

PCWORLD

WWW.PCWORLD.COM

TECHNOLOGY ADVICE YOU CAN TRUST™

FEBRUARY 2001 \$5.99



3D Graphics Go Into Overdrive

We Test 14 Fast,
Affordable Boards



Software in Your Browser

Free Office Suites,
Utilities & More—
All on the Web



Space-Saving Hardware

PCs & Peripherals
That Fit Almost
Anywhere

WINDOWS YOUR WAY

**HIDDEN
TIPS
FOR EVERY
VERSION**


**CUSTOMIZE
EVERYTHING**

**SPEED UP
YOUR SYSTEM**

**GET THE BEST
SHAREWARE**

**PLUS:
WINDOWS ME BUGS—
AND HOW TO FIX THEM**

Efficiency & expertise

Your business' success lies in its ability to move forward and go beyond. Have the ability to take your business anywhere, with mobile solutions from CDW. Get a head start and learn more about the following products by logging onto CDW.com and using  **SC#17206**.

VAIO F610

All-in-one notebook

Packing a fully functionally PC into an easy carrying case, the Sony VAIO F610 provides an all around computing solution for your business. From digital entertainment capabilities to mere Internetworking, you'll have everything you need to conduct your business and have a little fun too.

550MHz AMD K6®-2+ processor

\$1196.00

CDW 241635

SONY



Simple Technology 64MB memory module For Sony F Series notebook computers

Before you leave the office, make sure you have the power you need to complete your tasks. Enhance your performance with a 64MB Simple Technology memory upgrade.

\$71.03 CDW 197422

Simple Technology 12GB slim line hard drive 12GB IDE internal hard drive for notebooks

With a Simple Technology 12GB hard drive you can guarantee that your memory upgrade will meet your storage requirements.

\$269.01 CDW 194174

Handspring Visor Platinum Handheld computer with 8MB of memory

An infinitely expandable handheld computer, the Handspring Visor Platinum is faster than the Visor Deluxe. It can instantly become a camera, MP3 player or phone through its unique Springboard™ expansion slot.

\$299.00 CDW 250553

InFocus LP335 projector

Combining 1000 lumens with enhanced video quality and connectivity, the InFocus LP335 projector gives you one of the brightest projections possible.

\$4119.80 CDW 217843

Stability, manageability and expandability are essentials in today's business world. Build a foundation for your office based on these essentials with products from CDW. Begin building a foundation today and learn more about the following products by logging onto CDW.com and using  **SC#17205**.

ViewSonic E773

17" monitor

Producing crisp and vibrant images, the ViewSonic E773 monitor is excellent for a wide range of applications, making it an ideal corporate monitor.

\$248.56 CDW 178273

Simple Technology 64MB memory module For HP Vectra VL400 Series computers

Give your business the boost it needs to stay one step ahead, with a Simple Technology 64MB memory module.

\$73.68 CDW 237082

Back-UPS Office 350 6-outlet battery backup

Multiple peripherals can endanger your system. Protect your computer and it's peripherals with Back-UPS Office 350, which instantly switches your computer to emergency battery backup.

\$79.71 CDW 217417



HP Vectra VL400 Series computers

invent **866MHz Intel® Pentium® III processor**

With image stability, flexibility and serviceability, the HP Vectra VL400 Series computers are ideal corporate systems that fit the budget, as well as performability needs. Available in three form factors—desktop, minitower and small form factor—these powerhouses can easily convert to fit into any space.

\$1199.85


CDW 252127

Monitor sold separately



**Computing Solutions
Built for Business®**
www.cdw.com
800-399-4239

Confidence in quality

Run your business more efficiently with products from CDW. This all-in-one server solution has everything you need to take your business to the next level. Learn more about the following products by logging onto CDW.com and using  **SC#17207**.

COMPAQ

ProLiant ML330 Special Edition server 733MHz Intel® Pentium® III processor

Obtain the power your business needs in order to compete in this Internet age. Offering you maximum flexibility, Compaq and Microsoft teamed up and created the **Compaq ProLiant ML330 Special Edition server** which is preloaded with Microsoft® Windows 2000, 5 user license and a 9GB hard drive. An ideal platform for file/print, plus remote access, e-mail and Internetworking, this server is a solution in itself.

\$2079.87 CDW 253310



Simple Technology 128MB memory module For Compaq ProLiant servers

Does your business have the power it needs? Give your business a boost into the future with a 128MB Simple Technology memory upgrade.

\$146.07 CDW 207745

Belkin OmniView SE 4-port switch

Reduce desktop clutter and manage four computers with one keyboard, PS/2 mouse and monitor with Belkin OmniView SE 4-port switch.

\$146.26 CDW 152343

HP LaserJet 8150N printer

The network ready HP LaserJet 8150N printer is designed to meet the complex, high-volume printing needs of growing businesses.

\$2449.98 CDW 243961

APC Smart-UPS 1400 1400VA, 6-outlet battery backup

APC Smart-UPS 1400, with included PowerChute® software, will automatically save data and shut down your computer in the event of a power outage.

\$606.82 CDW 79239


IBM WebSphere Application Server V3.01 Standard edition

Manage Web applications and improve data definition with, Java-based IBM WebSphere Application Server V3.01 software.

\$669.20 CDW 219326

CDW SmartCode



Put the power of CDW.com to work on your needs. Simply go to www.cdw.com and type in the SmartCode number (i.e.  SC#00001) in the search engine at the top of the page and see all the technical specs, stock status and real-time pricing. Or if just one piece of this solution is what you need, simply type the CDW number (i.e. CDW 000001) into the same box and you're there. For more information on CDW SmartCodes, just log on to www.cdw.com/smartcode.



All pricing subject to change. For all prices and products, CDW® reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or typographical errors in advertisements. All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers. Please refer to www.cdw.com for additional terms and conditions.

©2001 CDW® Computer Centers, Inc. 200 N. Milwaukee Avenue, Vernon Hills, IL 60061 PCW6765B 2/01

Complete computing solutions

Discover the difference of CDW

**Your dedicated account manager
takes pride in getting to know
you and your business so we can
provide you with the right solution.**



It's what **CDW** is all about

Building the foundation for successful business is never easy. You demand quality relationships with quality resources. CDW's goal is to give you a single place where the technology you need and the service you want, meets the personalized expertise you would expect from a reliable partner.

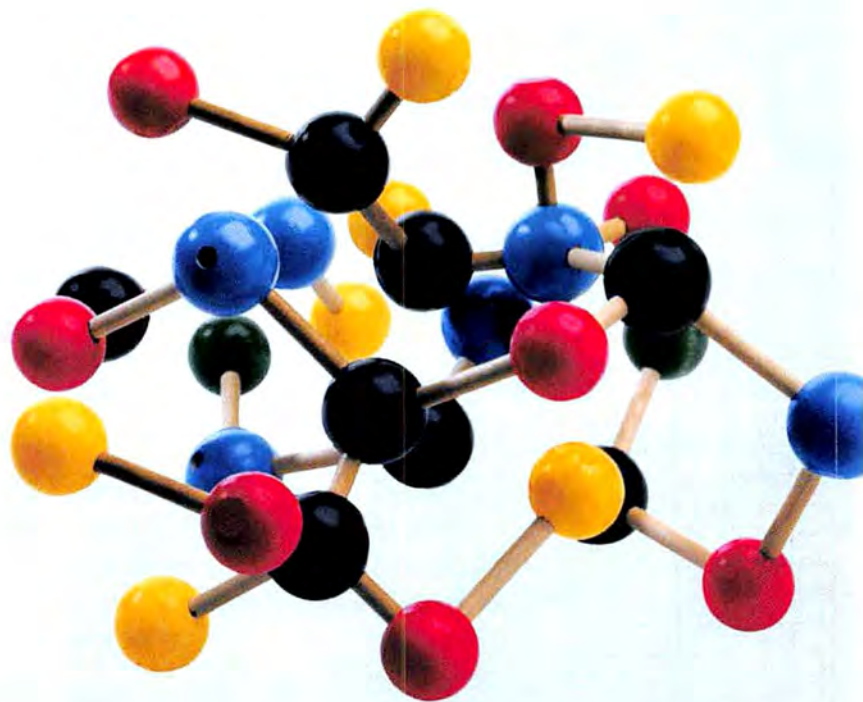
Whether you are researching a new technology trend or shopping for a new computer product, CDW is here to help you make informed choices, giving you confidence in your purchases. By providing custom-configured systems and toll-free 24 x 7 technical support, your account manager is committed to bringing you the best service and technology that the industry has to offer.

Confidence. Quality. Satisfaction. That is what CDW is all about.



***Computing Solutions
Built for Business®***

**www.cdw.com
800-309-4239**



432 Camino Realto Redwood City, CA 92292 650.55

Whether your work is splitting atoms or splitting hairs, nothing pushes the envelope on organization like FileMaker® Pro 5. A refreshingly intuitive application that's a paradigm of ease and simplicity. With its instantly familiar interface, you can quickly handcraft a database to the precise needs of your workgroup, as you alone know them best. Which means you can basically clone your mind,

GENEQUEST

INCORPORATED

CAROLINE JOHNSTON

BioOncology Product Manager

- and database pioneer

94 FAX 650.557.8895 c.johnston@genequest.com

so your people can perfectly follow your lead: tracking, updating and otherwise micromanaging projects to their heart's content. And with nifty features like Instant Web Publishing, your customers around the world will be wowed by your efficiency. And inspired by your intelligence. Visit www.filemaker.com. *What's your problem?*[™]



trademarks of FileMaker, Inc. The persons and companies listed in the example are purely fictitious, and any resemblance to existing persons and companies is purely coincidental.

Windows 95

A fatal exception 0E has occurred at 0028:C0011E36 in UXD L
00010E36. The current application will be terminated.

- * Press any key to terminate the current application.
- * Press CTRL+ALT+DEL again to restart your computer. You will lose any unsaved information in all applications.

Press any key to continue _



GOODBYE BLUE SCREEN, HELLO RELIABLE MICROSOFT®

In the 24/7 digital economy, your users don't have time to be staring at "blue screens." NSTL test results show that Windows 2000 Professional is 13 times more reliable than Windows 98*. Which means users will need far less support. But that's just the beginning of the news on Windows 2000 Professional. You'll also find enhanced deployment capabilities (including remote installation and unattended installs) which give you full control of large-scale system installations to save you time and resources. And your control of users' desktops is broader than ever, from flexible access to total lock-down. Also, business data is



81) +

IF YOU FIND YOURSELF MISSING THE
DOWNTIME, CUT OUT AND TAPE TO MONITOR.

WINDOWS® 2000 PROFESSIONAL.

available to users either locally or remotely and is secure with built-in features such as Encrypted File System and support for IPSec and L2TP. And, when on the road, users can take advantage of offline files and folders with the help of Synchronization Manager. All of which adds up to the complete OS for the digital economy. Microsoft Windows 2000 Professional. All business. All the time. For more reasons to upgrade existing machines or to specify Windows 2000 Professional on new machines, visit microsoft.com/windows2000/pro.
Software for the Agile Business.

Microsoft®

SAMSUNG

ELECTRONICS

Defy the Ordinary™

Do you dare?

Live Brilliantly.

Declare your freedom.

Dare to choose.

Be Extraordinary.

Shine.

Go farther. Live better.

Transcend.

Stand out.

Experience.

True vision.



See just how far your vision can go at:

www.samsungmonitor.com

1-888-245-3300 dept. 901

SAMSUNG DIGITall
everyone's invited™



CORIO

APPLICATIONS ON DEMAND

SECRETS TO SUCCESS: No. 135

George Bell, President, Excite@Home

What does "ASP" mean to me?
Corio, of course.

Excite@Home needed business critical applications rapidly. **They chose Corio.** Corio hosts leading applications through a world class infrastructure for a monthly fee. Corio's Intelligent Enterprise spans the application spectrum from customer relationship management, to enterprise resource planning, to eBusiness. Corio's world class delivery systems offer state of the art technologies, rapid time to benefit and maximum value.

So, if you choose the ASP model, choose the model ASP—Corio, of course.



**Attend a
FREE Web Seminar!**

Call CORIO at 877.267.4627
or visit www.corio.com

BROADVISION
Reshaping e-Business

COMMERCE ONE.

Microsoft



PEOPLE Soft

SAP

SIEBEL
Strategic Platform Partner


Sun
microsystems
We're the dot in .com™

© 2000 Corio, Inc. All rights reserved. All other company and product names are trademarks of their respective owners.



COVER STORY

98 WINDOWS YOUR WAY

 No matter which Windows you look at your PC screen through, it probably isn't as closely tailored to your needs as it could be. From troubleshooting to interface customization to file management, we offer a collection of 49 undocumented tips for fine-tuning your Windows 95/98, Me, NT, or 2000 operating system—as well as essential add-on utilities for improving your view.




147



Additional material
available online at
www.pcworld.com

FEATURES


110 SO LONG, SHRINK-WRAP?

 **ASP s** Application service providers claim that their Web-based programs signal the end of the line for shrink-wrapped software. But how do their offerings—office suites, antivirus scanners, and accounting and project management tools—stack up against off-the-shelf packages?


123 3D GRAPHICS GRAND PRIX

 **GRAPHICS** **BOARDS** Gentlemen, start your engines. We put 14 of the latest 3D graphics boards at the starting line and turned them loose on our challenging course of 3D games and imaging applications; no pit stops allowed. Though some had bugs on the windshield, many ran clean and fast—and one took the checkered flag. We sort them out, first to last.

135 FIND THE RIGHT JOB ONLINE

 **JOB HUNTING** Web sites put job hunting at your fingertips, but digital want ads can be strewn with false leads. We list five key steps to help you focus your search, avoid wasting time, show your strong points, and nail down that dream job. Plus: Recommended national sites, secrets of an online recruiter, and local and industry-specific sites to check out.

147 SOLUTIONS FOR SMALL SPACES

 **HARDWARE** If your workspace is so tight you can't get Word in edgewise, you need to rethink your furnishings. We look at the best in space-saving PCs, monitors, and multifunction devices to help you transform your current sardine-tin surroundings into a comfortable and productive work environment. ►

COVER Graphic by Greg Silva






TOP OF THE NEWS

- 50 WINDOWS ME: THE FIRST 100 DAYS**
Some say Me is wonderful, and everyone likes System Restore's escape hatch. But the upgrade hasn't been smooth for all.
- 56 HONEY, I SHRUNK THE BITS**
Tiny devices pack big-time storage to satisfy today's memory-hungry products.
- 58 THE TAXMAN COMETH**
Many happy returns—updates of major tax programs automate tiresome chores.
- 60 E-Z MONEY: DIGITAL DOLLARS ARRIVE**
Allergic to plastic? We evaluate alternatives to credit cards for online shopping.
- 64 SATELLITE-BASED BROADBAND**
For users tired of waiting for DSL and cable, new services deliver high-speed Net access.

NEW PRODUCTS

- 76** Compaq Presario 5000 Series 5WV270 PC; Xircom Rex 6000 MicroPDA; Panasonic DMR-E10 DVD Video Recorder; Acer Travel-Mate 350TE and HP Omnibook F2164A notebooks; Netscape 6; 2Wire HomePortal 1500; Olympus C-211 Zoom Digital Printing Camera; Lexmark Z82 multifunction device.

HERE'S HOW

- 188 WINDOWS TIPS**
 Restore thumbnails for image files; expand file searches; what's FooBar?
- 190 ANSWER LINE**
 Find out why you get lost clusters, share your desktop settings.
- 197 INTERNET TIPS**
 Save streaming Webcasts to your PC, make AOL Plus go away.
- 200 WORD PROCESSING**
 Justify documents vertically, change time formats, replace invisible items.
- 202 HARDWARE TIPS**
 Solve PC problems with System Restore; Microsoft's compatibility list.
- 206 UPGRADE GUIDE**
Upgrade to Windows Me, step-by-step.

RESOURCES

- 16** HOW TO CONTACT PC WORLD
19 COMING UP
208 PC WORLD MARKETPLACE
224 ADVERTISER INDEX



31



50

197



162



TOP 100

- 162 PENTIUM 4: FAST OR FIZZLE?**
 Our inquiry continues, with tests of a new Dell carrying Intel's latest CPU.
- 164 TOP 10 POWER PCs**
- 170 TOP 10 MIDRANGE PCs**
- 174 TOP 10 BUDGET PCs**
- 178 TOP 15 NOTEBOOK PCs**
- 180 TOP 15 HOME PCs**
- 183 TOP 10 INK JET PRINTERS**
- 185 TOP 10 17-INCH MONITORS**
- 187 TOP 10 CD-RW DRIVES**

DEPARTMENTS

- 19 UP FRONT**
- 25 LETTERS**
- 31 CONSUMER WATCH**
Time limits on returning a faulty new PC.
- 37 ON YOUR SIDE**
Getting your PC repaired can cost a bundle.
- 41 WEB SAVVY**
Harry McCracken has the beat: He knows it's only (Internet) radio, but he likes it.
- 45 HOME OFFICE**
 Can't get AVI video files to play? Steve Bass asks you to bear with him.
- 47 BUGS AND FIXES**
 Fix Money 2001 glitches, antivirus software headaches, IE Service Pack.
- 226 FULL DISCLOSURE**
Bill Gates and Stephen Manes agree that modern technology has its limits.

PCWORLD.COM

TOP 5 DIGITAL CAMERAS

REVIEWS Digital cameras don't have to dent your wallet. We check out the latest PC-friendly models for under \$500.
www.pcworld.com/reviews/cameras

DOMINATE WINDOWS

HOW-TO Take our guided tour of Tweak UI, a free Microsoft add-on that lets you customize the look and feel of Windows.
www.pcworld.com/heres_how/tweakui

THE BEST UNSUNG GAMES

FEATURES From card games to outer-space shoot-'em-ups, some great games come from independent publishers.
www.pcworld.com/features/indie_games



Additional material
available online at
www.pcworld.com



© 2000 Acer Inc. All rights reserved. Acer and the Acer logo are registered trademarks and TravelMate is a trademark of Acer Inc. Intel, the Intel Inside Logo, and Pentium are registered trademarks of Intel Corporation. Microsoft® Windows® 2000 Professional is available for selected models in selected countries. The TravelMate 350 includes IBM® ViaVoice™.

Acer recommends Windows® 2000 Professional for business.



With a magnesium-alloy casing, you won't find anything lighter.



The new 4 lb. Acer TravelMate 350 is now less than 1-inch thin. Its magnesium-alloy protective casing is lighter, yet 15x stronger. Built-in 802.11b and infrared connectivity opens you to a wireless world. Then there are quick-access keys and a comfortably curved keyboard as well as, Intel® Pentium® III processor and 10GB HDD with Disk Anti-Shock Protection. Take flight with the new Acer TravelMate 350. Acer, We hear you.



WITH PURCHASE
FREE
\$25 off accessories
For details, see
www.acer.com/aac/products/promo.htm

- 64MB memory module or
- USB video camera kit or
- 2nd year warranty extension

www.acer.com 1-800-571-ACER



we hear you



LOOK
THOROUGHLY
INTERESTED
AND CHECK
E-MAIL AT THE
SAME TIME.

BLACKBERRY
WIRELESS EMAIL SOLUTION



The ingenious new Compaq iPAQ™

BlackBerry™ is always connected to

your company network. So you can

receive or send e-mail anytime, from

just about anywhere. And since it fits

in your hand, it's as easy to check as

your watch. Welcome to the new IT.

Inspiration Technology from Compaq.

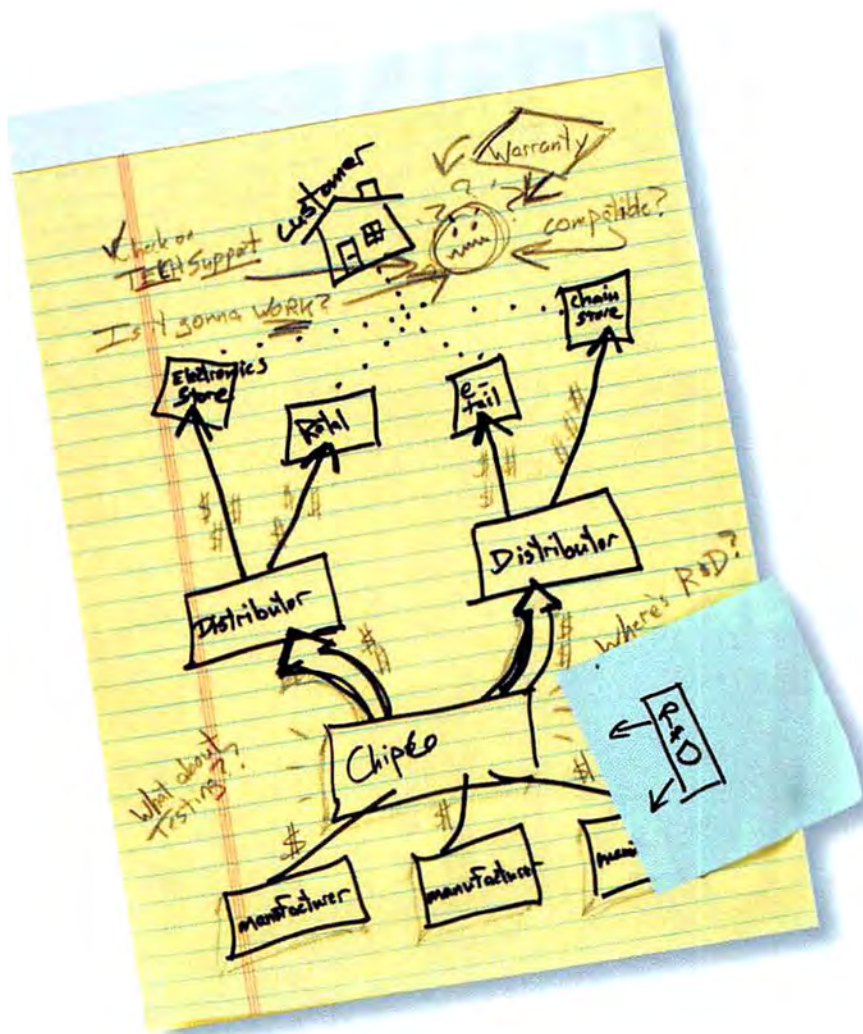
To find the nearest reseller call

1-800-AT-COMPAQ. To learn more

visit us at compaq.com/blackberry.

COMPAQ
Inspiration Technology

Upgrading your memory doesn't have to be complicated.



Online discounts for over 49,000 upgrades at:

www.crucial.com

or call toll-free 1-888-363-3065



You need Crucial RAM.

The right memory at the right price. Just one reason why the world's leading computer manufacturers buy their memory from us. Upgrade factory-direct from Crucial.com and get top-quality RAM for up to 60% less than our leading competitor.

Price reflects an automatic 10% discount for ordering online. Prices were taken on 12/4/00 from Crucial and Kingston Web sites; however, prices can (and do) change daily. Prices may vary according to specific system requirements.



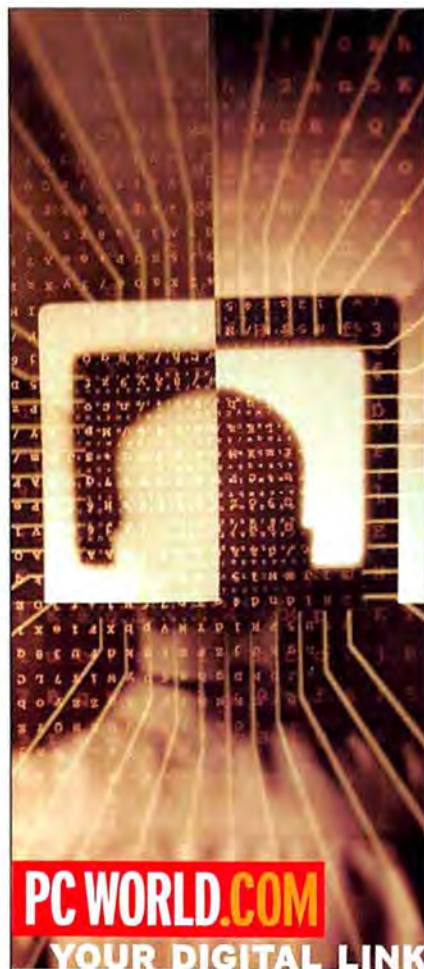
128MB PC100 SDRAM

\$71⁰⁹

for today's most popular systems

The Memory Experts™

crucial®
TECHNOLOGY
A Division of Micron®



PCWORLD.COM

YOUR DIGITAL LINK

If it's in the world of computers,
It's in **PCWorld.com**

PCWorld.com is your digital link to

Breaking Product News and Reviews,

How-to's and the Latest Shareware Downloads.

• Receive Free Newsletters

to keep you up to date.

• Get **PCWorld.com** "on the go"

Put the power of **PCWorld.com** on your PDA!

• Find up to minute news

not available anywhere else!

CHECK IT OUT AT

WWW.PCWORLD.COM

PC WORLD

EDITORIAL DIRECTOR Kevin McKean
CREATIVE DIRECTOR Robert Kanes

EDITORIAL

MANAGING EDITOR Kimberly Brinson
DIRECTOR, SPECIAL PROJECTS Andrew Eisner
ASSISTANT MANAGING EDITOR Paul-Michael King
EXECUTIVE EDITORS Tracey Capen, Harry McCracken, Ramon G. McLeod, Randy Ross
SENIOR EDITORS Edward N. Albrow, Yarden Arar, Rex Farrance, Rebecca Freed, Karl Koessel, Michael S. Lasky, Alan Stafford, Peggy Watt
SENIOR ASSOCIATE EDITORS Andrew Brandt, Anne B. McDonald, Aoife M. McEvoy, Dennis O'Reilly, Anush Yeghazarian, Kim Zetter
SENIOR REPORTER Tom Spring
ASSOCIATE EDITORS Grace Aquino, Sean Captain, Eric Dahl, Alexandra Krasne, Kalpana Narayanamurthi, Melissa Perenson
EDITORS/REPORTERS Cameron Crouch, Tom Mainelli
STAFF EDITORS Lisa Cekan, Linda Grubbs, Robert Jackson, Kalai Murugesan
SENIOR PRODUCER, DOWNLOADS Max Green
SENIOR COPY EDITORS Stephen Compton, Steven Gray, Barbara Lewis, Frederic Fane Wolfer, Tracy Yee
RESEARCH EDITOR Tim Koerner
EDITORIAL PRODUCTION ASSOCIATE Henry Pham
ASSISTANT TO EDITORIAL DIRECTOR Heather Morra
ADMINISTRATIVE ASSISTANT Felicia Williams
BUSINESS MANAGER Thomas Pena

ART AND DESIGN

DEPUTY ART DIRECTOR Barbara Adamson
GRAPHICS DIRECTOR Jeff Berlin
ASSOCIATE ART DIRECTOR Kate Godfrey
ASSISTANT ART DIRECTORS Pierre Granier, Beth Kamoroff
DESIGNERS Robin Briskin, Sean McDonald
ASSOCIATE DESIGNERS Diego Aguirre, Marlene Tobias

CONTRIBUTING EDITORS

Steve Bass, George Campbell, Scott Dunn, Roberta Furger, Judy Heim, Stuart J. Johnston, Anne Kandra, Dan Littman, Stephen Manes, James A. Martin, Stan Miestkowski, Scott Spanbauer, Lincoln Spector, Kirk Steers, Carla Thornton, Daniel Tynan, Christina Wood

PC WORLD TEST CENTER

TEST CENTER DIRECTOR Ulrike Diehlmann
MANAGER OF BENCHMARK DEVELOPMENT James Motch
SENIOR PERFORMANCE ANALYSTS Elliott S. Kirschling, Jeffrey Kuta
ASSOCIATE PERFORMANCE ANALYST Robert P. James
PERFORMANCE ANALYSTS Curt Buehler, Thomas Luong, Sean Tieu
TEST CENTER TECHNICIAN Matthew R. Halloran
SENIOR TEST CENTER COORDINATOR Julian Weatherby
TEST CENTER COORDINATOR Julio C. Giannobile

BACK ISSUES

PC World issues and article copies are on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 800/521-0600.

PCW COMMUNICATIONS

PRESIDENT AND CHIEF EXECUTIVE OFFICER Jeff Edman
PUBLISHER Bob Ostrow
SENIOR VP, COO/CFD Vicki Peilen
SENIOR VP, HUMAN RESOURCES Richard Willoughby
VP, CONSUMER MARKETING Shawne Burke Pecar
VP, CHIEF TECHNOLOGY OFFICER Henri Froissant
FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman

SUBSCRIPTION SERVICES

PC World Subscriber Services, P.O. Box 37571, Boone, IA 50037-0571
INTERNET: www.pcworld.com/customer
E-MAIL: pcwcustserv@cdsfulfillment.com
PHONE: In the U.S. 800/234-3498
New orders 800/825-7595
FAX: 415/882-0936

MAIL AND ONLINE

PC World Editorial, 501 Second St. #600, San Francisco, CA 94107
PHONE: 415/243-0500
FAX: 415/442-1891
E-MAIL: letters@pcworld.com
COMPUSERVE: go pcworld
WORLD WIDE WEB: www.pcworld.com

QUESTIONS AND SUBMISSIONS

Send material electronically to the appropriate online address listed below or mail it to **PC World**. We reserve the right to edit letters. **PC World** pays \$50 for published *Here's How* tips and questions; accepted submissions will be acknowledged by payment. Editors cannot guarantee personal responses to all questions.

ANSWER LINE: answer@pcworld.com
BUGS AND FIXES: bugs@pcworld.com
CONSUMER WATCH: consumerwatch@pcworld.com
FULL DISCLOSURE: steve@cranky.com
HARDWARE TIPS: kirk_steers@pcworld.com
HOME OFFICE: steve_bass@pcworld.com
INTERNET TIPS: nettips@spanbauer.com
LETTERS: letters@pcworld.com
ON YOUR SIDE: onyourside@pcworld.com
UPGRADE GUIDE: stan_miestkowski@pcworld.com
WEB SAVVY: websavvy@pcworld.com
WINDOWS TIPS: scoot_dunn@pcworld.com
WORD PROCESSING: george_campbell@pcworld.com

NEW PRODUCT ANNOUNCEMENTS

Please address press releases to **New Products at PC World**, or call 415/978-3212.

REPRINTS AND PERMISSIONS

You must have permission before reproducing any material from **PC World**. Write to **PC World**, Reprints and Permissions, 501 Second St. #600, San Francisco, CA 94107; include a phone number. To order reprints of your company's editorial coverage in **PC World**, call 717/399-1900 ext. 129.

MAILING LISTS

Occasionally we make our subscribers' names available to other companies whose products may interest you. To have your name excluded from these mailings, send a request with your mailing label to Subscriber Services, P.O. Box 37571, Boone, IA 50037-0571 or e-mail us at pcwcustserv@cdsfulfillment.com.



MPG 52/45

F: 566mi

CO₂ 1/2NO_x 1/10

TOYOTA HYBRID SYSTEM

all figures based on EPA estimates — city/hwy mileage — actual results may vary — compared to conventional gasoline engines



Engineers tend to get bored working on cupholders.

It's what happens when you throw out the drawing board. The world's first production car to combine a super-efficient gasoline engine with an advanced electric motor that never needs to be plugged in. Introducing Prius, powered by the revolutionary Toyota Hybrid System. A breakthrough in environmental engineering that reduces smog-forming emissions by up to 90%** without compromising performance. The amazing Toyota Prius. Part electric. Part gasoline. Pure genius.



Starting at \$19,995. Delivery, processing and handling fee \$485. Total MSRP \$20,480.** Visit the new Prius at www.toyota.com/prius or call 800-GO-TOYOTA.

 **TOYOTA PRIUS** | **genius**

*Based on measurements of hydrocarbons and oxides of nitrogen. **Based on manufacturer's suggested retail price. Excludes taxes, license, title and other optional or regionally required equipment. Actual dealer price may vary. ©2000 Toyota Motor Sales, U.S.A., Inc.

WATCH IT
BLOW THE PAPER TRAYS OFF
THE COMPETITION.



Xerox Phaser® 1235 Color Printer
12 ppm at 1200 dpi, \$3599*

Up to four times faster than other color laser printers.

Introducing the network-ready Xerox Phaser® 1235 color printer, the latest breakthrough in printers from the combined expertise of Tektronix and Xerox. With amazing 1200-dpi color at 12 ppm, and black and white at 20 ppm, no laser printer can touch it. Features include:

366 MHz processor | 512 MB memory available | 10/100 base T Ethernet standard on all models | Adobe Postscript 3 & PCL5c
Up to 1,690 sheet capacity | 5 GB internal hard drive | 1 Year onsite warranty plus Xerox Total Satisfaction Guarantee

To see the full line of color and black and white Xerox printers that leaves the competition in the dust,
call 1-877-362-6567 ext. 1790 or visit us at www.xerox.com/officeprinting/speed1790.

DIGITAL
THE DOCUMENT COMPANY
XEROX

XEROX PRINTERS MAKE IT HAPPEN.

XEROX
NETWORK PRINTERS

Putting PC World to Work for You

WHEN YOU RUN a business, technology can be your best friend ...or your worst enemy. Make the right choices on computers, software, office gear, and Web sites, and they become enabling allies. Choose wrong, and they turn into black holes for time and money. That's why *PC World* devotes so much effort to finding devices and services that can help you become more productive.

This issue offers some great examples. Suppose you need to outfit an office that is—let's say—less than generous on square footage. A good place to start would be with Matthew McKenzie's "Solutions for Small Spaces" on page 147. McKenzie surveys small-footprint PCs, superslim monitors, multifunction printer/copier/fax machines, and other equipment that can deliver enterprise-sized performance in compact quarters—and gives tips to help you get the most out of them.

SOFTWARE FOR RENT

ON THE SOFTWARE FRONT, *PC World* turns a critical eye on the growing number of application service providers, or ASPs—companies trying to replace traditional boxed software with services delivered over the Web (see "So Long, Shrink-Wrap?" starting on page 110). Our team, led by Executive Editor Harry McCracken and Senior Associate Editor Kim Zetter, evaluated Web-based office suites, virus scanners, accounting packages, and project-management software. The verdict? ASPs still must overcome customer nervousness about security and reliability, but—despite various limitations—some do deliver value at costs comparable with or well below what you'd spend for boxed software.

No one who works with a PC should miss Yael Li-Ron's excellent collection of tips in this month's cover package, "Windows Your Way" (page 98). She and writers Scott Dunn and Matt Lake have gathered a toolkit for all versions of Windows, plus several must-have utilities that let you customize parts of the system that Microsoft wishes you wouldn't touch. Then in *Top of the News* (page 50), Contributing Editor Scott Spanbauer reports on the first 100 days of Windows Me. Readers and Web visitors who took our survey were divided on whether the new operating sys-



This magazine is a **technology toolkit** for your business or **profession**. Here's how to **use it**.

tem was a godsend or a "freaking disaster," as one respondent put it. But everybody liked its System Restore feature, which lets you dial back your computer to an earlier configuration if new software or a driver makes it crash—sort of like the title character in the movie *Run Lola Run*.

If reconfiguring your life is among your business objectives, see our evaluation of Web-based career resources in "Find the Right Job Online" (page 135). Michael Gowan compares 10 top national job sites, plus 13 regional ones, and gathers tips from an online recruiter on how to get noticed (hint: tailor your résumé to show up in the right keyword searches)—valuable advice in today's tough job climate.

GAME TIME!

WHETHER OR NOT you use them in your work, don't miss the turbocharged graphics boards featured in "3D Graphics Grand Prix" on page 123. The story, written by Eric Dahl and based on testing by Elliot Kirschling and Jeff Kuta of the PC World Test Center, rates ten top boards on performance, features, and price. Three-dimensional rendering is one of the fastest-moving corners of the computer industry, driven in large part by the insatiable power demands of PC gaming. "Just a year ago, we were testing some of the first boards to support transform and dynamic lighting (T&L), which moves some of the calculation of 3D rendering into hardware rather than burdening the CPU," says Kuta, a senior performance analyst. "This year, nearly all the boards had T&L support."

As gaming matures, its repertoire will surely grow richer. If *Tomb Raider* is the interactive equivalent of an Indiana Jones movie (with you, not Harrison Ford, as hero), imagine the computer-driven analog to a Merchant-Ivory drama, a Meg Ryan comedy, or a Humphrey Bogart film noir. Now that's entertainment!

COMING UP IN MARCH

Best Free Stuff Online: Our sixth annual take on the Web's most fabulous freebies, from serious business tools to great games.

Big-Time Hard Drives: We test the latest jumbo drives to see which offer the most speed, capacity, and ease of use for your money.

PC Pest Control: A whole new swarm of bugs is on the loose. We'll identify the nastiest and tell you how to exterminate them.

Financial Planning Tips: Learn how personal-finance software and online services can help you structure your fiscal future.

Going Wireless: Want instant Net access wherever you are? We check out services and PDAs that let you do just that.

Kevin McKean is editorial director of *PC World*.

- 64MB SDRAM, expandable to 320MB
- 6GB hard drive²
- S3® Savage/IX™ Graphics Controller



- Subwoofer sound system
- Built-in DVD-ROM
- 13.3" TFT active-matrix display

the self-help book for the mobile workforce

Introducing VirtualTech™, the most advanced e-support tool for people on the go.

Only Toshiba offers VirtualTech, now preloaded on the Satellite® 2800 Series, which empowers you to resolve system issues on the fly. Upgrade to Premium VirtualTech and you've got access to software-related questions for over 150 of the most popular third-party applications. All right there at your fingertips. Work

the way you want by choosing between 24/7 self-help, online interactive support (with less than 30-minute response time) or complete technical assistance through our call center. And with Intel® Celeron™ processors up to 650MHz, you can rest assured that you get answers fast and efficiently.



- Includes integrated Ethernet and V.90 56K* modem ports for hassle-free Internet and LAN connectivity.

- On-the-road presentations couldn't be sweeter with this impressive multimedia package. Includes built-in booming subwoofer sound system, built-in DVD and an eye-grabbing 13.3" diagonal TFT active-matrix display.

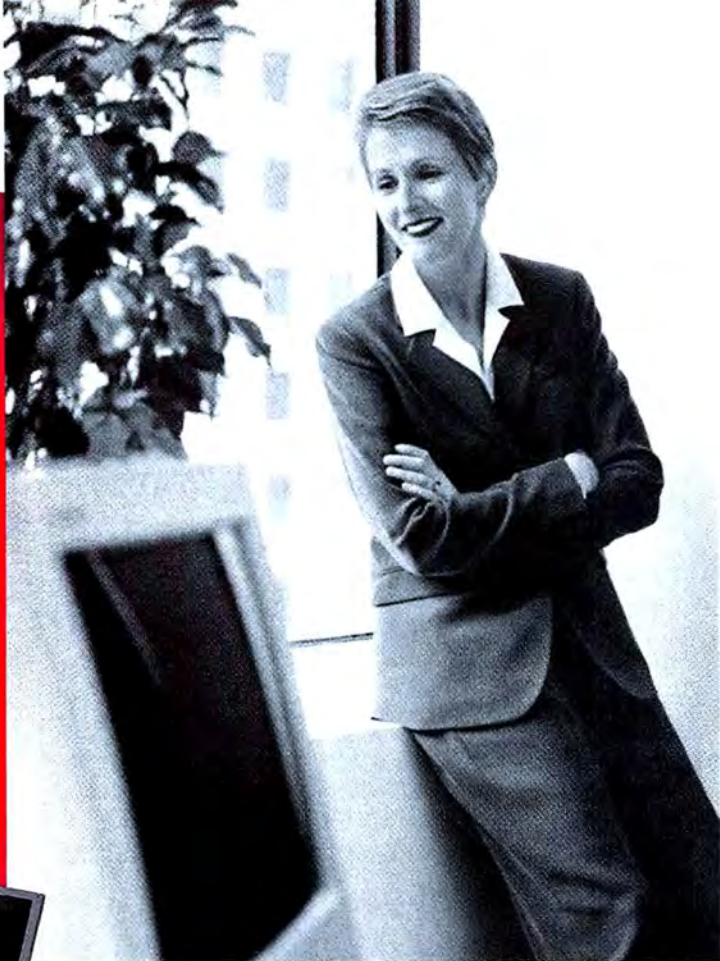
- Affordable, packed with performance, and capable of tackling anything that comes your way. That makes this business solution a great value for any size business.

**Ask about our 0% EasyLease™ financing available through January 31, 2001.
To buy direct call 1-800-TOSHIBA or visit shoptoshiba.com.**

choose freedom™
TOSHIBA

Includes Microsoft® Windows® Millennium Edition—the home version of the world's favorite software.

©2000 Toshiba America Information Systems, Inc. All rights reserved. Satellite is a registered trademark, and choose freedom, EasyLease and VirtualTech are trademarks of Toshiba America Information Systems, Inc. Intel and the Intel Inside logo are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. All specifications and availability are subject to change. Toshiba reserves the right to withdraw or change the VirtualTech offers without notice. *Due to FCC limitations, speeds of 53Kbps are the maximum permissible transmission rates during download. Actual data transmission speeds will vary depending on line conditions. †GB means 1 billion bytes.



