIC

FX1650 — 8086, 3 1/2" drive, 20 MG, monitor	\$699
FX1925 — 386SX, 40 MG, VGA monitor	\$1575

MODEMS

Hayes 1200/2400 Ext.	\$279/329
V-Series 9600 Int.	\$549
Intel 2400	\$139
Intel 2400 Ext.	\$169
Intel 9600	\$499
Megahertz 2400 Toshiba	\$159
2400 Compaq LTE	\$159
Everex 2400	\$119
Everex 2400 External	\$165
US Robotics 9600	\$579

CHIPS

64K Ram Chips	9 for \$20
256K/1 MG Chips	each \$4/\$7
256K/1MB Simms	\$40/\$69
Compaq 386 1 MB	\$199
Compaq 386 4 MB	\$399
Compaq 386 2 MB-33	\$349
Compaq SLT 1 MB	\$249
IBM 2-8 MG Board	\$489
IBM 30-286 512K	\$99
IBM 70 & 80 2 MB	\$199
IBM 2 MG	\$229

intel

Intel 8087-3	\$99
Intel 8087-2	\$119
80287-10XL	\$189
80387-16/80387-SX	\$319/\$299
80387-20	\$359
80387-25/80387-33	\$439/\$549

MULTIFUNCTION BOARDS

AST 6 Pack w/384K	\$169
AST 6 Pack 286	\$189
AST Rampage Plus	\$339
AST Rampage Plus 2 MG	\$449
Irma Board III	\$409
AST 5251-II Plus	\$489

INTEL

Intel Above Board+	\$329
Intel Above +/2 MG	\$499
Intel Plus 8 w/2 MG	\$479
Intel 386 PC w/1 MG	\$469
Intel 386 AT	\$899
Intel Satisfaxtion	\$399

SCAN. & DIGIT.

Panasonic FXRS 3070U	\$949
Summasketch 12x12	\$319
Summasketch 12x18	\$529
Sharp FO-333 Fax	\$749

DRIVES & TAPES

Ext. 5 1/4" for PSII	\$159
Ext. 1.2 for PSII	\$179
Toshiba 3 1/2" 720K	\$69
Toshiba 3 1/2" 1.44	\$79
Colorado Jumbo 40	\$259
Everex 40 MB Tape	\$239
Everex 60 MB Tape	\$659

SEAGATE HARD DISKS

20 MB for XT (ST225)	\$239
30 MB for XT (ST238)	\$259
48 MB 3 1/2" (157N-Kit)	\$299
40 MB (157A)	\$259
40 MB for AT (ST251-1)	\$259
80 MB for AT (4096)	\$549
80 MG 296 Kit	\$379
111 MB 1126A	\$629

IOMEGA

20 MB Int. w/boot card	\$999
44 MB Int. w/boot card	\$1125

PLUS

Hard Card 20 MB	\$489
Hard Card 40 MB	\$549
Hard Card 80 MB	\$589

CONNOR HARD DRIVES

40 MB/100MB	\$329/\$549
-------------	-------------

PRINTERS

EPSON

VERY COMPETITIVE PRICES!!!

LX 810	\$173	LQ 860	\$549
FX 850	\$289	LQ 950	\$439
FX 1050	\$399	LQ 1010	\$369
LQ 510	\$259	LQ 1050	\$579
LQ 850	\$435	LQ 2550	\$859
EPL Laser 6000...\$799			

OKIDATA

ML 320	\$319	ML 390	\$439
ML 321	\$439	ML 391	\$619
ML 380	\$289	ML 393	\$929

CITIZEN

120D	\$129	HSP500	\$309
GSX140	\$299	HSP550	\$429

PANASONIC

1124	\$279	1624	\$349
1180	\$149	1695	\$389
1191	\$229	4420	\$779
4450I/4455 Laser...\$1199/\$1999			

HEWLETT-PACKARD

Laserjet III	\$1599
Laserjet II	\$1099
Laserjet IIP w/Toner	\$969
Deskjet Plus 500	\$549
Laserjet IIID	\$2649
Pacific Data 1 MG	\$139
Pacific Data 2 MG	\$189
Pacific Data 4 MG	\$349
Headline Cartridge	\$199
Pacific Page	\$339
Pacific Outlines	\$199
Plotter-in-Cartridge	\$229
Pacific Data 25 in 1 Font	\$249

LAPTOPS

PANASONIC

CF170 Notebook	\$1389
CF270 Notebook	\$1869

NETWORKING

Advanced Network 2.15	\$1849
SFT Network 2.15	\$2799
ELS Level I 4 User	\$439
ELS Level II 8 User	\$1159
1000 Ethernet	\$199
NE2000	\$199

SOFTWARE

D Base III Plus	\$419
D Base IV	\$459
Harvard Graphics	\$289
IBM Displaywrite V	\$229
Logitech Mouse	\$74
Lotus 123 2.2/3.1	\$329/\$399
Microsoft Mouse	\$99
Microsoft Excel	\$299
Microsoft Windows 3.0	\$99
Microsoft Word	\$219
Multimate Version IV	\$279
R Base for DOS	\$439
Symphony	\$459
Ventura Desktop Publ.	\$519
Word Perfect 5.1	\$249

VIDEO BOARDS

ATI 16 Basic	\$89
ATI VGA Wonder	\$199
ATI VGA Wonder 512	\$239
Everex EGA/VGA	\$89/\$109
Genoa 6300/6400	\$199/\$239
NEC Grph Engine 256	\$899
Orchid Pro w/512K	\$289
Paradise VGA	\$139
Paradise +16	\$179
Paradise VGA 1024	\$199
Vega VRAM 512K	\$379

MONITORS

MITSUBISHI

EGA	\$339
Diamond Scan	\$489
HL6605 16"	\$1049
HL6905 20"	\$1799
3950 ADK	\$1649

NEC

Multisync IIA	\$469
Multisync IIID	\$599
Multisync IVD	\$1149
Multisync VD	\$2275

PANASONIC

1381 VGA 1024x768	\$399
1391 VGA 1024x768	\$499

GOLDSTAR

Color/EGA	\$219/\$289
VGA 1425+	\$279
VGA 1430	\$299

**Arlington
Computer
Products, inc.**

Defective software will be replaced with the same item only. We cannot guarantee compatibility. Returned shipments are subject to a restocking fee. Prices and availability subject to change without notice.

HOURS C.S.T.

8 am - 6:30 pm — Mon.-Fri.
9 am - 5 pm — Sat.

1970 CARBOY
MT. PROSPECT, IL 60056

FOR ORDERS & SYSTEMS QUOTES: **800-548-5105**



CUSTOMER SERVICE AND IN ILLINOIS 708-228-6333

SHIPPING 708-228-9748

TECHNICAL ASSISTANCE 708-228-1470

FAX 708-228-0516

No surcharge for MasterCard or Visa.

Circle 8 on reader service card



Advanced Micro Devices

Math Coprocessor

High speed, low price, fully guaranteed!

Now you can afford the performance benefits of a coprocessor without the \$200 plus costs of yesterday...thanks to AMD! Fully compatible, just install in your waiting coprocessor socket and speed up hundreds of popular software applications.



Special Bundle Deal!

\$169. for both!

SuperCalc 5 and AMD 80C287

Add the SuperCalc 5 spreadsheet software...enjoy truly fast spread sheet calculations, a \$495. value!

\$99.

AMD 80C287 Math Coprocessor

order yours today...

800-366-3227

No-Risk Triple Guarantee

the ACP Best Sellers List!

BOARDS A

- ACP VIDEO Cards**
- ACP EGA 480 79.
 - ACP VGA 8-bit w/256K 99.
 - ACP VGA 16-bit w/256K 129.
 - Color or Mono Card 39.

- ACP INTERFACE Cards**
- AT Multi I/O 59.
 - AT Multi Serial (4) 119.
 - XT/AT SERIAL or PAR 39.

- ACP MEMORY Cards**
- AT 4 Mb EMS/EEMS 219.
 - AT 2 Mb EMS 119.
 - XT 2 Mb EMS 99.
 - XT 384K Sixpack/OK 69.

- AST CARDS (Ok on boards)**
- Rampage+ 286 w/ 512 383.
 - Six-Pack 384 c/s/p 217.
- ... call for AST specials!

- MYLEX Motherboards**
- MMS386/25MHz 64k cache ... 1099.
 - MXA 33 MHz w/128k cache ... 1399.
 - MXS 386/16 MHz SX 425.
 - MAE 456-25 EISA call
 - MAE 456-33 EISA call
- ... call for Motherboard specials!

- PARADISE**
- VGA Plus (800 x 600) call
 - VGA Plus 16 (800 x 600) call
 - VGA Professional call
 - VGA 1024 (1024x768)256k ... call
 - VGA 8514 call

BACKUP DRIVES

- COLORADO**
- Jumbo Internal 269.
 - Mountain 60 Mb internal 299.
 - Archive/Alphamicro call

CHIPS • SIMM MODULES

- MEMORY UPGRADES!!!**
- Toshiba • AST • Compaq • IBM
- Save Up To 50%

- 256k DRAMS-100ns ea.1.69
- SIMMS 1 Mb x 9-80ns 59.95

call ACP for all your memory needs...we have been buying and selling components since 1976!

- CYRIX Processors**
- 83D87-16MHz/20MHz .. 299./349.
 - 83D87-25MHz/33MHz ... 449./548.
 - 83S87-16MHz/20MHz ... 258./298.

- Intel® ...NEW Low Prices!!!**
- 80387/DX-20 399.
 - 80387/SX-16 299.
 - 8087-1/8087-2 159./119.
 - 80287XL call
 - 80387-25/80387-33 459./599.

COMPUTER SYSTEMS

... call for custom configurations!

- AST/HYUNDAI**
- all models call

LAPTOP

- all models call
- SAMSUNG**
- S3000VE/XT 369.
 - S550/AT 599.
 - SD700/SX 899.
 - SD630/AT 618.

FAX BOARDS

- COMPLETE PC FAX BOARDS**
- 4800/9600 call
- INTEL®**
- SatisFAXtion Card call
- FRECOM**
- 9600 Fax Card 168.

FLOPPY DISK DRIVES

- 5 1/4" 360K floppy disk drive 59.
- 5 1/4" 1.2Mb floppy disk drive 64.
- 3 1/4" 1.44Mb floppy disk drive . 69.
- 5 1/4" Ext 360k Laptop 188.

HARD DISK DRIVES

- CONNER PERIPHERALS**
- 42Mb CPE3044 IDE 349.
 - 104Mb CPE3104 IDE 599.
 - 208MbCPE3204 IDE 929.

- MICROPOLIS**
- 1684-7 340Mb SCSI 1499.
 - 1664-7 345Mb ESDI 1408.
 - 1568-15 676Mb ESDI 1990.
 - 1598-15 1.2Gb SCSI 3699.

- SEAGATE**
- ST157A 40Mb IDE 279.
 - ST1126A 111Mb IDE 649.

- WESTERN DIGITAL**
- WD 1006/MM1/MM2 89./98.
 - all other WD Plus drives call

INPUT DEVICES • MICE

- ADVANCED PC Keyboards**
- 5160 84key XT/AT switchable .. 39.
 - 5161 101key XT/AT switchable .. 56.

- LOGITECH**
- Bus Mouse PC/XT/AT New! 99.
 - Serial Mouse PC/XT/AT New! .. 109.

- MICROSOFT**
- Bus Mouse II w/PC Paintbrush ... 108.
 - Serial Mouse w/PC Paintbrush .. 108.

MODEMS • COMMUNICATIONS

- Advanced MODEMS**
- 1200 baud w/software (int) . 49.
 - 2400 baud w/software (int) ... 88.

- INTEL MODEMS**
- 2400 'Classic' int w/switch 155.
 - 2400 MNP internal w/switch ... 194.
 - New! 9600EX ext w/switch call

- MHZ LAPTOP MODEMS**
- 2400/Toshiba 158.
 - 2400 for COMPAQ 168.

- MIGENT MODEMS**
- Pocket Modem 1200 sale! 79.

PRINTERS • CARTRIDGES

- CANON New!**
- Canon BJ10E Inkjet Printer 369.

- PANASONIC**
- 1180/1191 158./255.
 - 1124/1595 call/call

- PACIFIC DATA Postscript**
- Laserjet IIP upgrades from 82.
 - Laserjet II/IID upgrades from . 139.

MONITORS

- SAMSUNG**
- 12" Amber TTL 99.
 - 14" VGA Color(.51) 249.
 - Syncmaster 2/3/4 call

SCANNERS

- COMPLETE PC**
- 400 Hand Scanner 144.
 - Full Page 519.

- DFI**
- H8 3000+ 149.
 - New Color call

SOFTWARE

- Aldus Pagemake 489.
- Ashton Tate dBase IV 478.
- Borland Paradox 488.
- Corel Draw 2.0 323.
- Delta Direct Access 52.
- Excel for Windows 298.
- Intuit Quicken v3.0 37.
- Lantastic call
- Lotus 1-2-3 v2.2 345.
- Lotus 1-2-3 Rel. 3.0 399.
- MicroSoft Windows 3.0 96.
- Word for Windows 298.
- Symantec Q&A v3.0 226.
- SPC Harvard Graphics 296.
- Word for Windows 298.
- WordPerfect 249.
- Xerox Ventura Publisher 528.

Goupil Golf SX

80386SX Portable

Reg. \$6495.

\$2495

Cricket Graph®

Reg. \$199.

\$79

Central Point PC Tools Deluxe 6.0

Reg. \$149.

\$81

Advanced Computer Products, inc.

1310 E. Edinger, Santa Ana, CA 92705 • FAX 714-558-1603 • Customer Service 714-558-1356 • Sales 714-558-8813

We accept MC/VISA/AMEX, no surcharge for credit cards. Your card not charged until we ship. 100% guarantee, defective software replaced immediately, defective hardware repaired or replaced at our discretion. Items subject to availability, prices subject to change without notice. FedEx shipping available for only \$6.95 plus normal ground charges up to 15lbs.

call your order toll-free 800-FONE-ACP



Circle 20 on reader service card



ALL 1990 ACP, inc.

If You Like Our Prices... You'll Love Our Guarantee!

If for Any Reason You're Not Satisfied with Our Product, Return It . . . Anytime, for a Full Refund!

BUSINESS/HOME

- Amortization Table 3.5 (1115)** — Handles all types.
- Express Check 4.03 (2 disks) (1110)** — A great program to manage your checking accounts! Even prints checks!
- Home Inventory 4.0 (3137)** — Helps you keep track of everything you own. Great for insurance.
- In-Control 3.0 (2 disks) (1220)** — Keep track of clients, customers, prospects and much more.
- Names & Dates 3.3 (2 disks) (3140)** — Great personal information manager! Keeps track of anything and everything.
- Takin' Care of Business (6 disks) (1230)** — Easy to use and loaded with features. General Ledger, Accounts Receivable/Payable, invoicing, check printing and much more. Professional accounting for non-accountants. (HD)
- Personal Budget Tools 1.6 (3987)** — Great way to plan your household budget. Powerful and easy to use.
- PC-Calc 2.0 (3 disks) (3410)** — A very powerful spreadsheet.
- PC-File 5.0 (3 disks) (1330)** — An excellent dBase compatible data base program. Very powerful! (HD)
- PC-Write 3.03 (3 disks) (3820)** — Easy to use word processor that is loaded with features including spell checker.