Armada E500 Notebook

\$1799*

Lease for: \$51/month¹
QuickAccess Code: 43X1X3-12328

Mobile Intel® Pentium® III processor 600MHz
 12GB hard drive²
 64MB standard memory
 14.1" TFT (1024x768) display
 24X Max CD-ROM drive³
 8MB video SDRAM
 Integrated 56K V.90 modem⁴
 Microsoft® Windows® 95/98 (dual install)**
 1-year worldwide limited warranty¹

Business-boosting upgrades:
 Compaq Value Carrying Case: \$49
 Armada Port Replicator EM: \$149

iPAQ™ Legacy-Free Desktop

\$1029*

Lease for: \$29/month¹
QuickAccess Code: 43X1X3-15159

Intel Pentium III processor 733MHz
 10GB Ultra ATA hard drive²
 128MB SDRAM
 S510 Compaq 15" monitor (13.8" viewable)
 Intel® PRO/100+ with Alert on LAN
 Integrated Intel 3D graphics with 4MB video cache
 Carbon 2-button USB scroll mouse
 Carbon Easy Access Internet USB keyboard
 Microsoft® Windows® 2000
 1-year limited warranty¹

Business-boosting upgrades:
 Add a 24X Max CD-ROM MultiBay drive: \$75
 Add a Supercisk LS120 MultiBay drive: \$99

Deskpro EX Microtower

\$739*

Lease for: \$21/month¹
QuickAccess Code: 43X1X3-14811

Intel Celeron™ processor 566MHz
 10GB Ultra ATA hard drive²
 64MB SDRAM
 Compaq M510 15" monitor (13.8" viewable) with built-in speakers
 48X Max CD-ROM drive³
 Integrated Intel 3D AGP graphics
 Integrated Intel audio
 Microsoft® Windows® 98 (2nd Edition)
 1-year limited warranty¹

Business-boosting upgrades:
 56K V.90 PCI modem⁴: \$90
 3-year, 9x5, next-business-day, on-site warranty upgrade: \$69



Compaq recommends Microsoft® Windows® 2000 Professional for business.

*Prices shown are Compaq prices; reseller and retail prices may vary. E500 pricing is promotional pricing. Prices shown are subject to change and do not include applicable state and local sales tax or shipping to recipient's destination. **Customers choose one operating system upon initial installation, thereby forfeiting license and rights to the other OS. †Implicit interest rate, assuming lessee does not exercise a fair market value purchase option at the end of the lease term and timely returns leased equipment to Compaq Financial Services Corporation (CFSC) at the end of the lease term. This offer cannot be combined with any other Compaq programs or discounts without the prior approval of CFSC. [Low rates on leases with \$1 end of lease term purchase options also are available.] Offer valid through March 31, 2001. (Compaq Financial Services) Financing available through Compaq Financial Services Corporation (CFSC) to qualified commercial customers in the U.S. Financing is subject to credit approval and execution of CFSC documentation. Monthly payments are based on a 48-month Fair Market Value lease, and do not include taxes, fees, or shipping charges. Other fees and restrictions may apply and CFSC reserves the right to change or cancel this program at any time without notice. For hard drives, GB = billion bytes. 24X Max CD-ROM data transfer rates may vary from 150 to 3600 Kbps. 48X Max rates vary.

I RUN MY OFFICE. MY OFFICE DOESN'T RUN ME.

You got where you are by working smart. Now Compaq technology makes you even more resourceful. Want to revise a spreadsheet in a taxi? Go for it. Reply to an important e-mail from a conference room? No problem. You can even hook up your PCs to the network — wire-free. Whatever it takes to get your best work, Compaq's innovative products make it happen. Welcome to the new IT. Inspiration Technology from Compaq. Call us today. And take your business to the next level. Even faster.

COMPAQ
Inspiration Technology

To buy direct or for your nearest reseller 1-800-888-0262 directplus.compaq.com

Deskpro Workstation AP250

\$1989*

Lease for: \$56/month¹
QuickAccess Code: 43X1X3-23559

Intel Pentium III processor 733MHz
Intel 820 chipset with AGP4X
20GB Ultra ATA/7200 rpm hard drive²
128MB/712MHz ECC SDRAM
S710 17" monitor (15.7" viewable)
nVIDIA TNT2 Pro graphics
48X Max CD-ROM drive³
1.44MB floppy disk drive
Intel PRO 10/100 NIC (PCI) with WoL and AoL
Microsoft Windows NT® Workstation 4.0
Compaq Premier•Sound™ audio
3-year limited warranty⁴

Business-boosting upgrades:

128MB ECC SDRAM 712MHz: \$440
Compaq Pro UPS 500: \$150

ProLiant ML330 Server

\$1559*

Lease for: \$44/month¹
QuickAccess Code: 43X1X3-17X59

Intel Pentium III processor 866MHz
9.1GB Ultra2 hard drive² (exp. to 180GB)
64MB 133MHz ECC SDRAM (exp. to 2GB)³
Integrated Single Channel Wide-Ultra2
SCSI controller
7 Bays: 5 removable, 2 hard drive
40X Max CD-ROM drive³
10/100 TX UTP NIC (WoL)
6 Slots: 2 64-bit PCI, 4 32-bit PCI
Server setup and management software
3-year limited warranty⁴

Business-boosting upgrades:

Compaq RAID LC2 Controller: \$568
Compaq Pro UPS 500: \$150

ProLiant ML350 Server

\$1899*

Lease for: \$54/month¹
QuickAccess Code: 43X1X3-16562

Intel Pentium III processor 866MHz
9.1GB Ultra2 hard drive²
128MB 133MHz ECC SDRAM (exp. to 2GB)³
Dual processor capable
Dual Wide-Ultra2 SCSI controller
8 Bays: 4 removable, 4 hard drive
40X Max CD-ROM drive³
10/100 TX UTP NIC (WoL)
7 Slots: 2 64-bit PCI, 4 32-bit PCI, 1 ISA
Server setup and management software
3-year limited warranty⁴

\$0 down, 0% interest up to 30 months

To take advantage of this great offer,
call today!

Wireless LAN

Share files, printers, and Web access throughout the office, no strings attached — or wires for that matter. It's fast, secure, and easy to set up. For a Compaq Wireless LAN solution that's right for your business, here's what you need:

Compaq Wireless LAN PCI Cards

Keep your notebooks and desktops connected, anywhere in the office.

WL100 PCI Card for notebook	\$199
WL200 PCI Card for desktop	\$199

Compaq Software Access Point

Turn any notebook, desktop, or server into a wireless access point.

Compaq WL300	\$125
--------------	--------------

Compaq Hardware Access Point

Wall-mountable units that give you the convenience of wireless LAN connectivity.

Compaq WL400	\$899
--------------	--------------

*from 150 to 6000 KB/s, and 48X Max rates vary from 3000 to 7200 KB/s. ¹Some restrictions and exclusions apply. Call (800) OK COMPAQ for warranty details. ²YU V50 modems (available on select models) are designed only to allow faster downloads from K56flex- or V90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ©2000 Compaq Computer Corporation. All rights reserved. Compaq, the Compaq logo, Armada, ProLiant, and Deskpro are registered trademarks, and PAQ and Premier•Sound are trademarks, of Compaq Computer Corporation. Inspiration Technology is a trademark of Compaq Information Technologies Group, L.P. in the U.S. and other countries. Intel, the Intel Inside logo, and Pentium are registered trademarks, and Celeron is a trademark, of Intel Corporation. Microsoft, NT, and Windows are registered trademarks of Microsoft Corporation. Other products mentioned herein may be trademarks or registered trademarks of their respective companies. Operating system pre-installed on all portable products. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. 7062/02/01

Voilà!

CorelDRAW[®] 10

GRAPHICS SUITE

It's here—CorelDRAW[®] 10 Graphics Suite—and you won't believe what we've conjured up for you this time. Our latest release features Corel R.A.V.E.[™], a brand new application that lets you perform feats never before possible. Feats such as creating vector animations, making roll-over graphics, editing timelines and converting images to Macromedia Flash[™] SWF format.

But animation isn't the only trick we have up our sleeve.

We've also given you impressive *new* support for SVG on the Web, *new* PDF/X options and *more* customization control. The result is pure creative magic that will leave you spellbound.

Visit www.corel.com/draw10



YOUR TAKE ON: The ideal interface ♦ Spy programs ♦ Viruses on Linux

MORE ON DIGITAL CAMERAS

YOUR ARTICLE ON the top digital cameras ["Sharp Shooters," December] implies you must spend \$500 to \$1000 for decent images; I disagree. My wife recently won an Intel Pocket PC, which can be used as either a tethered Webcam or a pocket camera. Its combination of features, price (\$150 list), and included software has really impressed me.

Bobby R. Lewis, Waterford, Connecticut

YOUR ARTICLE DID not list any Sony digital cameras. I have a wonderful Sony Mavica, and with the use of floppy disks, I find it easy and economical to operate. Why did you not review Sony cameras?

Marilyn McNabb, Fort Myers, Florida

Editor's response: We asked Sony to participate in our roundup, but unfortunately it declined. We review digital cameras—including Sony models—regularly in *New Products* and on our Web site. —Lisa Cekan

ENOUGH already on digital cameras! Maybe you folks at *PC World* could create a new magazine and call it *PC Camera*. Then a lot of us who read *PC World* could get back to what we really want, reading useful stories about computers.

R. S. Mundy, via the Internet

LOOKING FOR A BETTER GUI

STEPHEN MANES ["The Curse of User-Hostile Design," *Full Disclosure*, November] touches on a point that needs to be raised time and again: Graphical user interfaces can be better designed.

As a traditional artist gone digital, I have found that digital multimedia lets artists reach a far greater audience, but the tools to take our ideas from concept to digital



drawing board can be terribly restrictive.

Systems and interfaces must be able to reflect the way the user (whether a pilot, a stock trader, or an artist) thinks,

and applications should look, feel, and react like one's regular tools—digital paint and paintbrushes, for example, should be as much as possible like the real things.

A complete rethinking of input hardware is also needed. Mice, drawing tablets, and keyboards should take a cue from intuitive devices such as the electronic synthesizer that lets you make music by moving your hands in space.

Frederick Lepine

Hay River, Northwest Territories, Canada

SPY APPLETS AND SNOOPWARE

AFTER I INSTALLED LavaSoft's AdAware, as recommended by Steve Bass [*Home Office*, December], I found over two dozen spy applets in my hard drive. After deleting them, I discovered that some of my game programs would not run and also that certain files were missing.

I deleted and reinstalled the programs. They worked just fine, but, my suspicions aroused, I again scanned my computer with AdAware. Voilà! It found 11 new spy applets. These were undoubtedly packaged in the "free" games—and all are now permanently uninstalled.

Arthur M. Horst, Reading, Pennsylvania

YOUR ARTICLE "Is Your PC Watching You?" [*Top of the News*, December] listed several pricey (\$60 to \$100) applications used to monitor desktop computers. Several other high-quality monitoring apps are much less expensive. For example, Surf Spy (\$20) and 007 Stealth Activity Recorder and Reporter (\$50) are both very powerful. Demos of both can be downloaded from various shareware sites.

Chris Fast, Wasilla, Arkansas ▶

HOT BUTTON

Is Online Support Better Than the Phone?

YOUR ARTICLE "Help Without the Hold Music" [*Consumer Watch*, December] struck a chord. As a former tech support rep with an Internet service provider, I know that talking with the customer is sometimes the only way to diagnose their PC. When companies turn to e-mail and ambiguous FAQs in place of "real" tech support, consumers can suffer days and weeks of e-mail tag. Even real-time chat is subject to connectivity problems.

Philip R. Georger, Buffalo

IN THEORY, I'm all for online tech support. In practice, I don't like it. Most vendors I've contacted have either not responded or sent irrelevant form letters. And online support is no help at all if you can't get the PC to boot in the first place, or if the problem prevents you from getting online. However, I would much rather get a quick response online than wait on hold for an hour or more.

Bill Stewart

Huntington Station, New York

ONCE WHEN I'd had a problem for several nights, I decided to try my ISP's chat support. After I waited for some 25 minutes, a tech came on, but many of his proposed solutions were things I had already tried. Final suggestion? Reformat and reinstall from scratch. This would have been a *big* pain for me, especially with all my peripherals. Instead, I worked on my system another 15 minutes and solved the problem. I think I will keep doing my own fixing, thank you very much!

Sheila Foss

Nottingham, New Hampshire

MOST COMPANIES find that if they do not even deign to answer their e-mail, they have no support costs. The number of times I have e-mailed major companies about their product and received no response would fill a large book.

Paul D. Motzenbecker Jr.

University Park, Maryland

RULE #1

THERE WILL ALWAYS
BE NEW DOOHICKEYS.

RULE #2

WE'LL ALWAYS
HAVE SOMEWHERE
TO PUT THEM.



AVAILABLE AT:
WWW.ANTHRO.COM
or 1-800-325-3841

It's automatic. Once you have it all, they invent something else. Thus the idea behind our modular furniture. They not only handle your current tools, but whatever whatchamacallits the future holds. To learn more about our expandability, astounding strength and lifetime warranty, visit our website. It's a fun, enlightening look into Anthro-culture.



LETTERS

NEXT-GEN VIRUSES AND LINUX

YOUR ARTICLE "Viruses: The Next Generation" [December] suggests that viruses targeting Linux systems are just around the corner. Unless you have access to the root account on a Linux system and use it for your normal business, the operating system does not let you interfere with the operation of the system itself. Macro viruses can certainly exist in Linux, if the software lets them and if Linux users are as lax on security as some Windows users.

Charles Ulrich

Albuquerque, New Mexico

Editors' response: You make a good point about Linux's virus security, but there are many ways malicious apps can try to get root access. New "root exploits" are discovered weekly. Because most standard Linux distributions are open-source, these holes are plugged quickly. Staying on top of these patches can be daunting, but fortunately, major distributions automate the job.

—Kim Zetter and Matthew Newton

PC World welcomes your letters to the editor. Send e-mail to letters@pcworld.com. ■

CORRECTIONS AND CLARIFICATIONS

IN JANUARY'S *Top 10 Power PCs*, the price of the Tangent Medallion Pro should have been listed as \$2409; also, the system does not ship with Microsoft Office SBE.

In December's *New Products*, the URL for EMachines and its MSN Companion should have been listed as www.e4me.com.

Contrary to a statement we made in December's "Don't Judge a PC by Its Clock Speed" (page 140), AMD's Athlon CPUs offer the most total cache.

In December's *Internet Tips*, the URL for software developer Forté should have been listed as www.forteinc.com.

In November's "Speed Secrets," our chart "Where the Chips Fall" should have included PC100 SDRAM as one of the memory types supported by the Pentium III CPU.

CLARIFICATION: In November's "Net Phones: Dialing Without Dollars," we selected Deltathree (aka IConnectHere.com) as the best free Internet phone call service. After we went to press, Deltathree changed its offerings, and its services are now fee-based.

PC World regrets the errors.

A whole new dimension on flat.



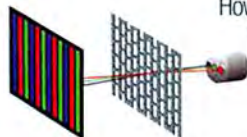
Experience perfect images with PerfectFlat® technology from ViewSonic®.

What is a PerfectFlat monitor? It's just as it sounds. From edge to edge, corner to corner, these state-of-the-art monitors deliver stunning images on a perfectly flat surface for brighter colors, true-to-life proportions and virtually no glare. Quite simply, they're changing the way people experience computing.

Technology designed to exhilarate.

How does it work?

Our PerfectFlat monitors utilize two distinct technologies—aperture grille and shadow mask.

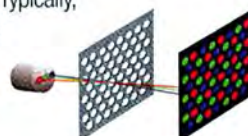


Aperture Grille

With an aperture grille tube, the electron beam filters and focuses light through a vertical strip. As a result, the monitor displays brighter images with rich, saturated colors. Typically,

it's the technology of choice for graphic artists and designers.

With shadow mask technology, the electron beam is filtered through a metal plate punched with microscopic holes for crisper images. It's ideal for CAD/CAM, precision graphics and heavy text applications.



Shadow Mask

Model	Technology	Size (Viewable)	Dot Pitch/AG Pitch	Maximum Resolution
P2251	AG	22" (20.0")	.24mm	2048 x 1536
P2201	AG	22" (20.0")	.25mm - .29mm	1600 x 1200
P951	AG	19" (18.0")	.25mm - .29mm	1920 x 1440
PF790	AG	19" (18.0")	.25mm - .29mm	1600 x 1200
PF775	AG	17" (16.0")	.25mm	1600 x 1200
G901	Shadow Mask	19" (18.0")	.21mm	1600 x 1200
E701	Shadow Mask	17" (16.0")	.25mm	1280 x 1024

(800) 888-8583 • Internet: www.ViewSonic.com • Specifications subject to change without notice. Copyright © ViewSonic Corporation 2000. *ViewSonic ranks as United States' #1 best selling flat panel display by Display Search (Q2 '00) and the leading non-captive monitor brand by Stanford Resources, Inc. (Monitor Q1 '00). All rights reserved.

You're in good company with ViewSonic.

With our extensive line of PerfectFlat monitors, ViewSonic is not only leading the way in Visual Technology™ innovation, we're on the forefront of customer service as well. Our warranty program and 24/7 technical support are unmatched in the industry. We believe when you purchase any ViewSonic product, you're not just buying a monitor. You're buying the finest Display Technology™ on the market from the company that has won over 1,000 industry awards and offers the #1 best selling monitors and flat panel displays in the USA*. **For more information on PerfectFlat technology from ViewSonic, visit our website at www.ViewSonic.com.** And experience a technology that's flat-out superior.

The Visual Technology Company™





AFFORDABLE COLOR COPIERS

The Toshiba FC22 color copier boasts our exclusive Color Inline Printing System, which makes it the fastest, smallest and most affordable copier in its class. Delivering an unprecedented 9600x600 dpi color resolution, this champ comes network-capable so you can print remotely and color scan on the fly. In short, it's a whole lot of copier for very little coin. For more information on our copiers, fax machines and printers visit copiers.toshiba.com.

TOSHIBA
Don't copy. Lead.



Gimme Wonder!



Never miss your favorite TV show again!

With ALL-IN-WONDER® RADEON™ you don't just watch TV on your PC you control it. The new TV-ON-DEMAND™ time shifting feature lets you pause live television, create your own instant replays and digitally record programs on your PC. Don't miss the final play of the game – put the action on hold while you answer the phone. And with the TV Guide® Interactive Program Guide you watch TV on your own terms – it's your Internet updated, personal TV listings guide. Search for programs by title, category, performer or date and tune in instantly. Talk about reality TV, this is it!

ALL-IN-WONDER® RADEON™ gives you incredibly fast 3D graphics, plus interactive TV, video editing and much more – all in one upgrade card. Just say GIMME WONDER and you can have it all. Visit ati.com today for more ALL-IN-WONDER® facts and feature information.



Copyright 2000, ATI Technologies Inc. All rights reserved. ATI, ALL-IN-WONDER and RADEON are trademarks and/or registered trademarks of ATI Technologies Inc. The TV Guide logo is a trademark and/or registered trademark of Gemstar-TV Guide International.

Visit ati.com

Return to Sender— If You Can

*Getting a bum PC is a headache,
but sending it back can be even worse.*



SANDRA MARTON had a problem. The final copy of her novel was due to her editor in two weeks, and her computer was on the fritz, leaving her stranded—an author without a word processor.

The plot thickens: Marton's PC, a Dell 4100, had already been replaced once. She'd had the first system for only a few weeks before it started displaying error messages at start-up. After spending hours on the phone and online with Dell support technicians, who diagnosed a faulty motherboard, Marton asked for a new system. Nope, the company said, you're too late—no returns or exchanges after 30

days. But Marton, who lives in Storrs, Connecticut, pointed out that the system had started malfunctioning before the 30-day deadline. It was Dell's lengthy diagnostic efforts that had stretched things beyond the deadline. Dell finally relented and sent her a new machine.

Within days the replacement system took up its predecessor's bad habits. Exasperated, Marton asked for a refund. Impossible, Dell replied. Not one to take no for an answer, Marton kept trying. One representative told Marton she "might" be able to get a refund but would have to pay a 15 percent restocking fee plus shipping charges. Not fair, Marton countered. Why should she be penalized for Dell's problem?

Dell eventually found a software fix for her PC, but Marton maintains that the company needs to take a "long, hard look" at its return policies. "I ended up spending hours online and on the phone, and was repeatedly told that I couldn't return the computer. I never expected to get such a runaround from a company as well-respected as Dell."

If it seems from Marton's experience—or your own—that computer manufacturers will do almost anything to avoid taking back a problem PC, you're not imagining things. Dell's executive support manager, Geoffrey Sanders, acknowledges that the company's tech support representatives try first to fix a problem PC and prevent a return or refund.

Of course, sometimes fixing a balky or broken machine is the right approach. But there are also times when a repair just won't do. Perhaps you're fed up after losing too many hours to previous, fruitless repair efforts. Perhaps the system, even when it's working, just doesn't do what your business requires.

THE RULES OF THE GAME

BUT RETURNING a PC is seldom easy. Sure, many vendors are taking an increasingly down-home approach to marketing consumer PCs ("Technology's great," asserts Gateway's new slogan, "but people rule!"). That friendly folksiness often disappears, however, when customers talk about sending a misbehaving computer back for replacement or a refund. If your new Gateway Profile or Select, for instance, starts acting up more than 30 days after it leaves Gateway's cow-colored warehouse, you'd better start praying to the tech support gods—you're stuck with it for better or for worse.

Gateway isn't unique, either. Return poli- ►

Introducing... Continuous Renewal Program

Tired of
receiving
early
renewal
notices?

Renew
once and
avoid
future
hassles!

For more information,
contact Tina Phelps

PHONE
800-395-5763

FAX
415-882-0936

EMAIL
customer_service@pcworld.com

CONSUMER WATCH

cies were strikingly similar among the direct PC vendors that I spoke with.

If your PC goes south within the allotted return time (30 days from the date it ships is standard), you'll usually need to obtain an RMA (return merchandise authorization) from the seller before you send the system back. That process isn't always straightforward. You may wait an eternity to get through to someone who can authorize the return. Or you may get shuffled back to technicians who will keep trying to fix the machine even after you're fed up. What if your 30-day window closes while company technicians are trying—and failing—to fix your machine? Some companies may say you're out of luck. So keep a written record of every phone call, including the date, the name of the person you spoke with, and the outcome of the call. That information will help you establish your right to return the machine if the repair efforts fail.

It's also important to know a company's return policy *before* you buy. If you decide to return a PC, you'll almost certainly be expected to pay all shipping and handling costs, including insurance charges. And don't even think about recycling those original boxes or popping so much as a cell of bubble-wrap during that first month. You'll need to repackage the system as it was shipped or risk having your return shipment refused and sent back to you at your expense. In addition, if you've opened any software boxes, the software is yours unless it's defective—whether or not you have a computer on which to run it. And finally, you may be charged a restocking fee—in some cases, up to 25 percent of the original purchase price—just for the privilege of returning a system that may never have worked.

DIRECT VERSUS RESELLERS

IF YOU'RE HOPING to find kinder, gentler return policies at an online reseller of PCs such as PC Connection or CDW, don't count on it. In fact, you may find yourself snared in a tighter set of restrictions. Not all products the sites sell come with a money-back guarantee, so you could be forced to deal with time-consuming repair attempts (and every time

you send your equipment in for repair, you pay the shipping costs). Also, many online resellers don't allow returns at all for some product lines—if you buy a Compaq, HP, or IBM from Outpost.com, for example, and it turns out to be a lemon, you'll have to take your problem directly to the manufacturer.

Old-fashioned retail stores like CompUSA or Circuit City can be even tougher when it comes to returns and refunds. Most offer you a scant 14 days to decide if you want to keep your new PC. And most charge a 15 percent "open box" ("restocking") fee for all returns.

Why are PC sellers' return policies so restrictive? One reason is the speed with which computers become obsolete. That processor that was top of the line when you bought can soon be replaced with something even faster. The restrictive policies also stem from the difficulty of diagnosing PC problems. Companies want to make sure they're taking back machines that are truly defective, not those that simply have two pieces of software at war. Unfortunately, they do that by making the return process a burden for the customer.

Obviously, I'm not trying to scare you out of ever buying a new machine. But before you hit the buy button, be sure there's a return key. Find out the time limit for returns and when the clock starts ticking. Look for a 30-day money-back guarantee, and ask if it has any restrictions. Find out how to obtain an RMA; ideally, you should be able to request one by phone or e-mail. If you can't find those details on a Web site, pick up the phone.

If you're buying from an online reseller, identify which manufacturers, if any, are exempt from the site's standard return policy. Ask who covers shipping costs and insurance for returned goods—some companies pay for returns on defective equipment on a case-by-case basis. Finally, avoid restocking fees if possible.

Once you've got the scoop on returns, place your order and clear your calendar. Thirty days goes by quickly in PC time.

Anne Kandra is a contributing editor for PC World. ■



open

Instant Strength.

When you're trying to get your message out, a great website shouldn't be your only point of strength. You need the power to get closer. Your branded browser will let you create and maintain a strong, persistent relationship with your audience. Control the desktop. YOUR brand. YOUR content. YOUR audience. Power-up your marketing efforts. We can show you. Contact: bizdev@neoplanet.com

Partners who Power-up with NeoPlanet.



NeoPlanet, Inc.
p. 480.317.2158
bizdev@neoplanet.com
www.neoplanet.com



powered by:

NEOPLANET™

CURIOSITY NEVER

Somehow, somewhere, Curiosity got a bad rap. And that's unfair, because with the exception of the person who inquisitively put two chemicals together to form the first explosive, Curiosity is by and large a good thing. More than anything else, Curiosity encourages us to learn. To use more than the one one-thousandth of our big, beautiful brain needed simply to eat and breathe. Curiosity frees us. From bad things like boredom. And even worse things like mediocrity. But Curiosity needs legroom. It needs open space to stretch and run and to practice one-handed cartwheels. That's



KILLED ANYTHING

why the Internet is the perfect place for Curiosity to live.

But not some dumbed-down version of the

Internet. Curiosity needs the real Internet, the

way it was meant to be. The real Internet

doesn't have borders or restrictions. The

real Internet is anonymous. It doesn't sell

your information or exploit you for profit.

And perhaps most importantly for the sake of

Curiosity, the real Internet isn't prepackaged and

picked over before you get to it. It's infinite. That's the

real Internet. When you choose a way to get there,

choose wisely. EarthLink.™ The #1 provider of the real Internet.

 **EarthLink™**
1-800-EARTHLINK

PRINT

COPY

RICOH

STORE

DEPENDABLE OUTPUT* DEPENDS ON DEPENDABLE DIGITAL™

FAX

A white line drawing of a hand pointing its index finger at a computer mouse. A cable starts from the mouse, loops around the left side of the main text, and ends near the word 'FAX'.

* **IMPORTANT:** your printing output should never be put at risk. Dependable printing output depends on **DEPENDABLE DIGITAL™** printing solutions from Ricoh.

1-800-63 RICOH ricoh-usa.com

© 2000 Ricoh Corporation

We're in your corner.

RICOH®
Image Communication

PC Repairs: The Real Price You Pay

NICK SCOTT OF Pennington, New Jersey, decided to give his three-year-old PC a full makeover. He added a faster processor, more RAM, a new hard drive, a CD-RW drive, and a sound card. His upgraded PC worked fine for a couple of weeks—and then the new hard drive died.

At that point, the hard drive's return period had expired, so he went to CompUSA for help. "I was upset to find out that CompUSA charges a \$100 flat fee just to figure out the problem with the computer," laments Scott. "When I picked up my PC, a rep told me that my new hard drive was broken and that he had replaced it with my old hard drive."

Anytime you need repair service from a shop that did not originally sell you the PC or the component, be aware of the up-front costs. For starters, you'll be charged a diagnostic fee—before a technician even looks at your computer and regardless of whether the shop ends up fixing the problem.

Diagnostic fees vary from shop to shop, and, usually, the initial charges apply toward labor. CompUSA, for example,

charges \$100 at the outset (\$140 for laptops), plus the cost of replacement parts. If CompUSA eventually fixes your computer, that initial \$100 covers all labor.

Other shops may have lower initial fees but varying labor costs. Circuit City imposes a non-refundable \$30 diagnostic fee that can be applied to the final total if its repair department does fix your machine; for labor, Circuit City charges anywhere from \$74

to \$124, depending on the job.

Before taking your ailing PC to a shop, check around: Consult the Better Business Bureau and users groups about different stores' reputations, call stores about their fees, and compare overall repair costs. For more information on PC repairs, read "PC Repair Undercover" (www.pcworld.com/aug2000/undercover).



Heads Up...



RhinoPoint Vanished? What sounded like a sweet deal went sour: RhinoPoint.com offered an arrangement under which users would receive a payment toward their monthly ISP charges in exchange for filling out a monthly online survey. But here's the catch: People who wanted to sign up had to pay a \$15 registration fee. Jason Mudd of Jacksonville, Florida, was one of many surfers who did so. But after a couple of months, the surveys stopped appearing. Mudd, like some others I heard from, didn't receive a single payment. RhinoPoint seems to have vanished: Its site is nonexistent, e-mail messages bounce back, and its phone numbers are out of service. **MValue Wiped Out:** Pay-for-surfing site Sweep-Surf.com (formerly MValue.com) has shut down due to financial troubles. In an apologetic e-mail message to members, the company said it won't be paying users their promised 50 cents an hour for viewing ads as they surfed the Internet. **Agfa Adapter Recall:** If you own an Agfa EPhoto CL30 digital camera and use the EPhoto AC adapter with it, you may run into trouble. When the adapter is used while batteries are still inside the camera, the batteries can overheat and leak acid. Worst case: The batteries might explode. To get a free replacement adapter, call 877/699-4387.

LETTER OF THE MONTH



I BOUGHT an \$899 IBM ThinkPad notebook at PC Mall (www.pcmall.com) that wasn't what I expected. It was refurbished, had scratches, and came with a faulty, incorrect network card. When I called PC Mall to get a replacement card, a rep told me to call IBM. Then IBM informed me it wasn't responsible for replacing faulty parts because a third party (Rumarson Technologies) had refurbished the laptop. Rumarson hasn't sent me a new card. Can you help?

Martin Korzen
Mullica Hill, New Jersey

GOTTEN A RAW DEAL?

Or a great one? E-mail the details to onyourside@pcworld.com. We'll follow up on and publish items of the broadest interest. Aoife McEvoy is a senior associate editor for PC World.

On Your Side responds: I contacted all three companies on Korzen's behalf. According to Alexander Prieto, director of customer service at PC Mall, "[PC Mall] incorrectly listed the notebook as being covered by IBM. The company that refurbished the product covers the warranty for 90 days." Since Korzen needed a network card, he ended up buying a new one. Shortly after that, another card finally arrived from Rumarson. Before you buy a computer online, check the warranty coverage in case something goes wrong later on. It may save you a lot of trouble. ■



I'M LISTENING.™

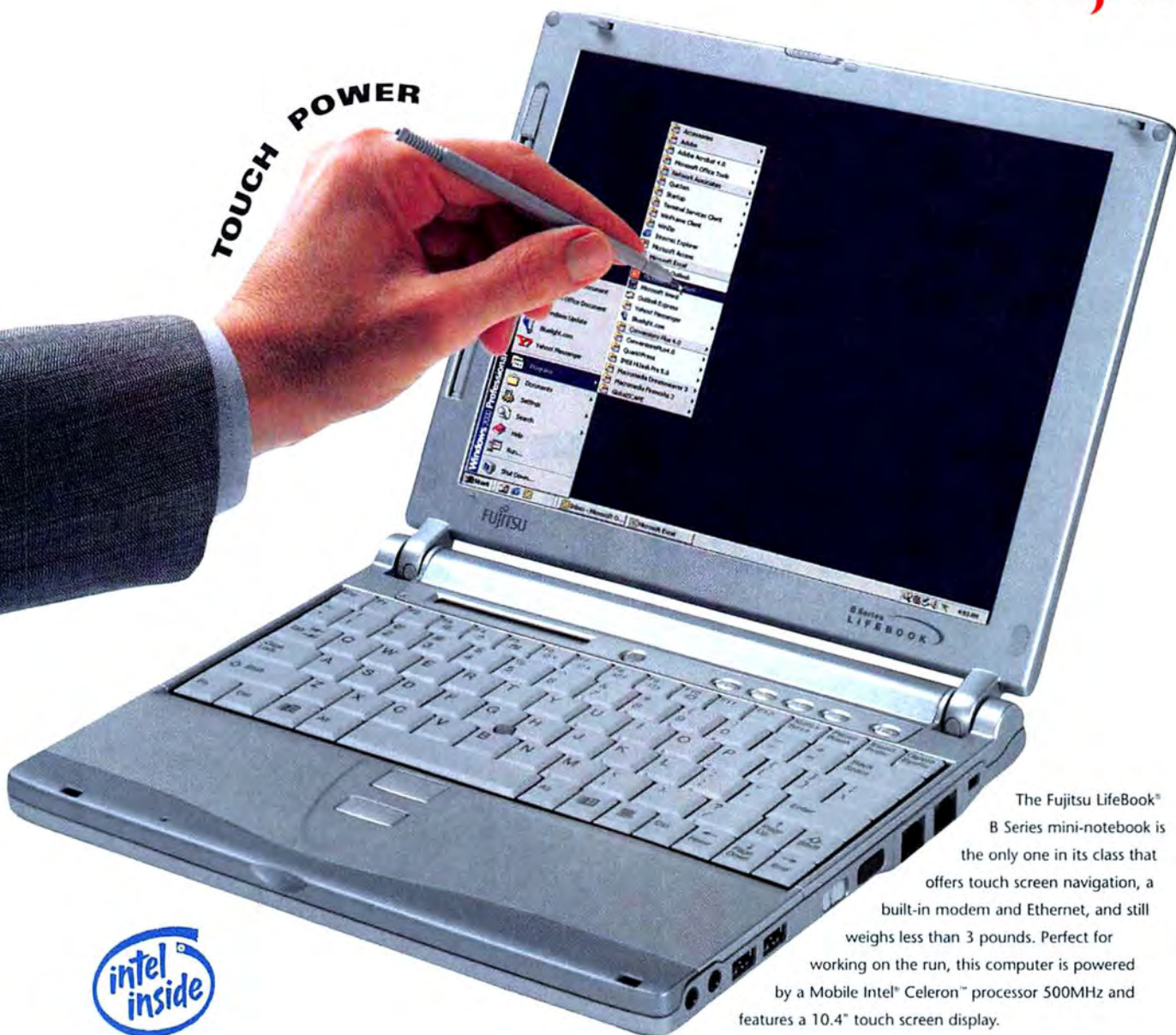


Rio®
riohome.com

THE POSSIBILITIES ARE INFINITE

FUJITSU

TOUCH POWER



The Fujitsu LifeBook® B Series mini-notebook is the only one in its class that offers touch screen navigation, a built-in modem and Ethernet, and still weighs less than 3 pounds. Perfect for working on the run, this computer is powered by a Mobile Intel® Celeron™ processor 500MHz and features a 10.4" touch screen display.

Can a full-function notebook really weigh under 3 pounds? YES! Our LifeBook B Series is a heavy hitter in the performance department but a real light weight in the travel bag. Full touch screen features, power, performance, and durability. This little guy is built to travel and delivers every time! The B Series may just be the perfect traveling companion...hard working, good looking and easy to carry.

Fujitsu recommends Windows® 2000 Professional for business.

For a complete line of Fujitsu mobile products, please visit us at www.fujitsupc.com or call us at 1-877-FPCDirect.

Fujitsu and the Fujitsu logo are registered trademarks and LifeBook is a trademark of Fujitsu Limited. Intel, the Intel Inside Logo are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other trademarks mentioned herein are the property of their respective owners. © 2000 Fujitsu PC Corporation. All rights reserved.

Tuning in to Internet Radio

I LOVE RADIO. The old-fashioned type, I mean—the kind that comes in fine on the boom box I've owned since Milli Vanilli was blazing up the charts. Web radio, on the other hand, had always left me cold. I tended to obsess about the medium's downsides. It hogs bandwidth. It often

produces iffy sound quality. And it's utterly unportable. (Ever tried to string a modem line to the beach?)

Lately, though, I'm listening to lots of Web radio—and liking it. What changed? My mind-set, mostly. (That and the fact that I'm now using a cable modem with bandwidth to spare.) True, Net broadcasting won't kill its over-the-air ancestor anytime soon. But the largely silent world of PCs and the Web needs a soundtrack, and Net radio does the job. In fact, I'm humming along to a little Creedence Clearwater Revival ("Susie Q") as I tap out this column.

As with much of what's on the Web, the sheer variety of Internet radio is one part blessing, one part curse. There are thou-



sands of channels out there, originating from practically everywhere and broadcasting a staggering range of genres. But this embarrassment of audio riches is balkanized into an array of incompatible technologies: Some stations broadcast in RealAudio, others in Microsoft's Windows Media, and a few wor-

thy contenders use proprietary systems. To explore Net radio seriously, you'll have to download, update, and troubleshoot a passel of player programs.

You'll also need a good station guide. There are plenty to choose from—old dependables include Microsoft's WindowsMedia.com, Real's RealGuide (realguide.real.com), and Yahoo's Yahoo Radio (radio.yahoo.com). If I had to choose just one, though, it would unques-

New on the Net...



Mixed-Bag Browser: Who says the browser wars are over? With the final version of Netscape 6, the venerable browser has battled its way back onto my desktop. (It's available at PCWorld.com's Downloads and at www.netscape.com.) This upgrade has a slick new look, handles Web site user IDs and passwords better than Internet Explorer, and sports a built-in version of Instant Messenger that's almost worth the download by itself. But at press time, many worthwhile sites (DialPad.com, Octopus.com, and ThinkFree.com, among others) misbehave or won't operate at all in Netscape 6. Stay tuned for further developments... **Mapping the Web:** If you've ever tried to find something on the Internet and ended up thoroughly lost, take a gander at Map.net. This inventive Web directory organizes its links into a map; related sites are clustered geographically, and you can zoom in for more detail. Its visual approach can't fully replace more orthodox search tools, but it's addictive and fun.

tionably be VTuner (www.vtuner.com), a nifty downloadable front-end for RealPlayer. Like other guides, VTuner lets you browse stations by genre or geographical location. But you can also search for a particular show, or get schedules of what's on right now. VTuner also rates stations' reliability and audio quality—an invaluable feature given how many stations are barely listenable (when you can connect at all).

Did I imply that VTuner could quench my thirst for Net radio all by itself? I lied. Spinner Plus (www.spinner.com) is equally indispensable, for different reasons. This free player program broadcasts 150 wonderfully nichey music channels, including ones devoted to klezmer, Hawaiian tunes, early reggae, and the always-essential Hi NRG Dance. The ▶

GIMME FIVE

The Best Antispam Sites



GOT AN in-box that's rife with ads for pyramid schemes, sleazy sex sites, and questionable pharmaceuticals?

Fight back with these online resources.

1. Junkbusters: Essential tips, tools, and news here help you combat both junk e-mail and junk snail-mail. www.junkbusters.com

2. Brightmail: This service filters spam out of your POP3 e-mail account, and it's free to individual users. www.brightmail.com

3. Spamhaus: A rogues' gallery of known spammers and the ISPs that keep them in business. www.spamhaus.org

4. SpamCop: Help spam merchants get what's coming to them—use SpamCop to tell their ISP what's going on. www.spamcop.net

5. The alt.spam FAQ: Everything you ever wanted to know—and then some—about the odoriferous business of bulk e-mail. digital.net/~gandalf/spamfaq.html

sound quality is reliably decent, and while the Spinner program itself is crammed with on-screen ads, I barely notice them. (Also, Spinner has a minimum of audio ads compared with traditional radio.)

SONNY, CHER, AND...CHOPIN?

OF COURSE, having an endless parade of online stations doesn't guarantee you'll chance upon one that nails your musical whims. Enter personal radio: channels you can meld to your ears' content. Radio Sonicnet (radio.sonicnet.com) offers such stations, as does MusicMatch 6—the latest edition of a Swiss Army Knife-like program that should be on every music lover's hard disk.

With both services, you choose from an array of musical genres and specify just how much (or how little) of each you want to hear. In other words, you can create a station that's a little bit country, a little bit rock 'n' roll. Or one that's largely jazz vocals, with healthy infusions of soul and

Brazilian pop, a dash of swing, and just a hint of Tex/Mex—which is what I whipped up at Sonicnet.

As of press time, Radio Sonicnet let users mix and match more than 50 musical styles, but oldies wasn't one of them. (Sorry, Archies fans.) MusicMatch has oldies—but with 18 genres, it doesn't offer Sonicnet's sheer tweakability.

Unfortunately, the arcane licensing restrictions mandated by music companies limit just how personalized these personal stations can be. For example, MusicMatch doesn't let you select specific performers; Radio Sonicnet does, but you must choose a daunting 60 (!) faves. Which means that for now, at least, you can't program an all-Boyz Scaggs channel.

So much for radio that adjusts to your tastes. How about radio that adapts to your schedule? Some online broadcasters are leaving shows up so you can listen to them whenever the mood strikes. Public stations are doing it with the most gusto:

F Y I

Only 7 percent of Net users have ever bought a prescription online, says a new survey. What a downer for would-be online druggists.