CLIP ART (PCX)

Note: These disks contain clip art in PCX (PC-Paintbrush) format. They can be used with WordPerfect 5.0/5.1, Pagemaker, Ventura Publisher, Windows or programs that can read PCX files.

- Accent/Dingbats (2617)**
- Birds (2 disks) (2620)**
- Business (2 disks) (2630)**
- Children (2614)**
- Church (2615)**
- Education (2 disks) (2640)**
- Family (3 disks) (2650)**
- Food (2 disks) (2660)**
- Headlines (2 disks) (2670)**
- Holidays (2616)**
- Houses (3 disks) (2680)**
- Ladies (2 disks) (2690)**
- Men (2 disks) (2750)**
- Misc. (4 disks) (2760)**
- Sports (2 disks) (2790)**
- Wedding (3 disks) (2850)**

EDUCATION

- Amy's First Primer (1717)** — Six different learning programs for children ages 4-8. (CGA)
- The DOS Learning System (1417)** — Learn how to use DOS with this great program. Covers all versions of DOS 2.0-4.01.
- Funnels & Buckets (1727)** — Teach children basic math skills!
- Lotus Learning System (2 disks) (1420)** — Learn Lotus 2.0 easily and quickly.
- Play 'n' Learn 2.12 (1735)** — A collection of six programs for children 18 months to 4 years. (CGA)
- Typing Teacher (1425)** — Five great programs designed to improve the speed and accuracy of your typing!
- World 2.99 (1849)** — The ultimate globe! Learn about cities, countries with this computerized globe. (CGA)
- Tutor DOS (4 disks) (1450)** — The ultimate DOS tutorial. Everything you wanted to know about DOS and more! (HD)

GAMES

- Arcade Games 1 (1811)** — Pac-man (3 versions!), Hopper, Space Invaders, Janitor Joe and Fusion (Tetris variation). (CGA)
- Arcade Games 2 (1812)** — Double Blocks (another Tetris variation), Q-Bert, Breakout, Beast and others. (CGA)
- BassTour 4.2/BassMap (2 disks) (2350)** — The ultimate fishing game. Loads of fun for everyone! (CGA)
- Ed's Chess 1.99 (2425)** — The best chess game available anywhere. (It beat Chessmaster 2000.)
- Kids' Games (2317)** — Fun for the under-12 set.
- Mazes, Mazes, Mazes (2 disks) (2440)** — The name says it all!
- Miramar Flight Simulator 2.0 (2319)** — Go to Top Gun flight school and pilot an F-18 into combat. (CGA)
- Strategy Games (2461)** — Risk, Othello, Chess, Nyet (Tetris clone), and others. (CGA)
- Tommy's Monopoly (2445)** — A great rendition of the classic game. Great color and sound! (CGA)

MISCELLANEOUS

- Banner & Sign Makers (3215)** — Make banners or signs for any occasion. Works with any printer.
- Brother's Keeper 4.5 (3 disks) (3120)** — Excellent, full-featured genealogy program that's easy to use.
- FormGen 4.0/FormFill 1.2 (2 disks) (3240)** — A very versatile form generator and form filler. Create and/or fill out any kind of form for home or business on any printer. Includes numerous sample forms to get you started!
- Mealmaster 6.14 (2 disks) (3160)** — A complete recipe filer. Comes with over 450 recipes to start you off.
- Mr. Label 5.0 (3235)** — Powerful & versatile label maker.
- Online Bible 4.0 (13 disks) (3170)** — Complete KJV Bible. Includes Greek/Hebrew Lexicon & Cross Reference. (HD)
- PC-Key-Draw 3.75 (4 disks) (2780)** — An exceptionally powerful graphics program. Comes with a large collection of ready-made graphics. (CGA) (HD)
- Planoman 4.0 (3147)** — Create and play music on your PC!
- Resume Shop 2.1 (3136)** — Great program to help you organize and print out a resume!
- SpeedRead (1845)** — Learn to speed read!
- WillKit (3157)** — Prepare a will that is valid in all 50 states.

UTILITIES

- Automenu 4.5 (3515)** — Latest version of the most popular menuing program of all time!
- Best DOS Utilities (2 disks) (3520)** — Essential utilities for DOS. Screen blankers, file finders, numerous other handy utilities that will save you time. Very easy to use!
- Epson Utilities (2 disks) (3210)** — A collection of utilities for Epson and Epson-compatible printers.
- Vaccines and Virus Killers (3627)** — A collection of utilities designed to protect your system from viruses! This disk will find (and destroy!) over 200 different viruses.

WORDPERFECT 5.0/5.1

- WordPerfect 5.0/5.1 Art & Graphics Vol. 1 (2 disks) (3710)** — Over 100 graphics for WordPerfect 5.0/5.1.
- WordPerfect 5.0/5.1 Art & Graphics Vol. 2 (2 disks) (3770)** — Over 100 additional graphics for WordPerfect 5.0/5.1.
- WordPerfect 5.0/5.1 Art & Graphics Vol. 3 (2 disks) (3780)** — Over 100 more graphics for WordPerfect 5.0/5.1.
- WordPerfect 5.0/5.1 Tools (2 disks) (3750)** — 17+ great utilities for WordPerfect 5.0/5.1.
- WordPerfect 5.1 Learning System (3 disks) (4230)** — Learn how to use WordPerfect 5.1 easily and quickly with this great tutorial (WordPerfect 5.1 is NOT required.)
- WordPerfect 5.1 Macros (2 disks) (4220)** — Over 100 helpful macros for WordPerfect 5.1.
- WordPerfect 5.0 Learning System (2 disks) (3730)** — Learn how to use WordPerfect 5.0 easily and quickly with this great tutorial (WordPerfect 5.0 is NOT required.)
- WordPerfect 5.0 Macros (2 disks) (3720)** — Over 100 helpful macros for WordPerfect 5.0.
- PC-Draft II & III (2 disks) (3760)** — Create clip art & graphics for WordPerfect 5.0/5.1. (CGA) (HD)

WINDOWS 3.0

Note: These disks require Windows 3.0.

- Active Life 1.2 (4536)** — A great "Personal Information Manager" that will keep track of all sorts of important information.
- Almanac (4535)** — The ultimate calendar for Windows!
- Checkbook (4559)** — Great checkbook manager.
- Command Post 7.0J (4537)** — Great file manager and menu system that is customizable to your needs & preferences.
- Games for Windows (4538)** — Great games including Klotz (Tetris Clone), Worm War (Centipede clone), Atmoids, Lunar Lander, Checkers, Backgammon and more!
- Hyperdisk 4.11 (4539)** — Make Windows run 2 to 10 times faster! (Will also help other programs run faster.)
- Icons & IconDraw (2 disks) (4550)** — Over 1100 icons, and IconDraw so you can modify them or create your own!
- Toolbox Programs (2 disks) (4540)** — Applications and utilities for the Windows Toolbox.
- Utilities for Windows (3 disks) (4510)** — 40+ utilities that will help you get the most out of Windows, as well as making Windows easier to use!
- Wallpaper for Windows (4 disks) (4520)** — If you want a different background with Windows, this set offers over 80 different backgrounds.

(CGA) Requires Color Graphic Adapter (HD) Requires Hard Disk

*All orders shipped same day.
Free catalog of over 200 programs
with every order or by request.*

Unconditional Money-Back Guarantee!

\$3.50

per disk
10 disks or more

or

4.00

per disk
1-9 disks

**Order Toll Free
1-800-876-3475**

**Information: 503-776-5777
Fax: 503-773-7803**

Circle 229 on reader service card

Name _____

Business/Company (if applicable) _____

Address _____

City/State/Zip _____

Phone _____

Method of Payment: Check/Money Order Visa/MasterCard COD

All checks must be payable in US funds. We cannot accept Eurocheques.

Disk size: 5 1/4" 3 1/2" (add \$1 per disk if you require 3 1/2")

No. Disks _____ x \$ _____ = \$ _____

Shipping \$ **\$3.00**

U.S. Only { Airborne Express, Overnight (add \$6) \$ _____

UPS 2nd Day Air (add \$4) \$ _____

COD (add \$4) \$ _____

Foreign (add \$4) \$ _____

TOTAL ORDER: \$ _____

Card No. _____ Exp. Date _____ Signature _____

Reasonable Solutions

2101 West Main, Medford, Oregon 97501
Toll free 800-876-3475 or 503-776-5777, Fax 503-773-7803





If You're Not Buying From **Bulldog** — You're Barking Up The Wrong Tree!

BULLDOG SYSTEMS

286 12 MHZ 1 mg Ram, 1.2 floppy	\$699
286 16 MHZ 1 mg Ram, 1.2 floppy	749
286 20 MHZ 1 mg Ram, 1.2 floppy	819
386 20 MHZ 1 mg Ram, 1.2 floppy	1155
386 25 MHZ 1 mg Ram, 1.2 floppy	1215
386-25 CACHE 4 mg Ram, 1.2 floppy	1895
386-33 CACHE 4 mg Ram, 1.2 floppy	2250
486-25 CACHE 4 mg Ram, 1.2 floppy	3199

FREE shipping on all **BULLDOG** systems prepaid with a Cashiers Check, Money Order or Bank Wire!

IBM

PERSONAL SYSTEM 2	
Model 70 Portable 60/120	5585/5995
Model 30 286 w/20mb	1775
Model 50 30/60	2119/2495
Model 70 60/120	3989/4639
Model 80 40/70	3569/3999
Model 80 300	6799
Model 55 SX 30/60	2695/2999

COMPAQ

Desk Pro 286 Model	1629
Desk Pro 286E 40/100	2279/2550
Desk Pro 386S 40/100	2445/2705
Desk Pro 386S/20 40/100	2925/3179
Desk Pro 386/20E 40/100	4250/4510
Desk Pro 386/25E 40/100	5239/5489
386/33, 486/25, System Pro	Call
LTE, SLT, Portables	Call

AST SYSTEMS

AST Premium 286 Model 70	1075
AST Premium 386 Model 300C	2899

PANASONIC

FX 1925S w/1mb, 40mb hard drive, Super VGA card & monochrome VGA monitor	1575
--	------

LAPTOPS

You can take these lightly!

Toshiba 1000	655
Toshiba 1000SE	1105
Toshiba 1000XE	1595
Toshiba 1200HB	1759
Toshiba 1200XE	2195
Toshiba 1600 20/40	2310/2639
Toshiba 3100SX 40/80	4099/4469
Toshiba 3100E 40	2934
Toshiba 3200/3200SX	3059/4129
Toshiba 5200 40/100	4915/5339
Panasonic CF 150B	765
Atari Portfolio Palmtop	249

Pacific Rim external drives available for most Laptops - Call for prices! Kingston Memory for most Systems. Call for pricing!

FAX

Okii Fax	Call!
Toshiba 3450/3750	659/729
Toshiba 4400	554
Epson 3000	625
Everex 24/96 int./ext.	\$265/319

PRINTERS

EPSON	
LX 810	\$173
FX 850/1050	289/399
LQ 510	269
LQ 850/950	435/439
LQ 1010/1050	369/589
LQ 2550	859
EPL 6000	799
LQ 860	549
DICONIX	
Diconix 150+	345
SEIKO	
Smart Label	189
OKIDATA	
172	199
182 Plus	229
320/321	319/449
380	285
390 Plus/391 Plus	449/605
393 Plus	955
393 Color Plus	1069
OKI LASER	
840/820	2039/1359
800/400	1020/655
TOSHIBA	
Express 420/440	319/449
NEC	
2000 XE	265
6200/6300	479/639
Silent Writer II-90	1659
PANASONIC	
1124	279
1180	149
1191	229
1624	359
1695	389
4420	779
4450i	1199
4455	1999

HEWLETT-PACKARD	
Laser Series II/Laser Series III	1179/1599
Laser II D	Call!
Laser II P	999
Desk Jet Plus	559

LASER ACCESSORIES	
Pacific Data 1 mb/2mb	159/219
Pacific Data 25-N-1 for HP/II/HP/III	259
Pacific Data 1 mb/2mb IIP/III	139/209
Pacific Bar Code	315
Pacific Outlines	189
Pacific Page	339
Plotter in a Cartridge	229
Headlines in a Cartridge	199
Pacific Print	219

CANON	
BJ 130E	639
LB P4	955
LBP 8 III	1799
BJ 10E	339

MODEMS	
<i>The Great Communicators!</i>	
Everex 1200 int.	69
Everex 2400 int./ext.	110/169
Everex 2400 ext. w/mmp	199
Hayes 1200B/2400B	199/289
Hayes 1200/2400	295/345
Megahertz 24 for Zenith	139
Megahertz 24 for Toshiba	149
Practical Per. 2400 int.	127
US Robotics 2400/9600	139/575
ViVa 24 int./ext.	79/110
Cardinal 2450 int. w/Flashlink	79
Cardinal 2400 ext.	99
Cardinal 2450 int. w/MNP	129
Cardinal 2400 ext. w/MNP	139
Cardinal 2250 F. Sendfax	110
Cardinal 9650 V. 32 int. w/MNP	459

GRAPHIC CARDS	
DFI Mono/Color	39
Everex Micro Enhancer	59
Genoa Super Hi Res.	145
Genoa 6300	199
Genoa 6400	239
Hercules Graphics Card	179
Hercules InColor	145
Hercules VGA	119
Orchid Pro Designer/e	189
Orchid Pro Designer II w/512K	219
Paradise VGA Plus	135
Paradise VGA Plus 16	169
Paradise 1024 w/512K	219
STB Multi Res II	155
Vega VGA	139
V Ram w/512K	349
Video 7 VGA 1024i 256K/512K	169/219
ATI Wonder EGA 800 +	129
ATI VGA w/256K/512K	209/259
NEC Graphics Engine 256K	935
Cardinal VGA 100/200	79/89
Cardinal VGA 300/400	99/109
Cardinal VGA 500/600	125/159

TAPE DRIVES

Everex Excel 40F/60F	225/245
Everex 60 mb int./ext. Teac	595/699
Everex 60 mb int./ext. Wangtech	679/799
Archive 40 mb int./ext.	249/409
Archives FT 60 int. or ext. w/card	589
COLORADO MEMORY SYSTEMS	Call!

NETWORK

Call for the best pricing on all your networking needs!

ARC Net PC 130	99
ARC Net PC 130E	129
ARC Net Active Hub/Passive Hub	289/79
ARC Net PC 500FS	305
ARC Net PC 500WS	235
Lantastic 2mb Starter Kit/Adapter	389/179
Lantastic 10mb Ethernet Starter Kit/Adapter	519/249
Western Digital Ethernet Plus	179
Gateway 3 Com, Thomas Conrad and Western Digital	Call for Price!