SOURCE: INSIGHTEXPRESS

National Public Radio (www.npr.org) has archived several years' worth of a bunch of programs. (*Car Talk*, alas, is not among them.) Also worth a listen: KCRW.com, home of Harry Shearer's *Le Show*, the funniest hour on radio (and one that I listen to only on the Net, since my neighborhood public stations refuse to carry it).

All in all, I must admit that my trusty old boom box is seeing less action nowadays. Its portability still rules, though, so it's definitely safe from the Salvation Army—at least until someone comes up with a PC that can dub cassettes.

Contact PC World Executive Editor Harry McCracken at websavvy@pcworld.com. ■

Asanté Broadband Router Rated "Best Buy"

PC WORLD
BEST BUY
FriendlyNet FR3004LC
January 2001

Asanté's new FriendlyNET™ routers are ideal for sharing high-speed Internet connections in your home or office. Just connect multiple PCs and Macs to share your cable modem or DSL Internet service. Advanced firewall security with integrated 4-port 10/100 switch gives you the power and flexibility to start or expand your network.



FriendlyNet Cable/DSL Router
with web-based configuration



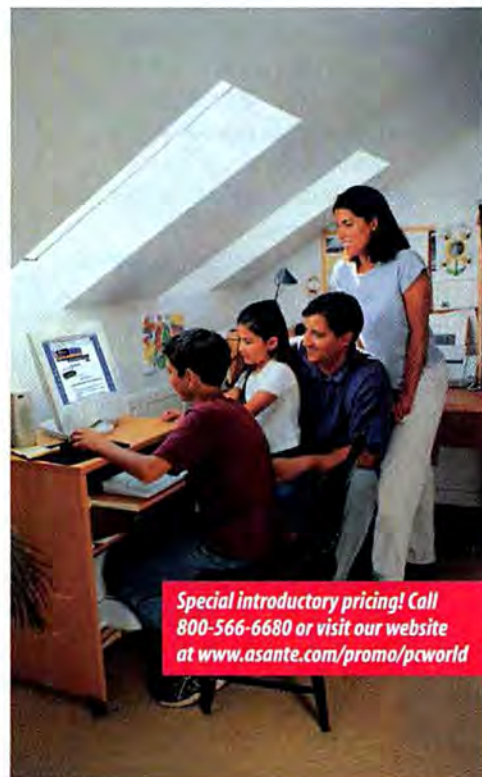
"Easier to configure"
— PC World Magazine
January 2001



"The best value."
— Macworld Magazine

Feature Comparison	Asanté FR3004LC	Linksys BEFSR41	Netgear RT311
Web-Based Configuration	Yes	Yes	Command line required for many features
Ideal for Mac/PC networks	Yes	No	No
Advanced Security:			
Log intrusion attempts	Yes	No	No
Ports open on-demand	Yes	No, always open	No, always open
Group security	Yes	No	No
Physical security	Yes	No	No
Backup Modem Port	Yes	No	No
Print Server	Yes*	Add \$170 for 1 port (PPSX1)	Add \$245 for 3 ports (PS113)
Performance	Best	Slower**	Slowest**

ASANTÉ
www.asante.com



Special introductory pricing! Call
800-566-6680 or visit our website
at www.asante.com/promo/pcworld

© 2000 Copyright Asanté Technologies, Inc. Asanté is a registered trademark of Asanté Technologies. The Asanté logo and FriendlyNet are trademarks of Asanté Technologies. All rights reserved. * Asanté FriendlyNET Router model FR3004LC. ** Practically Networked benchmarked the Asanté FriendlyNET FR3004 series to be significantly faster than the Linksys (up to 25% faster) and Netgear (up to 42% faster) routers.



Quite a site to see. www.iiyamadirect.com



TrueFlat

17" i70A -
\$269
19" i90A -
\$479



LCD

15" TFT - \$899



Shadow Mask

17" S700 -
\$199
19" S900 -

iiyama

Call now to buy direct at (800) 394-4335 or visit us at www.iiyamadirect.com

© 2000 iiyama North America, Inc. All rights reserved. iiyama, the iiyama logo, the RSVP logo, VisionMaster, Pro Lite, and TrueFlat are trademarks of iiyama North America, Inc. All other trademarks are the properties of their respective owners. Prices shown are iiyama direct prices. Reseller and retailer price may vary. Prices shown are subject to change and do not include any applicable sales tax or shipping and handling to recipient's destination. Specifications are subject to change without notice. For more information, please write us at 1560 Brookhollow Dr., Suite 208, Santa Ana, CA 92705. 800/394-4335, 714/437-5111; Fax: 714/437-7793

Corporate inquiries welcome. Call (800) 914-9264



ISO 14001

ii code 10



Think Ink!

For all your everyday printing needs, think ink cartridges from Wal-Mart. We carry all name-brand printing accessories, including Hewlett Packard®, and, even better, they're always at our Every Day Low Prices. So when you "think ink," think Hewlett Packard ink cartridges in Wal-Mart's Home Entertainment Department.



WAL★MART®
ALWAYS LOW PRICES.

Always.



Walmart.com
©2001 WAL-MART

Get the Picture: PC Video Untangled

OH, THE JOYS of playing a video on your PC. When you've got the right file format running in the right media player at the right speed, it's a technological marvel. But all too often the video player says, "Hey, that's an Apple movie, pal! So go take a flying leap!" Or words to that effect.

Fortunately, you can do more than just shrug when a video won't play on your PC or a Web site won't let you download a video file for offline viewing. This month I share a few of my video secrets with you. So now, for your viewing pleasure, Bass Productions presents, "What's Wrong With This Picture?"

The day after my October column about the wireless video camera that I installed in my backyard hit the newsstands (see *Home Office*, www.pcworld.com/oct2000/webcam), e-mail began flooding my inbox from readers kvetching that the AVIs I created wouldn't play on their PCs.

The number one problem: not having the right media player or browser plug-in needed to play one or more of the primary video-file formats—Microsoft's ASF (also called NetShow) and AVI, Apple's QuickTime (MOV), RealNetworks' RealAudio (RA), and the open MPEG format. To complicate matters, QuickTime and RealNetworks' RealPlayer play AVI, and RealPlayer also plays ASF. All of these plug-ins and players are available for free at PCWorld.com's Downloads.

Updating your players will solve most problems, but some players won't let you view a video even if you smack the side of your monitor smartly (long the electrician's repair technique of last resort). Some AVI, MPEG, and MOV files must be downloaded to your PC before you can view them. Videos in these formats play directly from your PC rather than streaming off the Web. This gives you more con-



The number one problem: not having the right media player or browser plug-in.

trol over the way the videos play, and downloaded video files generally play back more smoothly. The disadvantage: They take a while to download.

If a video you want to download and play later starts playing immediately, grab the reins: In both Internet Explorer and Netscape, right-click the link (or picture) and choose *Save As*. Note that RealAudio is streaming only, and the producer can set both QuickTime and RealAudio to stop you from saving or modifying the file. The workaround is to stop the file after it downloads but before it finishes playing, then find it by its temporary name in the Internet cache and save it with a new name in a new location. For more on streaming video, don't miss this month's *Internet Tips* (see page 197).

Even if you have all the right players and plug-ins, your PC may lack a codec (compressor/decompressor software). AVI, MPEG, and RA files can embed dozens of video and audio formats, compressed or

not. You may need to install a specific codec to view the video. When a file won't play, you'll see—if you're lucky—an error message identifying the missing codec. Upgrading to the latest version of the player solves most codec problems.

RobWare's \$10 File Investigator shareware (available from Downloads) lets you find the codec a video file uses with a single right mouse click. Armed with that information, go to Control Panel and check to see whether the codec is installed: Choose *Multimedia*, click the *Devices* tab, and select *Video Compression Codecs*. If the codec is missing, head for the Codec Zone (gonow.to/codeczone), a major supplier of updated codecs and a terrific utilities resource. It offers tools for converting various video formats and for combining and splitting files.

For an in-depth, understandable survey of movie players and codecs, visit Codec Central (terran-int.com/CodecCentral/GenInfo.html). It's the site I used to make sense of this *mishegoss*.

If you download the latest video players and codecs and still experience technical difficulties, it's time to embark on some independent study. Read John McGowan's excellent tutorial on AVI files at www.jmcgowan.com, and for troubleshooting MPEG problems, check the Moving Picture Experts Group's FAQ at www.cseit.it/mpeg/faq.htm. Then read Microsoft's "Troubleshooting Audio and Video Codecs," at support.microsoft.com/support/kb/articles/Q141/8/01.asp.

You'll find more utilities for creating, playing, and distributing video clips in "Top Ten Video Tools" (www.pcworld.com/news/video). Now that you've got the picture, go to PCWorld.com's Downloads to see the polar bear movies I created with a digital video camera on a trip to northern Canada—and no, fresh-frozen columnist was not on the bears' lunch menu.



Find files from this article at www.pcworld.com/downloads. Contributing Editor Steve Bass is president of the Pasadena IBM Users Group. Reach him at steve_bass@pcworld.com. Subscribe to his weekly newsletter at www.pcworld.com/resource/newsletters. ■

GO

HEAT®

HEAT® PowerDesk™

Copyright © 2000 FrontRange Solutions Inc. All Rights Reserved. GoldMine, GoldSync, HEAT, Maestro Commerce and other FrontRange products and brands are registered trademarks of FrontRange Solutions Inc. in the U.S. and/or other countries. Other products and brands registered trademarks of their respective owners/companies.

Microsoft Money muddles ♦ Win Me vs. Norton AntiVirus ♦ IE's new service pack

Microsoft Messes Up Your Money

DO YOU PROCRASTINATE when it comes to organizing your finances? Well, if you use Money 2001, you may be glad you don't always stay on top of money matters. Three bugs generate incorrect totals and other errors in Money 2001. Without Microsoft's fixes, your finances may not be in shape—and the IRS may have a bone to pick with you.

BUG The first problem causes Money 2001 to display incorrect costs for your portfolio investments. It may report double the amount you originally paid for those stocks, bonds, and antiques. Uh-oh.

FIX Get the patch along with a description of the errors at www.microsoft.com/downloads/release.asp?releaseid=25865.

BUG The second problem prevents the Today's Total Change values for mutual funds from being displayed in the Investing Center's Portfolio Performance view.

FIX Microsoft offers a solution and details about the flaw at www.microsoft.com/downloads/release.asp?releaseid=25864.

BUG When you import your brokerage's statement into Money 2001, you may notice exorbitant (and inaccurate) numbers. The value of bond purchases may be multiplied by 100. Consequently, you'll get an incorrect value in the register's total.

FIX To get the patch, surf over to www.Microsoft.com/downloads/release.asp?releaseid=25867.

WINDOWS ME LOCKS OUT NORTON ANTIVIRUS

A CLASH BETWEEN Windows Me and Norton AntiVirus could allow viruses to lurk in your system. The problem? Me won't allow AntiVirus 2000 or 2001 to scan one particular system folder. The root of the problem is a Windows Me feature called System Restore. The operating system creates a special folder where it periodically saves a complete snapshot of your machine's configuration and all your data. If your PC crashes, System Restore can return it to its original state without your having to wait for a complete refresh. To enable System Restore to do its job, however, the Me operating system creates a protected directory that cannot be accessed by Norton AntiVirus. As a result, unfortu-



I N B R I E F

Internet Explorer 5.5 SP1 Up for Grabs

MICROSOFT HAS FINALLY released Service Pack 1 for Internet Explorer 5.5. The new download promises to fix a handful of mostly minor bugs, including memory leaks. It also adds a bunch of cool new features. The new stuff includes a print preview mode showing how a Web page will look when printed, an auto-correction feature to fix your typing when you're trying to punch in long Web addresses, and improved offline browsing capabilities. Service Pack 1 also provides a new auto-search function that allows you to type queries directly into Internet Explorer's address bar, and the Content Advisor lets you set limits on the kinds of sites your kids can access. Find the download along with the usual instructions at www.microsoft.com/downloads/release.asp?releaseid=25479.

nately, you could have a stash of infected files lurking in Windows Me's protected folder and never know it.

Both companies have acknowledged the clash and have posted instructions for checking and disinfecting files in the protected directory. For Symantec's advice, visit www.symantec.com/techsupp, select your version of Norton AntiVirus, click Go, and type **System Restore** in the search field. Find Microsoft's posting at support.microsoft.com/support/kb/articles/Q263/4/55.asp.

MCAFFEE VIRUSSCAN CHOKES PCs

IF YOU USE McAfee's VirusScan version 4.0.2 and haven't updated your virus engine, you may have run into an annoying glitch. A conflict between an older version of McAfee's scanning engine and the latest virus definition file downloads can cause frequent system crashes. The troubled engine is version 4.0.02—now over two years old; the current, trouble-free version is 4120.

In this case, one updated definition file is incompatible with the older engine. As a result, some PCs completely freeze immediately after Windows startup. To prevent your PC from crashing, be sure to update your McAfee antivirus engine if you have version 4.0.02 or earlier. To find out whether your system has the out-of-date engine, load VirusScan and choose **Help>About** to display your engine's version number.

McAfee recommends that you update your virus-scanning engine every three months to avoid these problems. To upgrade your antivirus engine, go to www.mcafee-at-home.com/naicommom/download/updates.asp.

B U G G E D ?

FOUND A HARDWARE or software bug? Tell us about it via e-mail at bugs@pcworld.com.



You'll find files from this article at www.pcworld.com/downloads. Stuart J. Johnston is a PC World contributing editor.

Get a whole lot more!

Introducing the
Intel® Pentium® 4
Processor

"World's highest performance
desktop processor"



Systemax Venture Series with the Intel® Pentium® 4 Processor

Introducing the PC with the world's highest performance desktop processor. Systemax® Venture U14 features the Intel® Pentium® 4 processor - so you get a whole lot more than you ever expected. The Intel® Pentium® 4 processor provides true multi-tasking capabilities - with no compromises. Plus you get the power of the Intel® Pentium® 4 processor to bring you the Internet like you've never seen it before. Experience rich content in real time with revolutionary, new Intel® NetBurst® micro-architecture. Systemax® Venture PCs with the Intel® Pentium® 4 processor give you advanced technology designed to protect your investment, with plenty of extra headroom for the future.

Every Systemax® Venture PC is built at our ISO 9001 certified facility and comes backed by an industry leading warranty. Systemax® Venture PCs come with a 3.5" Floppy Drive, a 104-Window Keyboard, a Microsoft Intellimouse, 1 Year Extendible Limited Warranty, 24x7 Tech Support and 1 Year On-Site Service (provided by BancTec). With Systemax, you get a whole lot more.

Systemax recommends Windows® 2000 Professional for Business

Venture PVW-U14

- Intel® Pentium® 4 processor 1.4 GHz 256K Advanced Transfer Cache
- 128MB RDRAM
- 30GB Ultra ATA 7200 RPM Hard Drive
- TNT2 M64 4X Graphics Card (32MB)
- 17" (.25dp) Monitor (16" viewable)
- 48x Max Optical CD-ROM
- Intel EtherExpress 10/100 Adapter
- Microsoft Windows® Millennium
- 7-Bay Mid-Tower Case

\$1949 #980018
Lease \$65.68/Mo.

Wouldn't it be great if every PC came with its own customer support person? Starting today, one does.

It's about more than just who can answer the phone the fastest. Superior Customer Support is about friendly, knowledgeable people dedicated to first-call solutions. It's about a seven-day-a-week, around the clock commitment. It's about catering to your needs before, during and after the sale. In short, it's about being there. And you can count on your Systemax Customer Support person to be there for you.



Venture PVO-T9

- Intel® Pentium® III processor 933 MHz 256K Advanced Transfer Cache
- 128MB 133MHz SDRAM
- 30GB Ultra ATA 7200 RPM Hard Drive
- PCI Wavetable Integrated Sound
- TNT2 M64 4x AGP Card (32MB)
- 17" (.25dp) Monitor (16" viewable)
- 8x4x32 Max CD-R/RW
- Cyber Acoustics CA-15 Speakers
- Intel EtherExpress 10/100 Adapter
- Microsoft Windows® 2000 Professional
- Microsoft Office® 2000 Small Business Edition
- 7-Bay Mid-Tower Case

\$1599 #980017
Lease \$53.88/Mo.

Venture PVW-T8

- Intel® Pentium® III processor 800 MHz 256K Advanced Transfer Cache
- 64MB 133MHz SDRAM
- 20GB Ultra ATA 5400 RPM Hard Drive
- PCI Wavetable Integrated
- Intel 3D Direct AGP Integrated
- 48X Max CD-ROM
- Intel 10/100 Integrated
- Microsoft Windows® Millennium
- 7-Bay Mid-Tower Case

\$849 #980012
Lease \$28.61/Mo.

Venture PVO-U15

- NEW! Intel® Pentium® 4 processor 1.5 GHz 256K Advanced Transfer Cache
- 128MB RDRAM
- 30GB Ultra ATA 7200 RPM Hard Drive
- GeForce2 4X AGP Card (64MB DDR)
- 17" (.25dp) Monitor (16" viewable)
- 8x4x32 Max CD-R/RW Drive
- Sound Blaster Live! PCI Card
- Cyber Acoustics CA-15 Speakers
- Intel 10/100 Ethernet Adapter
- Microsoft Windows® 2000 Professional
- Microsoft Office® 2000 Small Business Edition
- MS Natural Keyboard Elite
- 7-Bay Mid-Tower Case

\$2799 #980019
Lease \$94.32/Mo.

Venture PVO-T8

- Intel® Pentium® III processor 866 MHz 256K Advanced Transfer Cache
- 128MB 133MHz SDRAM
- 30GB Ultra ATA 7200 Hard Drive
- PCI Wavetable Integrated Sound
- 3D AGP Card (16MB)
- 17" (.25dp) Monitor (16" viewable)
- 48X Max CD-ROM
- Cyber Acoustics CA-15 Speakers
- Intel EtherExpress 10/100 Adapter
- Microsoft Windows® Millennium
- Microsoft Office® 2000 Small Business Edition
- 7-Bay Mid-Tower Case

\$1299 #980016
Lease \$43.77/Mo.

Venture PVW-C7

- Intel® Celeron™ processor 700 MHz 128 Kbyte Integrated Level 2 Cache
- 64MB 133MHz SDRAM
- 10GB Ultra ATA Hard Drive
- PCI Wavetable Integrated Sound
- Intel 3D Direct AGP Integrated
- 48X Max CD-ROM
- Intel EtherExpress 10/100 Adapter
- Microsoft Windows® Millennium
- 7-Bay Mid-Tower Case

\$649 #980010
Lease \$21.87/Mo.



Systemax
Get a whole lot more™

For expert sales advice call your Systemax Specialist at Global Computer

1-800-8 GLOBAL That's 1-800-845-6225

Configure your own Systemax PC at www.globalcomputer.com/p.c

BancTec is a third-party service provider unaffiliated with Systemax. Intel and the Intel Inside Logo and Pentium are registered trademarks and Celeron is a trademark of the Intel Corporation in the United States and other countries. Microsoft, MS and Windows are registered trademarks of the Microsoft Corporation. All products are trademarks of their respective manufacturers. All registered and unregistered trademarks are the sole property of their respective companies. Prices do not include shipping or applicable sales tax. Copyright 2000, Systemax Inc. Prices and configurations are subject to change without notice.

TOP OF THE NEWS

CONSUMER ADVICE

ANYONE WHO'S upgraded to Windows Millennium Edition will tell you it's the best version of Windows ever—or the worst. "Immediately upon installing Me, all my problems ceased," says investigator Troy Clarke of Nanaimo, British Columbia. But other upgraders call it a "freaking disaster" and "the buggiest Windows I have ever used in my life."

Upgrading to a new edition of Windows has always been a hit-or-miss proposition, depending on your computer's unique combination of hardware and software. But judging from an informal survey



Life With Me: First 100 Days

of *PC World* readers and Microsoft's own information on known issues with the OS, we'd say Millennium Edition takes this crapshoot to a new level. If you're lucky, it'll install with nary a glitch. If not, Windows Me may snub peripherals and programs embraced by earlier versions. The truly cursed will encounter

Some say it's the best Windows ever.

Almost everybody likes the System Restore feature. But the upgrade

hasn't been smooth sailing for all.

◆ **By Scott Spanbauer**

blue screens of death, a computer that won't shut down, or one that won't boot at all.

Some of the readers who responded to the Windows Me survey request on our Web site had upgraded from an earlier Microsoft OS. Others had performed a more arduous clean install, wiping out their existing operating system and

DISPATCH



Product Pipeline

► **Corel's New Office:** Corel previewed its WordPerfect Office 2002, which is due to ship in the second quarter of 2001. The new suite will boast better tools for navigating and formatting complex documents, substantial new e-mail and group functions in CorelCentral PIM, and more.

Tidbytes

► **Speedy Millennia Delayed:** Micron delayed shipment of its well-reviewed Millennia Max XP with a 1.2-GHz AMD Athlon and 266-MHz DDR memory, from January to February. Why? Noise created by the high-speed CPU, bus, and memory interfered with the function of some PCs. A spokesperson says Micron has devised a solution; no problem PCs had been shipped to users.

► **L&H Declares Chapter 11:** In November 2000, voice-recognition software giant Lernout & Hauspie Speech Products filed for Chapter 11 bankruptcy protection in the United States and for similar protection in its native Belgium. Belgian courts denied the motion and froze the company's assets in December; L&H plans to appeal. L&H's prospects and those of its Dragon Systems subsidiary are unclear. For now, L&H software owners can still get tech support from L&H, a company spokesperson says. ►



installing Windows Me from scratch. Although the latter approach is supposed to cause fewer problems, even those people who were working with a clean installation occasionally ran into difficulties—most frequently due to missing drivers for peripherals that had run fine under Windows 98. Some readers who purchased new computers with Windows Millennium pre-installed have encountered glitches and incompatibilities—even with preinstalled hardware and software.

CHIEF ASSETS

NEVERTHELESS, a large number of other survey respondents report that Windows Me is stable and boots quickly, factors undoubtedly responsible

for its brisk sales. According to software sales analyst PC Data, the upgrade is nearly as popular as Windows 95 and Win 98 were, selling 400,000 units in its first month despite enjoying far less hype than those products received.

And whether they like the upgrade overall or despise it, nearly every reader had something good to say about Windows Me's most compelling feature—System Restore. As we reported at the time that Windows Me launched (see www.pcworld.com/sep2000/winmetoo), the ability to recover from ill-fated changes to software, drivers, and settings by rolling your system back to a predisaster configuration remains the paramount reason to consider upgrading to Me.

Though the Windows Me upgrade itself costs as little as \$49, there's another price to consider: Dozens of utilities and other apps designed for earlier versions of Windows won't work with the OS (see "Using Windows Me—the Hidden Costs of Upgrading," page 52, for a list of the most prominent). If you plan to keep using one or more such programs under Windows Me, you'll need to expand your upgrade budget to pay for new versions—or at least allocate time for lengthy downloads.

And those aren't the only difficulties. By mid-December, a search of Microsoft's knowledge base (search.support.microsoft). ►



GET UP-TO-THE-MINUTE news, including hot game demos, the latest reviews, and productivity shareware, at PCWorld.com. Point your browser to www.pcworld.com/pcwtoday.

com/kb) for the text 'Microsoft has confirmed this to be a problem' retrieved 200 incompatibilities, "issues," and other difficulties that the company blames on Windows Me. Searching for the same text for Windows 98 yielded the same number—which probably indicates that 200 is the upper limit on records returned by the site's search engine.

But the same search directed at Windows 98 SE identified only 184 items. And although this data provides only the roughest of measures (we don't know how many problems have been found for Windows Me and Windows 98 in total, for starters), we can say that Windows Me has generated more problem reports in less than three months than Windows 98 SE has in more than a year.

Most of the 200 problems that our search uncovered don't afflict previous versions of Windows. They range from the silly (a pointer problem in Hasbro's Tonka Search and Rescue) to the stupefying (system freezes when you switch between an MS-DOS window

Windows Me has generated more problem reports in three months than Windows 98 SE has recorded in over a year.

and Me's Full Screen mode).

Several upgraders reported an incompatibility between Me and the Point-to-Point-Protocol-over-Ethernet (PPPoE) DSL software commonly used by DSL providers. At least two major services, Verizon and BellSouth, were working on Windows Me

updates as of mid-December.

Microsoft has long touted the Windows 9x family as the OSs most compatible with both new and aging consumer hardware and software. So why the compatibility issues in this swan-song edition?

Microsoft consumer Windows product manager Tom Laemmel attributes the absence of some drivers to a combination of factors. More-exacting compatibility testing washed some older drivers out, and a number of manufacturers simply didn't submit new drivers to Microsoft in time for inclusion with the upgrade.

You can still pull out your device's installation CD and reinstall those older drivers after Windows Me is up and running. But if you own a digital camera or scanner, you will almost certainly run into

another difficulty: The new Windows Me Imaging (WIA) subsystem is incompatible with manufacturers' Win 98 software. You can reinstall the older software, but you can't use the features of WIA.

STABLE, BUT INCOMPATIBLE

SIMILAR incompatibilities cause other "no-run" situations. Windows Me's System File Protection feature makes the OS more stable by monitoring key system files in real time to ensure that no one—and no program—changes them. Several applications that want to change those files therefore can't run under Windows Me. The vendors of most such apps have released Windows Me-compatible upgrades, but typically you must pay for the new versions.

Finally, some readers report that Windows Me failed to

Using Windows Me—the Hidden Costs of Upgrading

UPGRADING KEY SOFTWARE to compatible versions may make moving to Me costlier than you think—in money, download time, or both.

INCOMPATIBLE VERSION	Update (as of 12/11/00)	Price	Download size
Drive Image 3.0 www.powerquest.com	Drive Image 4.0	\$30	20MB
Easy CD Creator 4.0, 4.01, 4.02 www.roxio.com/en/jhtml/support/webcheckup.jhtml	Version 4.02d or later	free	1.3MB
IntelliPoint 3.0, 3.1 www.microsoft.com/products/hardware/mouse/driver/3_2/default.htm	IntelliPoint 3.2	free	13.5MB
IntelliType 1.0, 1.1 www.microsoft.com/products/hardware/keyboard/download/pc/download_pc.htm	IntelliType Pro 1.2	free	18.5MB
Logitech MouseWare 9.0 www.logitech.com/cf/support/mousefiles_922.cfm	MouseWare 9.22	free	3.5MB
Norton AntiVirus 2000 www.symantecstore.com/Pages/Centers/upgrade.html	Norton AntiVirus 2001	\$27	22.7MB
Norton Internet Security 2000 www.symantecstore.com/Pages/Centers/upgrade.html	Norton Internet Security 2001	\$51	34MB
Norton SystemWorks 2000 www.symantecstore.com/Pages/Centers/upgrade.html	Norton SystemWorks 2001	\$41	Not applicable
PartitionMagic 5.0 www.powerquest.com	PartitionMagic 6.0	\$30	40MB
VirusScan 4.x www.mcafee.com	VirusScan 5.13	\$30	16MB
WinFax Pro 9.0 www.symantecstore.com/Pages/Centers/upgrade.html	WinFax Pro 10.0	\$65	33.2MB



No Me for him.

identify and install drivers for several of Microsoft's own mice and keyboards. This problem extends to the company's software, too. For example, although he was satisfied overall with Windows Me, reader Troy Clarke reports that his keyboard began to malfunction after he installed Microsoft's Internet Explorer 5.5 Service Pack 1.

HEALING THE HURT

CLARKE WAS undaunted by the update snafu with Internet Explorer 5.5, however. In previous versions of Windows, attempting to remove an Internet Explorer version upgrade or service pack didn't always succeed—the bugs checked in, but they didn't check out. This time around, instead of uninstalling Service Pack 1, Clarke simply rolled the system back to its pre-SP1 state, using Windows Me's

Name: Donald Matschull
Location: Plano, Texas
Profession: Business manager, Faith Lutheran Church and School
The verdict: "We can't afford the cost of all new software and the man-hours to upgrade all of our existing computers."

new System Restore feature. Dozens of readers lauded System Restore's ability to undo buggy software installations.

"System Restore alone is worth the price of the upgrade," writes Douglas Emerick of Langhorne, Pennsylvania. When an application that he installed somehow disabled his computer's USB ports, Emerick says, System Restore saved him hours of troubleshooting.

But not everyone in our informal survey had a good experience with System Restore. "It didn't work," reports Gene Adamski of St. Augustine, Florida, adding that a dialog box simply announced that

the system could not be restored, providing no further explanation. Other users say that they had to disable System Restore because it demanded too much space on their hard disk.

In addition, many of the readers grouse about Windows Media Player 7, calling it a slow, crash-prone memory hog that has proved to be no match for such leaner, meaner players as Music-Match Jukebox, Real-Player, and Winamp

—or even for previous versions of Media Player itself.

Likewise, readers report little interest in the limited Movie Maker video-editing software, with many objecting to the fact that the operating system installs it by default. Others grumbled about how it saves video only in a proprietary Microsoft file format.

As if software incompatibilities and lackluster extras were not enough, Windows Me's reduced MS-DOS support angers other readers. Many of them express confusion over the details: You can still run DOS programs, open a DOS prompt Window, and issue certain commands, but you cannot boot the computer directly to a DOS prompt (except from a start-up floppy disk that you can make from within Me), and you cannot reboot in MS-DOS Mode.

DOESN'T DO DOS

WINDOWS EXPERTS who were accustomed to using DOS text commands for backing up, editing, and restoring the Windows Registry in previous versions can do so no more. And those are not the only command-line tools ►

Site to See: IRS.gov

IT'S THE KINDER, gentler Internal Revenue Service as presented on its informative and, yes, even funny Web site, www.irs.gov. Start from a home page that's designed as a tabloid newspaper, and easily navigate your way—whether for personal or business use—to reams of



information, as well as those all-important tax forms, which you can print or fax. Also easy to find: updates on tax law changes, a W-4 calculator, lists of where to get free tax assistance from humans, and how to appeal an IRS ruling. We actually understood what we read here. Note: You can't file electronically through the site.

Top 5 Downloads

1. **XLStat**
1.09MB
Add dialog boxes corresponding to data analysis to Excel.
2. **Dark Reign: The Future of War**
16.52MB
Net-based intergalactic war game lets you construct your own missions, and more.
3. **Santa Slayer**
1.47MB
3D action game where you play an irate Santa.
4. **Certificate Templates for Microsoft Publisher**
146KB
Three easy-to-use, professionally designed templates.
5. **MP3 Stream Recorder**
1.13MB
Freeware that lets you record MP3 streams from the Net.

Find files on www.pcworld.com/downloads/top5/feb2001.

that won't work in a DOS box under Windows. Many of the existing antivirus, disk-maintenance, and hardware-configuration utilities won't function with Windows Me either.

UPGRADE RESISTANT

FOR SOME READERS, such fundamental changes are reason enough not to upgrade. Donald Matschull, business manager for a church in Plano, Texas, says he's not interested in Me because it means training people to use and support a new OS.

Matschull says he'll resist replacing his aging Windows 95- and 98-based machines as long as new computers are available only with Windows Me or Windows 2000 preinstalled. He resents the way the industry abandons old OSs when new ones come along. "I question the efficiency of new technology that forces workers to relearn procedures they al-



He's all for Me.

Name: Troy Clarke

Location: Nanaimo, British Columbia

Profession: Security firm investigator

The verdict: "I installed Windows Me the first day it came out and am extremely happy with the results."

ready know," he comments.

With readers reporting such a broad range of experiences, it's hard to offer definitive advice to prospective upgraders. At the very minimum, you should take a careful look at

Microsoft's step-by-step upgrade guide at www.microsoft.com/windowsme/upgrade/checklist.asp before you buy Windows Me. In particular, visit the hardware compatibility guide (www.microsoft.com/windowsme/upgrade/compat).

In addition, be sure to download and install the latest Windows Me-compatible drivers for your hardware, if they are available.

CAUTION: DON'T BURN YOUR BRIDGES

IF YOU DO decide to perform the upgrade, be careful not to skip the steps that enable you to return to your current version. More than one respondent to the *PC World* survey lived to regret their failure to back up the old configuration and drivers before performing a clean install. ▶

Windows 2001? More Whistler Details Revealed

IF YOU'RE NOT sold on Windows Me already, maybe you should wait for something better. That's what Microsoft has been promising, in the form of its next-generation operating system, code-named Whistler. Still on track for a late-2001 release, Whistler will combine the crash-proof stability and corporate-strength security of Windows 2000 with Windows Me's friendly interface.

MICROSOFT SPEAKS

AFTER MAINTAINING SILENCE even as pre-beta versions circulated in the development community (see www.pcworld.com/oct2000/whistler), Microsoft finally revealed additional details about Whistler late last year. Although still based on the Windows NT operating system kernel, Whistler Personal Edition will offer simplified log-in and user accounts geared to home use, as well as all of Windows Me's innovations, including System Restore. An intriguing new feature will allow

users to get online help from a friend or relative by giving that person control of the PC through an Internet or phone-line connection. However, Microsoft has not confirmed reports that Whistler will support the Bluetooth protocol for wireless communication between devices—a printer and a PDA, for example.

Microsoft says Whistler will be more compatible with games than Windows 2000 is. And as vendors increasingly focus on Windows 2000 compatibility, Whistler could end up being more compatible—at least with newer hardware—than Windows 98 and Me. According to Microsoft, the Windows 2000 driver model remains unchanged in Whistler.

But even if Whistler supports your aging joystick, you may decide to stick with the Windows (9x or Me) you have. Windows 2000 prefers a minimum of 64MB of RAM and a fast Pentium or equivalent processor, and Whistler is likely to be hungrier than that. In any case, Microsoft plans to block Whistler from upgrading Windows 95

machines—not because of any incompatibility with the OS itself, but because the hardware on these systems is likely to be too puny. If you want to upgrade a Windows 95 computer that meets Whistler's hardware requirements, you'll have to wipe the disk and perform a clean install.



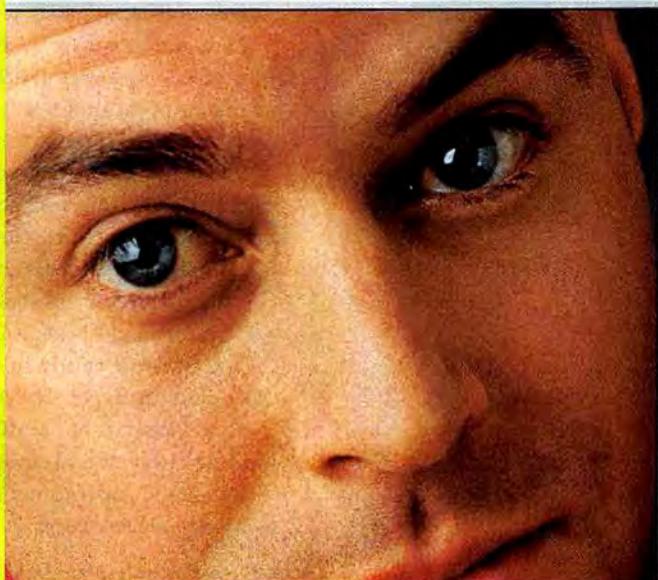
CONFIDENT.

You chose me.

Now I help you do your job better.
More productively.

With major cost efficiencies.
Long-term user benefits. Bottom-line results.

I'm your monitor.
I make you look good. Again and again.



MultiSync FE700

NEC MultiSync® FE Series.

Reduced glare. Sharp contrast. Large screen sizes. These totally-flat aperture grille CRT monitors help minimize user eyestrain. Quality manufacturing assures dependable performance over the products' lifecycle for less downtime, less need for tech support and reduced total cost of ownership. High resale value, easy setup and use, comprehensive service, and a 3-year warranty further lower costs and enhance productivity. Only from NEC-Mitsubishi, the newly-combined force of the two leaders in visual display technology. Fusing NEC's R&D and engineering with Mitsubishi's patented flat-screen CRT tube technology, the possibilities are endless. Let's begin.

For more information, visit us at
www.necmitsubishi.com or call 888-NEC-MITS.

NEC

MultiSync®
FE Series



FE700



FE700M



FE750



FE950



FE1250

Screen/Viewable Size

17"/16"

17"/16"

17"/16"

19"/18"

22"/20"

Max Resolution

1280x1024 @ 66Hz

1280x1024 @ 66Hz

1600x1200 @ 73Hz

1792x1344 @ 68Hz

1920x1440 @ 73Hz

Horizontal Frequency

31 to 70kHz

31 to 70kHz

31 to 92kHz

31 to 96 kHz

31 to 110kHz

MultiSync is a registered trademark of NEC-Mitsubishi.
Individual FE models are trademarks of NEC-Mitsubishi.

©2000 NEC-Mitsubishi Electronics Display of America, Inc.
All rights reserved.

The NEC MultiSync® FE Series from

NEC / MITSUBISHI
NEC-MITSUBISHI ELECTRONICS DISPLAY

SEE MORE.

Honey, I Shrunk the Bits!

Removable Storage Gets (Really) Small

HARDWARE

WELL, MAYBE bits don't shrink, but the size of the media storing them certainly has. Racing to fit more memory into everything from laptops to PDAs to MP3 players to digital cameras, vendors are squeezing ever-larger capacity into ever-smaller packages. Several new products continue to up the ante, but an overabundance of standards threatens mass confusion.

Tight-on-space notebook users can get a boost from Toshiba's new \$599 MK2001MPL Plug-n-Play PC Card hard drive. The 4200-rpm drive holds 2GB of data, and even greater capacities are in the wings.

If you want a small external drive, check Flotec's new 5-by-3-by-0.5-inch Pockey. Connecting via USB, the Pockey installs like a charm. The 6GB model sells for \$250, and 20GB units cost \$399, making them excellent values. Our test Pockey seemed sturdy, but all hard drives should be handled with care. LaCie markets the PocketDrive, a similar but pricier product with both USB and fast FireWire connectivity, in 10GB (\$399) to 30GB (\$799) models.

A new company, DataPlay, believes hard drives aren't the only spinning media worth miniaturizing. Its half-dollar-size DVD-based discs could have a big impact this year. In the first quarter of 2001, device manufacturers should begin announcing

products using the discs. The discs store 250MB of data per side but are only write-once.

GAGGLE OF STANDARDS

THE GROWING popularity of handheld devices has spawned an entire industry of teeny

SM relies on the device reading it to supply the brains; the latter arrangement puts the burden on device makers to provide in advance for higher capacities or at least to establish a software upgrade path.

But there's more. Pocket-size devices have led to an even smaller flash format—

MultiMedia, or MultiMediaCard



COMPACT choices abound, from Pockey's 20GB external drive to teeny 64MB SanDisk MMC cards.

storage media. Flash memory rules, but the multitude of competing standards confuses just about everybody.

Easily the most common flash memory modules are the 1.7-by-1.4-inch CompactFlash cards. Gaining in popularity are similar-size (but slightly cheaper) SmartMedia cards, which have a thinner profile. Both formats offer 8MB to 300MB cards, but CF supplies its own I/O intelligence, while

(MMC). About the size of a postage stamp and available in capacities from 8MB to 64MB, MMC is pricey but is also as small as storage currently gets. By mid-2001, Secure Digital—a slightly thicker version of MMC that adds both encryption and security—should be available.

Meanwhile, Sony has its Memory Stick modules. About as big as a stick of gum, the media's size is appealing,

but do we need another proprietary standard? Units ranging from 8MB to 64MB are currently available; a 128MB Memory Stick will ship soon.

Into this confusing field comes IBM's Microdrive. The Microdrive is a true hard drive, but this tiny powerhouse measures only 0.2 inches by 1.4 inches by 1.7 inches, weighs about 0.5 ounce, and is available in capacities up to 1GB. The 340MB model costs \$299, and the 1GB unit is just \$399, making this media about four times cheaper per MB than flash memory. An adapter lets you install the drives in PC Card slots, too.

Alas, with the drive's CF+ profile, only newer devices that support this slightly thicker CF format can use it.

International Data Corporation analyst Xavier Pucel says it's difficult to predict when this overcrowded standards market will shake out. It's a safe bet that CF and SM will continue to dominate in larger devices such as cameras, but MMCs and possibly the Memory Stick should gain ground in compact, mobile devices.

CRYSTAL METHODS

SCIENTISTS WORLDWIDE are working on holographic storage technologies—once a sci-fi pipe dream—that use lasers and a doped crystalline medium. When this storage becomes practical, perhaps within a couple of years, its capacity and bandwidth will make today's magnetic memory as outmoded as punch cards.

For now, choose your memory media carefully, and be glad big capacities come in small—and light—packages.

—Jon L. Jacobi ▶

Web Design IT340.
Class meets here at 7:12 p.m. Saturday.
(Perfect for those who like to sit in the back of class. Way back.)

With Capella University's online courses and degree programs, class is ready whenever and wherever you are. From web design to network technologies, from e-business to project management, our bachelor's and master's programs in Information Technology can advance your career at Internet speed. For the full story, call 1-888-CAPELLA or visit www.capellauniversity.edu.

Capella
UNIVERSITY

Online education built around you.™

When the Taxman Cometh: Software Cuts Paperwork

FIRST LOOK

DOING TAXES isn't much fun, but tax preparation software makes it ever easier—and in some cases, cheaper.

This year's big innovations come from Intuit, whose latest Quicken TurboTax products can import some electronic wage and investment forms—a tax software first. Kiplinger-TaxCut by H&R Block counters Intuit with aggressive pricing and a powerful new ally: Microsoft.