DRIVES

Conner 40/110	389/649
Seagate 20mb w/contr. ST225	239
Seagate 30mb w/contr. ST238	249
Seagate 40mb for AT ST251-1	249
Seagate 80mb ST 4096	549
Ext. Drives for PS/2 360/1.2	169/199
Toshiba 3-1/2" 720K int.	79
Toshiba 3-1/2" 1.44mb int.	89
Toshiba 5-1/4" 360K int.	75
Toshiba 5-1/4" 1.2mb int.	79
Bernoulli Box II 5-1/4" 20mb int.	1009
20mb ext. w/card	1309
dual 20 mb ext. w/card	1979
44mb internal w/card	1118
Plus Hard Card 40	549
Plus Hard Card 20	489
Plus Hard Card II 40/80	389/595
Western Digital IDE 40	299
Maxtor 40 meg #805/AT	299

MICE & MISC

Microsoft Mouse w/windows 3.0	159
Microsoft Mouse w/PC Paintbrush	109
Mousesystems Mouse	89
Logitech Scan Man	179
Logitech Series 9 Serial/Bus	69/79
Logitech Track Man Serial/Bus	79/85
Summasketch 12x12	339
Summasketch 12x18	579
Marstek 105 w/Paintbrush and OCR	169
Marstek 800 w/Paintbrush and OCR	209
Epson ES 300 C Color Scanner	1450

SOFTWARE

Aldus PageMaker	\$495
Clarion ProDeveloper	449
Clipper 5.0	499
Corel Draw	325
Dbase IV	489
Enable O/A	415
Foxbase	195
Freelance Plus	325
Framework III	455
Harvard Graphics	299
IBM DisplayWrite V	229
Lotus 2.01/2.2	299/345
Lotus 3.1	399
Lotus Symphony	489
Microsoft Word	219
Microsoft Word for Windows	319
Microsoft Excel	299
Multimate 4.0	249
Peachtree III Complete	145
Paradox	449
Q & A	225
Super Calc V	299
Ventura Desktop Publ.	535
Word Perfect 5.1	249
WordStar 5.5/6.0	189/259
WordStar 2000 +	279
Peachtree Double Bonus	219
Microsoft Windows 3.0	109

Lots of other software available and all the prices are byte size!

TAX SPECIALS

Turbo Tax	41
Managing Your Money	119
J. K. Lasser's Your Income Tax	41
Swift Tax PC 1990	39
Tax Cut	49

MULTI FUNCTION BOARDS

AST 286 6 Pack w/OK/w/1mb	95/169
AST 6 Pack Plus w/384K	145
AST 5251-11 Enhanced	499
AST Rampage 286	319
Everex Mini Magic w/o K	75
Intel Above Board w/512K	355
Intel Above Board PS w/512K	379
Intel Inboard 386 w/adapter	985
Intel Inboard 386 for PC w/1 mb	519
Intel Above Board II Plus	299
Intel Above Board +8 w/2mb	529
Intel Connection CoProcessor	509
Irma Board III	415
Logical Connection 256/512K	386/465
Orchid Ramquest 16/32 w/o K	289
Orchid Ramquest 8-16 w/1 meg.	315
Orchid Tiny Turbo 286	205
Orchid Tiny Turbo Extra	249
Orchid Tiny Turbo AT	359
Expanz	159

MATH CO-PROCESSORS

INTEL	CYRIX
8087-3	387-16
8087-2	387-20
287-8	387-25
387-10	387-33
387-16	387-SX16
387-20	387-SX20
387-25	1mb Simm 80NS
387-33	256K Simm 80NS
387-SX	Simm, Dram and Sipp.
287 XL/XLT 195	Call

MONITORS

Get The Picture!

NEC	
MULTISYNC	
2A/3D	499/659
4D/5D	989/2350
IBM	
8503	249
8512/8513	499/579
PANASONIC	
1381/1391	397/499
SAMSUNG	
14" VGA Flat White/Color	125/359
MAGNAVOX	
Amber 776/RGB80 8762	89/255
MITSUBISHI	
Diamond Scan	499
HL6605-15"/HL6905-19"	1109/1919
ZENITH	
1492	629

All prices are cash prices! Retail outlet may have slightly higher prices.

Policy: Add 3 1/2% (minimum \$11) shipping and handling. Larger shipments may require additional charges. Personal checks req. 2 weeks to clear. For fast delivery use your credit card or send cashiers check or bank money order. Georgia residents add sales tax. All prices are USA prices and are subject to change and all items are subject to availability. Defective software will be replaced with same item only. Hardware will be replaced or repaired at our discretion within the terms and limits of the manufacturer's warranty. We do not guarantee compatibility. All sales are final and returned shipments are subject to a restocking fee. A return will be issued at a USA number for your authorization. Call for details.

WE ACCEPT
C.O.D.
Purchase Order
Approved Credit



SALES HOT LINE
1.800.438.6039

International Customers: 1.404.860.7364

FAX: 1.404.860.7358

MMAC

PHOENIXBIOS



BULLDOG
COMPUTER PRODUCTS

REPLACE YOUR CASH REGISTER!



NEW VERSION 2.0
JUST \$179.95!
FREE INSTANT!

Business Solutions for
Retail Stores, Liquor Stores,
Video Stores, Hair & Nail
Salons, Auto Repair Shops...

Replace your cash register with the MicroBiz Controller Series... the #1 point-of-sale system.

Flexible Enough to Work for You

You didn't go into business for yourself to do things someone else's way. Fortunately, we did. We've already computerized thousands of different retail stores, video stores, auto repair centers, beauty salons, clothing stores, health clubs, pet, furniture, liquor, and hardware stores So we've learned how to make **The Retail Controller Jr.** flexible enough to do the job for you by building in a number of custom-designed options. Use it with or without a bar code reader, cash drawer, or receipt printer. And, if at a later date you need the additional features of **The Retail Controller Sr.** (accounts receivable, purchase orders, layaway plans), you can upgrade easily and economically at any time.

"Update . . . or Evaporate!"

That's how one of our customers put it. And it's true. In today's increasingly competitive retail environment, store owners need better ways to control their inventory, streamline their operation, and keep in touch with their customers. **The Retail Controller, Jr.** is a powerful point-of-sale program that's so cost-effective and easy to use, you can't afford *not* having it!

Replace Your Cash Register with a Cash Generator!

Can your cash register tell you what's in stock, control your inventory, check and correct prices automatically, provide quicker service, get more repeat business, and optimize your purchasing? **The Retail Controller Jr.** will help you leapfrog past your competition, reduce shrinkage, billing errors, costs, and time. It puts the profit-building speed, accuracy, and power of microcomputers to work for you. It's like replacing your cash register with a cash generator!

Record Control in Record Time

With **The Retail Controller Jr.**, you'll make smarter management decisions because you'll have pushbutton-quick, down-to-the-penny information. Operating at your sales counter, the program captures vital customer and sales data, organizes it, and presents it in neat, accurate reports that eliminate guesswork and improve control.

Bar Code Easy, Feature Packed

The Retail Controller Jr. is designed for first-time computer users. Even a brand new clerk can learn how to process transactions in minutes. The speed and efficiency of barcoding (optional) can keep keystrokes to a minimum. Pull-down menus, on-screen help windows, and "point

and select" customer and product lookup all help to make the program almost intuitively easy to use. All transactions are performed from just one Work Screen. Yet it incorporates many of the features you'd expect to find only in systems costing hundreds of dollars more, features like:

- ✓ automatic credit card verification
- ✓ bar code compatibility
- ✓ color/size matrix
- ✓ multiple pricing levels
- ✓ tracks inventory by size/color/style
- ✓ mailing labels
- ✓ tracks customer history
- ✓ daily closeout reports
- ✓ accepts split tender
- ✓ view in-stock status
- ✓ pull down menus
- ✓ pop-up windows
- ✓ source code available
- ✓ 99 levels of password protection
- ✓ tracks promotional sales
- ✓ prints bar code labels
- ✓ reorder reports
- ✓ extensive sales reports
- ✓ item/invoice discounts
- ✓ tracks sales by employee
- ✓ set limited-time promos
- ✓ links to Quicken, ACCPAC and other popular accounting programs
- ✓ receiving reports
- ✓ pop-up calculator

- ✓ 40- or 80-col. receipts
- ✓ built-in word processor
- ✓ for any IBM PC or compatible with hard disk



"I can't imagine running my shop without it. The program gives me much better control over all my items and has more than paid for itself."

—G. Truglia, Car-Tune, New City, NY

It Pays for Itself — or You Don't. Guaranteed!
 We believe in our product, and thus offer a **100% No-Risk Guarantee**. If you are not satisfied with any unregistered MicroBiz program for any reason, you may return it within 30 days for a complete refund.

- **The Retail Controller Jr.** \$179.95
- **The Video Store Controller Jr.** 395.00
- **The Auto Repair Shop Controller Jr.** 395.00
- **Cash Drawer** 395.00
- **Receipt Printer** 495.00
- **Cash Drawer with Receipt Printer** 695.00
- **Bar Code Reader** 399.00
- **ACCPAC Easy General Accounting** 89.00
- **ACCPAC Easy Payroll** 89.00

(The Controller Jr. Series automatically links to Computer Associates' ACCPAC modules)



Call for prices on Senior and Multi-user versions. Ask about **The Rental Store Controller, Rental-Ease Property Management, and The Restaurant Controller**. On-site demonstrations of all packages are available at your local MicroBiz dealer.

CALL FOR DEALER PRICING

Prices and specifications subject to change. NY residents add sales tax



MicroBiz
 500 Airport Executive Park
 Spring Valley, NY 10977
 Ph:(914)425-9500 Fx:(914)425-4598



1-800-637-8268



MicroBiz . . . programming your business for success.

Circle 168 on reader service card



TAKING IT HOME

The practical guide to home/office computing

Hardware security: Make sure your computer stays at home.

Steve Bass

My wife and I got home late that afternoon, and as soon as we opened the door, we knew something was wrong. I looked around. I *knew* we hadn't left the dresser drawer open. A quick inspection of the house confirmed my worst fears: We'd been burglarized. Again.

If it's happened to you, you know the feeling of outrage at the thought of some jerk rummaging through your home, leaving you to wade through the mess and figure out what isn't there. Some things you don't miss for months.

Once again, the burglar got all the usual stuff—cameras, silver, jewelry—but not the computer. The first burglary was all the warning I needed to make that small corner of my life burglarproof. I can replace my camera at any discount electronics warehouse. But redo my custom computer configuration? Make a new Intel 386 accelerator card, Intel AboveBoard, CAD video card, Plus Hardcard, and Bernoulli Box all work together again? No thanks.

The first burglar jimmied the back door to get in and lugged everything out the same way, so we installed key-only deadbolts on the doors and extra locks on the windows. This time, the burglars came in through the only window I had

thought was too high to reach and hadn't secured. They took only what they could toss out the window, and that didn't include my computer (although they made a valiant attempt). But they hadn't brought along cable cutters, and those are what's needed to walk off with my system these days, thanks to my Kablit locks and cables.

A burglar isn't likely to spend the time. The police say most home burglaries take less than 10 minutes. The thief



wants to get in, grab the easy items, and get out. My strategy was to make my \$10,000 system a whole lot less attractive than the \$300 TV set. Burglars don't understand password protection, so I needed a hardware solution.

I chose Kablit because it's inexpensive (under \$50), easy to install, and just as easy *for me* to dismantle. That's important because I'm constantly opening the computer case to install and review new equipment. The Kablit kit includes a 10-foot cable that passes through fasteners whose connections are inaccessible once the cable is locked. The cable can then be threaded through a fastener glued to the desk, but I found a way to wrap it between the legs of the desk so that it can't be removed. The cable loop

is closed with a specially designed and reinforced Master padlock.

I also looked at the Care-Free Security System, but its cable looked too thin and its padlock too small. Anchor Pad goes to the other extreme, offering substantially more security via a series pick-resistant locks and a metal cover plate. But once its adhesive base plate is in place, forget about moving it around.

I secured only the expensive items with Kablit: my beefed-up 286 clone, the Sony multiscan monitor, the Hewlett-Packard laser printer, the U.S. Robotics modem. I didn't want to encumber the Northgate keyboard with a cable.

Living in a big city is challenging. The evening of the second burglary, a sheriff's deputy knocked on the door. He was the same detective who had come the time before and belittled my slow XT. Now I have a 286, but he still wasn't impressed.

"Glad you got rid of the XT," he drawled. "You oughta look at a 386, though. I got one, and it sure is fast."

If only he could convince my wife. ●

Family therapist Steve Bass is president of Pasadena IBM Users Group.

Anchor Pad \$139; Anchor Pad Int'l; 800/426-2467, 800/626-2467 California, 805/658-6432 (fax)
Reader service no. 604

Care-Free Security System \$29.95; Byte Brothers; 206/271-9567, 206/228-8496 (fax)
Reader service no. 603

Kablit \$34.95 to \$49.95; Secure-It, Inc.; 800/451-7592
Reader service no. 602

For more information about all products in this article, circle reader service no. 901.

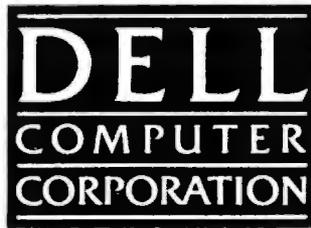
FINALLY. A COMPUTER COMPANY WITHOUT THE PUSHY SALESPEOPLE.

Dell's new free catalog has everything you need to buy a computer, except pushy salespeople. It tells you about

services, and reasons we've won eight out of eight *PC Week* Polls of Customer Satisfaction for personal computers.

<p>TO ORDER, CALL 800-873-1130 HOURS: 8 AM-9 PM CT M-F 8 AM-4 PM CT ON SAT.</p> <hr/> <p>IN CANADA, CALL 800-387-5752</p>

our new computers, prices,



Call (800) 873-1130 now or return this card today. In Canada, call (800) 387-5752.

GET OUR FREE CATALOG NOW.

Return this postage-free card and we'll mail you the new Dell Catalog with information on our new high-performance i486™ EISA-based systems. Plus, information on our award-winning laptop, 286 and 386™ SX and 386 systems.

Please have a Dell Representative call me.

Name: (M) _____
Please Print

Title: _____

Company: _____

Address: _____
If Applicable

City: _____ State: _____ Zip: _____

Type of Business: _____

Approx. # of Employees in Company: _____

Home Phone: (_____) _____

Business Phone: (_____) _____

Fax #: (_____) _____

1. Which products are you most interested in?
- | | |
|--|--|
| <input type="checkbox"/> 286-based systems | <input type="checkbox"/> UNIX®-based systems |
| <input type="checkbox"/> 386-based systems | <input type="checkbox"/> Laptops |
| <input type="checkbox"/> 386SX-based systems | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> 486-based systems | |

2. Are you interested in computer products for:

Home Business Resale

3. How many PCs does your company plan to purchase in the next twelve months?

<u>Quantity</u>	<u>Timeframe</u>	<u>Quantity</u>	<u>Timeframe</u>
_____	Less than 1 month	_____	6-12 months
_____	1-3 months	_____	More than 12 months
_____	3-6 months		

4. What do you plan to use computer products for?

5. How many PCs do you have installed now at your company?

6. Are you interested in leasing? Yes No

GET OUR FREE CATALOG NOW.

Return this postage-free card and we'll mail you the new Dell Catalog with information on our new high-performance i486™ EISA-based systems. Plus, information on our award-winning laptop, 286 and 386™ SX and 386 systems.