Meanwhile, scrappy 2nd Story Software continues to

offer its TaxAct federal tax preparation software as a free download. Not to be outdone by the private sector, the feds have struck a deal with a company called Official Payments (www.officialpayments.com) that lets you pay whatever you owe by credit card.

Less thrilling: This year's packages hit you more brazenly with marketing pitches. TurboTax places icons touting America Online and E-Trade on your desktop (in addition to its own icon). TaxCut touts a free download of Microsoft



Money 2001 (the Standard edition) as well as MSN Internet service. TaxAct pushes its own state and deluxe federal versions, as well as NetSonic Web-caching software.

Intuit's TurboTax is by far the most expensive package (see chart). But to some extent

the premium seems justified by new features, particularly the automated entry of some forms—W-2 (wage and salary reporting from employers) and 1099 (investment income/loss from financial institutions). We couldn't test these import features, but Intuit says it expects about a third of TurboTax users this year to benefit from them.

Tax Software: By the Numbers

PRODUCT	Street price		E-filing fees (federal/state)	Mail-in rebates
	Federal version	State version		
2nd Story Software (www.taxact.com)				
TaxAct	Free download; \$5 CD-ROM	\$13	\$8/\$5	None
TaxAct Deluxe	\$10	\$13	One return free, then \$8/\$5	None
TaxAct Online (www.taxactonline.com)	\$8	\$8	Free/free	Not applicable
H&R Block (www.taxcut.com)				
Kiplinger TaxCut	\$10	\$20	\$13 ¹ /\$7 ¹	None
Kiplinger TaxCut Deluxe	\$20	\$20	\$13 ¹ /\$7 ¹	Full cost of one state package, one federal e-filing
Kiplinger TaxCut for Your Home & Business	\$50	\$20 personal, \$40 business	\$13 ¹ /\$7 ¹	Full cost of one state package (personal), one federal e-filing
Intuit (www.turbotax.com)				
Quicken TurboTax	\$20	\$30	\$12/\$6	\$5 for federal package
Quicken TurboTax Deluxe	\$40	\$30	\$12/\$6	\$10 for federal package; full cost of one state package, one federal e-filing
Quicken TurboTax Home & Business	\$70	\$30	\$12/\$6	\$20 for federal package; full cost of one state package, one federal e-filing
Quicken TurboTax for the Web	\$15 if filed before 4/1/01, \$20 thereafter	\$10	Free/free	Not applicable
Quicken TurboTax for the Web 1040EZ	\$7 if filed before 4/1/01, \$10 thereafter	Free	Free/free	Not applicable
Quicken Tax Freedom Project	Both versions free for adjusted gross income of \$25,000 or less		Free/free	Not applicable

¹\$15 for federal and state when filed simultaneously.

PAY MORE TO DO LESS

IF YOUR bank, brokerage, or your employer's payroll service has partnered with Intuit, you can easily download and import the W-2s and 1099s into the program. Check the TurboTax Web site (www.turbotax.com) to see whether your payroll or brokerage is playing along; this new feature alone might justify continued patronage of TurboTax or a switch to the program.

TurboTax can now import your Quicken or QuickBooks financial data directly—you no longer have to create a .tax data file first from within your personal finance manager, an extra step that is still required if you use other personal finance packages.

TurboTax also offers a service that TaxCut introduced last year: If your electronically filed return is accepted ►



Capture, Edit & Share.

Introducing Dazzle™. The easy to use, complete system for capturing, editing and sharing your video tapes and digital videos on your own PC.

Memories like these should be shared—and with Dazzle™ digital video systems it's never been easier. Starting at just \$99, we provide everything you need to save, edit and share DVD quality video using your own PC. Now you can send your custom videos to friends and family via video tape, CD, DVD, e-mail or streaming video from your web site or from the new Dazzle Webcast Theater. To find out more or view an online demo, visit us at dazzlefun.com.

Dazzle*
DIGITAL VIDEO ON YOUR PC

Available at CompUSA, Best Buy, Micro Center, Fry's and other fine retailers.



MovieStar

Use Dazzle's new MovieStar software to create professional looking videos and save them on a VHS cassette, CD or even a DVD.



Webcast Theater

Post your finished video on Dazzle's Webcast Theater and your friends can quickly view your masterpiece as streaming video.

Dazzle: #1 in Digital Video

and you expect a refund, you can get up to \$5000 of the money within two days as a loan. However, Santa Barbara Bank and Trust, which provides this service for TurboTax, will deduct fees ranging from \$29 to \$89—compared to TaxCut's \$30 flat fee.

TurboTax 2000's interface seems simpler and less cluttered than last year's. And the usual plethora of help options—from videos to books—reinforce TurboTax Deluxe's positioning as the Cadillac of tax preparation packages.

TAXCUT'S MICROSOFT CONNECTION

TAXCUT'S MAJOR innovation is less dramatic: It can directly import tax-related data from Microsoft Money 2001, much

as TurboTax can import data from Quicken. Likewise, TaxCut accepts .txt files created in earlier versions of Money or in other finance packages.

A new Where Am I? button simplifies navigation: Click it to open a list of steps that highlights the step you are on. Once you've finished your return, TaxCut offers a beefed-up tax-planning section for organizing next year's return.

But price is TaxCut's strongest selling point. After rebates, you pay \$22 to prepare and electronically file one federal and state return with the deluxe edition, compared to a \$42 fee for the comparable TurboTax product.

TaxAct's free standard edition remains an unbeatable bargain for people who don't

need multimedia frills or tax guides. The 5.25MB download provides the same sort of basic interview-style assistance you get from entry-level editions of TurboTax and TaxCut. A \$10 Deluxe edition adds free online filing and such extras as the ability to import last year's TaxAct file and a planner to assist you with managing major financial events.

BOTTOM LINES

WHICH PACKAGE is best for you? If your payroll service or brokerage offers the direct import of data to TurboTax, and you want help with complex returns, you might be willing to pay a premium for the deluxe edition. Otherwise, TaxCut Deluxe is a much better deal for about the same

level of help. The Home & Business editions of both TurboTax and TaxCut offer additional Schedule C help for small-business owners. If your adjusted gross income is below \$25,000, the Quicken Tax Freedom Project lets you prepare and file your returns online for free.

If you can live without videos, extensive tax guides, or the ability to import financial data from personal finance software, consider TaxAct. You might also want to check out the companies' Web-based programs (PCWorld.com will review them as they become available). Whichever tax package you choose, it will definitely beat the pencil-paper-and-calculator experience.

—Yardena Arar

No Credit? No Problem! Digital Cash Made Easy

FIRST LOOK

SURE, SOME people feel Visa is everywhere they want to be, and others won't leave home without their American Express card, but more than one-third of the U.S. population don't own credit cards. That lack of plastic has kept those millions of people out of the online shopping frenzy.

Enter ECharge, Cybermoola, InternetCash, and other companies, each of them aiming to provide you with an alternative to credit cards to use for your online shopping. The concept has been around since 1994, but only now are these services making serious inroads, popping up on major e-commerce sites such as Barnesandnoble.com and Buy.com.

Merchants benefit as well. They not only increase their potential buying audience, but they also gain the ability to offer inexpensive items (\$10



and under) that are not profitable when handled via credit card transactions. Many e-cash vendors charge merchants lower fees than credit card companies do and have a simpler sign-up process.

CASH IN MANY COLORS

ALTERNATIVE payment options vary depending on how users fund their purchases (see chart, page 62). Today, a stored-value model is most common: You fund an online account with traditional currency—either cash or credit card. Services like Cybermoola and InternetCash fall into this group. Services such as ECharge Phone adhere to a different model—here, you accumulate a balance, then pay a single bill each month.

Limited acceptance plagues all alternative payment methods. And finding out which stores take your option can be a chore. Most store sites list the forms of payment they accept, but such listings can

be deceptive. To use an alternative payment service, you may have to enter a merchant site from the e-cash vendor's "mall" or Web portal, and some merchants don't list certain e-cash options on their information page, even though they do accept these at the virtual checkout. To be safe, check your e-cash vendor's site for a list of online shops that accept that payment method.

PIN MONEY

CYBERMOOLA sounds completely Web-based, but this stored-value option requires an offline component. You buy Cybermoola credits at your local supermarket or via snail mail in \$20 to \$100 chunks, just as you would with a prepaid phone card. You then log on to the ►



YOUR WORLD STOPS WHEN YOUR EMAIL IS DOWN.

But the real one keeps going.

If your email isn't working, nothing is. Unproductive employees, lost sales and missed opportunities are all consequences no business can afford. USA.NET can help you survive and ultimately, succeed. As the inventors of Web-based email, we handle millions of messages with a reliability and scalability that's cost-effective for any size company. And we do it all by integrating the world-class technologies of HP and EMC as part of our infrastructure. To learn how to outsource your email to the expert, visit www.usa.net/yourworld16 or call toll-free 1-866-237-7960. You run your business. We'll run your email.SM

USA.NET[®]



company's Web site and enter those credits into your account. As long as your account has funds, to shop, just enter a PIN number at the checkout stage on Cybermoola's site.

If you lose your Cybermoola receipt before uploading the credit into your account, you can't get a refund. Cybermoola also takes some effort to buy: Today only four chains—Big Bear, P&C, Quality Market and Shop-Rite—sell it; the company is negotiating with others.

InternetCash, another prepaid option, works much like Cybermoola but is available nationwide through Western Union, bill-payment merchant In Person Payments, and prepaid service provider Pay Smart America. You can also buy it at the company's Web site, using a credit card or Western Union PayCash (another e-cash service). To spend your riches, go directly to any of more than 200 stores online.

InternetCash plans to test a better option in the first quarter of 2001. The program will let participants use their own bank-supplied debit card and PIN number at over 80,000

Net stores. Buyers never have to convert cash or credit into e-cash. A Gartner Group report predicts that online purchases via debit cards will account for up to 30 percent of all online shopping by 2003.

Shoppers want a payment option that gives them a recognizable brand and is easy to use.

Achex is already in place and works like a debit account. You give Achex your banking information and create a user name and password. At sites that accept Achex (three at press time, many more on the way), you choose *Checks* as a payment option, then enter your user name and password. Your purchase is deducted from your checking account.

ECharge Phone service is a different beast. The account is linked to your phone bill, and your online charges appear just the way long-distance calls do. That setup makes ECharge Phone easy to use and to abuse: Users can get in over their head without set credit limits. ECharge also offers a new Net Account option that lets you link to your credit card

or prepay; this option is currently accepted at six sites.

Some e-cash vendors opt for a hybrid. Trivnet, a technology infrastructure provider, lets ISPs, mobile operators, and other third parties provide cus-

tomers with Trivnet's WiSP currency. Users prepay or get charges on their monthly bills.

WHAT'S IN IT FOR ME?

ASIDE FROM helping reduce your dependency on credit cards—and the interest charges these entail—most e-cash methods restore your anonymity. Sure, Net merchants still know your name and address, but they can't tie you to the leather jacket or plane tickets you bought last week—and that cuts down on targeted ads and profiling.

E-cash also increases security. Many people feel safer not giving out credit card information online, says ECharge chair Ron Erickson. E-cash account numbers sent to and from stores aren't tied to social secu-

ity numbers or addresses. If hackers intercept this data, they get only the account number and bill amount. Unlike with credit cards, most e-cash options require you to supply a password to complete a trans-

action. Stolen possession of an account number by itself is unlikely to permit fraudulent charges. Discover has responded to security concerns with its Discover Deskshop 2 service. When you shop, Discover generates a random number for you to use in place of your credit card number at a given site. You never give the online vendor your real card number, and you don't have to worry about acceptance—if the site takes the Discover card, you can use this service.

"Consumers are looking for a payment option that combines a recognizable brand with ease of use," says Jupiter Research analyst James Van Dyke. "In the end, a bank or existing payment option that offers a wide variety of payment options under one roof is probably the model that's going to succeed."

—Karen J. Bannan ►

Credit Card Alternatives and How They Work

HERE ARE THE major types of alternative payment services and some vendors in each category. None charge consumers a fee to join.

TYPE OF SERVICE	Examples	Merchants must sign up	Pro	Con
Prepaid	Cybermoola, DoughNet, ECharge Net Account, InternetCash, Praxicard, RocketCash	Yes	Permits low-cost purchases, ¹ no interest-charge buildup.	Fixed prepaid values may be limiting, online sites limited.
Credit card funded	ECharge Net Account, Praxicard	Yes	Users can set spending limits for themselves or dependents.	Requires credit card ownership, online sites limited.
Checking-account funded	Achex, M2card	Yes	No interest-charge buildup.	Requires checking account, online sites limited.
Monthly bill	ECharge Phone	Yes	No interest-charge buildup, no prefunding required.	Easy to overspend, online sites limited.
Credit card anonymizer	Discover Deskshop 2.0	Yes ²	More secure than credit card, widely accepted online.	Requires credit card ownership, interest charged on balance.
Credit card	American Express, Discover, MasterCard, Visa	Yes	Widely accepted online.	40 percent of U.S. population lack one, interest charged on balance.

¹ Does not apply to RocketCash.

² If merchant accepts Discover card, no sign-up required.

**What are you revealing
when you're on the web?**

People are watching you. Every time you visit a site, you run the risk that anyone—including your boss, insurance companies and the government—could be gathering data to use against you. Protect your privacy. Safeweb's state-of-the-art encryption technology allows you to surf anonymously, guaranteeing that your personal information stays that way. It's not only free, it's simple to use, requiring no downloads or registration. Visit safeweb.com and find out why Big Brother has met his match.



safeweb



No one
has
responded
to my
personal
ads

I'm
looking
into
cosmetic
surgery

I just
bought
3 pairs of
women's
silk
underwear

I
think
I
have
herpes

My
credit card
number is
4234
87623
45215

Broadband From Above: Satellite Services Beam High-Speed Access Anywhere

FIRST LOOK

EAGER FOR broadband, but tired of waiting for DSL or cable to reach your home or business? Things may be looking up—if you have a clear view of the southern sky.

Satellite-based access to the Net isn't new, but until recently the services were rather kludgy. Hughes Network Systems' existing DirecPC service, for example, has fast, 400-kbps downloads, but requires a modem for uploads.

Now, however, two satellite services—including one from Hughes—let you receive and send data via satellite at speeds similar to DSL's. The StarBand service (www.starband.com) promises download speeds up to 500 kbps and uploads at

150 kbps; Hughes' new DirecPC 4.0 (www.direcpc.com) pledges transfer rates up to 400 kbps downstream and 125 kbps upstream. Neither is inexpensive, and bad weather can slow performance, but for the broadband-deprived they may be the answer.

StarBand offers a USB modem and dish for \$400—it charges \$200 for installation and sells the service for \$70; partner EchoStar resells StarBand hardware and service at the same rates. Microsoft offers StarBand service packaged with MSN for \$60 per month in conjunction with

RadioShack, which sells a pre-configured Compaq PC and satellite dish for \$1200 (installation is free through April).

Hughes and its partner Pegasus Communications both sell DirecPC 4.0 for existing PCs. At press time, the hardware cost \$400, and installation was \$200. Pegasus char-

load speed, StarBand outpaced DirecPC 4.0 by an impressive margin: 600 kbps versus 200 kbps, on average. Neither service hit its advertised top speed for uploads—both averaged about 50 kbps, less speedy than we expected.

That said, two-way satellite Web access is a big improve-

ment over a dial-up connection. Both services improve browsing speed and make fast work of downloading MP3s and streaming video. Plus, the always-on connection makes access easy while liberating your phone line.

The relatively slow uploads can be a hindrance, however, especially when issues such as latency (signal travel time) compound the problem. For example, online multiple-player games don't work well because the upload rate, in conjunction with the time a signal

takes to travel from Earth to satellite and back, makes game play too sluggish. Some technical glitches occurred when the system was first set up. For example, at one point we lost service, and StarBand advised us to remove our Napster software to restore it (the strategy worked).

We were also warned that severe weather could degrade service, but the arrival of a little rain didn't slow us down.

Users should also be aware that both companies can curb speeds to keep their networks running smoothly. StarBand download speeds drop significantly when you use file-sharing programs such as Napster. And Hughes may reduce your surfing speeds for up to an hour if you use too much bandwidth during a short period of time.

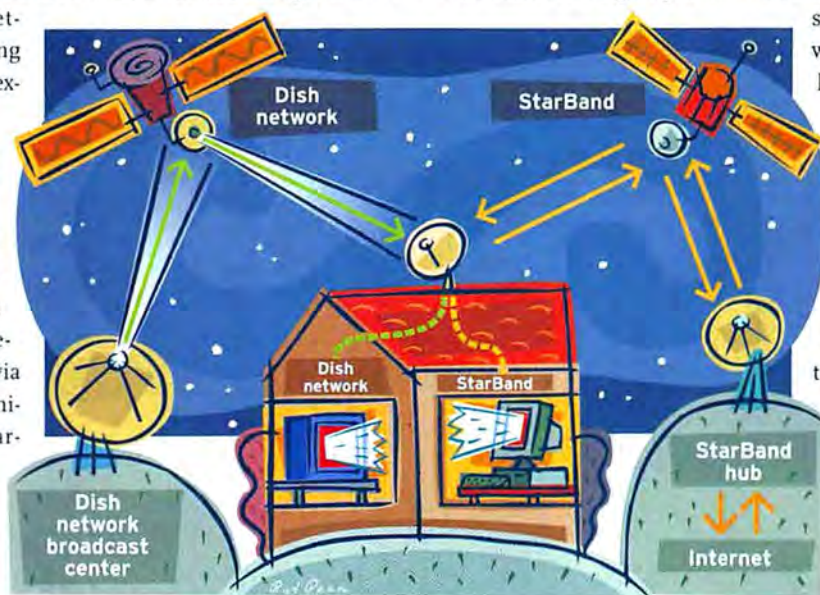
MIXED SIGNALS

WHICH OF these services do we recommend? Hughes

has a longer customer track record, but tests of its preproduction service revealed some speed problems. StarBand was faster, but we experienced an outage with it.

Both services are early versions and feel a bit jury-rigged. But if you live in one of the estimated 50 million U.S. households without access to conventional broadband, the satellite services' high speed—restrictions and glitches aside—is likely to fire up your inner surfer. Still, consider waiting to sign up to let each work out remaining kinks.

—Tom Spring ■



NEW satellite services use one dish for both TV and Internet signals.

ges \$70 per month; Hughes charges \$60 per month. Both StarBand- and Hughes-based services also offer satellite TV with select services and the right hardware, and for an additional fee.

BANDWIDTH FROM THE HEAVENS

WE TESTED a preproduction DirecPC 4 setup at Hughes's offices and examined a shipping version of StarBand's PCI card-based hardware installed in a home computer. In our informal tests of down-

ment over a dial-up connection. Both services improve browsing speed and make fast work of downloading MP3s and streaming video. Plus, the always-on connection makes access easy while liberating your phone line.

The relatively slow uploads can be a hindrance, however, especially when issues such as latency (signal travel time) compound the problem. For example, online multiple-player games don't work well because the upload rate, in conjunction with the time a signal

Didn't get what you wanted
this holiday?



Read on, and you can.

Telling us exactly what you want is the first step in building your perfect technology solution.



Gateway Essential™ 866

Intel® Pentium® III Processor 866MHz • 64MB SDRAM • EV500 15" Monitor (13.9" viewable) • Intel® 3D AGP Graphics • 10GB Hard Drive • 48X Max CD-ROM Drive • Enhanced Audio • Boston Acoustics® BA265™ Speakers • 56K Voice Modem • Microsoft® Works Suite 2001 Software • 1-Year Limited Warranty* • 1-Year America Online™ Internet Access†

\$999 or as low as \$28/mo.
(APR 14.9% for 48 mos.)

Gateway Value Pack - Beginner Edition

Learning Library for Works Suite (Training Software) • Home Activity Collection • Online Training Subscription† • Desktop Starter Kit

\$249 (savings of \$236)†



Gateway Learning PC

Intel Pentium III Processor 1000MHz • 64MB PC133 SDRAM • EV700 17" Monitor (15.9" viewable) • 32MB NVIDIA™ GeForce2™ MX AGP Graphics • 40GB Hard Drive • 12X Max DVD-ROM Drive • Sound Blaster® Live!™ Value Card • Boston Acoustics BA735™ Speakers • Home Networking/56K Modem Combo Card • MS® Works Suite 2001 Software • 3-Year Limited Warranty*

\$1698 or as low as \$48/mo.
(APR 14.9% for 48 mos.)

Includes Learning 2000 DVD Version

Teaches the basic skills of Reading, Writing and Math, incorporating Social Studies and Science. 450 hours of self-paced instruction using award-winning interactive resources: full motion videos, detailed instructional screens and diagnostic testing to assess results.



Gateway Profile™ 3 CX

Intel Pentium III Processor 866MHz • 128MB SDRAM • 15" LCD Active Matrix TFT Color Display • 3D Graphics • 8X DVD-ROM Drive • Integrated Audio & Speakers • 20GB Hard Drive • 56K Modem • MS Works Suite 2001 • 1-Year Limited Warranty*

\$1999 or as low as \$59/mo.
(APR 14.9% for 48 mos.)

Gateway Photo:Ware™ Package

Digital Photo Workshop - Basic:

JamCam 3.0 Digital Camera • Corel Print House™ • Corel Print Office™ • Photo-Quality Paper • Getting Started Guide • One Half-Day Instructor-Led Course: "Using Your PC With Digital Photography" through Gateway Country® stores†

\$179 (savings of \$74)†



Now at  **Gateway.com.**

SAVE \$50 when you buy a new Gateway Performance PC plus a customized solution.*

(Value Pack or Your:)Ware™ 2.0 Package)

Enter coupon code MAG52 when prompted during checkout.

 Toll Free from Mexico 001-888-888-0074  Toll Free from Puerto Rico 800-846-3613  Toll Free from Canada 888-888-2039

© 2001 Gateway, Inc. All rights reserved. Gateway, Solo, Gateway Profile, the Gateway stylized logo, People Rule and Your:Ware are trademarks or registered trademarks of Gateway, Inc. Gateway Direct L.P. and Gateway.com L.P. are separate legal entities. Gateway Country Stores is a division of Gateway Companies, Inc. The Intel Inside logo, Intel and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. Microsoft, MS and Windows are registered trademarks of Microsoft Corporation. America Online and AOL are registered service marks of America Online, Inc. All other brands and product names are trademarks or registered trademarks of their respective companies. Prices and configurations subject to change without notice or obligation.
1. Maximum data transfer rate dependent upon variables, including particular modems with which you are communicating, telephone lines, communications software and communications protocols.
2. Visit gateway.com, call 1-800-846-2000 or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of applicable limited warranties and service agreements. Services may be provided by third parties. An authorized representative will determine the method of service provided. You may be required to take or send your product to an authorized location for service. If you purchased on-site service, it will be provided only if an authorized representative determines it is necessary because your problem cannot be corrected through other means. On-site service is not available in all locations and excludes mice, keyboards, docking stations, external peripherals and monitors. See agreements for specific terms and limitations.

Solo® 1150CS

12.1" HPA Color Display • Intel® Celeron™ Processor 550MHz • 32MB SDRAM (expandable to 160MB) • 4MB 3D Video • 24X Max/10X Min CD-ROM Drive • 5GB Ultra ATA Hard Drive • V.90 56K¹ Modem • MS Works Suite 2001 Software • 1-Year America Online Internet Access²

\$999 or as low as \$28/mo.
(APR 14.9%) for 48 mos.³

Gateway Value Pack - Starter Pack

External USB Floppy Drive • USB Mouse • USB Keyboard • Casual Carrying Case - **\$99 (savings of \$50)⁶**



Solo 5300CL

14.1" XGA TFT Color Display • Intel Pentium III Processor 650MHz • 64MB SDRAM (expandable to 512MB) • 10GB Hard Drive • 24X Max/10X Min CD-ROM Drive • V.90 56K¹ Modem • 2X AGP 8MB S3 Savage IX 3D Video • MS Works Suite 2001 Software • 1-Year America Online Internet Access²

\$1999 or as low as \$56/mo.
(APR 14.9%) for 48 mos.³

Gateway MoneyWare™ Package

Quicken® 2001 Suite including: Quicken 2001 Deluxe, TurboTax Deluxe,⁴ Quicken Family Lawyer™ 2001 & TurboTax Coupon • Getting Started Guide • One Half-day Instructor-led Course: "Managing Your Finances Using Quicken 2001 Suite" through Gateway Country stores⁵ - **\$129 (Savings of \$39)⁶**



Solo 3350CS

12.1" XGA TFT Color Display • Intel Pentium III Processor 600MHz • 64MB SDRAM (expandable to 256MB) • 6GB Hard Drive • External 24X Max/10X Min CD-ROM Drive • V.90 56K¹ Modem • 2X AGP 8MB ATI RAGE™ Mobility-M1 3D Video • MS Works Suite 2001 Software • 1-Year America Online Internet Access²

The Ultra portable at only 3.5 lbs.
\$2399 or as low as \$67/mo.
(APR 14.9%) for 48 mos.³

Gateway CyberWare™ Package

One Half-day Instructor-led Training Course: "Getting Started" through Gateway Country stores⁵ • 1-Year Online Training Subscription⁴ • Getting Started Guide - **\$129 (Savings of \$69)⁶**



Solo 9300CL

15" XGA TFT Color Display • Intel Pentium III Processor 750MHz • 64MB SDRAM (expandable to 544MB) • 10GB Ultra ATA Hard Drive • 8X DVD-ROM Drive • V.90 56K¹ Modem • 2X AGP 8MB ATI RAGE Mobility-M1 3D Video • MS Works Suite 2001 Software • 1-Year America Online Internet Access²

\$2699 or as low as \$75/mo.
(APR 14.9%) for 48 mos.³

Gateway MusicWare™ Extreme Audio Pack

Nomad® II Digital Audio Player • CD-RW (CD Rewritable) Drive • CD Stomper™ Pro CD Labeler • MusicMatch Jukebox Plus • Instructor-led Training Course: "Using Your PC to Explore Digital Music" through Gateway Country stores⁵ - **\$459 (Savings of \$94)⁶**



Ad code: 005094

In  **Gateway** country People Rule.™

Call Gateway Direct
1-800-555-3009

Click Gateway.com
www.gateway.com

Gateway En Español
1-800-555-2052

Includes Windows® Millennium Edition-The Home Version of the World's Favorite Software.

3. TO AVOID BEING CHARGED A MONTHLY FEE, CANCEL BEFORE ONE-YEAR PERIOD ENDS. One-year period begins 30 days from receipt of system. You may incur surcharges even during promotional period for premium services, or long distance charges on your phone bill, depending on location and calling plan. Communication surcharges may also apply with some access numbers and in AK. Non-local access via 1-888# 10c per minute. New U.S. members only, 18 and over. Major credit card or checking account required. Use may be limited, especially during peak usage. For details, call 1-800-846-2000.
4. Payment based on 48/mos. 14.9% APR for qualified customers. Max APR 28.99%. Not all customers will qualify. Excludes shipping and handling and taxes. Minimum FINANCE CHARGE \$1.00.
5. On-line training: Instructor-led courses subject to availability, and students may be required to purchase course materials for certain courses. Customers need Internet access to use this service, and Gateway is not responsible for any connection charges. Gateway Country training: Passes are not transferable. No refunds are allowed for Upgrade Passes. Training available at participating Gateway Country locations. Courses listed may not be available in all locations. All training: Prices and courses subject to change without notice. Prices exclude shipping and handling and tax. Gateway training is not offered as vocational or job training.
6. Savings based on total cost of individual components if purchased separately.
7. Offer good 2/1/01 through 2/28/01. Not available with the purchase of Gateway Essential, Remanufactured or Business PCs.

NEC



MultiSync® 18" LCD Series

	LCD 1800	LCD 1810X	LCD 1810
Native Resolution	1280 x 1024	1280 x 1024	1280 x 1024
Cabinet Color	White	White/Black	White/Black
Portrait/Landscape Bezel	Not Included	Included	Included
XtraView®	Included	Included	Included



FREEDOM.

I let you do more. See clearly.

I bring you 18 inches of living color.

Wide-angle viewing.

Room to move.

I'm your monitor.

I'm here to liberate you.

The NEC MultiSync® LCD 1800.

Introducing the affordable NEC MultiSync LCD 1800, the newest in our line of 18-inch monitors.

Offering the industry's most popular screen size and a depth of just 4.3 inches (60% smaller than CRTs), it gives you plenty of room to maneuver.

Along with sharp images. Mitsubishi's new color algorithm for precise color. XtraView® wide-angle viewing. And low power usage and heat emission to keep things cool.

It's part of the 18-inch LCD line from the #1 brand of flat panel monitors. Each equipped with a range of high-end options.

Only from NEC-Mitsubishi Electronics Display, the newly-combined force of the two leaders in visual display technology.

SEE MORE.

1.888.NEC.MITS
www.necmitsubishi.com

NEC / MITSUBISHI
NEC-MITSUBISHI ELECTRONICS DISPLAY

©2000 NEC-Mitsubishi Electronics Display of America, Inc.
All rights reserved.

MultiSync and XtraView are registered trademarks.

#1 selling brand worldwide, DisplaySearch study, Q2 '00
#1 selling brand in the U.S. Stanford Resources study, Q2 '00

Simulated image in monitor.



Presentation Tools of the Past

1980—2000 A.D.

Once upon a time, people were quite fond of these devices and used them for meetings, conferences and presentations. Imagine that?

Has your competition already evolved their communication methods? Because today, there's an innovative way to present ideas to large dispersed audiences. MSHOW – an interactive, rich multi-media, Web-based presentation tool. It will turn your conferences, meetings and seminars into real-time events in which hundreds, even thousands, can participate. Invest 20 minutes and experience a free, live, interactive MSHOW. Register at www.MSHOW.com or call 1-888-99MSHOW.

Shining in the Spotlight

THE PRESENTATION SERIES: PART ONE

Lasting Impressions

Tips from world-class presenters on making that perfect pitch

Like a millennial prophet of old, San Diego-based speaker Jim Cathcart sends a message that is as sensible as it is subversive. To audiences from six to 6,000, he proselytizes a creed valuing connections over coercion, and relationships over revenues. "Selling has evolved from a manipulative act into something that is about collaboration and mutual problem-solving," he says.

Cathcart's converts care more for long-term relationships than quick bucks. "Instead of beating people up until they buy from them, good salespeople are finding more meaningful ways to connect with their clients," he says. In their battle for hearts and minds, businesspeople are seeking the best tools they can muster. They are balancing technology and technique to sell their ideas to increasingly sophisticated audiences.

But many entrepreneurs, in selling their ideas, forgo business smarts for strong-arm tactics. "It's as if their IQs start dripping out when they pitch their businesses," says Aldonna Ambler, a growth strategist based in southern New Jersey. "They try to do things that they would never attempt with a prospective client."

Ambler especially bristles at the sense of entitlement she finds in letters from hopeful entrepreneurs. "Many of them write as if they're asking Mom or Dad for money," she says. "It's like, 'If you let me do this now, and it

doesn't work out, I'll go back to school.'

They're clearly not approaching this for what it really is: a sales pitch." Ambler says venture capitalists want to see comprehensive proposals that spell out the potential rewards for investors.

When Cathcart published his book, *Relationship Selling: The Key to Getting and Keeping Customers* (Berkley Publishing Group, 1990), more than a decade ago, salespeople

called him a heretic. Now many embrace his words as writ. When helping entrepreneurs sell their ideas to VCs, Cathcart prepares them to walk away from any deal they deem to be a bad fit for either party. "We're not going to VCs strictly

to get their money," he says. "What we're asking is how we can explore an idea together to best determine whether it makes sense to be in this relationship together."

Cathcart dislikes the word pitch—"it harkens to the mid-1980s, when sales was still about showmanship"—but he agrees that the art of persuasion requires equal parts preparation and partiality toward investors' needs. Technology, too, is an important part of the equation. Cathcart uses Microsoft PowerPoint, audio and video clips to bolster most of his presentations, and considers his Sony Vaio notebook computer to be his primary tool.

But technology only helps a presentation if
Continued on page 5



"The job of the technology is to enhance relationships. It's only good if it's helping you get your message across."
Jim Cathcart,
founder and CEO,
Cathcart Institute



Epson's PowerLite 50c uses three-LCD projection

**INTRODUCING AN LCD PROJECTOR
SO DEPENDABLE, YOU'LL WANT TO
TAKE IT EVERYWHERE.**

AND SO PORTABLE, YOU CAN.
(shown actual size)

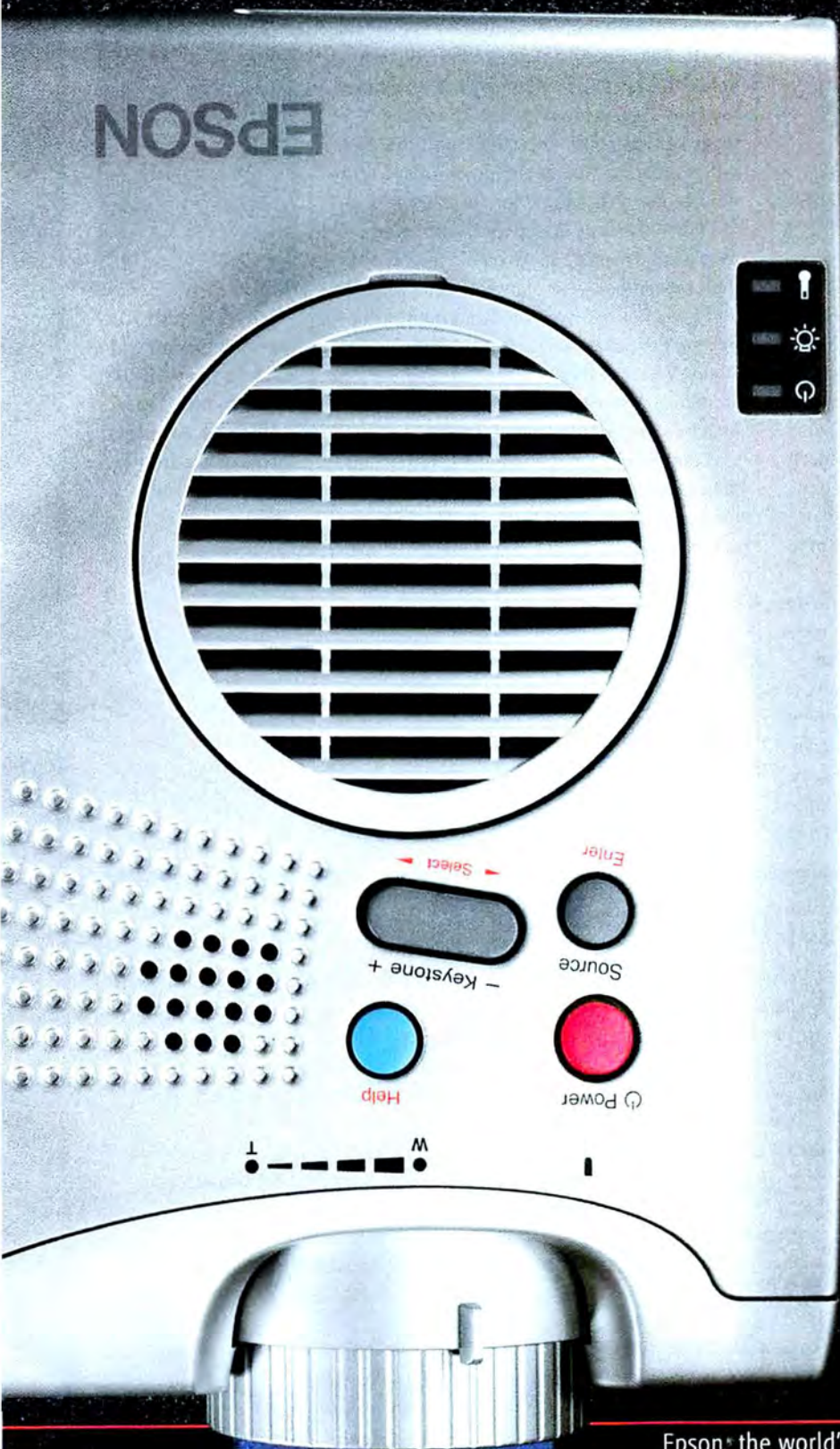
Though it weighs under 6 pounds, the PowerLite™ 710c performs like a true heavyweight, giving you everything you need to captivate an audience. Perfect color. Razor-sharp detail. And plenty of brightness – even for rooms that are lit. Plus, when it comes to clarity, no DLP can

beat our three LCDs. There's even Private Line™ phone support for immediate assistance. With all that, there's a lot more to the PowerLite 710c than meets the eye. For while its size may make it the smallest projector you've ever seen, its performance will surely make it the greatest.

YOU'VE GOT TO SEE IT IN

EPSON

COLOR.



Epson,[®] the world's number one projector company, brings you the PowerLite 710c featuring: 5.8 pound weight • 10.5" x 8.4" x 3.5" dimensions • Keystone correction • 1000 ANSI lumens with XGA resolution • SizeWise[™] technology gives you compatibility with computer resolutions up to 1600 x 1200.

For more information or a free demo, visit www.projectors.epson.com or call 1-888-446-5538 (Oper. 3102).

Shining in the Spotlight

THE PRESENTATION SERIES

Continued from page 2

it moves the message forward. "The job of the technology is to enhance relationships," Cathcart says. "It's only good if it's helping you get your message across."

Fortunately, speakers can reach their audiences with technologies that are powerful, yet transparent and easy to use. Epson America, Inc., based in Long Beach, Calif., for example, equips all of its Commuter Series projectors with picture-in-picture technology, 15-degree digital keystone correction, electronic zoom, multifunction remote control and on-screen help features. Epson America is the U.S. affiliate of Japan-based Seiko Epson Corp.

Epson recently refreshed the Commuter line with two models, the PowerLite 50c and PowerLite 715c. The 50c uses Seiko Epson's three-LCD projection system, code-named Dream, to improve brightness distribution and color saturation, as well as color accuracy and efficiency. The 715c combines three-LCD projection with Micro Lens Array (MLA) technology. With MLA, a microscopic lens in front of each pixel of each

LCD increases light throughput.

The 50c and the 715c are extremely reliable and easy to use. As three-LCD machines, they have fewer moving parts than other types of projectors. And the 715c further simplifies presentation technology by eliminating the need for PCs altogether: Its users can utilize PCMCIA Flash, Compact Flash, SmartMedia and MemorySticks media to upload their presentations straight into the projector.

Epson has shown its commitment to supporting PowerLite users. Epson's Presenters Online Web site (www.presentersonline.com) contains presentation tutorials and articles, plus free art, audio and templates.

Cathcart says that presenters should use their technology to make substantial contributions, not just to short-term relationships, but to the long-term health of new partnerships. "It's important to view technology as a part of something bigger," he says. "Businesses have become more like living beings, and even the smallest presentation can have an immediate impact on the greater whole."

SUPPLEMENT SPONSORS:

Epson America, Inc. www.epson.com
MSHOW.com www.mshow.com
Sony Electronics, Inc. www.sel.sony.com/SEL/



"It's as if their IQs start dripping out when they pitch their businesses."
Aldonna Ambler,
growth strategist,
New Jersey

GET REAL: DITCH THE SPEECH

St. Paul, Minn.-based speaker and coach Betsy Buckley has surprising advice for would-be presenters: Don't write a speech. "I don't believe in speech writing," she says. "I want to be thinking about my audience, not about myself and my script."

But presenters must harness technology to pass along complex information. "Unless you're doing a purely motivational speech," she says, "then you need technology to reinforce your message."

Speakers can use the power of some projectors to produce memorable images and sound bites. For example, Park Ridge, N.J.-based Sony Electronics' new three-LCD projector, the VPL-CX10, burns brightly in the neighborhood of 1200 ANSI lumens, and its Micro Lens Array achieves true XGA (1024 x 768) resolution. And the CX10's three 0.9" LCD panels provide vivid

colors and crisp, flicker-free images at any brightness level. Color saturation remains stationary, even as image intensity varies.

The CX10 is extremely versatile: At less than 8 lbs., the projector mounts easily on ceilings and tabletops. Presenters can also use the CX10's USB hub port to control and launch files from an attached notebook or desktop PC. (For large presentations, they can daisy chain over 100 projectors with the Projector Station software Sony ships with the CX10.)

PAVING INTERACTIVE PATHS

In addition to compelling presentations and images, speakers must create two-way streets between themselves and their audiences, Buckley says. Denver-based videoconferencing site MSHOW.com sways online audiences with real-time application demonstrations, annotation tools,

real-time audience polling, interactive chat (private or public) and group Web surfing. The site handles all of the monitoring, management, reservations and invitations that speakers need to make professional presentations.

Even desktop application demos only need the application running on the presenter's PC. MSHOW also provides a host of additional conferencing options, such as preshow content development, conference leader training and live help desk support.

Products and services from Sony and MSHOW meet the demands of highly mobile professionals, a group that Buckley rates among the toughest to please. "In this 24x7 world we live in," she says, "audiences expect you to be real, to be present. They have a stronger desire than ever for genuine relationships."

SONY

business or pleasure?