Please have a Dell Representative call me.

Name: (M) _____
Please Print

Title: _____

Company: _____

Address: _____
If Applicable

City: _____ State: _____ Zip: _____

Type of Business: _____

Approx. # of Employees in Company: _____

Home Phone: (_____) _____

Business Phone: (_____) _____

Fax #: (_____) _____

1. Which products are you most interested in?
- | | |
|--|--|
| <input type="checkbox"/> 286-based systems | <input type="checkbox"/> UNIX®-based systems |
| <input type="checkbox"/> 386-based systems | <input type="checkbox"/> Laptops |
| <input type="checkbox"/> 386SX-based systems | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> 486-based systems | |

2. Are you interested in computer products for:

Home Business Resale

3. How many PCs does your company plan to purchase in the next twelve months?

<u>Quantity</u>	<u>Timeframe</u>	<u>Quantity</u>	<u>Timeframe</u>
_____	Less than 1 month	_____	6-12 months
_____	1-3 months	_____	More than 12 months
_____	3-6 months		

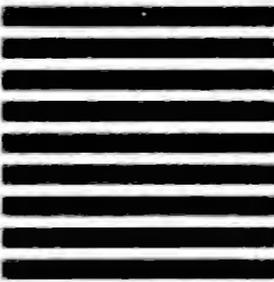
4. What do you plan to use computer products for?

5. How many PCs do you have installed now at your company?

6. Are you interested in leasing? Yes No



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 6745 AUSTIN, TEXAS

POSTAGE WILL BE PAID BY ADDRESSEE

DELL COMPUTER CORPORATION
DEPT DH
9505 ARBORETUM BLVD
AUSTIN TX 78759-9860



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 6745 AUSTIN, TEXAS

POSTAGE WILL BE PAID BY ADDRESSEE

DELL COMPUTER CORPORATION
DEPT DH
9505 ARBORETUM BLVD
AUSTIN TX 78759-9860



**WE'RE
GIVING AWAY
THE STORE.**
For A Free Catalog Of
Dell's New Computers, Send This Card.

386 and 486 are trademarks of Intel Corporation. UNIX is a registered trademark of AT&T in the United States and other countries.
©1991 Dell Computer Corporation. All rights reserved.

HERE'S OUR NEW STORE, SO YOU'LL NEVER HAVE TO GO TO THEIR STORE AGAIN.

When you buy a computer from a typical computer store, here's what you get:

A beefy retail mark-up.

Pressure to buy things you don't want.

That crummy feeling of not knowing what you're getting, because the salesman isn't sure what he's selling.

And, when there's a problem, some guy with a screwdriver taking your computer apart.

When you call Dell, on the other hand, here's what you get:

A frank talk with computer experts about what you need, and a recommendation about the best overall package for you.

Custom configuration, with options including monitors, memory sizes,

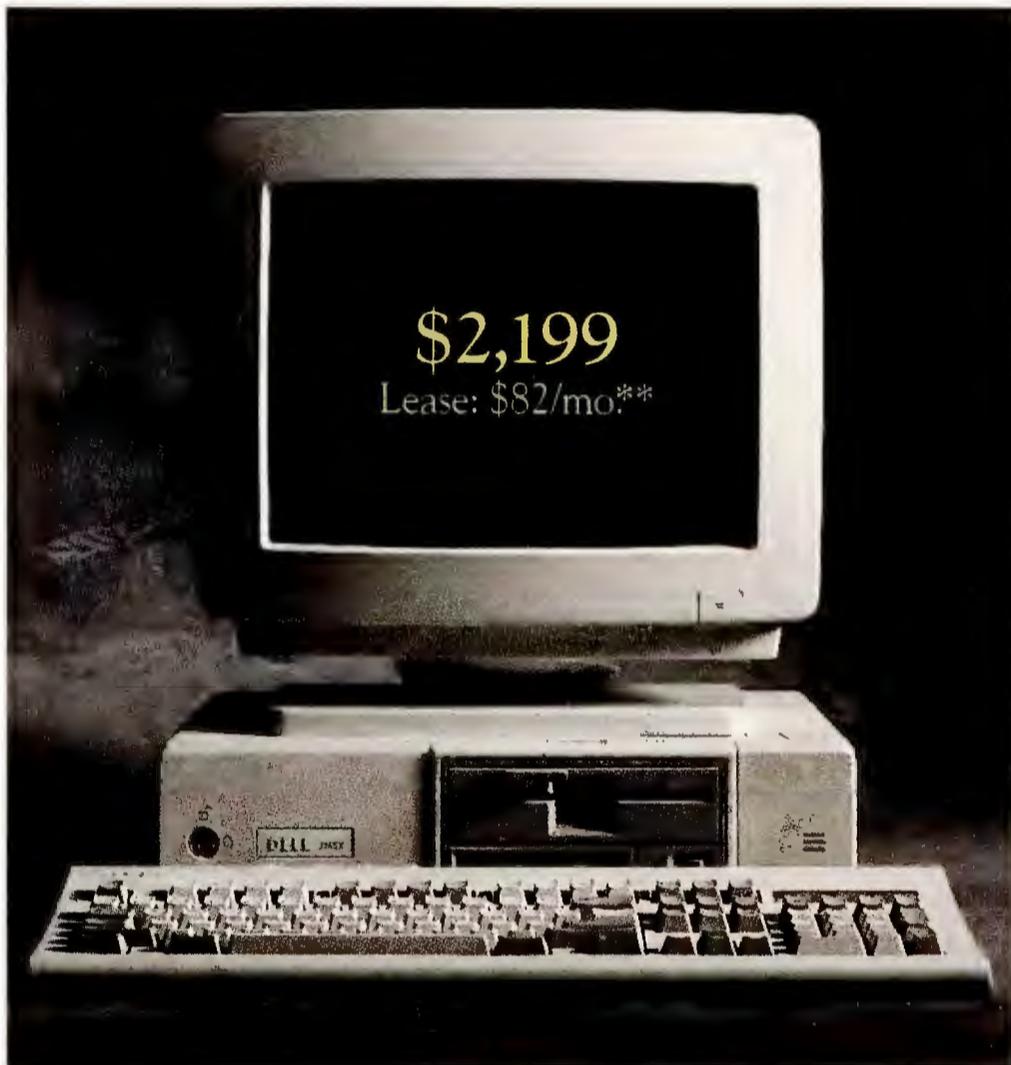
software,
accessories and
peripherals.

Service —

consistently voted the best in the industry —
by computer experts who know our computers
inside and out.

A variety of financing and leasing[◇] options.

A firm promise to perform a fully configured



THE DELL SYSTEM[®] 316SX 16 MHz 386[™] SX.

STANDARD FEATURES:

- Intel[®] 80386SX microprocessor running at 16 MHz. • Standard 1 MB of RAM, optional 512 KB, 640 KB or 2 MB of RAM* expandable to 16 MB (8 MB on system board). • Page mode interleaved memory architecture. • LIM 4.0 support for memory over 640 KB. • Socket for Intel 80387SX math coprocessor. • 5.25" 1.2 MB or 3.5" 1.44 MB diskette drive. • 1 parallel and 2 serial ports. • Enhanced 101-key keyboard. • 3 full-sized 16-bit AT expansion slots available • 12-month On-Site Service Contract provided by Xerox.[△]

1 MB of RAM* 20 MB VGA Monochrome System \$1,749
2 MB of RAM* 40 MB VGA Color Plus System \$2,199

20, 40, 80, 100 and 190 MB hard drive configurations available.

Free Windows offer applies with minimum configuration of 2 MB of RAM,
40 MB hard drive, VGA monitor.