©2000 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Simulated picture. Features and specifications are subject to change without notice. *Price listed is an estimated U.S. retail selling price. Actual retail selling price may vary. **See actual program for details. Sony, SuperLite, the 3-year logo and business or pleasure are trademarks of Sony.

Window offices,
starting at \$2,699*



Sony SuperLite™ LCD Projectors. Escape. Or use them for presentations, if that's your thing. Lightweight. Small. And unique 3-panel LCD technology for sharp, clear images. Choose from an exceptional line that reflects Sony reliability and quality. In the unlikely event one ever fails, Sony's On-Time Support will provide a loaner 24/7.** Call to receive a free informational CD-ROM. Then just kick back and enjoy the view.



Call
1.800.472.SONYxCS
or visit

www.sony.com/displaysystems

NEW PRODUCTS

A Colorful Compaq Home System With Kick



THE COMPAQ PRESARIO 5000 Series 5WV270 turned in a strong performance in our tests.

DESKTOP
AMD'S BUDGET-FRIENDLY Duron processor enjoys its first wide-scale retail outing in Compaq's new **Presario 5000 Series 5WV270**, an accessible PC that packs strong performance and good features into a colorful case.

The Duron-750-based shipping system that I looked at came with 64MB of RAM and earned a PC WorldBench 2000 score of 124. That represents 22 percent faster performance than you'd get with a typical Celeron-700 PC carry-

ing the same amount of RAM, and it's just 6 percent slower than a Pentium III-700 system with 128MB of RAM (all running Windows Me). To get the most from this \$1298 system, pay \$89 more and bump the PC's memory allocation to 128MB—and expect a speed boost of at least 10 percent.

The system has four convenient USB ports—two on the unit's front panel—and its Internet keyboard offers external controls for the CD-ROM drive and for volume, as well as one-touch launch of Help,

e-mail, and Net shopping. A handy light tells you if you've received e-mail, though this feature doesn't work with proprietary, non-POP3-based ISPs like AOL. Compaq clearly invested some thought in this PC's design.

EXTRAS INSIDE

WITHIN THE CASE, you'll find a 20GB hard disk, an NVidia-based PCI graphics card with 8MB of RAM, a 56-kbps modem and 10/100 ethernet, a 17X-40X CD-ROM drive, an 8X/4X/32X CD-RW

drive, and a standard floppy disk drive. The case's interior is clear, neatly laid out, and all drives are mounted in easy-off trays to simplify upgrading. The Presario's 17-inch monitor has mounted speakers, and you can choose from six colors (including basic gray) for the speaker grilles, the case front, and the keyboard.

Novices receive everything they need to get started, including a quick-setup guide and a CD-ROM with upgrade tutorials and demos of advanced features. Hard-drive-based information, organized under Compaq's new Knowledge Center software, uses a familiar browser interface to get you to various help topics, as well as to connect you to tech support. You'll need a Net connection (through either Compaq.net or your own ISP).

Though pricier than some entry-level PCs, the Compaq Presario 5WV270 offers solid value for the money.

—Anush Yeghazarian

Presario 5000 Series 5WV270

PRO: Good PC performance, built-in ethernet, CD-RW drive.

CON: A bit pricey, only 64MB of RAM.

VALUE: A well-rounded package that offers lots of help for beginners.

Street price: \$1298

Compaq

800/345-1518

www.compaq.com/athome



THIS PRODUCT has been evaluated using tests designed by the PC World Test Center.

A PDA That Won't Fill Up Your Pocket

HANDHELD

BID ADIEU to bulky handhelds with Xircom's tiny **Rex 6000 MicroPDA**. This \$189 PDA (\$149 sans docking cradle) packs an address book, a calendar, news briefs, and more into a Type II PC Card that's

Rex 6000 MicroPDA

PRO: Tiny PDA handles the basics.

CON: Data memory limited to 2MB.

VALUE: Affordable; highly portable.

List price: Rex with USB cradle, \$189; Rex with serial cradle, \$179; Rex only, \$149; USB cradle only, \$49; serial cradle only, \$39

Xircom

800/438-4526

www.rex.net

about the size of five stacked credit cards. Major upgrades include simplified data entry and safer data storage.

The Rex 6000 weighs 1.4 ounces and sports a clear, nine-line LCD touch screen. To enter information, simply tap the new touch screen's keyboard with your finger or the included stylus. Using one hand, I easily navigated the menus on my shipping copy.

The Rex runs on two lithium-ion watch batteries. And since the unit now sets aside 2MB of nonvolatile flash memory to store data, you don't lose your information if you lose power.

Using the Rex with a PC is

simple: Plug it into a PC Card slot (if one is available) or into the sleek, included purple cradle; the latter hooks up to a USB port (a \$179 serial-port version is also available). With the bundled Intellisync for Rex software, I easily synchronized information with my desktop. The Rex syncs with Outlook and Outlook Express, but it supports Symantec ACT, Lotus Organizer, and other popular PIMs only if you buy Intellisync plug-ins.

If you don't need all the features of a full-blown PDA, this slim little model won't weigh down your pocket.

—Melissa J. Perenson

DVD-RAM Video: Don't Ditch Your VCR

VIDEO RECORDER

SOMEDAY, DVD-RAM may dominate the video recording realm. But Panasonic Consumer Electronics' gleaming **DMR-E10 DVD Video Recorder**—the first consumer-oriented DVD-RAM digital video recorder (DVR)—isn't ready to occupy the throne. The \$3995 DMR-E10 offers all the utility of a high-end VCR, plus such benefits of a digital recorder as easy deletion of commercials

and instant location of material. However, digital video recorders using competing and incompatible formats—Pioneer's DVD-RW, and DVD+RW from Sony and Philips—are expected to hit the market later this year. The coming battle royal among these rival formats could trigger consumer flashbacks to the bad old days of VHS versus Beta-max videocassette standards.

The DMR-E10 records video using MPEG-2 compression—the same high-quality format that DVD movies use. The unit can record 1 hour of super-high-quality MPEG-2 material at 10 MBps, and 2 hours of high-quality video at 5 MBps; both modes produced excellent recordings on the shipping unit I tested.

At 2.5 MBps, output quality declined noticeably but was still on a par with the output of an upper-end VHS recorder. The \$35 removable DVD-RAM cartridges record 4.7GB per side. One major caveat: Although the DMR-E10 can play DVD movies and audio CDs, current consumer DVD movie players can't read the DMR-E10's media.

I'd give the DMR-E10 an A+ for recording quality. But until

hardware and media prices drop, it's for the affluent only. Hard-drive recorders like the one bundled with the TiVo digital recording service offer a similar experience for a fraction of the cost—a much better fit for most users.

If you want to avoid becoming a casualty of the impending format fray, don't buy yet.

—Jon L. Jacobi ▶

DMR-E10 DVD Video Recorder

PRO: Excellent recording quality.

CON: Prohibitively expensive.

VALUE: Other recorders offer better value for most consumers.

List price: \$3995

Panasonic Consumer Electronics

800/211-7262

www.panasonic.com



THE HIGH-END
DMR-E10 costs a whopping \$3995.



FOR MORE PRODUCT news and the latest announcements, check the offerings of the PC World Daily News Service at www.pcworld.com/news. To try out some of the software mentioned here, go online to www.pcworld.com/downloads.

More Power, More Options in Ultrathin Laptops

NOTEBOOKS

THE LATEST thin-and-light notebooks gain a few ounces to handle most of the options found in larger and heavier notebooks, but they don't sacrifice functionality or power to do it. I looked at two impressive new models: Acer America's full-featured **TravelMate 350TE** and Hewlett-Packard's stylish **Omnibook F2164A**.

AN ACE OF A MACHINE

THE \$1999 ACER TravelMate 350TE reminded me of the circus routine where dozens of clowns climb out of a tiny car. This 4-pound, 0.83-inch-thick notebook has more ports than I've seen on any other ultra-

crisp. And the notebook is ready to accommodate devices based on the wireless Bluetooth protocol when they become available. The shipping TravelMate 350TE I saw also includes an IEEE 1394 (FireWire) port for quick downloads from IEEE 1394 devices such as digital cameras. For security, the unit requires a user to supply a Smartcard in order to turn it on.

Typing on the keyboard was a pleasure. Its five customizable, one-touch application-launch keys enhance its convenience, and its Synaptics TouchPad pointing device seemed extremely responsive. Unlike most ultrathins, which come with an external floppy drive but normally offer external CD-ROM drives only as options, this package includes a 1.12-pound combo external floppy/CD-ROM drive.

Its performance, however, was disappointing. Its score of 104 on our PC World-Bench 2000 test suite was

low for a PIII-

650, Windows Me machine with 64MB of RAM (upgrade to 128MB). The battery lasted about 2.25 hours—average for an ultrathin notebook.

ALL-BUSINESS HP

AT 3.75 POUNDS and less than an inch thick, HP's basic Omnibook F2164A performs the same clown-car act. The notebook has a 14.1-inch

active-matrix screen, a port where you can attach an external monitor, a 56-kbps V.90 modem, ethernet, two USB ports, and a Type II PC Card slot. This laptop's keyboard was surprisingly comfortable, with dedicated one-touch application-launch buttons. In contrast, the touchstick pointing device on the preproduction model I tested was not very comfortable to manipulate.

The HP's base price of \$2649 covers the notebook plus an external USB floppy drive, but no CD-ROM or DVD-ROM drive. To handle CDs and DVDs, you'll need to purchase a separate multimedia expansion base (at a starting price of \$249) containing two accessory bays that can be filled with an assortment of drives: CD-ROM, CD-RW, DVD, Zip, LS-120, or a second hard drive. On the back of the expansion base are parallel, serial, PS/2, S-Video-out, and two USB

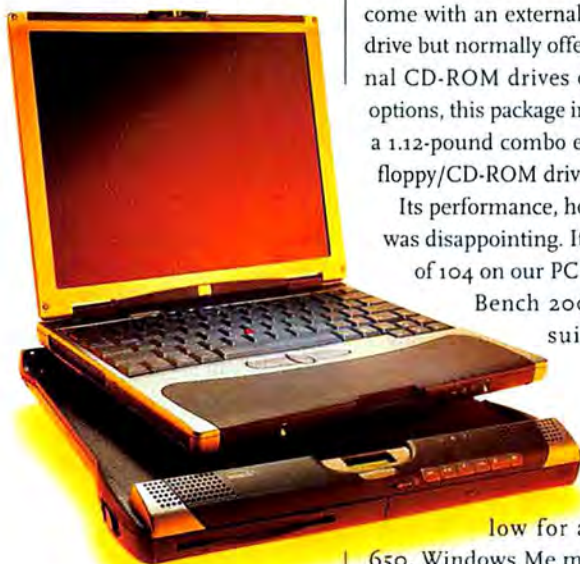
ports. (HP offers a \$3149 bundle that includes the laptop, the base, and the CD-ROM and floppy drives.)

Fortunately, the F2164A's diminutive size belies its robust performance. Running Windows 2000 and packed

with a 650-MHz Pentium III CPU and 128MB of RAM, it romped to a score of 149 on our benchmark—one of the best we've seen in this class—with a 3-hour-plus battery life.

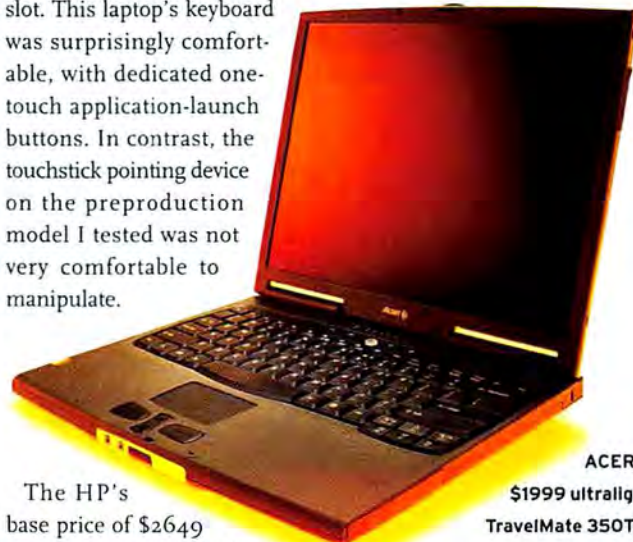
The Omnibook F2164A and its expansion bay are worth the price if you want the features of a power notebook for the office and of a light PC for the road. Use the TravelMate 350 for light work in transit.

—Michael S. Lasky ►



HP'S F2164A has an optional multimedia expansion base.

portable—an ethernet port, an onboard modem, a PS/2 port for keyboard or mouse, a pair of USB ports, an external monitor connector, and a Type II PC Card slot. Both text and graphics on the 13.3-inch, XGA active-matrix screen are



ACER'S \$1999 ultralight TravelMate 350TE.

TravelMate 350TE

PRO: Feature-packed; floppy/CD-ROM combo drive included.

CON: Slow performance.

VALUE: Good value in an ultrathin.

List price: \$1999

Acer America

800/816-2237

www.acer.com/aac

Omnibook F2164A

PRO: Powerful performance and long battery life despite petite size.

CON: Pricey; optional expansion base required to add disk drives and many standard ports.

VALUE: Perfect for office and travel.

List price: PC, \$2649 and up; expansion base, \$249 and up

Hewlett-Packard

800/752-0900

www.hp.com/omnibook

TEST PC WORLD CENTER THESE PRODUCTS have been evaluated using tests designed by the PC World Test Center.

"Too Good to be True?"

"ABS™ Athlon Special almost qualifies for too-good-to-be-true status." --CNet Reviews, October 2000



ABS™ has been offering the best value desktop PC's through mail order since 1990. Only top quality name brand components are found inside the ABS™ case. The quality is unbeatable and the price is untouchable! Comparing apples to apples, there is no better value to be found, period! No wonder America's toughest technology experts have bestowed upon ABS™ their highest accolades.

"We definitely would call it terrific, especially in regard to the value that it offers."
--Computer Buyer's Guide, October 2000 Best Buy

"For everything from image editing to game playing, the ABS™ Performance 3 rules."
--Computer Shopper, August 2000 Best Buy

PC World Top 10, Jan 2001 (20 Times)
Computer Shopper Best Buy, Aug 2000 (5 Times)
Computer Shopper Top 100 Products of the Year, 2000 & 1999
Computer Buyer's Guide Best Buy, Oct & Feb 2000
Cnet Editor's Choice, Jan 2000

GSA Contract #GS-35F-0567K

www.abspc.com

5X Best Buy Winner

3 Year Limited Parts Warranty / Lifetime Labor Warranty / 30 Days Money Back Guarantee / Optional Onsite Service Available / 30 Days Earthlink Internet Access



ABS™ Performance System 1

Gigabyte GA-72X-1 VIA KT133 Thunderbird 4X AGP Motherboard
High-Performance Heatsink/Cooling System
Irwin ATX Mid-Tower Case w/300 Watt (AMD Certified)
Kingston or Viking 256MB Fast SDRAM Memory at 133MHz
Maxtor 40GB 7200RPM Ultra ATA100 Hard Drive
New Pioneer 16X DVD Player
Plexor 12X10X32 BURN-Proof™ CD-ReWritable Drive
New Creative Labs Annihilator 2 Ultra (Nvidia GeForce 2 Ultra)
w/64MB 4X AGP Video Card (One Billion Pixels/Second)
Optional ViewSonic E770 19" 26mm 1600x1200 Color Monitor @ \$349
Creative Labs SoundBlaster Live! Platinum Sound Card & Microphone
Creative Labs Cambridge SoundWorks Desktop Theater 5.1 DTT2500
Surround Sound Subwoofer/Speaker System
US Robotics PCI Hardware 56K V.90 Data/Fax/Modem
3Com 905 10/100 Network Controller, Broad Band Ready
Mitsumi 1.44MB Floppy Drive, High Speed I/O Ports: 2S, 1P, 1G, 2USB
Microsoft Internet Keyboard & Microsoft IntelliMouse Explorer
Microsoft Windows 98 SE or Millennium Edition
Free Software: Corel WordPerfect Office 2000 CD
Free ABS™ High Quality Cloth-Surface Mouse Pad
Free ABS™ PC Organizer (3" Color Binder w/Plastic Ziplock Pockets
for User Manual, Drivers & Application Softwares)

ATHLON / 900MHz #2814

\$1949

950MHz #2815 \$1969

1.0GHz #2816 \$1989

1.1GHz #2817 \$2029

1.2GHz #2818 \$2059

ABS™ Performance System 2

Gigabyte GA-72X-1 VIA KT133 Thunderbird 4X AGP Motherboard
High-Performance Heatsink/Cooling System
Irwin ATX Mid-Tower Case w/300 Watt (AMD Certified)
Kingston or Viking 128MB Fast SDRAM Memory at 133MHz
Maxtor 30GB 7200RPM Ultra ATA100 Hard Drive
New Pioneer 16X DVD Player
Add Plexor 12X10X32 BURN-Proof™ CD-ReWritable Drive @ \$229
Add Creative Labs Nomad Jukebox 6GB MP3 Player @ \$419
Leadtek Nvidia GeForce 2 GTS 32MB DDR 4X AGP Video Card
OpenGL, DirectX, Direct3D Support
Optional AGI 666 Short-Neck 19" 26mm 1600x1200 Color Monitor @ \$299
Creative Labs SoundBlaster Live! Value Sound Card & Microphone
Altec Lansing ACS54 Gaming 5-Piece Subwoofer/Speaker System
US Robotics PCI Hardware 56K V.90 Data/Fax/Modem
Mitsumi 1.44MB Floppy Drive, High Speed I/O Ports: 2S, 1P, 1G, 2USB
Microsoft Internet Keyboard & Microsoft IntelliMouse
Microsoft Windows 98 SE or Millennium Edition
Free Software: Corel WordPerfect Office 2000 CD
Free ABS™ High Quality Cloth-Surface Mouse Pad
Free ABS™ PC Organizer (3" Color Binder w/Plastic Ziplock Pockets
for User Manual, Drivers & Application Softwares)
Add Epson Stylus 880 Color Inkjet Printer @ \$139

ATHLON / 900MHz #2824

\$1139

950MHz #2825 \$1159

1.0GHz #2826 \$1179

1.1GHz #2827 \$1219

1.2GHz #2828 \$1249

ABS™ Performance System 3

Gigabyte GA-72X-1 VIA KT133 Thunderbird 4X AGP Motherboard
High-Performance Heatsink/Cooling System
Irwin ATX Mid-Tower Case w/300 Watt (AMD Certified)
Kingston or Viking 128MB Fast SDRAM Memory at 133MHz
Western Digital 20GB 7200RPM Ultra ATA100 Hard Drive
Creative Labs 52X CD-ROM Player
Add Creative 8x4x32 CD-ReWritable Drive @ \$139
Add Creative Labs Nomad Jukebox 6GB MP3 Player @ \$259
Optional ViewSonic E771 17" 27mm 1280x1024 Color Monitor @ \$219
Leadtek Nvidia GeForce 256 w/32MB DDR 4X AGP Video Card
OpenGL, DirectX, Direct3D Support
Creative Labs SoundBlaster Live! Value Sound Card & Microphone
Altec Lansing ACS54 Gaming 5-Piece Subwoofer/Speaker System
ZOOM 56K V.90 Data/Fax/Modem
Mitsumi 1.44MB Floppy Drive, High Speed I/O Ports: 2S, 1P, 1G, 2USB
Microsoft Internet Keyboard & Microsoft IntelliMouse
Microsoft Windows 98 SE or Millennium Edition
Free Software: Corel WordPerfect Office 2000 CD
Free ABS™ High Quality Cloth-Surface Mouse Pad
Free ABS™ PC Organizer (3" Color Binder w/Plastic Ziplock Pockets
for User Manual, Drivers & Application Softwares)
Add Canon N650U 42-bit Flatbed Scanner @ \$99

ATHLON / 900MHz #2834

\$979

950MHz #2835 \$999

1.0GHz #2836 \$1019

1.1GHz #2837 \$1059

1.2GHz #2838 \$1089



800.230.4233

800.926.8088

Sales Hours: Mon-Fri 7:00AM-6:00PM PST Sat 9:00AM-1:00PM PST

Sales Hours: Mon-Fri 7:00AM-5:30PM www.abscorporate.com

Technical Support: Mon-Fri 8:30am-5:30pm PST Technical Support: 800.685.3471 General Office: 562.695.8823 9997 East Rose Hills Road, Whittier, CA 90601
Price, specification, and terms are subject to change without notice. Picture shown with upgrade options. ABS™ is not responsible for errors in typography and/or photography. 30 days money back guarantee does not include opened software, parts, or special order merchandise. Original shipping and handling fee along with return shipping charge are non-refundable. Products returned after 30 days or in a non-refundable condition are subject to a restocking fee. Onsite service may be provided by a contracted third party provider. Technician will be dispatched if necessary following phone support.

abspc.com

Netscape 6: Faster to Use, Too Slow to Market?

WEB BROWSER

IN A WORLD dominated by Microsoft Internet Explorer (which commands a market share of around 80 percent), the final release of **Netscape 6** raises the question—is it too little too late?

The new Netscape's faster Gecko engine accelerates the task of loading individual pages, and the user interface looks much more contemporary than version 5 did.

On the other hand, opening the browser itself took 15 seconds (versus Internet Explorer's 5 to 6 seconds) on my PC. And reports of bugs abound: At press time, Netscape was struggling to fix one glitch that prevented its browser from properly displaying Shock-wave images on Web pages.

The interface now features a left pane called My Sidebar, which lists such options (or Tabs) as Search, News, and Stocks. Depending on the size of your screen, you can select from among hundreds of other tabs that are available from Netscape's site (search.netscape.com/mysidebar.tmpl).

The URL box doubles as a bona fide search tool using the Google search engine, and a drop-down menu on the left

lets you narrow your search to specific categories by using keywords. For example, typing 'Quote AMZN' quickly generated an up-to-the-minute status report for Amazon.com.

Whether you have a POP3 or IMAP mail account, Web-based e-mail, or AOL, the mail client lets you collect all of your e-mail in one place and sort it into multiple in-boxes. Netscape 6's other new fea-

tures include the PC-to-phone utility Net2Phone, a cookie-management tool, and a password manager that stores all passwords in case you forget them (the password manager itself is password-protected).

While the browser is more attractive than its predecessors, the interface would benefit from additional tweaking. The Home button has been relegated to the secondary

"personal toolbar" and disappears if you disable that toolbar. Netscape 6 runs on Windows 95 or later, on Mac OS 8.5 or later, and on several Linux distributions. On PCs, it requires 64MB of RAM and at least a Pentium-133 CPU.

I liked the speed at which pages loaded, but I hated the time it took to fire up the browser. Overall, there's too little beef in this version to coax me to jump ship from my current browser.

—Yael Li-Ron

Easy Broadband Sharing in a Box

HOME NETWORKING

2WIRE'S **HomePortal 1500** introduces a new level of ease in sharing a broadband connection along a home network—even for novices. Although pricey, it offers features that lower-end products don't, including support for Mac and Windows as well as almost any type of home network.

The \$499 HomePortal 1500 combines a router, a firewall, and a DSL modem; and it works with units running Windows 98, Me, NT 4, and 2000, or Macintosh OS 8.5 or later (but not X). If you own a DSL or cable modem, opt for the \$299 HomePortal 100, which has everything the 1500 version has except the modem.

To set up HomePortal, just plug in the power adapter and DSL line, and connect the unit to your existing hub; to a computer with an ethernet card, Home PNA adapter, or USB port; or to your wireless base station. In my tests using a wireless gateway and two PCs with wireless receivers, com-



SHARE BROADBAND easily with 2Wire's HomePortal 1500.

plete installation took less than 20 minutes.

Performing network management via a browser, I could tweak the firewall to give outside computers access to mine for a fairly extensive selection of online games—a nice feature that other gateways don't provide. Hosting additional applications is possible with minimal effort.

You can buy HomePortal from 2Wire's Web site or from

an ISP or other third party. Vendors will preconfigure the device based on information about your DSL service.

Also, 2Wire plans to offer a software upgrade that will add telephone networking—so, for example, you could transfer calls between extensions on a single phone line.

Other, less-expensive gateway products let you share broadband access. But HomePortal 1500's one-box versatility, simple setup, and easy-to-customize firewall make it worth considering, especially for online gamers.

—Yardena Arar ▶

HomePortal 1500

PRO: Easy DSL sharing for almost any type of home network; Mac and Windows support.

CON: Pricey.

VALUE: Well worthwhile for online gamers and nontechnical users.

Street price: \$499 (\$299 without DSL modem)

2Wire

877/349-3304

www.2wire.com

Netscape 6

PRO: Fast page loading; supports all current Web standards.

CON: Browser opens slowly; limited customization options.

VALUE: You probably should make do with your current browser.

Free

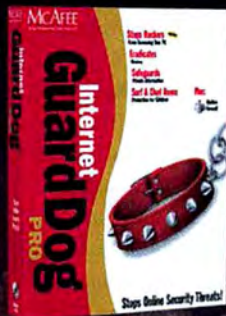
Netscape Communications

650/254-1900

www.netscape.com



WHICH PARTS OF THE INTERNET WILL TOUCH YOUR FAMILY?



With so much wonder and beauty on the Internet, it's still so easy to encounter darker forces. If you don't find them, they'll find you. Hackers, viruses, explicit Web sites, chat room strangers, even malicious programs that follow your activities or steal your credit card numbers, all threaten your family. Every time you go online. Now there's complete protection with Internet Guard Dog Pro. With its user-friendly firewall, it builds a defensive barrier around your PC. It also blocks objectionable Web sites, enforcing your standards while it monitors and blocks unwanted chat room talk and emails. Plus, its award-winning VirusScan software protects you against viruses. To learn more, visit www.mcafee-at-home.com/dm/igdpro.asp or your local retailer, before your family experiences the hidden dangers of the Internet.



McAfee
Total Protection For Your PC

©2001 Network Associates Technology, Inc. All Rights Reserved. Network Associates and McAfee are registered trademarks of Network Associates, Inc. and/or its affiliates in the US and/or other countries. All other trademarks are the sole property of their respective owners.

Olympus Digital C-211: It Shoots, It Prints

DIGITAL CAMERA

THE INSTANT gratification of digital photography has just become significantly more gratifying: No longer must you view shots on a tiny LCD screen. Polaroid and Olympus have joined forces to produce the first digital instant-print camera, the hefty **Olympus C-211 Zoom Digital Printing Camera**. The unit also records 15-second video clips and offers a full range of manual controls—as well it should for a list price of \$799.

Unlike a standard Polaroid camera, which prints all your shots, the C-211 lets you select which images to print—a welcome bit of economy, since the unit uses ten-shot packs of film that cost about \$10 a pop.

In quality, the C-211's Polaroid prints resemble their non-digital counterparts: Colors

are mostly accurate, with occasional haziness. But if you use an ink jet printer and photo paper, the print quality improves markedly. On-screen photos also look vivid.

Handling a shipping version



GET INSTANT pictures from the Olympus C-211.

of the C-211 was relatively easy. For advanced users, the camera does offer such manual functions as over- and under-exposing an image, adjusting shutter speed, and changing the flash mode.

On the downside, the camera is incapable of recording audio to accompany its 15-second QuickTime videos, and like other digital cameras that shoot video, the C-211 quickly runs out of storage space if you try to save a video on it.

Since the C-211 lacks an optical viewfinder, you frame shots with the LCD monitor, which increases the drain on the four included AA alkaline batteries. Optional rechargeable batteries might be the way to go: Olympus sells four AA nickel-metal hydride batteries and a charger for \$70.

The C-211's biggest draw-

backs, aside from its price, are its size and weight. At almost 2 pounds, it's one of the heavier digital cameras I've toted—about twice the weight and size of comparable models that don't print their photos.

Overall, the C-211 is a novel idea, but unless you desperately want instant prints of photographs and stills from your videos, look elsewhere for a more cost-effective digital camera to meet your needs.

—Grace Aquino

Olympus C-211 Zoom Digital Printing Camera

PRO: Polaroid prints; many manual controls; 15-second video clips.

CON: Expensive; bulky design; unit is relatively heavy.

VALUE: Unique digital camera prints instant pictures but has too high a price.

List price: \$799

Olympus
800/622-6372

www.olympus.com

Navigate the Urban Jungle With Your PDA

CITY GUIDES

ON THE LOOSE, hungry, and armed only with your personal digital assistant? Navigate your way to dinner with JungleSoft's free **JunglePort** software. Before setting out, you create

JunglePort

PRO: Palm-oriented city guide with powerful customization capabilities.

CON: Only major U.S. cities included at this time.

VALUE: Great for getting around in familiar and unfamiliar towns.

Free

JungleSoft

617/742-7711

www.jungleport.com

a Safari (consisting of a map, a dining guide, and yellow pages for any of 39 U.S. cities) on JungleSoft's Web site; then you download the Safari onto a Palm OS-based handheld.

JunglePort's versatile dining guide allowed me to search for restaurants by type of cuisine, neighborhood, keyword, or price—though price wasn't listed for many restaurants in San Francisco, the focus of my research. You can read a short review of each restaurant, see its address and telephone number, locate it on a JunglePort map, mark it as a favorite, and add your own notes.

The shipping software's mapping capability is its most exciting feature. Once the map is up on your screen, you can zoom in on a particular area by tapping magnifying icons at the top, or by using your stylus to draw a rectangle around the section you want to zoom in on. If you like, you can use the stylus to grab the map and shift it to show a different section. You can add establishments to the map that aren't available from JunglePort's information, labeling them from a list of icons—restaurant, car repair, bar, and so on. As you might expect, given the small

screens on handhelds, the map itself is difficult to read unless you zoom in closely.

The yellow pages list dozens of categories, including department stores, museums, taxi companies, and airports. Within each section are names and addresses of businesses in the city, plus links to the map. This feature is less robust than the restaurant guide, however. It doesn't break listings down by neighborhood, for instance.

JunglePort is a fun and convenient tool for getting around a larger city—a combination guidebook and phone book that fits in your pocket, with customization features that make it especially useful.

—Lisa Cekan ►

Never before has 8U made such an impact on network availability

APC's NEW Symmetra® RM; the first N+1 rack-mountable Power Array™ with all the reliability of Symmetra's patented redundancy and scalability.

To ensure the highest availability for your business, you rely on a network built on redundant, scalable and "always on" servers, routers, switches and storage. Shouldn't your power protection strategy be just as redundant, reliable and scalable?

APC introduces Symmetra RM, the first rack-mountable Power Array with N+1 redundancy. Symmetra RM fits into a standard 19" rack, is scalable up to 6kVA of power capacity and has an integrated Web/SNMP Management Card for remote monitoring over the network.

Symmetra RM is compatible with APC's multiple management accessories, like the MasterSwitch™ family for remote rebooting or the Environmental Monitoring Card for temperature and humidity monitoring.

Increase the redundancy of your network with Symmetra RM today. Contact APC and let APC's Legendary Reliability™ work for you.



APC was chosen by PC Magazine as one of the "Top 100 Technology Companies That Are Changing The World" (10/99).



The Symmetra RM fits into any standard 19" enclosure and takes only 8U of space. Its power modules are hot-swappable, so you can scale them up without any downtime. Symmetra RM is also easily manageable with the industry-leading network platforms.

Symmetra Rack-mount Features:

- Rack-mountability which saves floor space.
- N+1 Redundancy in just 8U of rack space.
- User-replaceable and hot-swappable modules that eliminate downtime.
- Integrated Web/SNMP management.

- Scalable power and runtime with additional 2 kVA modules which can be added up to 6 kVA of power capacity (with an extra module for redundancy).
- User-friendly LCD & LED display for local control and management.
- Safe shutdown for any Network OS.



NEW!

Symmetra RM 8-12kVA N+1

- 8kVA unit scalable to 12kVA N+1 (16kVA N) in a 15U rack optimized form factor
- Protection for multiple racks of high density enterprise level equipment
- All the proven reliability and manageability of Symmetra Power Array.

APC
Legendary Reliability™



Enter to WIN A FREE Symmetra Rack-mount from APC!

All entrants will receive a FREE Enterprise Availability Kit.

To order: Visit <http://promo.apc.com> Key Code x358z • Call 888-289-APCC x1787 • Fax 401-788-2797

©2001 American Power Conversion. All Trademarks are the property of their owners. SY2ADEF-USD • PowerFax: (800) 347-FAXX • Email: apcinfo@apc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA. Microsoft, Windows, are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Screenshots reprinted by permission from Microsoft Corporation.

Portable, Private Internet Access

PREPAID WEB FEES

NEED A PREPAID calling card for the Internet? Try **Slingshot**, an ISP that provides portability and anonymity.

Slingshot works best for people who use the Internet sporadically or when traveling. It should also appeal to privacy fiends, since you need not reveal any personal data to purchase or use it.

Slingshot's software comes on a CD-ROM that's available from retail vendors for a list price of about \$10. The disc entitles you to 600 minutes of access—that amounts to less than 2 cents per minute—if you use Slingshot's local connection numbers; and the company's Web site lists plenty of U.S. numbers.

If you use Slingshot's toll-free number, however, your total access time is reduced to as little as 200 minutes per disc, raising the cost to about 6 cents a minute. Also note that obtaining foreign access via toll-free numbers currently is not available.

Once you have exhausted the minutes—which are good for up to 18 months from the time you first log on—you can buy more time online from Slingshot or toss the CD out.

Slingshot

PRO: Prepaid Internet access; very easy to set up and use.

CON: Unused minutes expire 18 months after first log-on.

VALUE: Cheap, easy access in a portable package.

List price: \$10

Slingshot

800/567-7153

www.slingshot.com

The program installs easily from the CD—simply enter the access code supplied, and the software dials an 800 number. Choose from a list of local access numbers Slingshot finds for you based on the phone number you are using, and you're up and running. Completing the setup process with a shipping copy took me less than 3 minutes.

The service also provides e-mail, both Web-based (like Hotmail) and POP3 (like Eudora or Microsoft Outlook). You get a *yourname@slingshot.com* address that you can use even after your minutes expire. (The address will be suspended if it goes unused for six months.)

Your Slingshot address will receive e-mail forwarded from

other ISPs, but the company doesn't currently forward e-mail. To retrieve e-mail held at another ISP, you must go through another Web-based e-mail service like Hotmail.

Slingshot makes getting online easy and will be particularly attractive to travelers who use a local ISP for their home Internet access. But if you have a national ISP, Slingshot may not offer you much that you don't get already.

—Richard Baguley

Wireless Peripherals for the Wealthy

PERIPHERALS

THE SALES PITCH for the **Intel Wireless Series** of input devices is that it tames the rat's nest of cables on your desk. But buy the whole set—key-

Initially I had difficulty getting the shipping units I tested to talk with the base. But once the devices were up and running, they easily worked from as far away as the promised 10 feet.



INTEL'S WIRELESS game pad allows you to roam the room while engaged in PC competition.

Unlike the various wireless products that use infrared, Intel uses radio waves; as a result, no line of sight is required.

The \$65 game pad has some cutting-edge appeal as the first wireless entry in the category, and it's a pleasure not to be shackled to the PC while you are

by wireless transmission.

Nongamers have even less reason to buy this series. The mouse is designed to accommodate righties and lefties, but it's uncomfortable for both. And because you must purchase the base to use the \$80 keyboard or the \$60 mouse, the package gets pricey.

If you're interested in wireless peripherals for the desktop, check out the offerings of other manufacturers, such as Logitech, whose less-expensive wireless mice and keyboards also work with radio waves and whose base stations are included in their price.

—Edward N. Albro

Intel Wireless Series

PRO: The star of the series is the cutting-edge wireless game pad.

CON: Very expensive.

VALUE: Worthwhile only for trendy gamers who don't like wires.

List price: base station \$60; game pad \$65; keyboard \$80; mouse \$60; package of base station, keyboard, and mouse \$180.

Intel

www.intel.com/wireless_series

board, mouse, game pad, and base station—and you shell out nearly \$250 to rid yourself of just three wires.

Aimed at home users, the devices require a USB connection and Windows 98 or Me. To use any of the peripherals, you need the \$60 base station, which can connect as many as eight Intel wireless products.

gaming. I liked being able to move around the room while playing, not to mention getting a little body English into my commands.

Nevertheless, some of my testers found the game pad's horseshoe design uncomfortable. Moreover, hard-core gamers may balk at the risk of their commands being delayed

XEROX: The Document Company. DocuPrint, eXpress Mode, A Smarter Breed of Inkjet Printer, the Blue Dog icon and M750 are trademarks of XEROX CORPORATION. Painting ©2000 George Rodrigue. Used with permission. ©2001 XEROX CORPORATION. All rights reserved. Simulated output.

XEROX INKJET PRINTERS. TWICE AS FAST AS THE REST OF THE PACK.



\$99*

*suggested retail price
DocuPrint M750

DIGITAL
THE DOCUMENT COMPANY
XEROX

You want your color fast. So Xerox lets you print at speeds up to 10 ppm black and 6 ppm color. Better yet, Xerox invented **eXpress Mode™**. It delivers great quality color at twice the speed of comparable printers in normal mode with comparable dpi. To appreciate these speedy printers, visit a store near you. Xerox. Just a smarter breed of inkjet printer.

www.xerox.com/inkjet

amazon.com.

[BrandsMart U.S.A.](http://BrandsMart.com)



MICRO CENTER

Office DEPOT

OfficeMax

Outpost.com

STAPLES

Scan, Print, and Copy for Only \$199

MULTIFUNCTION DEVICE

OFTEN, A jack-of-all-trades is master of none. The **Lexmark Z82 Scan/Print/Copy** multifunction device (MFD) has a few flaws, but it's still a stellar deal. The Z82 combines a color ink jet printer and a color flatbed scanner in an attractive, small-ish package that makes copies even if your PC isn't turned on. At \$199, the Z82 is in a price class by itself. But unlike

Lexmark Z82 Scan/Print/Copy

PRO: Small, inexpensive, and versatile printer/scanner/copier.

CON: High ink costs; no built-in fax capability; middling print quality.

VALUE: The price is phenomenal.

Street price: \$199

Lexmark

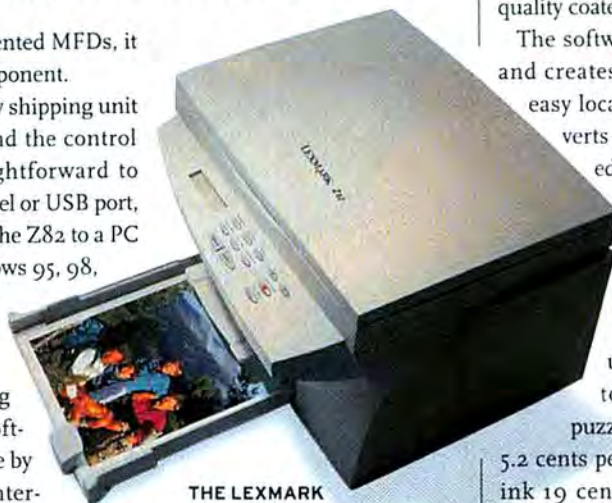
888/539-6275

www.lexmark.com

most office-oriented MFDs, it has no fax component.

Setting up my shipping unit was simple, and the control panel is straightforward to use. Via a parallel or USB port, you can attach the Z82 to a PC running Windows 95, 98, or Me (though not Windows 2000). The included Samsung SmartThru2 software baffled me by insisting on interacting with a PC fax-modem—which I lack, being a broadband user—but clicking on the Cancel button got me past that hurdle.

You can make black-and-white or color copies, and you can scan several pages into memory to "collate" before printing (for black-and-white



THE LEXMARK Z82 does everything but fax.

copies only). The lid lifts so that you can copy pages from bound books. However, the average office copier runs several times faster than the copy function on the Z82, and the 300-by-600-dpi scanner and 1200-dpi printer produce text

output that was not terribly sharp, even when I used high-quality coated paper.

The software saves, scans, and creates thumbnails for easy locating. It also converts scanned text into editable copy, using optical character recognition. But accessing the tools and moving between modules was like trying to solve a jigsaw puzzle. Black ink costs

5.2 cents per page, and color ink 19 cents per page with standard cartridges; you can save money by buying high-yield cartridges.

Still, unless you need high productivity or high-quality output (in which case you should buy an MFD based on a laser printer), the Z82 offers the best deal you'll find.

—Dan Littman

Sync Your PDA With the Greatest of Ease

SYNCHING

WHEN THE OWNERS of many Palm, Pocket PC, and Windows CE handhelds try to sync with their desktop personal information manager, they discover that their PDA supports only Microsoft Outlook.

Pumatech's **Intellisync 4** can synchronize your handheld with more than a dozen major PC applications, including Outlook, and it caters to people who happen not to work in a Microsoft-only world.

The new version (\$70) supports Lotus Organizer 6 for the Palm and Pocket PC/Windows CE platforms as well as

Lotus Notes R5 and Act 2000. The package also gives you access to a free version of the Browse-it utility; this program lets you download Web pages for offline viewing on Palm OS handhelds and permits real-time online browsing with Palms that have wireless or wired modems (the utility doesn't work on CE/Pocket PC devices, however).

People who own Symbian-compatible handhelds, such as the Psion Revo or Series 5, can look forward to syncing up with Intellisync 4 in the first half of 2001. Check the company's Web site for updated

information on the download.

Installing my shipping version of Intellisync 4 was no problem—I immediately obtained full synchronization with my Lotus Notes calendar, e-mail, contacts, to-do's, and memos, as well as getting one-directional uploads (device-to-PC or vice versa).

Like its predecessors, version 4 lets you mix and match the various apps you want to sync with—say, the calendar of Lotus Notes, the contact address book of Act 2000, and the to-do's in Outlook.

Currently Pumatech's Intellisync is the only PC/hand-

held-synchronization software to work seamlessly with both Palm and Win CE/Pocket PC platforms and their wide spectrum of desktop applications. This invaluable accessory should routinely be included with these devices.

—Michael S. Lasky ►

Intellisync 4

PRO: Indispensable multiple-application synchronization software for handheld devices.

CON: None.

VALUE: A must-buy for all PDA owners who don't use Outlook as their personal information manager. List price: \$70

Pumatech

800/774-7862

www.pumatech.com

Anything:

"Duct Tape"

Anytime:
amazon.com.

Amazon.com has everything from duct tape to hurricane anchors and chain saws floating around its new Tools & Hardware section. Simply use Amazon's speedy search engine to find the nuts and bolts of home improvement—everything you need to build, gut, smooth, sharpen, or finish. Do it yourself with Visa®—the tool behind your handiwork.

www.visa.com

Everywhere:



The Online Currency.

© 2001 Visa U.S.A. Inc.

For Video Editing, Catch VideoWave 4

VIDEO EDITING

IF AUDIENCE enthusiasm for your video vérité offerings is waning, why not try editing those screen gems? **VideoWave 4** from MGI will help you wade into the waters of digital video editing if you're a novice, but the software offers little to advanced users.

The interface is clear and

VideoWave 4

PRO: Easy to use; handles both analog and digital formats; contains plenty of special effects.

CON: Lacks tools for handling complex projects.

VALUE: A great package for newbies editing analog video.

List price: \$99

MGI

888/644-7638

www.videowave.com

functional, and the story-line approach to editing, though more limited than the methods used by other video editors, is simple. You just drag thumbnails or file names of video clips to a movie strip at the top of the screen and add transitions, such as dissolves and wipes, between the cuts. Then lay in music or narration, plus text and credits.

You can trim scenes by using a straightforward VCR-style interface with easy-to-set in and out points. But with the shipping version I tested, stray frames of material I'd already taken out showed up in a later edited version. I also found the audio tool clumsy when I tried to synchronize sound effects to the on-screen action.

The application comes with

a massive library of special effects, plus high-quality digital-animation and image-editing tools. **VideoWave 4** handles both analog and digital video formats. **StudioDV**, a comparable editor from Pinnacle Systems, offers more versatility for the buck, but does only digital.

The simplest way to preview a particular section of video is to fast-forward to about the desired spot, but I found this time-consuming. And playback on my Pentium III-500 PC with 196MB of RAM was spasmodic, even though MGI



VIDEOWAVE 4'S editing interface is as easy to understand as the buttons on a VCR or CD player.

specifies a minimum PII-266 PC with 64MB of RAM.

If you are new to video editing and working with analog video, **VideoWave 4** is for you. If you exclusively edit digital video, go with **StudioDV**.

—Jeff Sengstack

Macromedia's Upgraded Web Site Tools

WEB SITE DESIGN

MACROMEDIA'S updated tandem of **Dreamweaver 4** and **Fireworks 4** should feel friendlier than their forebears to budding Web site builders, and more flexible to pros. The new versions, released in tandem, streamline once-tedious Web tasks. The beta versions I used share keyboard shortcuts and dockable palettes, have more-closely knit features, and include a handful of automated code and design tricks.

Dreamweaver 4's most visible change is a new Split view that lets you compose layouts and source code simultaneously inside a two-paned window. For users well-versed in

HTML or JavaScript, a new text editor color-codes syntax, indents commands, and balances punctuation as you type. Less-fluent coders can quickly dig up information on HTML, JavaScript, and Cascading Style Sheet protocols using the new O'Reilly Code Reference panel. Also new: a JavaScript debugger; a custom report generator that pinpoints potential site snags; and a Repeat Last Action shortcut, <Ctrl>-Y. My only gripe: The History palette is inoperable when you're typing code.

Web design? Now you can modify vector-based Flash buttons and embed them in pages without leaving **Dreamweaver**.

Just drag the toolbar's *Flash Button* icon onto a layout; select a button template; change the button name, type settings, and target link; and click OK. Adding Flash Text is just as easy: **Dreamweaver** generates a tiny Shockwave Flash (.swf) file of your text in any typeface you like.

Meanwhile, **Fireworks 4's** latest tools walk you through creating pop-up navigation menus, remote image roll-overs, and frame-based GIF animations. Also new: selective JPEG image compression, batch file processing, and an Adobe-like Layer panel for importing or exporting native Photoshop files with layers,

text, and live effects intact.

For Web workers in the trenches, Macromedia **Dreamweaver 4** and **Fireworks 4** reply impressively to major competitor Adobe's recent release of **GoLive 5** and **LiveMotion 1**.

—John Goddard ►

Dreamweaver 4 Fireworks 4

PRO: Easier coding and debugging; handy reference tool; shared interface; automated features save time.

CON: **Dreamweaver 4's** History palette is inoperable in Code view.

VALUE: Excellent tools for pro Web developers, budding site builders, and collaborative online projects. Street price: \$299 each, \$449 for both, upgrade \$149 each

Macromedia

800/457-1774

www.macromedia.com

FIREWALL

VIRUS PROTECTION

VPN

AUTHENTICATION

CONTENT FILTERING

How can you protect your confidential data, as well as your client's data from security threats on the Internet? The answer is SonicWALL—a solution that is hard to hack, yet easy to use.

With a SonicWALL Internet security appliance, you'll benefit from firewall protection and a comprehensive array of integrated security services, including anti-virus, virtual private networking (VPN), strong authentication using digital certificates and Web content filtering. Your data is protected, and your employees remain productive. Plus, SonicWALL's easy installation and low maintenance provides an affordable turnkey security solution without hiring expensive IT consultants. Our products practically maintain themselves, providing automatic free updates so that you can focus on your day-to-day business.

According to International Data Corporation, the average new DSL connection experiences three attempted "hacks" in the first 48 hours. SonicWALL security solutions are the perfect and necessary complement to always-on Internet connections such as DSL and cable. And with more than 75,000 installations worldwide, we're the market leader in Internet security appliances for small and medium-sized businesses. To find out how SonicWALL can benefit your company, contact us at 408.745.9600. Or to learn more, download our white paper: "Security Issues and Solutions for Small and Medium Business" at www.sonicwall.com/pw3.html



SONICWALL
www.sonicwall.com/pw3.html

HARD TO HACK. EASY TO USE.



A No-Compromise Ultraportable Projector

PROJECTOR

ULTRAPORTABLE projectors rarely match their heftier siblings in image quality and brightness, but with Proxima's sleek, featherweight **UltraLight X350**, there's no compromise.

Smaller than most of the

notebooks it's designed to accompany, this 3.5-pound Digital Light Processing (DLP) unit boasts a powerful 1100 ANSI lumens of brightness and delivers fine images at the XGA resolution. (DLP units tend to project images that are

brighter overall; competing LCD models generally deliver richer, more saturated colors.)

Its estimated street price of \$4999 marks the X350 as one of the least-expensive ultraportables, too. By comparison, two 3-pound-or-less DLP units

that also feature XGA resolution—the Philips UGO X-lite and Plus's U3-1080—rate only 800 ANSI lumens and cost \$5899 each. The X350's extra brightness makes it a good choice for projecting images in rooms left partially lit so the audience can take notes, and in small lecture rooms.

The X350's modularity is another plus. Buy and/or carry only the components you need for your presentations. The basic unit provides connections for a computer's VGA and USB ports; an optional \$250 video module snaps on to the back of the unit to add sound and video (composite and S-Video) inputs.

With a preproduction version of the X350, I projected PowerPoint presentations and other images—as well as cable TV via the video module—at distances ranging from 3 to 15 feet. The unit produced bright and clear colors, and I had no trouble operating the top-panel buttons and the wireless remote for adjusting brightness, contrast, and color.

Whether for road-show presentations, small lectures, or group training, Proxima's UltraLight X350 gets my vote as the best-priced, strongest-featured ultraportable projector on the market today.

—Richard Jantz ■

Lean, Mean, PC-Free Presentations

DISPLAY DEVICE

FOR ROAD warriors who want to travel light—*really* light—AverMedia Technologies' half-pound **AverEpack** is the most compact and affordable device now available for small-group presentations.

With this \$199 pocket-size gadget and a power outlet, you can put on road shows using either a TV or a computer monitor. The AverEpack's built-in playback system stores slide presentations on a CompactFlash card (the card is not included; its street price is about \$30).

To project images, the device supports three output signals: composite video and higher-resolution S-Video—



THE AVEREPACK
is small enough to slip
into a coat pocket.

ideally for use with a large-screen television—and VGA, for hooking up a computer monitor or data projector. An AC adapter, cables, software, and wireless remote control with two AAA batteries—but no carrying case—are included, for a cumulative traveling weight of just 1.5 pounds.

The base unit includes a CompactFlash card slot and parallel port connection so you can upload data into the memory card from a PC, using the bundled software utility.

The AverEpack's built-in controls let you switch between TV and VGA support, adjust image brightness and position, and select a transition style. The remote pro-

vides additional access to pan, zoom, and other controls.

To test the shipping unit, I transferred sample PowerPoint presentations to an 8MB CompactFlash card and displayed the results on a 17-inch monitor and a 27-inch color television. Images looked crisp and colorful, and the controls were easy to access.

The AverEpack's main limitation: It displays only still images, so your presentations can't include animation, sound, or video clips. Consequently, to deliver multimedia presentations, you'll still need a computer. But for displaying standard charts and text, the AverEpack works just fine.

—Richard Jantz

AverEpack

PRO: Lightest, least-expensive presentation device.

CON: Requires CompactFlash card (not included), no multimedia effects.

VALUE: Worthwhile tool for displaying small presentations on a shoestring.

List price: \$199

AverMedia Technologies

800/863-2332

www.aver.com

UltraLight X350

PRO: A projector with a great price, bright images, and attractive color.

CON: A tad heavier than the lightest ultraportable projectors.

VALUE: Excellent choice for small-group presentations.

Street price: \$4999

Proxima

888/776-9462

www.proxima.com

OUR NUMBERS DON'T SPEAK FOR THEMSELVES. THEY SCREAM.



DESKTOPS
STARTING AT **\$799**
Featuring Intel® Pentium® III Processors



NOTEBOOKS
STARTING AT **\$1499**
Featuring Intel® Pentium® III Processors



SERVERS
STARTING AT **\$999**
DELL™ POWEREDGE™ 300
Featuring Intel® Pentium® III Processors



800.626.9530

WWW.DELL.COM

FIGURES NEVER LIE.

So, it comes as no surprise that more people are putting their trust in Dell™. We offer the latest technology to choose from — like the Dell Dimension™ 8100 desktop and the Dell Precision™ 330 workstation, featuring All-New Intel® Pentium® 4 processors at up to 1.50GHz with 400MHz system bus and RDRAM. Dell also helps maintain your systems with services like File Library® to keep up with technology and software upgrades. And OpenManage™ on your Dell OptiPlex™ desktop and Dell Precision workstation systems provide you with utilities to manage Dell hardware, allowing you to troubleshoot and help prevent system downtime. Now that we're past trust, here are some figures you could really live with.

Call your sales representative to find out more about the Dell™ Dimension™ 8100 desktop and the Dell Precision™ 330 workstation with Intel® Pentium® 4 processors.



Dell™ Precision™ Workstation



Dell™ Dimension™ Desktop



Dell™ OptiPlex™ Desktop



DELL™ DESKTOPS & WORKSTATIONS:

DELL™ DIMENSION™ L

Affordable Business Desktop

- Intel® Celeron™ Processor at 700MHz
- 64MB SDRAM (up to 512MB)
- 10GB¹ Ultra ATA HD (up to 20GB¹)
- 15" (13.8" vis) E551 Monitor
- Intel® 3D® AGP Graphics; 48X Max CD-ROM
- SoundBlaster 64V Integrated Sound
- harman/kardon® Speakers
- Integrated Intel® 10/100 NIC
- MS® Windows® Me & MS® Works Suite 2001 & Norton® AntiVirus™
- 3-Yr Ltd Warranty²; 1-Yr NBD On-Site Service³

\$699  **E-VALUE CODE**
03829-590106

BUSINESS LEASE: \$19/MO., 48 MOS.¹¹
■ 3-Yr NBD On-Site Service³, add \$99

DELL™ DIMENSION™ L

Affordable Business Desktop

- Intel® Pentium® III Processor at 866MHz
- 64MB SDRAM (up to 512MB)
- 20GB¹ Ultra ATA/100 HD
- 17" (16.0" vis) E770 Monitor
- Intel® 3D® AGP Graphics; 48X Max CD-ROM
- SoundBlaster 64V PCI Sound Card
- PC Speakers
- 3Com® PCI 10/100 NIC
- MS® Windows® Me & MS® Works Suite 2001 & Norton® AntiVirus™
- 3-Yr Ltd Warranty²; 1-Yr NBD On-Site Service³

\$899  **E-VALUE CODE**
03829-590108

BUSINESS LEASE: \$25/MO., 48 MOS.¹¹
■ 3-Yr NBD On-Site Service³, add \$99

DELL™ DIMENSION™ 4100

Advanced Business Desktop

- Intel® Pentium® III Processor at 933MHz
- 128MB SDRAM (up to 512MB)
- 20GB¹ (7200 RPM) Ultra ATA/100 HD (up to 80GB¹)
- 17" (16.0" vis) E770 Monitor
- 16MB ATI Rage™ 128 Pro Graphics
- 48X Max CD-ROM
- SoundBlaster 64V PCI Sound Card
- 3Com® PCI 10/100 NIC
- MS® Windows® Me & MS® Office 2000 & Norton® AntiVirus™ 2001
- 3-Yr Ltd Warranty²; 1-Yr NBD On-Site Service³

\$1199  **E-VALUE CODE**
03829-590111

BUSINESS LEASE: \$33/MO., 48 MOS.¹¹
■ MS® Windows® 2000 Professional, add \$99

DELL™ OPTIPLEX™ GX150

NEW—Latest and Greatest Managed PC

- Intel® Pentium® III Processor at 866MHz
- 64MB PC133 SDRAM (up to 512MB)
- 10GB¹ (7200 RPM) ATA/100 HD (up to 40GB¹)
- 15" (13.8" vis) E551 Monitor (up to Flat Panel)
- Integrated 3Com® 10/100 NIC
- Intel® 3D® AGP Graphics
- 48X Max CD-ROM; Integrated AC97 Audio
- MS® Windows® 2000 Professional
- NEW OptiFrame™ Small Desktop Tool-less Chassis in Midnight Gray
- 3-Yr NBD On-Site Service³

\$999  **E-VALUE CODE**
03829-390109

BUSINESS LEASE: \$28/MO., 48 MOS.¹¹

DELL™ OPTIPLEX™ GX200

Network-Optimized Managed PC

- Intel® Pentium® III Processor at 866MHz
- 128MB PC700 RDRAM (up to 512MB)
- 20GB¹ (7200 RPM) ATA HD (up to 40GB¹)
- 15" (13.8" vis) E551 Monitor (up to Flat Panel)
- Integrated 3Com® 10/100 NIC
- Integrated 8MB 4X AGP Graphics
- 48X Max CD-ROM; Integrated AC97 Audio
- MS® Windows® 2000 Professional
- OptiFrame™ Mini-Tower Tool-less Chassis
- 3-Yr NBD On-Site Service³

\$1499  **E-VALUE CODE**
03829-390114

BUSINESS LEASE: \$41/MO., 48 MOS.¹¹

DELL™ PRECISION™ 220

Advanced Performance Workstation

- Intel® Pentium® III Processor at 933MHz (up to 1GHz)
- Dual Processor/RAID Capable
- 128MB RDRAM (up to 512MB)
- 10GB¹ (7200 RPM) EIDE HD (up to 73.4GB¹ 10K RPM SCSI)
- NEW Matrox G450 32MB 4X AGP Graphics Card
- Integrated NIC & Sound; 48X Max CD-ROM
- MS® Windows® 2000 Professional
- 3-Yr NBD On-Site Service³
- 7x24 Dedicated Workstation Phone Tech Support

\$1599  **E-VALUE CODE**
03829-490115

BUSINESS LEASE: \$44/MO., 48 MOS.¹¹
■ Monitor Sold as an Upgrade



USE THE POWER OF THE E-VALUE CODE. Match our latest technology with our latest prices. Enter the E-VALUE code online or give it to your sales rep over the phone. www.dell.com/evalcode



USE THE E-VALUE CODE TO GET EXACTLY WHAT YOU WANT

800.626.9530

WWW.DELL.COM

Dell recommends Windows 2000 Professional for business.

Call: M-F 7a-9p | Sat 10a-6p | Sun 12p-5p CT | Canada: 800-232-6978 | Mexico: 001-877-269-3379 | GSA Contract #GS-35F-4076D

GIVE YOURSELF AN *UNFAIR* ADVANTAGE.

Our servers are built with Intel® Pentium® III processor technology and are RAID-capable for optimal uptime. Dell™ OpenManage™ Resolution Assistant helps identify and fix network problems before they happen. Optional CompleteCare™ Service²⁰ for notebooks covers accidental damage like drops and spills—for three entire years. And you always have access to our award-winning E-Support. So let's make the win a landslide.



Dell™ Latitude™ Notebook



Dell™ PowerEdge™ Server



Dell™ PowerEdge™ Server

DELL™ NOTEBOOKS & SERVERS:

DELL™ INSPIRON™ 3800

Design and Affordability Notebook

- Intel® Celeron™ Processor at 600MHz
- 12.1" SVGA Active Matrix Display
- 32MB SDRAM; 5GB¹ Ultra ATA HD
- Modular 24X Max Variable CD-ROM
- 8MB ATI Rage Mobility™ 3D* Video, 2X AGP
- Internal 56K Capable* Modem
- MS® Works Suite 2001
- MS® Windows® Me
- 1-Yr NBD On-Site Service²

\$1099  **E-VALUE CODE**
03830-890110

BUSINESS LEASE: \$31/MO., 48 MOS.¹¹

- 3-Yr NBD On-Site Service², add \$149
- Upgrade to CompleteCare™ Service², add \$169
(3-Yr NBD On-Site Service² Required)

DELL™ INSPIRON™ 4000

NEW—Style, Freedom, Simplicity Notebook

- Intel® Celeron™ Processor at 600MHz
- 14.1" XGA Display
- 64MB SDRAM; 5GB¹ Ultra ATA HD
- Modular 24X Max Variable CD-ROM
- 8MB ATI Rage Mobility™ 128 3D* Video, 2X AGP
- Smart Li-Ion Battery
- MS® Office 2000 Small Business
- MS® Windows® Me
- 1-Yr NBD On-Site Service²

\$1499  **E-VALUE CODE**
03830-890114

BUSINESS LEASE: \$41/MO., 48 MOS.¹¹

- Upgrade to 128MB Memory, only \$99
- 3-Yr NBD On-Site Service², add \$149

DELL™ LATITUDE™ CPT

Network-Optimized Notebook

- Intel® Celeron™ Processor at 600MHz
- 12.1" SVGA Active Matrix Display
- 64MB SDRAM; 6GB¹ Ultra ATA HD
- Modular 24X Max CD-ROM/Floppy Drive
- MS® Windows® 98, Second Edition
- Li-Ion Battery w/ExpressCharge™ Technology
- Dual Pointing - Touchpad and Pointing Stick
- Internal 56K Capable* SoftModem
- 1-Yr NBD On-Site Service²

\$1399  **E-VALUE CODE**
03830-790113

BUSINESS LEASE: \$39/MO., 48 MOS.¹¹

- Upgrade to 14.1" Active Matrix Display, add \$250

DELL™ POWEREDGE™ 300

NEW—Basic Box at Our Lowest Price

- Intel® Pentium® III Processor at 800MHz
(up to 850MHz)
- Dual Processor Capable
- 64MB 100MHz ECC SDRAM (up to 1GB)
- 10GB¹ (7200 RPM) IDE HD (up to 40GB¹)
- Up to 120GB Internal Storage Capacity
- Intel® Pro/100+ PCI Ethernet Adapter
- 48X Max IDE CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 1-Yr NBD On-Site Service², Years 2 & 3 Parts & Labor
- 7x24 Phone Tech Support

\$999  **E-VALUE CODE**
03830-290109

BUSINESS LEASE: \$28/MO., 48 MOS.¹¹

- 2nd 10GB¹ (7200 RPM) IDE HD, add \$109
- 2nd Intel® Pentium® III Processor at 800MHz,
add \$499

DELL™ POWEREDGE™ 1400

NEW—Small Business Value Solution

- Intel® Pentium® III Processor at 800MHz
(up to 1GHz)
- Dual Processor/RAID Capable
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 9GB¹ (7200 RPM) Ultra3 (Ultra 160) SCSI HD
(up to 36GB¹ 10K RPM)
- Up to 144GB Internal Storage Capacity
- Integrated NIC/SCSI Controllers
- 48X Max IDE CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 3-Yr NBD On-Site Service²
- 7x24 Phone Tech Support

\$1349  **E-VALUE CODE**
03830-290113

BUSINESS LEASE: \$37/MO., 48 MOS.¹¹

- 2nd 9GB¹ (7200 RPM) Ultra3 SCSI HD, add \$219
- MS® Windows® 2000 Server, add \$799

DELL™ POWEREDGE™ 2400

Scalable Workgroup Server

- Intel® Pentium® III Processor at 733MHz (up to 1GHz)
- Dual Processor/RAID Capable
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 9GB¹ (7200 RPM) Ultra2/LVD SCSI HD
(up to 73GB¹ 10K RPM)
- Up to 364GB Hot-swappable Internal
Storage Capacity
- Integrated NIC/SCSI Controllers
- 40X Max SCSI CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 3-Yr NBD On-Site Service²; 7x24 Phone Tech Support

\$1729  **E-VALUE CODE**
03830-290117

BUSINESS LEASE: \$48/MO., 48 MOS.¹¹

- 2nd 9GB¹ (7200 RPM) Ultra2/LVD SCSI HD, add \$249
- NEW Red Hat® Linux™ 7.0, add \$0



Dell recommends Windows 2000 Professional for business.

Call: M-F 7a-9p | Sat 10a-6p | Sun 12p-5p CT |
Canada: 800-232-6978 | Mexico: 001-877-269-3379 |
GSA Contract #GS-35F-4076D

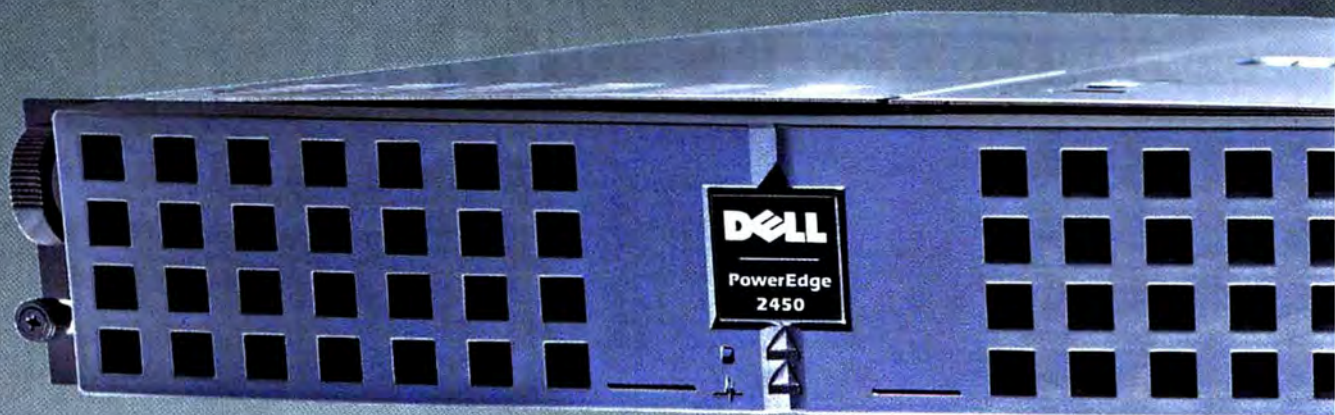
Prices, specifications, and availability may change without notice. Taxes and shipping charges extra, and vary. Cannot be combined with other offers or discounts. U.S. only. *For a copy of our Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, Texas 78682. *Service may be provided by third party. Technician will be dispatched, if necessary, following phone-based troubleshooting. To receive Next-Business-Day service, Dell must notify service provider before 5 pm (depending on service contract) customer's time. Availability varies. *For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. *Download speeds limited to 53Kbps. Upload speeds are less (about 30Kbps) and vary by modem manufacturer and line conditions. Analog phone line and compatible server required. *Business leasing arranged by Dell Financial Services L.P., an independent entity, to qualified customers. Lease payments based on a 48-month FMV purchase option lease and do not include taxes, fees and shipping charges. Subject to credit approval and availability. Lease terms and pricing subject to change without notice. *CompleteCare service excludes theft, loss, and damage due to fire or intentional damage. CompleteCare is currently not available in all states. For complete details, visit www.dell.com/us/en/bsd/services/service_completecare_svc.htm. Dell, the stylized E logo, E-Value, PowerEdge, PowerApp, PowerApp.web and PowerApp.cache are trademarks of Dell Computer Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. MS, Microsoft, BackOffice, Windows NT, and Windows are registered trademarks of Microsoft Corporation. 3Com is a registered trademark and Fast Ethernet is a trademark of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. ©2001 Dell Computer Corporation. All rights reserved.



USE THE POWER OF THE E-VALUE CODE. Match our latest technology with our latest prices. Enter the E-VALUE code online or give it to your sales rep over the phone. www.dell.com/evale



AT THESE
PRICES, WHO'S
THE PERFECT
HOST?





Are you confident that your current Web-hosting solution can handle your business growth? Don't pay to be squeezed on to a cramped shared Web-hosting server. Team up with Dell,™ an E-Commerce leader. With dedicated Web-hosting services starting at only \$199 per month, we'll base your network on its own dedicated Dell PowerEdge™ or PowerApp™ server, featuring Intel® Pentium® III processors, which is monitored 24x7. It's scalable and flexible enough to reconfigure as your business needs grow. In other words, perfect.

DELL™ HOSTING SOLUTIONS:

DEDICATED WEB-HOSTING SOLUTION

DellHost™ D-2950

- Dell™ PowerApp.web™ 100 Server Appliance
- Intel® Pentium® III Processor at 600MHz
- 64MB SDRAM; 1X 9GB*, 7.2K SCSI HD
- 2X 10/100 Embedded NICs
- Red Hat® Linux™ 6.2 OS
- Dedicated 21GB Monthly Transfer (Metered)
- NetObjects® Site Design Software – No Added Charge
- Complimentary 1-Yr VerticalNet® Storefront to Qualified Customers (\$9400 Value)

\$199/mo.

PLUS \$250 ONE-TIME SETUP FEE

- Add Traffic Analysis and Tools, Starting at \$9.95/mo.

DEDICATED WEB-HOSTING SOLUTION

DellHost™ D-3100

- Dell™ PowerEdge™ 2450 Server
- Intel® Pentium® III Processor at 866MHz with 256K Cache
- 128MB SDRAM; 1X 9GB*, 10K SCSI HD
- Redundant Power; 2X 10/100 Embedded NICs
- Red Hat® Linux™ 6.2 OS
- Dedicated 21GB Monthly Transfer (Metered)
- Complimentary 1-Yr VerticalNet® Storefront to Qualified Customers (\$9400 Value)
- 99.9% Uptime Guarantee™; 7x24 Tech Support

\$299/mo.

PLUS \$350 ONE-TIME SETUP FEE

- Add Weekly Back-up for \$75/mo. Plus \$150 Setup Fee
- Add Site Tools and Analysis, Starting at \$9.95/mo.

DEDICATED WEB-HOSTING SOLUTION

DellHost™ D-3200

- Dell™ PowerEdge™ 2450 Server
- 2X Intel® Pentium® III Processors at 933MHz with 256K Cache
- 512MB SDRAM; 2X 9GB*, 10K SCSI HD
- Redundant Power; 2X 10/100 Embedded NICs
- Red Hat® Linux™ 6.2 OS; Single-channel RAID1
- Dedicated 21GB Monthly Transfer (Metered)
- Complimentary 1-Yr VerticalNet® Storefront to Qualified Customers (\$9400 Value)
- 99.9% Uptime Guarantee™; 7x24 Tech Support

\$549/mo.

PLUS \$350 ONE-TIME SETUP FEE

- Add Weekly Back-up for \$75/mo. Plus \$150 Setup Fee

WEBSITE STARTER KIT

- 1-Yr Domain Name Registration from Network Solutions (\$25 Value)
- Professionally Designed 3-page Website from Dell™ Design Services (\$389 Value)
- 1 Year of Shared Hosting (\$215 Value)
- 100MB Storage
- 5GB Transfer Rate
- 10 E-Mail Accounts

\$399 for kit

PLUS \$20 ONE-TIME SETUP FEE



GET EXACTLY WHAT YOUR BUSINESS IS LOOKING FOR

800.727.4239

WWW.DELLHOST.COM

Prices, specifications, and availability may change without notice. Taxes and shipping charges extra, and vary. Cannot be combined with other offers or discounts. U.S. only. For a copy of our Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, Texas 78682. For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. *See terms and conditions in the DellHost Acceptable Use and Service Guidelines at http://www.dellhost.com/legal_acceptableuse.html#99. Dell, the DellHost.com logo, the stylized E logo, E-Value, DellHost, PowerEdge, PowerApp, PowerApp web and PowerApp cache are trademarks of Dell Computer Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. ©2001 Dell Computer Corporation. All rights reserved.

By Yael Li-Ron

Illustrations by
Rich Lillash

HOW MUCH TIME do you spend in front of your PC? Thousands of hours a year? And how long have you been using a PC? Five years? Ten? More? For most of us, the daily computer routine begins and ends with a logo of a squiggly window on a sky-blue background. Our tool of choice may be a word processor, a spreadsheet, or an image editor, but we all share Windows. And

Though Windows has hundreds (if not thousands) of features, it lacks many important ones. These are holes that third-party utilities step in to fill. You'll find profiles of several of these tools in our "Essential Additions" boxes. Full or trial versions of all of them can be downloaded from PCWorld.com's Downloads.

Most of the following tips work for Windows 95, 98, and Millen-

Windows Your Way

The ultimate
collection
of secrets and
undocumented tips:
**49 ways to navigate,
upgrade, and
customize
Win 95/98,
Me, and 2000.**

though we may consider ourselves well acquainted with the operating system after all these years, a world of functionality lies buried beneath Windows' layers of cascading menus and tabbed dialog boxes. That's the hidden Windows these tips will reveal—the one that allows you to cut and paste faster, change your icons, create custom menus (or customize existing ones), and eliminate repetitive dialog boxes.

nium Edition, and many also work in Windows NT and 2000. For additional Windows Me tips, see "Windows Me Start-up Kit" on page 101; for Win 2000 tips, see "Windows 2000 Up Close and Personal," page 106.

When you're done fine-tuning your operating system, the time you spend with Windows will be more personal, more productive, and maybe even a little more fun. It will be Windows your way. ►



Do-It-Yourself User Interface



Your living room doesn't look like it did five years ago, so why should your PC's interface? Let's give Windows the look you like.

AN ICON BY ANY OTHER NAME

[All Versions] "My Computer"? "Network Neighborhood"? "My Network Places"? You know what they say about familiarity. Those contemptible, old object names are overdue for a change. Right-click any icon on your desktop (or in an Explorer or folder window) and choose *Rename*. Be as creative as you want, but don't overdo it—after all, you're going to have to remember what these folders are for. Note: Don't try to rename "Recycle Bin"—it's a fixed system name.

A NEW NAME DESERVES A NEW LOOK

[Win98 | Me | 2000] Now that Windows' lame, default names are history, it's time to change the default icons, too.

To replace a system icon (such as My Computer, My Documents, or Recycle Bin) right-click the desktop, select *Properties*, and then click the *Effects* tab (it's labeled Plus in Windows NT). Select an icon and click *Change Icon*. Choose the *Browse* button, and look for icons on your system. If you can't find any, head to PCWorld.com's Downloads and type the keyword **icons**. We have hundreds of icons of every style and description. Note: Windows 95 users who want to

make these changes must find the Microsoft Plus pack for their version of the OS (good luck—there aren't many of those around anymore).

IN WITH THE NEW (MENU)

[Win9x | Me] Right-click inside a folder or on the desktop and then select *New*, and you'll get a menu listing the document types you're (theoretically) likeliest to want. Unfortunately, the only practical choices are Folder and Shortcut. We can fix that. Note that this tip requires Tweak UI, which is discussed as an "Essential Addition" in the box at lower left. You'll find it on the Windows 98 system disk, or you can download it from PCWorld.com's Downloads.

Select *Start>Settings>Control Panel* and choose *Tweak UI*. Click the *New* tab and uncheck any item you don't want to see in that pop-up menu (see FIGURES 1 and 2). If you decide to restore a document type you removed from the *New* menu, go back into *Tweak UI* and reselect it. To remove a choice from the list of document types, highlight the item and click the *Remove* button.

LIGHT AT THE END OF THE (CARPAL) TUNNEL

[All Versions] Many users prefer keyboard shortcuts to mouse clicks (and drags), but few people know that they can use the keyboard to move as quickly around the screen or within a document as they do with a mouse. The Accessibility Options applet in Control Panel can take some of the strain off your poor, aching hands and wrists. Select *Start>Set-*

tings>Control Panel, choose *Accessibility Options*, click the *Mouse* tab, and select *Use MouseKeys*. Write down the hot-key combination for activating the feature. From now on, you can use your numeric keypad to control the pointer movement on your screen. Hold down the <Ctrl> key while you move to speed up the pace, or hold down the <Shift> key to slow things down.

HAVE YOU USED THE TASKBAR TODAY?

[Win9x | Me | 2000] You can launch applications in Windows from the Start menu, from icons on the desktop, from the application's folder, or from the Quick Launch toolbar on the taskbar. This last method

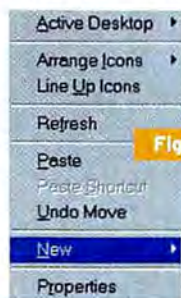
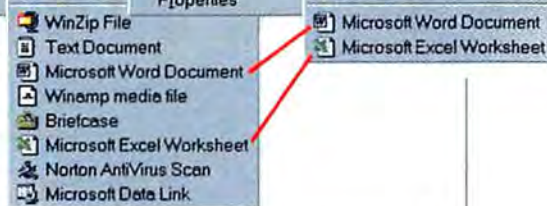


Figure 1



Figure 2



is the least-commonly used, yet it is the most efficient way to work. Just add shortcuts to that bar (see FIGURE 3), and voila: You have easy, one-click access to your favorite applications.

Before you start, it's best to remove any icons you don't need (Windows or its applications automatically installed most of these). To remove an icon, right-click it and then select *Delete*. Note: The Desktop icon—which looks like an ink blotter with pencil and paper on top of it—is very useful, so don't delete it.

To add an icon to the taskbar, drag a shortcut from the desktop or any folder or Explorer window and drop it into an empty space in the Quick Launch area. Of course, the taskbar will quickly become too crowded to be useful if you're not careful. To increase the space available, first place your pointer at the ►

(ESSENTIAL ADDITIONS)

TWEAK UI

NO SELF-RESPECTING WINDOWS user should work without Microsoft's Tweak UI. This collection of diagnostic and interface tools ought to be part of Windows, but it's not. Microsoft includes it with the Windows 98 CD, but Win 95 users must download it from PCWorld.com's Downloads. The most recent Tweak UI release works with all versions of Windows. Among the utility's most-appreciated features: It gives you the ability to turn off the annoying "Shortcut to..." preface to shortcut names.

WINDOWS ME Start-up Kit

IF YOU'VE BEEN using Windows for awhile, you'll find Microsoft's new Me version very familiar. But like a new pair of shoes, Win Me needs some breaking in before you'll feel comfortable with it. Here are a few pointers for getting off on the right foot. For tips on how to transit from 98 to Me, see this month's *Upgrade Guide* on page 206.

HIDDEN MENU OPTIONS

Windows Me hides options on the Start menu's Programs list that you haven't used recently. They're not deleted—they're just filed away so the menu won't spread across the screen. To see the full menu, click the double down arrows at the end of the shortened menu, or hover the mouse over the menu. To disable the feature, click *Start•Settings•Taskbar & Start Menu*, and uncheck *Use personalized menus*.

HARDWARE/SOFTWARE COMPATIBILITY

Microsoft claims that Windows Me is compatible with anything that works with Windows 98—and more. Of course, no new operating system is bug-free. Before upgrading, check the list of Win Me-compatible hardware at www.microsoft.com/windowsme/upgrade/compat. Find Microsoft's list of compatible programs and a dedicated Windows Me help page at www.microsoft.com/windowsme/support. The Windows Me installation CD-ROM has a file called *Add-ons/Document/Textfile/Programs.txt* that discusses Windows Me-related issues with software such as Photoshop, CuteFTP, and NetSonic. If you've installed Win Me already, find *Programs.txt* in the Windows folder.

CLIPBOARD VIEWING

Few people know that Windows has a Clipboard Viewer for reviewing images and text that have been cut from or pasted into any application. That's because no version of Windows—including Windows Me—installs it by default. To set Clipboard Viewer up, select *Start•Settings•Control Panel*, and choose *Add/Remove Programs*. Next, under the *Windows Setup* tab, select *System Tools*, and click *Details*. Scroll to and select *Clipboard Viewer*, and then click *OK* until Windows installs the component. (To accomplish this step, you may first have to put the Windows CD-ROM in its drive.) To view the contents of the clipboard, select *Start•Pro-*

grams•Accessories•System Tools, and then click the *Clipboard Viewer* item.

SYSTEM HEALTH, SPEED

If your system takes a noticeable performance hit when you install Windows Me, a system-health setting called *System Restore* is probably responsible. This feature monitors and preserves your system settings, so when something goes wrong you can roll your system back to a date when it worked. The monitoring slows down PCs with lower-end CPUs and slow hard drives—and it's switched on by default (unless your disk or Windows System partition has less than 200MB of free space). To turn it off, select *Start•Settings•Control Panel*, choose *System properties*, click the *Performance* tab, and click *File System*. Under the *Troubleshooting* tab, make sure that *Disable System Restore* is checked. To create a system restore point manually, pick *Start•Programs•Accessories•System Tools•System Restore*, select *Create a restore point*, click *Next*, and follow the instructions.

MUSIC, MAESTRO

Whenever you load a music CD or open an .mp3 file, Windows Me loads the same program: Windows Media Player 7. It's bigger and more powerful than the older versions of Media Player—and it takes longer to load. If this delay has you tapping your feet for the wrong reason, install or restore a less-demanding application such as WinAmp to control your CD audio, WAV, MP3, and other sound formats. The quickest way to do this is to install the smaller app so that it associates itself with the relevant file extensions.

DOS IS FOR DUMMIES

The new party line at Microsoft is that booting to DOS is a bad thing, so you can't do it under Windows Me. Deleting this option shaves a couple of seconds from the operating system's load time, but some system-level tools (such as BIOS upgrade patches) won't work unless you boot to DOS. Windows Me gives you only one way to do this: Insert the start-up floppy disk you made when you installed the upgrade. If you've lost it, make a new one: Click *Start•Settings•Control Panel*, select *Add/Remove Programs*, click the *Startup Disk* tab, and slip a formatted disk into your floppy drive. Windows Me does the rest.

AUTOMATIC UPDATES

Windows Me downloads its own updates automatically during slack online time; then it notifies you when the updates are ready for installation. This is a great relief to some users—it's certainly more responsive than Windows 95/98's approach—but it wigs out other people who feel that it exposes their systems to forces beyond their control. Sensibly, Microsoft provides three Update settings to suit all paranoia levels. The default setting lets Windows Me automatically download updates and then ask if you're ready to install them. Under the second option, the OS checks whether any updates are available and asks your permission to download and install them. The third setting turns off all automatic updating and requires a visit to windowsupdate.microsoft.com to update your OS. To change the default, select *Start•Settings•Control Panel*, and click *Automatic Updates*.

—Matt Lake





Figures 3 and 4

top edge of the bar. Then, after the pointer turns into a double arrow, click and drag the edge upward until you're happy with the results (see **FIGURE 4**).

You're not limited to adding icons to the Quick Launch toolbar, however—you can construct your own toolbar, too. To manage this, right-click the empty space on the taskbar and select **Toolbars** (see **FIGURE 5**). If you select **Links**, you'll get the Links bar from Internet Explorer, and clicking **Address** generates a field that you can use to enter an Internet address or a local path (for example, 'C:\Windows'). If you select **Desktop**, all the icons will move from your desktop to the taskbar. Select the **New Toolbar** option to create a toolbar view of any folder. If you decide later that you'd like to make a change to the layout of any toolbar, click the vertical handle at the left of the bar you want to move, and then drag it right, left, up, or down. Alternatively, you can double-click it for quick maximum, minimum, and to-fit sizing. If you need to clear more room on your desktop, all you need to do is right-click an open space next to any toolbar and uncheck **Show Title** and/or **Show Text**.