AD CODE 11DA1

systems test, and ship by two-day air standard.

A 30-day, no questions asked, money back
guarantee.

A one-year limited warranty.

And a great price.

Call us now. Why waste a trip when everything
you need is right in front of you?

To order, call
800-289-1410

HOURS: 6 AM-9 PM CT M-F 8 AM-4 PM CT SAT

IN CANADA, CALL 800-387-5752



THE NEW DELL SYSTEM 433TE
33 MHz EISA i486™

• i486 microprocessor running at 33 MHz with 128 KB external cache.
****Commercial Lease Plan. Lease for as low as \$377/month.**
330 MB Super VGA Color System (800 x 600) \$10,499
Price listed includes 4 MB of RAM.*
80, 100, 190, 330 and 650 MB hard drive configurations available.



THE NEW DELL SYSTEM 425TE
25 MHz EISA i486.

• i486 microprocessor running at 25 MHz.
Commercial Lease Plan. Lease for as low as \$278/month.
190 MB Super VGA Color System (800 x 600) \$7,499
Price listed includes 4 MB of RAM.*
80, 100, 190, 330 and 650 MB hard drive configurations available.



THE DELL SYSTEM 433E
33 MHz EISA i486.

• i486 microprocessor running at 33 MHz.
Commercial Lease Plan. Lease for as low as \$307/month.
100 MB Super VGA Color System (800 x 600) \$8,499
Price listed includes 4 MB of RAM.*
80, 100, 190, 330 and 650 MB hard drive configurations available.



THE DELL SYSTEM 425E™
25 MHz EISA i486.

• i486 microprocessor running at 25 MHz.
Commercial Lease Plan. Lease for as low as \$235/month.
100 MB Super VGA Color System (800 x 600) \$6,499
Price listed includes 4 MB of RAM.*
80, 100, 190, 330 and 650 MB hard drive configurations available.



THE NEW DELL SYSTEM 333D
33MHz 386.

• Intel® 80386 microprocessor running at 33 MHz with 64 KB external cache.
Commercial Lease Plan. Lease for as low as \$145/month.
80 MB Super VGA Color Plus System (800 x 600) \$3,999
Price listed includes 2 MB of RAM.*
40, 80, 100, 190, 330 and 650 MB hard drive configurations available.



THE NEW DELL SYSTEM 325D
25 MHz 386.™

• Intel 80386 microprocessor running at 25 MHz with 32 KB external cache.
Commercial Lease Plan. Lease for as low as \$112/month.
40 MB VGA Color Plus System \$2,999
Price listed includes 1 MB of RAM.*
40, 80, 100, 190, 330 and 650 MB hard drive configurations available.



THE DELL SYSTEM 320LX
20 MHz 386SX.

• Intel 80386SX microprocessor running at 20 MHz.
Commercial Lease Plan. Lease for as low as \$104/month.
40 MB VGA Color Plus System \$2,799
Price listed includes 1 MB of RAM.*
40, 80, 100, 190, 330 and 650 MB hard drive configurations available.



THE DELL SYSTEM 210
12.5 MHz 286.

• Intel 80286 microprocessor running at 12.5 MHz.
Commercial Lease Plan. Lease for as low as \$59/month.
20 MB VGA Monochrome System \$1,549
Price listed includes 1 MB of RAM.*
20, 40, 80 and 100 MB hard drive configurations available.



THE NEW DELL SYSTEM 320LT
20MHz 386SX.

• Intel 80386SX microprocessor running at 20 MHz.
Commercial Lease Plan. Lease for as low as \$131/month.
20 MB, 1 MB RAM.* \$3,599
40 MB hard drive configurations available.



THE DELL SYSTEM 316LT
16 MHz 386SX.

• Intel 80386SX microprocessor running at 16 MHz.
Commercial Lease Plan. Lease for as low as \$112/month.
20 MB, 1 MB RAM.* \$2,999
40 MB hard drive configurations available.

The Dell System 433TE and 425TE are Class A devices sold for use in commercial environments only. *Performance Enhancements: Within the first megabyte of memory, 128 KB (316SX, 320LT, 316LT and 210) 96 KB (333D and 325D) or 384 KB (320LX, 425E, 433E, 425TE and 433TE) of memory is reserved for use by the system to enhance performance. Can be optionally disabled on 333D, 325D, 316SX and 210. No other discounts or offers apply. All prices and specifications subject to change without notice. All systems are photographed with optional extras. Dell cannot be responsible for errors in typography or photography. **Payment based on 36-month, open-end lease. †Leasing arranged by Leasing Group, Inc. In Canada configurations and prices may vary. DELL SYSTEM is a registered trademark and Dell and SmartVu are trademarks of Dell Computer Corporation. Intel is a registered trademark and 386 and i486 are trademarks of Intel Corporation. Microsoft and MS-DOS are registered trademarks and Windows is a trademark of Microsoft Corporation. Other trademarks and trade names are used to identify the entities claiming the marks and names or their products. Dell Computer Corporation disclaims any proprietary interest in trademarks and trade names other than its own. ††On-site service may not be available in certain remote locations. Shipping, handling and applicable sales tax not included in the price. For information on and a copy of Dell's 30-day Total Satisfaction Guarantee, limited warranty, and Xerox's Service Contract, please write to Dell USA Corporation, 9505 Arboretum Boulevard, Austin, Texas 78759-7299. ATTN: Warranty © 1990 Dell Computer Corporation. All rights reserved.

BUY THIS NOW



AND WE'LL THROW IN THE POWER WINDOWS.



To begin, for only \$2199, you get our 16 MHz 386SX with 2 MB of RAM, a 40 MB hard drive, a VGA Color Plus monitor, and a choice of a 3½" or 5¼" floppy drive.

Now comes the free stuff. You'll get Microsoft® Windows™ 3.0, a Microsoft Mouse, and a choice of MS-DOS® 3.3 or 4.01, pre-loaded. That's worth \$325, but you get it free.

You'll also get working models of Excel, Word for Windows, PowerPoint, and Project, so you can sample all the features and functions of over \$2000 worth of software. But it won't cost you a penny.

You still only pay \$2199 for the whole package.

The offer ends January 31, 1991, so call now.

Don't let this opportunity go by without a squeak.

Now, look inside.

To order, call

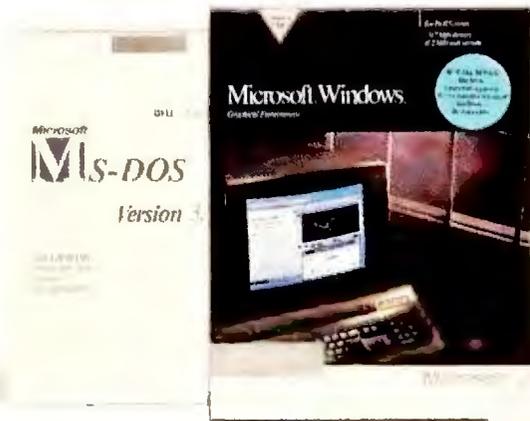
800-289-1410

HOURS: 6 AM-9 PM CT M-F 8 AM-4 PM CT SAT

IN CANADA, CALL 800-387-5752

DELL
COMPUTER
CORPORATION

HERE'S SOMETHING TO SQUEAK ABOUT.



FREE.

FREE.



FREE.



Fully functional working models.

Buy the Dell System® 316SX 16 MHz 386™ SX for \$2199 and we'll give you all this, free. See inside for details.

To order, call

800-289-1410

HOURS: 6 AM-9 PM CT M-F 8 AM-4 PM CT SAT

IN CANADA, CALL 800-387-5752

DELL
COMPUTER
CORPORATION

Circle 74 on reader service card