If you want to relocate the taskbar to the top, left, or right edge of the screen, first click an empty spot on the taskbar, and then drag the taskbar to its new location. In Windows Me, you may have to

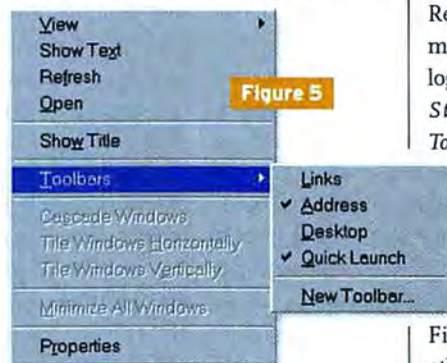


Figure 5

alter the taskbar's settings: Right-click the taskbar, select **Properties**, choose the **Advanced** tab, and check **Enable moving and resizing** at the end of the 'Start menu and Taskbar' properties list.

TAKE OUT THE TRASH

[All Versions] As odd as it may sound, deleting a file doesn't necessarily result in a deleted file. On the other hand, sometimes it does. That's why Microsoft did not place an icon on your desktop

named 'Trash' but chose the more politically correct 'Recycle Bin.' If you drag an item from the desktop to the Recycle Bin, you're actually putting it in temporary storage until you select Empty Recycle Bin from the icon's right-click menu or in Windows' Disk Cleanup dialog box. To open Disk Cleanup, choose **Start • Programs • Accessories • System Tools • Disk Cleanup**.

All the files that you delete by pressing the <Delete> or <Backspace> key are transferred to this state of suspended access as well.

There are a few exceptions, however:

Files on floppies, network drives, and other external drives are never sent to the Recycle Bin when erased; they're deleted immediately.

If you're trying to regain hard disk space by deleting files, a speedy way to do it is to hold down <Shift> and press <Delete>, which removes the file immediately without parking it in the Recycle Bin. If you always want to delete completely, with no fail-safe storage in the Recycle Bin, right-click the Recycle Bin icon and select **Properties**. Click on the appropriate drive tab at the top, such as

WINDOWS ME (TOO):

The Features Without the Upgrade



CAN'T UPGRADE TO Windows Me? Don't want to pay for another 9x bug fix? You can get many of the enhanced features Microsoft has been touting in the Millennium Edition without the bother of an upgrade, and without having to abandon the Windows 9x operating system you've come to know (if not love) so well.

SHOW TUNES

Windows Me offers better music playback, more compact *ripping* (digital recording) of CD audio tracks, and enhanced jukebox features. It owes its audio prowess

to Windows Media Player 7, a free Microsoft download that also works with Windows 98 and 2000 (though not with Windows 95). Windows Media Player isn't the only free media player in town, however: WinAmp makes fewer demands on system resources; and MusicMatch Jukebox can rip and encode CD audio tracks in the MP3 format. Windows Media Player uses the WMA format, which MusicMatch, RealPlayer, and other players currently can't read. In addition, WMA files play on far fewer platforms than MP3 files do.

SYNC-IT

IF YOU HAVE TO reset your PC's clock at least once a week because of a mysterious slowdown in your system's time, download Sync-It. This program features Atom, a utility that synchronizes your system's timepiece with the most accurate clocks in the world. Add Atom to your StartUp folder so it launches whenever you boot up.

OLD STANDBYS

[Win9x | Me] If you've emptied your clipboard, checked the Resource Meter, and closed applications, but your system is still as slow as molasses in January, it may be time for a hard-disk spring cleaning. Run ScanDisk (*Start•Programs•Accessories•ScanDisk*), and Disk Defragmenter (*Start•Programs•Accessories•System Tools•Disk Defragmenter*).

You may want to configure ScanDisk to run several times to catch any errors it misses on its first pass over your hard disk. To do so, locate the file *Scandisk.ini* in the *Windows\Command* folder, open the file with Notepad, find the line that starts with 'NumPasses', and replace the default value of 1 with 10. Then move to the line below it (which begins with 'LabelCheck'), and make sure it reads **On** instead of **Off**. This instructs ScanDisk to check your disk volume labels for invalid characters. Save and exit. ▶

C:, and put a check in the box next to the line *Do not move files to the recycle bin*. Do this only if you're absolutely, positively sure about what you are deleting.

To reclaim more hard disk space, specify the proportion of each drive allocated

to Recycle Bin files. The default is 10 percent, but you need only half that much if you have a large hard drive. In the Recycle Bin Properties dialog box, move the slider to specify the amount of space you want to devote to temporarily deleted files.

Troubleshooting Windows



William Butler Yeats wasn't referring to the reliability of the Windows OS when he said "Things fall apart," but he could have been.

FEELING SLUGGISH?

[Win9x | Me] If your system slows to a snail's pace for no apparent reason, you can do more than just twiddle your thumbs. Here are a few things you should check:

1. Does the clipboard contain an especially large item? The clipboard can hold only one object at a time. (Note: Office 2000 has a multiple-item clipboard.) If the last item you copied (or cut) was a large image or text file, see whether replacing it by copying one word reinvigorates your system.

You can view the item in the clipboard if you don't want to flush it sight unseen. Select *Start•Programs•Accessories•System Tools•Clipboard Viewer*. If the Clipboard Viewer isn't installed by default, open Control Panel's *Add/Remove Programs*, click the *Windows*

Setup tab, choose *Accessories* (Windows 95) or *System Tools* (Windows Me) in the Components list, select *Details*, check the *Clipboard Viewer* box, and click *OK*.

2. Are your system resources running on empty? To find out, add the useful-but-underused Resource Meter to the taskbar's system tray. Select *Start•Programs•Accessories•System Tools•Resource Meter*. Be sure to watch the gauge closely: When it drops and changes color from green to yellow (or even—gasp!—red), close a few of the applications you're running right away to avert a possible system freeze.

3. If you're using Windows 95, 98, or Me, close all running applications and restart your system at least once a day. Windows 2000, however, doesn't seem to need the extra attention.

BETTER NET EXPERIENCE

Some of Windows Me's vaunted online enhancements—including its automatic updates—are due to features in Internet Explorer 5.5, which is freely available for use under Windows 95 and 98.

YOU'VE GOT CHAT

IE 5.5 also has MSN Messenger, which runs from the system tray whenever Windows Me starts up. Many people prefer AOL Instant Messenger to MSN Messenger: More people use AIM, and AIM makes it easier to keep unwanted chatters out of the conversation.

And for the mouse-driven day traders in the audience, AIM does a natty job of delivering stock-ticker information. You can download AOL Instant Messenger from PCWorld.com's Downloads.

WHAT'S NEW, PUSSYCAT?

As discussed in "Windows Me Start-up Kit" on page 101, Windows Me automatically downloads system updates from Microsoft's Web site and asks you for permission to install them. You can't get automatic updates under Windows 98 or Windows 95, but you *can* receive automa-

tic notification of critical new OS updates. The Critical Update Notification program is available from the Product Updates page at Microsoft's site. To download it, select *Start•Windows Update*. Doing this opens Microsoft's Windows Update page in your browser. Click *Product Updates* (you may then be prompted to download Active Setup—if so, do so). Microsoft then scans your system to determine which of the available updates are "Critical" and which are "Recommended." It may offer a grab bag of other programs as well, but don't try to

download too many different items at one time or even in one PC session. One program listed under "Recommended" is *Windows Critical Update Notification*. If you download and install this program, it will check Microsoft's site periodically for updates when you're online and will let you know while critical ones are available for download. —Matt Lake



For more Windows enhancements, see "Windows Me Too" at www.pcworld.com/hereshow/article.asp?aid=17330.

GET PAST THE PASSWORD

Win9x/Me A faster-loading Windows won't do you much good if you have to enter a password to log in every time Windows starts. If you believe you can do without the password protection, click **OK** without entering a password the first time you see the box. Thenceforth, you won't have to deal with a log-in screen each time you start Windows. If you currently enter a password whenever Windows starts, you can remove the log-in screen.

First, make sure Windows Logon is the primary log-on: Right-click either *Network Neighborhood* or *My Network Places*, choose *Properties*, and under the *Configuration* tab select *Windows Logon* from the Primary Network Logon list. Click **OK** to close the dialog box. Select *Start•Settings•Control Panel*, open *Passwords*, and click the *Change Passwords* tab. Choose *Change Windows Password* and click **OK**. Enter your current Windows password under 'Old password' in the Change Windows Password dialog box, but leave the 'New password' and 'Confirm new password' boxes blank. Then click **OK**, close the Control Panel, and restart Windows.

In Windows Me, this process requires an extra step. Select *Change Other Passwords*, then choose one of the services listed and click *Change*. Now type your current Windows password under 'Old

password' and leave the 'New password' and 'Confirm new password' boxes blank. Click **OK**, return to the Password Properties dialog box, click *Change Windows Password*, and follow the steps described above for Windows 9x.

If this procedure doesn't do away with

the Windows password dialog box, an old version of the Tweak UI tool (one of our Essential Additions, see page 100) may have overridden your Windows settings. You can download a Windows Me-compatible version of Tweak UI from PCWorld.com's Downloads.

File Management Your Way



Gigabytes of PC storage mean more (and bigger) files. Keeping order on your various drives has never been more important.

COPIOUS COPY OPTIONS

[All Versions] There's more than one way to copy, cut, and paste files and folders from one location to another. Choosing *Cut*, *Copy*, or *Paste* from the Edit drop-down menu is probably the best-known method. Here are all the other ways you can perform these operations in Windows and in many applications that run in Windows.

- To make a copy of text, an icon, or some other object, select it and press **<Ctrl>-C**. To paste it somewhere else, simply move the cursor to the new location and press **<Ctrl>-V**.

- To move a file, folder, or other object, select it, press **<Ctrl>-X**, place the cursor in the new location, and press **<Ctrl>-V**.

You can also use **<Ctrl>-X** to delete an object (just skip the paste).

- Right-click any object and select *Copy*, *Cut*, or *Paste*.

- Right-click and drag an object to a new location; then select *Copy Here*, *Move Here*, or *Create Shortcut(s) Here* from the menu that appears.

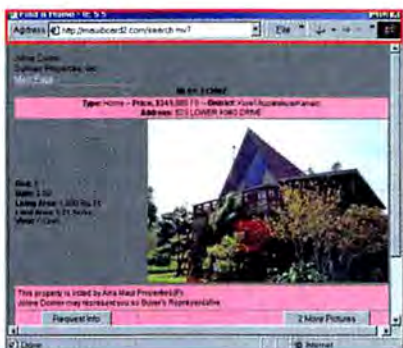
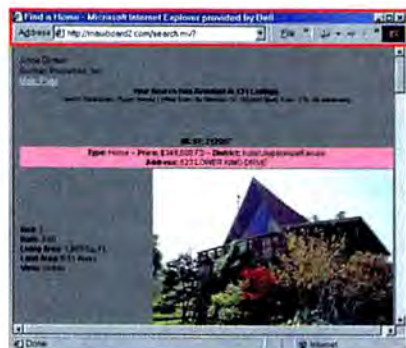
You don't have to open a folder to paste an object into it. Just right-click the folder's icon and select *Paste*.

USE THE FIND TOOL TO AUTOMATE BACKUPS

[All Versions] You can use Windows' Find tool (in Windows Me and 2000 it's called Search) for file-management tasks other than finding. If you often search for specific files on your system (say, all the .doc or .mp3 files that you created within the past day), you can save your search settings and repeat the task whenever you need to back up those files to a Zip disk or other removable media. Click *Start•Find•Files or Folders* (in Windows 9x and NT) or *Start•Search•For Files or Folder* (in Win Me and 2000). In the *Named* field (it's called 'Search for files or folders named' in Windows Me and 2000), type *.doc, *.mp3, or whichever file type you're looking for. Choose the *Date* (Windows 9x and NT) or *Data Modified* (Win Me and 2000) tab and click the radio button next to 'during the previous day'.

Click *Find Now* (Windows 9x and NT) or *Search Now* (Win Me and 2000). Even if no files match these criteria, you have the parameters for future searches. ►

[ESSENTIAL ADDITIONS]



X-SETUP

IF TWEAK UI HAS whetted your appetite for powerful Windows-enhancing utilities, download X-Setup, a Windows add-on that's popular among techno-geeks and intermediate users. This Tweak UI on steroids permits you

to specify such preferences as what text IE's title bar should include (see screens above), and whether to send your global unique identifier (GUID) to Microsoft (which some people claim compromises the user's privacy).

SONY

ONE PART DIGITAL,
ONE PART CAMERA,
ONE PART CD...
NEAT.



The perfect mix with a Sony twist. No one else could serve up such a delicious mix of digital photography and CD technology. Get a taste of Sony's Mavica® CD1000, the first and only digital camera to burn pictures directly onto compact disc. Holds up to 1000 images with 156 MB of memory. Captures digital MPEG movie clips. And the 3" CD-R slides directly into almost any Mac® or Windows® PC.

Truly the most refreshing way to toast the digital universe. Cheers.

Mavica
Change the way you see the world.™
www.sony.com/di

Now click the *File* menu and select *Save Search*. You might think that nothing's happened, but the next time you view your desktop ('My Documents' by default in Windows Me and 2000), you'll see an icon titled 'Files named

@.doc.fnd'. You can rename the icon by right-clicking it, selecting *Rename*, and typing the new name of your choice. Run this search at the end of each workday, and copy or drag all the files it finds to your backup medium or elsewhere.

TWO WAYS TO FIND THE FIND TOOL

[All Versions] You may know that pressing <Ctrl>+F in any folder activates the Find tool. But on the desktop, you must press <F3> to achieve the same results. (By the way, <F3> works in all folders.) ▶

WINDOWS 2000

Up Close and Personal

WINDOWS 2000 is almost a year old, and in many ways it hasn't lived up to its hype. But for many business PC users, the OS's melding of Windows NT's stability with Windows 9x's usability makes it the best choice (just hope you can find all the device drivers you need). These tips will help you make Win 2000 the operating system of your PC dreams.

LET WINDOWS DECORATE FOR YOU

The easiest way to customize a folder is to open a folder window and choose *View>Customize This Folder* (or right-

click in an empty part of the window to choose this command). Click *Next* and follow the wizard's prompts to make the changes you want. To get one of Microsoft's custom looks (which are new and improved compared with those of previous Windows versions), check *Choose or edit an HTML template for this folder*.

CUSTOMIZE THE START MENU

Right-click an empty area of the taskbar and choose *Properties*. Click the *Advanced* tab. Use the buttons at the top of this tab to add, remove, and sort items in the Start menu hierarchy. The check boxes at the bottom let you customize the menu to create cascading menus for Control Panel or Printers, view your favorites on the Start menu, or choose either a scrolling or expanding (multipanel) Programs menu, among other features.

STOP THE FUNKY MENU SHUFFLE

If you don't like having the items on your menus appear and disappear depending on how often you use them, simply right-click on an empty area of the taskbar, choose *Properties*, uncheck *Use Personalized Menus*, and click *OK*.

PUT THE EJECT BUTTON ON THE TASKBAR

If you keep your computer under your desk or in some other hard-to-reach location, you can make opening the CD-ROM tray a bit easier: Choose *Start>Programs>Accessories>Entertainment>CD Player*. Click the *Options* button and choose *Preferences*. Check *Show control on taskbar* and click *OK*. Whenever you need to open or close the CD-ROM drawer (to insert or remove any disc, not just audio), right-click the CD icon in the taskbar and choose *CD Player>Eject*.

CUSTOMIZE FOLDERS IN DETAILS VIEW

For any folder in Details view (choose *View>Details* if necessary), you can add and remove the categories of information displayed. Just right-click a column heading (such as *Name* or *Size*) and check or uncheck the items you want to add or remove, respectively.

MAKE SETUP BOOT DISKS FOR A RAINY DAY

Don't wait for trouble to find you: Get four blank formatted floppy disks, insert your Windows 2000 CD-ROM, choose *Browse This CD* on the window that appears, open the *Bootdisk* folder, and click *makeboot* to launch the creation program. Follow the on-screen prompts, and then create an emergency repair disk (see the tip below). If Windows 2000 is already DOA, take your CD-ROM to

another Windows or DOS computer and make your boot and repair disks on that machine.

CREATE AN EMERGENCY REPAIR DISK

Once you have a way to boot your computer, an emergency repair disk can help you restore damaged start-up files, fix a corrupted Registry, or do other PC rescue chores. Select *Start>Programs>Accessories>System Tools>Backup*. Choose *Tools>Create an Emergency Repair Disk*. When prompted to do so, check the option to back up the Registry (the backup is stored on your hard disk). Insert a floppy disk, click *OK*, and follow the prompts on screen. If you have any trouble starting Windows 2000, you can boot up using the Setup boot disks (see the previous tip), then choose the repair option, and insert the repair disk when prompted.

MAKE CASCADING FOLDER MENUS

To see a folder as a menu (with subfolders shown as cascading submenus), drag it to the Start menu button or to any menu within the Start menu.

KEEP SECRETS SAFE

If your disk is formatted with NTFS (the NT/2000 file system), you can encrypt folders on the disk by right-clicking them and choosing *Properties*. Under the *General* tab, click *Advanced* and check *Encrypt contents to secure data*.

—Scott Dunn



Make Money In A Computer Career!

Get The Training You Need In As Little As Six Months!

Important Facts About a Career in Computers:

- Over 400,000 jobs are expected to open in the computer field by the year 2008.
- Computer careers are among the highest-paying in the nation, with experienced programmers earning as much as \$70,000 a year and more.
- Harcourt Learning Direct can prepare you for an exciting career in computers in as little as six months!

Train at home in your spare time for a career with a future! Learn at your own pace, without rearranging your schedule. And you need no previous experience — just ambition and the desire to succeed.

Here are just a few of the fast-growing computer careers you can choose from:

PC Repair

- Do PC upgrades, network installations, and more.
- Start your own business — choose your own hours.
- Professional-quality tools and A+® Certification Test Preparation included.

Computer Graphic Artist

- Design newsletters, brochures, and ads.
- Construct 3D drawings, edit digital photos, prepare a great portfolio.
- CorelDRAW™ 9 included with your program at no extra cost.

Call or send for FREE information — and start toward a new career in computers today!

Get the facts about Harcourt computer training. We'll send you a free information package on how you can train at home to break into a fast-growing computer career.

Mail post-paid card today! If card is missing, send coupon, or call toll free:

1-800-572-1607 ext. 1167

Call anytime,
24 hours a day, 7 days a week. www.harcourt-learning.com



Web Page Designer

- Master HTML and make your mark on the Web.
- Work for an established Web design firm or start one of your own.
- Program features Microsoft® FrontPage® 2000 and Earthlink Internet Access Software with Netscape® Navigator™.

Java®

- Bring the World Wide Web to life with eye-catching animations.
- Sun Java® Development Kit included.
- Includes practical exercises delivered via the Harcourt Web site.



Harcourt Learning Direct

**Student Service Center
Dept. PSVS21S**

925 Oak Street, Scranton, PA 18515-0700

Yes! Send me free information on how I can train at home for the computer career of my choice. I understand there is no obligation. CHECK ONE BOX ONLY.

- | | |
|--|---|
| <input type="checkbox"/> 27 PC Repair | <input type="checkbox"/> 44 A+® Certification* |
| <input type="checkbox"/> 105 Computer Graphic Artist | <input type="checkbox"/> 43 PC Fundamentals* |
| <input type="checkbox"/> 83 Web Page Designer | <input type="checkbox"/> 53 Desktop Publishing & Design |
| <input type="checkbox"/> 82 Java® | <input type="checkbox"/> 38 PC Specialist |
| <input type="checkbox"/> 36 Visual C++® | <input type="checkbox"/> 01 Programming in BASIC |
| <input type="checkbox"/> 37 Visual Basic® | <input type="checkbox"/> 69 COBOL® |
| | <input type="checkbox"/> 64 Applied Computer Science (ASB Degree) |

*Certificate Programs

Name _____ Age _____

Street _____ Apt. # _____

City _____

State _____ Zip _____

MENU CLUTTER? SORT IT OUT

Win9x | Me | 2000 The Programs submenu under the Start menu becomes more unwieldy the more programs you add to your system: Entries appear in the order in which they were created rather than

alphabetically. To change that arrangement in Windows 98 SE or later, Select *Start • Programs*, right-click anywhere within the Programs list, and select *Sort by Name*. Groups—or submenus—will appear at the top of the list (alphabeti-

cally) and individual items will follow below them, also in the desired order. You can always consolidate the files and folders on the Start menu into higher-level folders to reduce the clutter and increase manageability. ►

AN EXPLORER MAKEOVER

Manage Files Your Way

THE SECOND-MOST FAMILIAR WINDOWS screen for most users (after Desktop) is Explorer. It's where we do the nitty-gritty work of moving, deleting, copying, and (sometimes) opening files. The Explorer interface has come a long way since its inception as File Manager in Windows 3.0, but you may not be aware of the many new interface options in more recent versions of Windows. Here's a rundown on how to give Explorer the look you want.

STANDARD BUTTONS These are used to navigate between folders, to map and delete network drives, and to perform such standard operations as undo, cut, copy, and paste. Windows 98 only lets you add text labels to the icons, and Windows 95 doesn't let you do that, but in Me and 2000 you can **add and delete buttons** **Show text labels.**



Selective text on right.

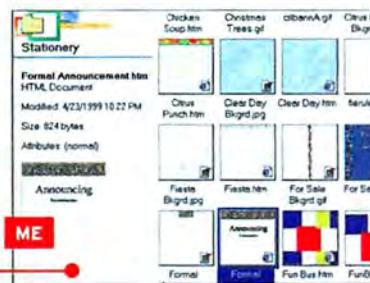
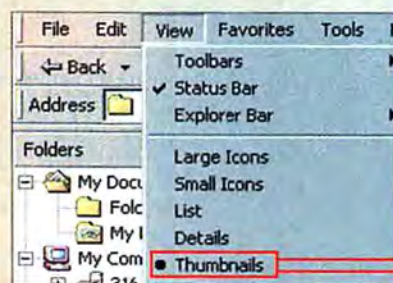


No text labels.

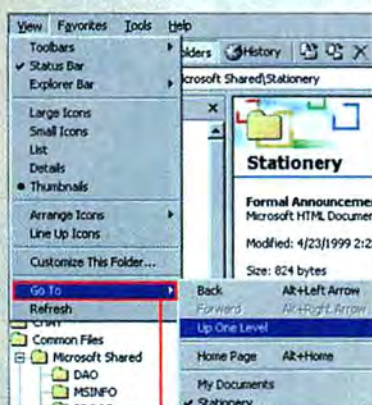


by right-clicking the toolbar and selecting *Customize*. The resulting dialog box lists the available toolbar buttons and your current button set. Drop-down menus let you choose from three text options and two icon options. You can **change the order of your buttons** by selecting one and clicking the up or down arrow (or the Move Up or Move Down button in Windows 2000).

VIEW To the four standard folder views in Windows 98 (Large Icons, Small Icons, List, and Details), **Windows Me and 2000 add the useful Thumbnails view**, which shows a miniature version of graphics files (see inset). For nongraphics files it displays the file type's large icon (like the W for Word) but enclosed in a box.



THE GO TO COMMAND This option appears on the menu bar in Windows 98's Windows Explorer, but in Internet Explorer, Windows 2000, and Win Me folders and in Windows Explorer win-



dows, it becomes *Go To*, an option on the View menu. The *Go To* command displays the nine folders or Web sites you opened most recently, together with options that let you move backward, forward, up one level, or to the home page.

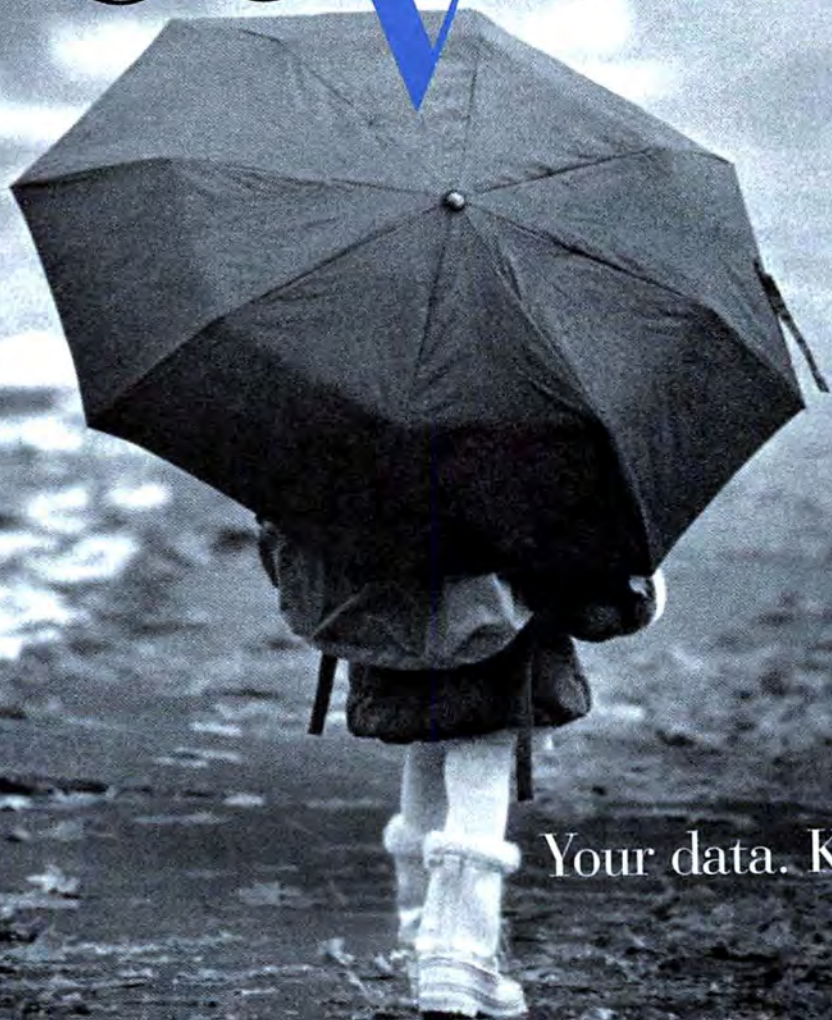


The *Go* button located just to the right of the Address bar in Internet Explorer differs from the *Go* menu that appears when you open a folder or Windows Explorer. (If the *Go* button isn't there, you can obtain it by right-clicking a blank area of the bar and selecting *Go Button*.) The *View • Go To* options in Windows 9x, 2000, and Me are entirely different.

DETAILS For any folder in Details view (choose *View • Details* if necessary), you can **add and remove the categories** of information displayed. Right-click a column heading (such as *Name* or *Size*), and check or uncheck the items you want to add or remove. Alternatively, you can select *View • Choose Columns* and make your selections there. Back in the folder, you can **drag column headings to change their right-to-left order**, and drag or double-click a column heading's right border to **resize that column**.

Name	Size	Type	Modified
Chicken Soup Bkgd.gif	4KB	GIF Image	5/23/00
Chicken Soup.htm	2KB	Microsoft HTML Document	5/23/00

Covered



Your data. Keep it safe.

Protect every element of your business with award-winning data protection - VERITAS Simple Backup™, VERITAS Backup Exec Desktop™ and VERITAS Backup Exec Desktop Pro™.

With expanded backup choices from VERITAS, advanced desktop and workstation data protection is practically a walk in the park. From the easy-to-use Simple Backup, to automated data protection for a single computer with Backup Exec Desktop to the disaster recovery and peer-to-peer functionality of Backup Exec Desktop Pro, VERITAS, The Data Availability Company™, has you covered.

For more information or to check out evaluation software, visit www.veritas.com/homesolutions.



VERITAS™

BUSINESS WITHOUT INTERRUPTION™

1-888-732-2021

www.veritas.com

© Copyright 2000 VERITAS Software Corporation. All rights reserved. VERITAS, VERITAS SOFTWARE, the VERITAS logo, Business Without Interruption, VERITAS The Data Availability Company, VERITAS Simple Backup, VERITAS BACKUP EXEC DESKTOP and VERITAS BACKUP EXEC DESKTOP PRO are trademarks or registered trademarks of VERITAS Software Corporation in the US and/or other countries. Other product names mentioned herein may be trademarks or registered trademarks of their respective companies.



Figure 6

pressing **<Enter>**. If you are connected to a network printer, be sure to use its network name. For instance, you could use the name `\\server\laser`, instead of using 'prn'.

WILL THE REAL EXPLORER PLEASE STAND UP?

Win9x I'll bet you didn't know that you have

been using the same program to browse the Web that you use to access and to manage your files. Many people assume that Windows Explorer, which you use for viewing and

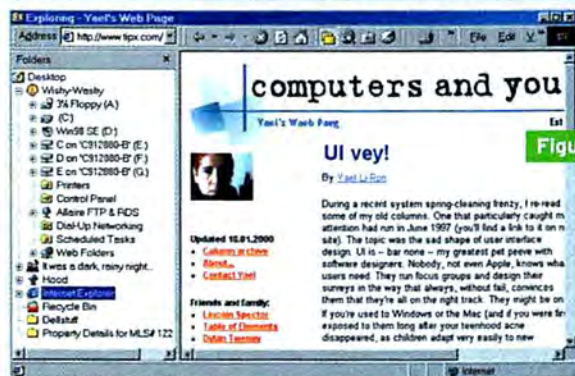


Figure 7

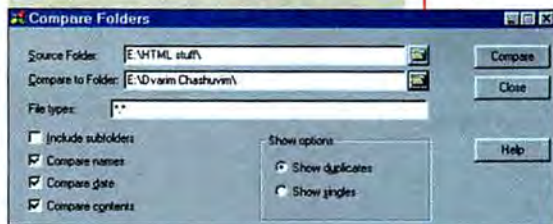
AN EASIER WAY TO PRINT A DIRECTORY LISTING

Windows doesn't provide any way for users to print a list of all the files in a folder. But there is a quick-and-dirty method you can use to overcome this deficiency. First, navigate to the folder (or press **<Windows>-R** if you have a Windows keyboard); then click **Start>Run**, type `command_>dir>prn`, and finish by

ESSENTIAL ADDITIONS

TURBOBROWSER

USERS HAVE LODGED innumerable grievances against Windows Explorer, but TurboBrowser 2000 goes a long way toward remedying most—if not all—of those complaints. This Explorer replacement goes the extra mile, offering such features as backup, compression, folder comparison, folder renaming, and many other welcome goodies.



managing files on your local system, and Internet Explorer, which you use for Web browsing, are different programs. But they're actually the same inside, though their interfaces change depending on which environment you select. If you type `c:\windows` in the Web browser's Address field, for example, the underlying program switches you to folder mode; on the other hand, if you type an Internet address into a folder's Address field, you get Home, Favorites, History, and other typical browser buttons.

To turn a folder window into a two-pane Explorer view, right-click its Control menu (the upper-left button on the title bar) and select **Explore**, or click the **Folders** button on the Standard Buttons toolbar (in Windows 2000 and Me). Now look at the left pane: If you double-click the Internet Explorer icon near the bottom of the pane, you'll find

yourself on your home page; and assuming it's an Internet page or 'about: blank' (Windows HTML-based Help system), the buttons on the toolbar will be Web-related (see FIGURES 6 and 7). If you prefer

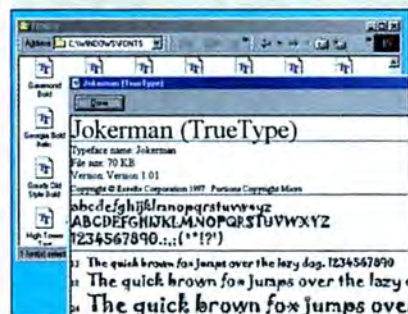
the two-pane Explorer to the minimalist folder view, you can make it your default interface by editing the Registry. Before you do so, however, be sure to back up the Registry by making copies of the system.dat and user.dat files in your Windows folder. Feel free to put these backup files anywhere other than in your Windows folder. Now you're ready to make the necessary changes.

Select **Start>Run**, type **regedit**, and press **<Enter>** to launch the Registry editor. Locate the key `HKEY_CLASSES_ROOT\CLSID\{20D04FE0-3AEA-1069-A2D8-08002B30309D}`. Right-

ESSENTIAL ADDITIONS

AKFONTVIEWER

SEE IF THIS describes you: You have hundreds of fonts, but you can't recall what any of them look like. Instead of double-clicking each TrueType font in the `Windows\Fonts` folder to look at each font, download the free AkFontViewer utility and view them all in one scrollable window (see below).



click the **Shell** key under this key, and select **New>Key**. Type **Open**, and then right-click the **Open** key and select **New>Key**. Type **command**, and in the right pane double-click the name **{Default}**. In the Edit String dialog box that appears, type `c:\windows\explorer.exe` in the 'Value data' box, press **Enter**, and then press **<Alt>-F4** to close Regedit.



Find files from this article at www.pcworld.com/downloads. Yael Li-Ron is a former executive editor for PC World. Scott Dunn is a contributing editor for PC World. Matt Lake is a freelance writer based in Ridley Park, Pennsylvania.



Special Offer
90 Days
Same As Cash!

Out with the Old - In with the New!



Performance Notebook 800

- Intel® Pentium® III Processor 800MHz
- 64MB Fast 3D RAM
- 6GB Ultra DMA Hard Disk Drive
- 14.1" TFT Color Display
- Integrated AGP Graphics
- DVD Rom Drive
- Internal 56K Modem
- CardBus Slots (2 Type II or Type III PCMCIA slots)
- USB Ports
- S-Video TV Out Port
- Includes Microsoft® Windows® Me™ - the home version of the world's favorite software
- Includes Microsoft® Office® Small Business Edition
- Free Silver Carry Case

\$2399*

or as low as \$67/Month
*after rebate

FREE UPGRADE

**Upgrade to 12GB Ultra DMA
Hard Disk Drive plus 128MB
Fast SD RAM & 3D Game Pack
worth \$300!
on Notebook Only
While supplies last.**

CALL TOLL-FREE NOW
1-877-900-9021
FOR YOUR FREE COLOR
CATALOG OR TO ORDER



Worry-free IT
for small
and medium
businesses

THE COMMON SENSE OUTSOURCING SOLUTION

If you were to make a list of the core competencies of your organization, there is an excellent chance that the list would not include items such as restarting crashed systems, rebuilding directories, keeping pace with the blizzard of software upgrades, or scrounging around for scarce IT talent.

Yet so many companies today find that they must spend time doing just these sorts of chores in order to keep their business systems up and running, often at the expense of customer care or product and service quality. Thus, it is not surprising that fast-growing numbers of organizations are turning to outsourcing options, particularly when it comes to provisioning IT for small and medium-sized offices.

In fact, International Data Corp., Framingham, Mass., estimates that demand for desktop and LAN outsourcing services will soar from \$14 billion two years ago to nearly \$31 billion by 2003. And the Yankee Group, Boston, expects that the percentage of businesses outsourcing

at least part of their IT infrastructure will double from 40% today to 80% by next year.

Common Sense, Business Sense

Simply stated, the reasons for this anticipated rapid growth in desktop and LAN outsourcing make excellent business sense as well as common sense. These reasons include the following:

- With some of the newer subscription services, the costs of IT become both affordable and predictable, based upon a contracted monthly fee for IT products and services selected from a targeted menu.
- With hardware, software and network product upgrades coming in waves, users can offload the chore of keeping up with them (as well as deciding which of them are appropriate for their business) to the out-

source provider. Outsourcers also provide a single point of contact for niggling support and service issues.

- In a labor market characterized by an acute shortage of skilled IT personnel, users can eliminate the chronic headaches of recruiting, hiring and retaining these scarce resources.
- Users may gain the ability to turn leased equipment and software into a current expense instead of a capital depreciation by deducting the entire cost as a current business expense.
- Instead of paying for idle IT resources, users leverage a "pay-as-you-go" arrangement with flexibility to add or remove resources in response to changing business dynamics.

The bottom line is that IT technology evaluation, vendor selection, product support and service, and IT staff recruitment and retention are seldom a core competence of small and mid-sized businesses today. Thus, managers are focusing increasing attention on outsourced desktop solutions.

Everdream's Value Proposition

One such provider, Everdream Corporation (www.everdream.com), Fremont, Calif., offers a wide range of IT services that includes secure data backup; Hewlett-Packard hardware from laptops to desktops to servers; Web hosting and Web services; and 24x7x365 service and support. For small and medium-sized companies, Everdream can act as the IT department, providing Virtual Desk Side Assistance. You can view the full range of Everdream products at www.everdream.com/itexpert/.

Notable among the Everdream slate of offerings is the personal service guarantee. By clicking on an icon that reads "call me," users can contact Everdream for telephone assistance. Everdream guarantees a callback within 90 seconds, or the next month's subscription is free. Faulty hardware is immediately replaced, delivered via FedEx.

The Everdream team's value proposition for your business is clear: Focus on your core business competencies and leave the IT to them.

SPONSORED BY:
Everdream Corp.
www.everdream.com



NIKOLAI PUNIN



Everdream™ stands behind my small business with computing expertise and technology.

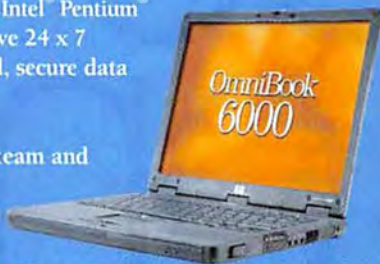
Imagine what you and your business could do with the support of a strong IT department that takes care of your computing needs: Your computers could always be up and running, your data could be secured against loss and destructive viruses. You would always know who to call if you had a problem. You could attract and service customers on the web and take advantage of the latest productivity-enhancing tools.

Everdream provides you with the highest level of IT services available: Powerful Intel® Pentium® computers, Dreamware™ self-healing technology, the latest business software, live 24 x 7 support, virtual desk side assistance, unlimited Internet access, training, email, secure data back-up, virus protection... and more.

We can also help you create and host your web site, automate your sales team and automate your payroll.

Until now, only the largest enterprises could afford a first-class IT team. Everdream's technology, expertise, partners and the Internet brings this service to the small and medium office for a low monthly subscription. All backed by the strongest guarantee in the industry.

Subscribing to Dreamservice™ by Everdream is the smart way to do IT!



Call toll free 888.411.8654
or visit www.everdream.com/ITexperts

Go to www.everdream.com/ITStrategies to receive a FREE copy of "IT Strategies to Empower You, Your Team, & Business"

© 2000 Everdream Corporation. All rights reserved.

everdream™
Outsource IT with Subscription Computing

We compare new Web-based suites, utilities, and other programs with their off-the-shelf counterparts.

The results may surprise you.

If you haven't heard all the hype yet about Web-based software offerings, brace yourself—because you're going to be hearing a lot about them in coming months. Numerous companies have recently cropped up offering Web-based programs, which they tout as the successors to traditional shrink-wrapped software.

A Web-based application is a program—such as an accounting package or a virus-scanning utility—that you use over the Internet, in many cases from inside your browser. (Companies that provide such programs are called application service providers, or ASPs.) A company hosts one or more Web-based applications online, and you access them for a monthly or yearly fee or for free.

Using a Web-based program has advantages: You can usually access the application and your files (which are backed up continuously) from any Net-connected PC. The price is generally cheaper than a boxed program (most fee-based Web apps cost less than \$20 per month per person, and some are free). You don't have to pay for software upgrades (they come with the service). And Web-based apps are great for collaboration projects, because they allow multiple users in different locations to access a project simultaneously.

But there are downsides to relying on Web-based programs. The combined per-person monthly fees can exceed the cost of a shrink-wrapped program if a lot of people use the application; you are locked into paying a fee indefinitely to use the program; ►

So Long, Shrink-Wrap?



and if the ASP's server goes down, you'll lose access to the program and your data. What's more, most of these services won't let you run their programs unless your PC is connected to the Net—a big issue if you have a dial-up modem that slows the program's performance. And entrusting your data to any company—especially a start-up—can be a gamble. If the company files for bankruptcy or if you have a dispute with it over a bill, your data could be held hostage. And though most sites provide exhaustive reassurances about their privacy and security measures, you're still putting your trust in a remote server.

SAVE THE BOXES

CONSIDERING ALL THESE ISSUES, is it feasible for Web-based applications to replace shrink-wrapped software? In most cases, the answer is, Not quite yet. We looked at Web-based office suites, utilities, accounting applications, and a project-management program to see how they compare with their offline counterparts. We found that most of them do fine as an alternative to shrink-wrapped programs when you don't have access to those applications, and we even found a couple of applications that we liked as much as the shrink-wraps. But your freedom to access information anywhere with these online programs may be offset in many cases by performance glitches and by the absence of key features that boxed programs offer. The bottom line: Web-based programs are still in their infancy, and they'll need a few more rounds of development before we'll be willing to throw out the shrink-wraps.



WEB SUITES: Taking On Microsoft Office

THE APPEAL of Web-based office suites is clear: Your applications and files are available anywhere there's a Net connection—at home, in a hotel, in an airport—but the first apps to appear have some ease-of-use, performance, and compatibility issues.

That's certainly the case with the online versions of Microsoft Office 2000 and Corel WordPerfect Office 2000. To use either of these programs, your PC must have a small Windows Terminal Services (WTS) application loaded on it. The application automatically downloads to your PC with the suite program, but the need for WTS means that you can't access the Web version of Office 2000 from an Internet appliance such as the Netpliance I-Opener. And to use it with a non-Windows operating system such as Linux, you need to have a product called MetaFrame, from Citrix (www.citrix.com).

The good news is that the next version of Microsoft Office Online (slated for release by mid-2001) won't require a WTS application on the client. That doesn't nec-

essarily mean that all (or even most) Web-enabled devices will run Office applications remotely, but it is a step in the right direction. Corel has similar plans for its online WordPerfect suite.

Meanwhile, other software giants are Web-ifying their desktop suites, too. An online version of Lotus SmartSuite may be available from ASPs by the time you read this. And Sun Microsystems' StarPortal, a Web version of its free StarOffice suite, will go online by midyear.

SMALL BUT SWEET SUITES

SINCE WEB SUITES from Lotus and Sun weren't available for testing, and those from Microsoft and Corel will change soon, we turned to a trio of services from Internet start-up companies—some of which offer free, ad-supported versions.

We appraised each suite on speed, ease of use, cost, and compatibility with Microsoft Office, since that product is the overwhelming favorite among business and home users alike.

Speed is an especially critical issue because you run Web-based suites from a remote server. Generally, the faster your Net connection, the better a suite will perform—unless, of course, the program is really running from your hard drive.

That's the case with ThinkFree Office (www.thinkfree.com), which downloads its Java-based applications to your PC the first time you use them so you don't have to connect to the Net thereafter. Although one could argue that ThinkFree Office isn't really a Web-based program, we include it here because of its Internet hooks, which give it some of the advantages of a Web app. For instance, it lets you transfer your data to the Web for retrieval from another Windows-equipped PC. (You'll need to have ThinkFree or Microsoft Office installed on each PC to access the file.) ThinkFree also automatically downloads program upgrades from its server when you connect to the Net.

FreeDesk (www.freedesk.com) and NuoMedia (www.nuomedia.com), by contrast, require you to be connected to the Net when using them. They were slower and less reliable than ThinkFree Office, but both programs were still in beta when we tested them. They took 2 to 4 minutes to load via a 56-kbps dial-up connection, and

OFF-THE-SHELF VS. ON THE WEB

What separates the current wave of Web-based applications from their desktop counterparts? Both breeds of software have their pros and cons. Consider the following differences.

DIFFERENCE	Desktop software	Web-based software
Selection	Bountiful. Virtually exhaustive—Windows runs thousands of apps.	Spotty. Only a smattering of software categories have gone online so far.
Features	Wide-ranging. Desktop apps tend to bulge with tools and options.	Sometimes skimpy. Many apps are still playing catch-up with shrink-wrapped rivals.
Performance	Full speed ahead. Limited only by your PC's horsepower.	Expect slowdowns. Okay in some cases; often sluggish, especially over dial-up connections.
Cost	Varies. Bargains abound, but have you priced Microsoft Office lately?	Varies. Some apps are ad-supported freebies; others cost \$20 per month or more.
Access	Limited. Software and documents usually reside on a single PC.	Widespread. Programs and files are accessible from any Net-connected PC.
Maintenance	Can get messy. Many programs need frequent patches; upgrades and backups are a pain.	Minimal hassle. Upgrades, bug fixes, and backups are automatic and effortless.

BEST BETS



ARE WEB-BASED apps ready for prime time? In some cases, yes. These four contenders rate as our favorites:

★ **THINKFREE OFFICE** ThinkFree can't replace Microsoft Office just yet. But its reasonable cost (\$40 a year) and familiar look make it a handy complement to Microsoft's package. www.thinkfree.com

★ **MCAfee.COM** McAfee's suite of well-designed utilities offers virus checking, diagnostics, Internet filtering, and more. Prices are a bit higher than the packaged versions, but the convenience can't be beat. www.mcafee.com

★ **NETLEDGER** A pioneer in Web-based accounting, NetLedger provides lots of features at a reasonable price. It's especially good if you need to share data among disparate users with a minimum of fuss. www.netledger.com

★ **ONPROJECT** OnProject has most of the features that Microsoft Project has, plus it lets you share project information without setting up a server. www.onproject.com

sometimes didn't load at all (with no message explaining why). NuoMedia also had an annoying one-second time lag between when we pressed a key and when the letter appeared on screen. Sensibly, NuoMedia recommends a broadband connection for its office suite. The same advice should apply to FreeDesk, although its maker advises only a 28.8-kbps or faster link. Granted, even with a fatter pipe you'll still encounter Internet congestion, but in most cases your Web-based apps and files will load faster.

MIMICKING MICROSOFT

SINCE SO MANY PC users are familiar with Microsoft Office, it makes sense for Web suites to mimic Office's interface. With its Microsoft Office-like toolbars and icons, ThinkFree Office does the closest impersonation of the pack. It's best at converting Microsoft Office files, and it provides many of Office's core features, including basic word processing, spreadsheet (in beta when we tested it), and presentation tools—though some features, such as Excel macros, didn't work in ThinkFree's applications.

FreeDesk's interface resembles Microsoft Office's as well, but we disliked the suite's clunky import/export feature for

converting Microsoft files to FreeDesk's format. Eschewing the screen-cluttering icons of Microsoft Office, NuoMedia offers a radically different interface, with pop-up menus at the bottom of the screen and a streamlined look. But some major features—such as the spelling checker and the charting function—often didn't work.

FEE VS. FREE

AS YOU'D EXPECT, none of these Web suites matches Microsoft Office feature-for-feature. You wouldn't want to use any of them as your primary suite—they're either intolerably slow or annoyingly incompatible with some Office features—but they'll do as a backup when your primary programs aren't available. The good news is that some of these applications offer free versions; the bad news is that free means you have to contend with banner ads flashing on your screen.

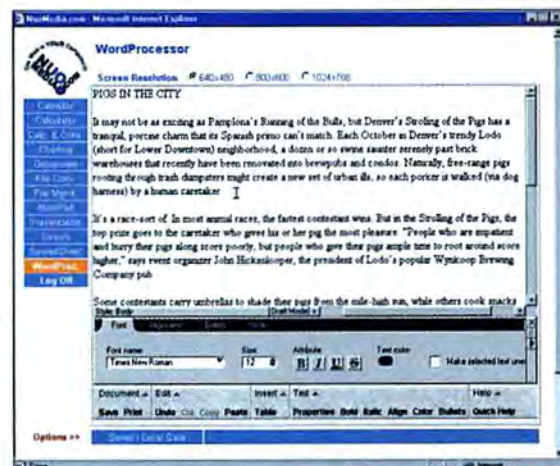
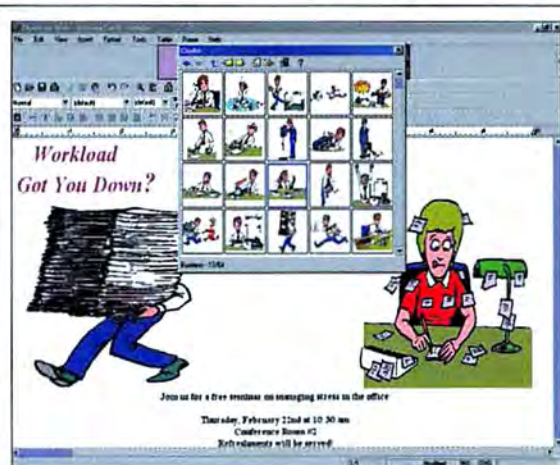
FreeDesk allows you to choose between two options: a free, ad-supported suite or a no-advertising version that costs \$10 to \$20 per month, depending on the size of your business. By the time you read this, the cost of ThinkFree's suite will rise to \$50 per user per year, up from its current \$30. NuoMedia's office suite is free (with no ads), but you will have to pay for additional features, such as its Web-based corporate finance applications. Sun Microsystems says its forthcoming StarPortal suite will be free as well. Customers of the online versions of Corel, Lotus, and Microsoft suites should expect to pay between \$10 and \$20 per month.

How do Web-suite prices compare with those of their shrink-wrapped counterparts? We found some of the Web versions to be costlier. At Personable.com, for instance, Microsoft Office 2000 Professional rents for \$27

a month, or more than \$300 a year. By comparison, several Web retailers sell the CD-ROM version of Office 2000 Pro for about \$220. (Note, however, that this is the upgrade price; if you don't already have a copy of Office 2000, the Pro version will cost you about \$500.)

As for which suite among the three discussed here is best, at this point it's clearly not FreeDesk or NuoMedia—both are buggy and unreliable. That leaves ThinkFree Office. Although it's not free, it is reasonably compatible with Microsoft Office, it does a good job of mimicking the Office interface, and it comes with 20MB of password-protected storage. Also, it will soon run on Linux and Macintosh platforms. On the downside, it doesn't offer full-blown compatibility with every feature of its Microsoft counterpart.

Our conclusion: Web suites still lack the punch to KO hard-disk apps. Online apps may be contenders, but the shrink-wraps wear the crown. —Jeff Bertolucci



THINKFREE's interface (top) mimics Microsoft Office, while NuoMedia's streamlined design eliminates icon clutter.



WEB UTILITIES: Tooling With the Net

EVERY PC NEEDS its share of utilities to scan for viruses, optimize hard disk space, and perform other housekeeping tasks. But many of these tools handle only one or two jobs—and the more utilities you collect, the more disk space and system resources they consume. Keeping them up-to-date is another problem: An anti-virus utility without the latest virus definitions isn't much use.

Web-based utilities could change all that. True, there are only a few of these programs so far, and most of them perform a limited set of tasks. But they offer easy access and continuous, automatic upgrades. And some are free.

We tested five Web-based services, ranging from basic virus-scanning applications to full-fledged utility suites, with some unique and interesting variations in between. Overall, we were impressed by their performance and ease of use. But they don't always win out over their shrink-wrapped counterparts, especially if your goal is to obtain a comprehensive, one-stop suite of tools.

HOW THEY OPERATE

MANY WEB-BASED UTILITIES employ a browser-based interface, downloading ActiveX controls needed to do the job (such as scanning for viruses or checking to see how secure your system is). That means they're compatible only with Internet Explorer; users of Netscape and other browsers need not apply. On the plus side, ActiveX controls download quickly and usually leave no trace of themselves afterward.

Utilities designed to work continuously (full-time virus scanners or firewalls, for example) require you to download and install them just as you would any other application. The difference is that you install them within your browser over the Web, instead of from a CD-ROM.

McAfee.com (www.mcafee.com) is the only purveyor of Web utilities we tried that charges for its services, but you get a lot for your buck. The site offers four packages: Clinic, Personal Firewall, Wireless Security Center (for handhelds), and Privacy Service (for blocking offensive material such as pornographic and hate sites). Each service costs \$30 per year, and the company offers free ten-day trial versions of most of them. (By the time this article appears, McAfee.com will offer a small-business edition of its services too, but that version was unavailable for review at press time.)

Clinic is the most comprehensive of the McAfee services we tested. It offers on-demand virus scanning, as well as optional full-time virus protection. Its other features include an online uninstaller for removing unwanted applications and unneeded files from your PC; a performance optimizer for getting the most from your Windows settings; a system information tool that analyzes your PC's components; and Windows Advisor, a tool that suggests changes for improving your system. Clinic competes directly with McAfee's own Office 2000 Pro utility suite, a shrink-wrapped product that sells for \$60.

So which is the better deal? That's a difficult

TIPS FOR CHOOSING A WEB APPLICATION

★ **DOUBLE-CHECK FEATURES.** If you're switching to the Web version of a program you're familiar with, make sure before signing up that the online application has all the features you loved in the offline version.

★ **READ THE DOCUMENTATION.** Even if you think that the packaged and Web versions are identical, familiarize yourself with the available features before diving in.

★ **CONFIRM TECH SUPPORT POLICY.** Is help free, or is there a fee? Does the vendor offer phone support—which is likely to be quicker—as well as e-mail? Does the vendor offer a money-back guarantee if its server fails at a critical point in your project?

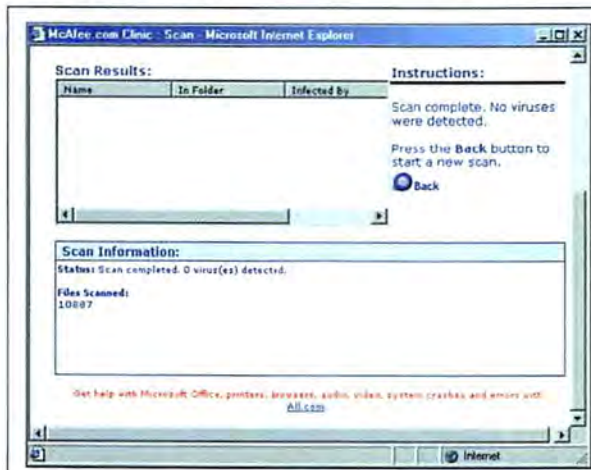
★ **BEWARE OF START-UPS.** The Web-application market is still developing, and many current players will be out of business tomorrow. It's always better to work with an established company rather than a start-up. But if you do want to try a new vendor, find out how the company makes its revenue (if the program is free) before you sign up.

★ **BACK UP YOUR DATA.** Find out how often the service backs up data and whether you can download your data to your hard drive to maintain your own backup.

★ **TRY BEFORE YOU BUY.** Most fee-based apps offer a free trial version of their programs; test them out before you commit.

question to answer definitively, because the Web suite and its boxed counterpart aren't quite identical. McAfee Office 2000 Pro includes a few features that the \$30 Clinic doesn't have, such as a firewall (which would cost you another \$30 as a separate package from McAfee.com), encrypted e-mail, and more-advanced repair and recovery capabilities. By the same token, though, you'd also pay an additional yearly fee with the packaged suite to maintain your access to updates.

Whether you should opt for a packaged utility suite or the McAfee.com service depends on several factors. On one hand, if you prefer a complete utility suite and don't mind doing some manual work (running the applications and updating), the off-the-shelf version is probably a better choice. On the other hand, the almost-complete automation of McAfee.com ►



McAfee.com's virus scanning utility, contained in its Clinic package, has an interface that simplifies checking your system.



ALWAYS BE THERE IN SPIRIT.

Stay connected with an
IBM ThinkPad® notebook –
wherever business takes you.

Get ready for inspiration, because new ThinkPad A and T Series notebooks enable you to work whenever the spirit moves you. New technologies and innovations mean it's easier than ever to make your presence felt – even while you're on the road. Need to keep working after the lights have dimmed? No problem with the ThinkLight™ keyboard light. Tough on notebooks? Go ahead, select models feature durable Titanium Composite covers to help improve system protection.* Need to share? The Ultrabay™ 2000 makes sharing modular options a snap...and affordable, to boot. And with the latest mobile Intel® Pentium® III processors, you'll be able to power through the toughest applications. Wherever you are, whatever you need to accomplish, IBM ThinkPad notebooks allow you to stay productive without standing still.

 **e-business tools**



IBM recommends Windows 2000
Professional for business.

IBM ThinkPad A21e

Desktop alternative

Mobile Intel Celeron™ processor 600MHz¹
12.1" SVGA TFT display
64MB SDRAM • 10GB² HDD
24X-10X³ CD-ROM
Mini PCI 56K⁴ V90 modem
Microsoft® Windows® 2000
Lotus® SmartSuite® Millennium Edition⁵
ThinkLight keyboard light
Modular Ultrabay 2000
6.2 lbs. travel weight⁶
1-year limited warranty⁷
Part #2628C2U

IBM ThinkPad T21

Performance and portability

Mobile Pentium III processor 750MHz
featuring Intel SpeedStep™ technology
13.3" XGA TFT display
128MB SDRAM • 10GB HDD
24X-10X CD-ROM
Mini PCI 56K V90 modem
Windows 98 Second Edition
ThinkLight keyboard light
Titanium Composite cover
Modular Ultrabay 2000
Slim 1.3" profile, 4.6 lbs. travel weight⁸
3-year limited warranty
Part #264727U

\$1,549⁹

SuccessLease™ \$55/mo., 36 MOS.
for Small Business

SWAPPABLE OPTIONS:

64MB 100MHz SDRAM Memory Upgrade
(only available installed) (Part #20L0254)
\$85¹⁰ or \$3/month¹¹

ThinkPad 2X SuperDisk Ultrabay 2000 Drive
(Part #27L3451) \$225¹² or \$8/month¹³

\$2,899⁹

SuccessLease \$102/mo., 36 MOS.
for Small Business

ThinkPad Port Replicator

(Part #02K8667) \$149¹⁴ or \$5/month¹⁵

ThinkPad Corporate Carrying Case

(Part #09N3955) \$99.99¹⁶ or \$4/month¹⁷

DIRECT TO YOU

ibm.com/smallbusiness/7623

1 888 ShopIBM, advantage code 7623
to buy direct or to locate an IBM reseller.

An IBM e-business advantage for small business

¹Titanium Composite Carbon Fiber Reinforced Plastic has three times the strength of ABS plastic as tested by IBM using the high flex modulus test on 2/28/00. Available on select models. ²MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance. For mobile Intel Pentium III processors featuring SpeedStep technology, this denotes maximum performance mode; battery optimization mode is approximately 80% of maximum performance mode. ³GB equals one billion bytes when referring to storage capacity; accessible capacity may be less. ⁴Variable read rate. Actual playback speed will vary and is often less than the maximum possible. ⁵Designed to be capable of receiving at up to 56Kbps with compatible phone line and server equipment, and transmitting at up to 31.2Kbps. Public networks currently limit maximum download speeds to about 53Kbps. Actual speeds depend on many factors and are often less than the maximum possible. ⁶Some software may differ from its retail version (if available), and may not include user manuals or all program functionality. For non-IBM software, applicable third-party licenses may apply. ⁷Warranty, service and support for non-IBM products, if any, are provided by third parties, not IBM. IBM makes no representations or warranties regarding non-IBM products. ⁸Weight includes battery (and travel bezel on A and T Series – travel bezel optional on A and T Series). Actual weight and thickness may vary due to vendor components, manufacturing processes and options. ⁹For terms and conditions or copies of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the US and in Canada call 1 800 426-2255. ¹⁰Limited warranty includes International Warranty Service in those countries where this product is offered. Telephone support may be subject to additional charges. ¹¹Pricing shown is price available from IBM directly; reseller prices may vary. IBM price does not include tax or shipping and is subject to change without notice. ¹²SuccessLease is offered and administered in the US, Canada and other countries by third-party providers of business financing approved by IBM Global Financing. SuccessLease terms and conditions provided by the third party. ¹³Featured monthly lease payments are based on a 36-month term with prespecified purchase option at the end of lease, to qualified business customers only, installing in the US. A documentation fee and first month's payment due at lease signing. Any taxes are additional. Other lease terms and structures are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. ¹⁴Thickness may vary at certain points on the system. All products ship with an operating system. IBM reserves the right to alter product offerings and specifications at any time, without notice. ¹⁵SuccessLease and all IBM product names are registered trademarks or trademarks of International Business Machines Corporation. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM company. Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron and SpeedStep are trademarks of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. ©2001 IBM Corp. All rights reserved.

makes it a better choice if you prefer to "set it and forget it." You just pay a bit more in return for the convenience.

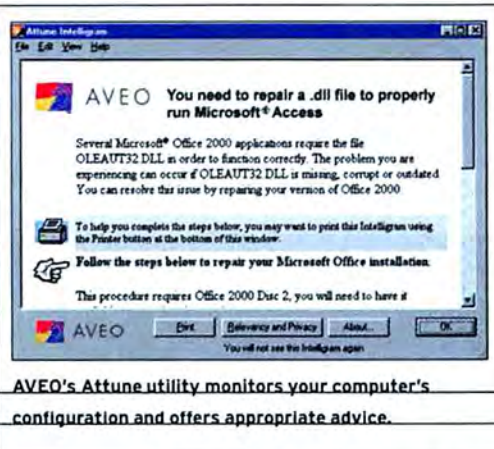
FEE-FREE UTILITIES

IN THE REALM of free utilities, PC Pitstop (www.pcpitstop.com) offers an intriguing mix of services, including an antivirus scanner, a performance optimizer, a disk analyzer, an Internet connection monitor, and a diagnostic tool that checks for bad ActiveX controls lurking in your computer that could wreak havoc on your system.

Using its own ActiveX controls, the site creates a "Pitcrew Summary" that analyzes your PC's performance and configuration and makes specific optimization recommendations. PC Pitstop isn't as comprehensive as McAfee.com, and it doesn't offer firewall or privacy services, but it's excellent at analyzing your PC and making suggestions for improving your system's

performance. And the price is right.

We also looked at two sites that offer free virus-scanning tools. Trend Micro's free online virus scanner, dubbed Housecall (<http://housecall.antivirus.com>), is simple to use and quite effective. Symantec's no-cost Security Check (www.symantec.com/securitycheck) similarly looks for viruses, and it also analyzes your PC to determine whether it's susceptible to hacking and whether your browser is surreptitiously feeding personal information (such as your e-mail address) to Web sites. Both of these online services are useful, but they can't replace a good desktop virus killer such as Norton Anti-Virus. Housecall can remove most viruses it identifies, but Security Check merely lets you know when it finds one. Neither provides continuous protection. These



AVEO's Attune utility monitors your computer's configuration and offers appropriate advice.

utilities are essentially marketing tools to draw in consumers so that the sites can make a pitch for their offline products.

ONGOING DIAGNOSTICS

AVEO'S ATTUNE service (www.aveo.com) is a free application that goes a step further than the free virus utilities in ►

I SWORE OFF SHRINK-WRAP: LIVING WITH A WEB-BASED SUITE

COULD A TYPICAL BUSINESS user really make do with a free Web-based suite instead of Microsoft Office? It's a tempting and subversive notion. Sure, millions of people use Office all day long—me included. But Microsoft's suite is pricey, and it devours hard-drive space. What's more, I've always felt I was paying—in both dollars and megabytes—for features and applications I could live without.

That's why I cheerfully volunteered for an experiment in Office-free living. For one week, I'd set aside Word, Excel, and PowerPoint to work with a Web-ified alternative: ThinkFree Office. With its promise of an Office-style interface and seamless file compatibility, I figured this product offered me a fighting chance of succeeding in a Microsoft-centric world.

HASSLE-FREE...

THINKFREE CERTAINLY MADE an agreeable first impression. As an Office user, I felt right at home: Menu options were exactly where I expected them to be, and the application understood the Word and Excel keyboard commands that are hard-wired into my fingertips. Thanks to the suite's nearly integrated 20MB of Internet storage, I could get to all my documents from work, home, or anywhere else with an Internet connection.

As the week wore on, though, I ran up against this Web suite's limits. Yes, it's compatible with Office 2000 files. But the word processor sometimes mangled page breaks, and its presentation module couldn't render

all of PowerPoint's slick effects. And although its apps boasted many familiar features, some that I use regularly were missing—such as a thesaurus, a word-count feature, and on-the-fly spell checking.

...BUT NOT GLITCH-FREE

AT FIRST, none of these hitches prevented me from plowing through my work. Halfway through the third day, though, a coworker e-mailed a document to me that she'd edited using Word's revision-tracking features.

ThinkFree's word processor showed some of her changes, but not all of them. I broke my no-Microsoft vow long enough to sneak into Word, view her revisions, and add some of my own.

Back in the ThinkFree zone, I had a question about the suite's spreadsheet, which was still in a beta stage when I tested it. I checked its online documentation for help, but the information turned out to be perfunctory. I decided to call ThinkFree's tech support line and discovered that, well, there is no support line. Assistance is available only by e-mail.

And that's the bottom line with ThinkFree: The very things that make it appealing—low cost, compact size, and Web-focused design—also prevent it from

taking on Microsoft Office head-to-head. So I returned to Office 2000 willingly—eagerly, even. Still, I can see myself calling on ThinkFree whenever I'm faced with a PC that doesn't have a full-blown suite installed on it. I figure it's kind of like the cheap folding travel iron that I stow in my suitcase: certainly not a satisfying replacement for its fancier counterpart, but a useful substitute in a pinch.

—Harry McCracken





GET MORE **MUSCLE** FOR YOUR MONEY.

The power of **IBM technology**,
made affordable for small business.

If you're after value, you'll find it right here with IBM. And we're not just talking about our full line of affordable e-business tools either. Because let's face it, a lot of companies can sell you an inexpensive PC – but it's what's behind the box that really counts. You see, not only is IBM technology remarkably price competitive, but you also get tangible benefits that can help your business meet the challenges of an ever-changing marketplace. That includes the assurance of a world-class support structure that's known for reliability, as well as access to real IBM e-business expertise and powerful resources devoted especially to small business. When you really think about it, doesn't it make sense to buy technology from a technology company?

 **e-business tools**



IBM recommends Windows 2000
Professional for business.

IBM NetVista™ A40

Ideal for e-business

Intel® Pentium® III processor 800MHz*
64MB RAM
10GB* HDD
24X-10X* CD-ROM
10/100 Ethernet
Microsoft® Windows® Millennium Edition
Lotus® SmartSuite® Millennium Edition*
15" (13.9" viewable) monitor (Part #15MONB1)
3-year parts/ 1-year labor limited warranty*
Part #6648NAU

\$929⁶

SuccessLease™
for Small Business **\$33/mo.⁷, 36 MOS.**

CUSTOMIZE YOURS:

Lexmark Z32 "Black" Color Inkjet Printer
(Part #22P5337) \$79.99* or \$3/month*

IBM Office Professional 280

(Part #09N3853) \$71.99* or \$3/month*

IBM ThinkPad® i Series 1300

Optimized for mobility, connectivity, and affordability

Mobile Intel Celeron™ processor 550MHz
64MB SDRAM • 12.1" SVGA HPA display
5GB HDD • 24X-10X CD-ROM
56K* V90 modem
Integrated 802.11b wireless Ethernet
Windows Millennium Edition
Lotus SmartSuite Millennium Edition
6 lbs. travel weight*
1-year limited warranty
Part #117121U

\$1,299⁶

SuccessLease
for Small Business **\$46/mo.⁷, 36 MOS.**

CUSTOMIZE YOURS:

IBM USB Portable Diskette Drive
(Part #05K9276) \$99* or \$4/month*

ThinkPad i Series Carrying Case

(Part #00N7382) \$99.99* or \$4/month*

DIRECT TO YOU

ibm.com/smallbusiness/7623

1 888 ShopIBM, advantage code 7623
to buy direct or to locate an IBM reseller.

An IBM price advantage for small business

*MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance. *GB equals one billion bytes when referring to storage capacity; accessible capacity may be less. *Variable read rate. Actual playback speed will vary and is often less than the maximum possible. *Some software may differ from its retail version (if available), and may not include user manuals or all program functionality. For non-IBM software, applicable third-party licenses may apply. Warranty, service and support for non-IBM products, if any, are provided by third parties, not IBM. IBM makes no representations or warranties regarding non-IBM products. *For terms and conditions or copies of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the US and in Canada call 1 800 426-2255. Limited warranty includes International Warranty Service in those countries where this product is offered. Telephone support may be subject to additional charges. *Pricing shown is price available from IBM directly; reseller prices may vary. IBM price does not include tax or shipping and is subject to change without notice. *SuccessLease is offered and administered in the US, Canada and other countries by third-party providers of business financing approved by IBM Global Financing. SuccessLease terms and conditions provided by the third party. Featured monthly lease payments are based on a 36-month term with prespecified purchase option at the end of lease, to qualified business customers only, installing in the US. A documentation fee and first month's payment due at lease signing. Any taxes are additional. Other lease terms and structures are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. *Designed to be capable of receiving at up to 56Kbps with compatible phone line and server equipment, and transmitting at up to 31.2Kbps. Public networks currently limit maximum download speeds to about 53Kbps. Actual speeds depend on many factors and are often less than the maximum possible. *Weight includes battery (and travel bezel on A and T Series – travel bezel optional on A and T Series). Actual weight and thickness may vary due to vendor components, manufacturing processes and options. All products ship with an operating system. IBM reserves the right to alter product offerings and specifications at any time, without notice. SuccessLease and all IBM product names are registered trademarks or trademarks of International Business Machines Corporation. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM company. Intel, Pentium and the Intel Inside logo are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. ©2001 IBM Corp. All rights reserved.

diagnosing PC problems. It truly leverages the Internet to bring you up-to-the-minute information—in fact, it's the only Web-based utility we looked at that does not have a boxed equivalent.

You download Attune and install it like any standard application; it then runs continuously on your system, diagnosing your PC configuration and making suggestions via pop-up Intelligram messages. Attune can tell you if you're missing an essential software component for an application, for instance. It can also alert you about a security hole in your browser or e-mail program and suggest fixes to plug the holes. In addition, it lets you know when new bug fixes or software updates become available and gives you the option of downloading and installing them automatically.

How can Aveo afford to provide this service free of charge? The company draws its revenue from corporate partners that use the service to market their products to you. For instance, if Attune determines that your printer cartridge is about to run out of ink, the application will display an Intelligram to alert you to that situation, and it will suggest an ink cartridge purchase from one of its partner companies. If you buy a cartridge from that partner via Attune, Aveo receives a percentage of the transaction price.

The Attune service is useful, but at press time Aveo had forged alliances with only a few software companies, so the utility finds bug fixes and updates for only a limited number of applications. How comprehensive this service will be remains to be seen.

—Stan Miastkowski



ACCOUNTING: A Virtual Numbers Game

SMALL-BUSINESS ACCOUNTING has taken to the Web with a vengeance. At least a dozen QuickBooks wannabes are vying to talk you out of your desktop package and into a Web-based alternative that has most—if not all—of the functionality long offered by that more established product.

It makes sense for these companies to go the Web route, since accounting data is mostly numbers, which don't need a lot of bandwidth to travel back and forth between a server and your browser. Web-based accounting also makes the data easily accessible to multiple remote users at one time, and of course it offers the usual benefits of Web-based software: server-side upgrades, maintenance, and backups.

But if you're the only one handling your books—perhaps with the occasional intervention of an accountant—the adaptability for remote users may not seem compelling: You can easily e-mail data to your CPA, after all. And if you've already got a program that works, why switch? Still, the convenience of Web-based accounting may prove seductive to

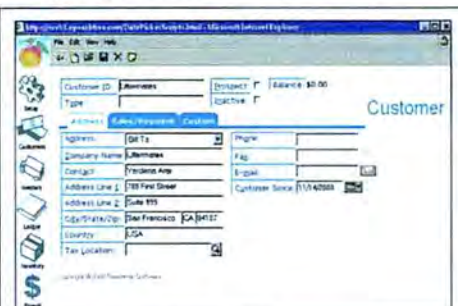
people who want to run their business from the road or grant simultaneous access to scattered users. And with prices starting at \$5 per person, they're not expensive, especially if you already spend \$200-plus a year to upgrade your desktop accounting package.

We looked at five Web-based accounting services, including two from shrink-wrap mainstays Peachtree and Quick-

Books, and a Web-only offering from NetLedger. All offer the basics: a general ledger, accounts payable and receivable, invoicing, and reports. But some offer extra features and add-on services.

NETLEDGER GAINS

THE BEST OF THE GROUP is NetLedger (www.netledger.com), which pioneered Web-based accounting. Currently on its fourth release (a fifth version should be live by the time you read this), NetLedger costs only \$5 per user per month. And it's by far the most customizable of the group we tested—from its ability to upload a logo for a printed invoice to its more than two dozen report options covering sales and financials, overdue accounts, and employee records. The program also lets you grant customers online access to

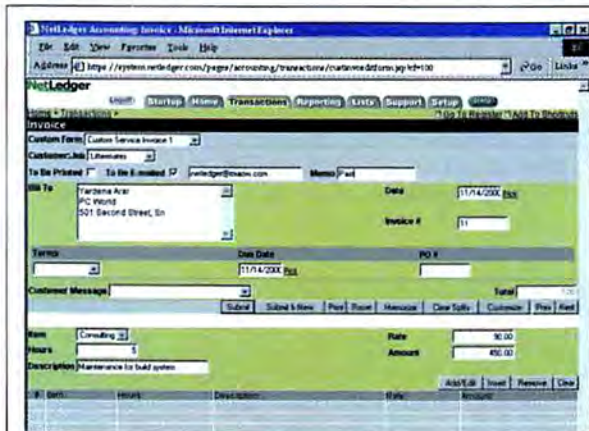


PEACHTREE performs basic accounting tasks, but it lacks some features of the packaged version.

statements and allow employees to track their time and expenses. The last feature costs \$1 per employee per month on top of the basic \$5 charge. Add-on options are pricier: Payroll services cost \$10 a month, and online ordering for customers goes for \$20—still not excessive if you use it instead of opening an e-commerce storefront. NetLedger also offers a free, ad-supported service to give you a taste of Web-based accounting, but that edition omits many useful features.

NOT-SO-QUICK BOOKS

INTUIT'S QUICKBOOKS may be the market leader in small-business accounting software, but the company has lagged in developing a Web-based version. QuickBooks for the Web (www.quickbooks.com) launched late last year, and it's a significantly stripped-down version of the desktop product. Oddly, one thing it lacks is the ability to import QuickBooks data ▶



NETLEDGER's simple invoice template makes it easy to generate and send invoices to your clients.



MAKE THE PC IN YOUR MIND THE PC YOU OWN.

IBM NetVista A20

Low price, high performance

Pentium III processor 866MHz¹
64MB RAM
10GB² HDD
48X-20X³ CD-ROM
10/100 Ethernet
Microsoft® Windows® 98
Lotus® SmartSuite® Millennium Edition⁴
15" (13.9" viewable) monitor (Part #15MONB1)
3-year parts/ 1-year onsite labor limited warranty⁵
Part #6270P2U

IBM NetVista A40

Perfect for small business

Pentium III processor 866MHz
128MB RAM
20GB HDD
8X/4X/32X-8X CD-RW
10/100 Ethernet
Microsoft Office 2000 Small Business⁶
17" (15.9" viewable) monitor (Part #17MONB1)
3-year parts/ 1-year labor onsite limited warranty
Part #6831EAU

\$949⁹

SuccessLease™
for Small Business **\$33/mo.¹⁰, 36 MOS.**

CUSTOMIZE YOURS:

Lexmark Z32 "Black" Color Inkjet Printer
(Part #22P5337) \$79.99* or \$3/month¹¹

IBM Office Professional 280

(Part #09N3853) \$71.99* or \$3/month¹²

\$1,399⁹

SuccessLease
for Small Business **\$49/mo.¹⁰, 36 MOS.**

CUSTOMIZE YOURS:

Lexmark Z52 Printer
(Part #01N1025) \$179.99* or \$6/month¹¹

Iomega Zip 250MB Drive

(Part #10K3506) \$179.99* or \$6/month¹²

Customize an **IBM NetVista™** desktop,
and get just what you were thinking.

Looking for an innovative desktop that's as unique as your business needs? Then check out IBM NetVista systems. These smart machines are all about effortless computing and connectivity – and can be customized any way you like. You can even build one from the ground up.¹ Just go online and select the **Build Your Own** option,² or call us and an IBM sales advisor will help you put together the perfect PC – with the power of Intel® Pentium® III processors, if you'd like. Of course, you can always choose from our wide range of preconfigured systems, many of which can be shipped on the very same day of your order!³ And if you ever have product questions while online, simply hit the **Call Me Now** button and an IBM representative will phone you back in a flash (usually within minutes). With IBM, you get technology that's easier to use – and an easier way to shop for it.

@business tools



IBM recommends Windows 2000
Professional for business.

DIRECT TO YOU

ibm.com/smallbusiness/7623
1 888 **ShopIBM**, advantage code 7623
to buy direct or to locate an IBM reseller.

An IBM response advantage for small business

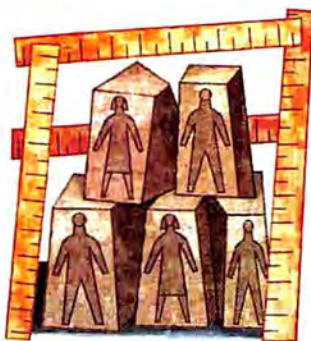
*Configurability available on select NetVista A20m models only. ¹Requires separate Internet access account. ²The "Buy Today, Ship Today" program applies to select IBM products only (designated on the IBM Web site at www.ibm.com/us/offers/buytoday); it does not apply to non-listed systems, accessories, options or other products. Orders under the program must be placed by phone at 1 888 ShopIBM or via the Web at ibm.com/shop. Orders under the program must be properly completed by 3:00 p.m. Eastern Time. Orders completed after 3:00 p.m. or on weekends ship the next business day. An order is considered properly completed when IBM has approved the customer's method of payment, including any necessary credit authorizations. Orders subject to product availability. Delivery date and costs will vary depending on delivery method chosen. Shipments may be delayed due to business closings or delays based on the weather or other circumstances beyond our control. IBM reserves the right to modify or withdraw this offer at any time, without notice. ³MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance. ⁴GB equals one billion bytes when referring to storage capacity; accessible capacity may be less. ⁵Variable read rate. Actual playback speed will vary and is often less than the maximum possible. ⁶Some software may differ from its retail version (if available), and may not include user manuals or all program functionality. For non-IBM software, applicable third-party licenses may apply. Warranty, service and support for non-IBM products, if any, are provided by third parties, not IBM. IBM makes no representations or warranties regarding non-IBM products. ⁷For terms and conditions or copies of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the US and in Canada call 1 800 426-2255. Limited warranty includes International Warranty Service in those countries where this product is offered. Telephone support may be subject to additional charges. ⁸Pricing shown is price available from IBM directly; reseller prices may vary. IBM price does not include tax or shipping and is subject to change without notice. ⁹SuccessLease is offered and administered in the US, Canada and other countries by third-party providers of business financing approved by IBM Global Financing. SuccessLease terms and conditions provided by the third party. Featured monthly lease payments are based on a 36-month term with prespecified purchase option at the end of lease, to qualified business customers only, installing in the US. A documentation fee and first month's payment due at lease signing. Any taxes are additional. Other lease terms and structures are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. All products ship with an operating system. IBM reserves the right to alter product offerings and specifications at any time, without notice. SuccessLease and all IBM product names are registered trademarks or trademarks of International Business Machines Corporation. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM company. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. ©2001 IBM Corp. All rights reserved.

(something NetLedger does offer). Other no-shows in the Web incarnation include estimates, graphs, online banking or bill paying, custom fields, time tracking, and the ability to export data into a spreadsheet or other file format. But the Web version is easy to set up, and it lets you bill customers by e-mail. In this first edition, however, QuickBooks for the Web doesn't deliver much for \$15 a month (although the number of users can be unlimited).

A PEACH OF A PROGRAM

EPEACHTREE, the online offering from Peachtree (www.peachtree.com), is more robust than QuickBooks for the Web. It can import a Peachtree Office Accounting file, although some features from the desktop version have been altered or dropped. For example, customized reports are not imported, but you can export reports and forms to Excel, Word, Rich Text, or Crystal Reports format. A wireless service (free through June 2001) lets you check inventory as well as customer and vendor information from various Web-enabled cell phones or from a Palm (using a free downloadable browser from 4thpass). However, Epeachtree isn't dirt cheap. The basic \$10 monthly fee, including free access for one user and an accountant, isn't bad, but additional users cost \$5 a month. And for tech support you have to buy a monthly package for \$10 or \$15, depending on the level you want. An extra \$10 a month fetches a single-user payroll module and tax service. Still, this version might be worthwhile for Peachtree aficionados who want to keep tabs on business from the road, while allowing access to staffers back home.

Putting your books on the Web may be a scary prospect, but all the vendors we looked at say they use high-level security and encryption to protect your data from prying eyes. And all of them—except QuickBooks for the Web—let you guard against data loss with regular exports to your hard drive. For happy shrink-wrap users, however, the benefits may not be compelling yet; but as these accounting packages integrate with other online services such as banking and storefront hosting, users may find them more attractive. And all the companies offer free trial versions, so you don't have to commit before checking them out. —Yardena Arar



PROJECTS: Management on the Web

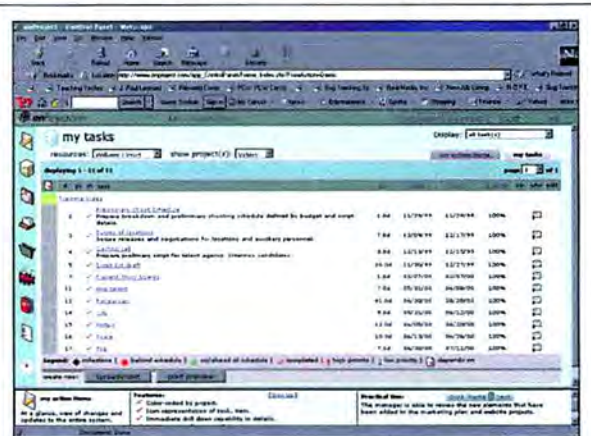
MANAGING A PROJECT can be complicated, particularly if you must supervise several people and meet deadlines. Well-designed project-management software helps you organize all the elements of a project and track its progress. But a project can be even more difficult to manage if participants are dispersed across different locales. That's when being able to work with your colleagues means being able to work apart from them as well.

Web-based project-management applications let workers and managers share in project planning and tracking. We looked at two Web-based programs to see how they measured up against a heavyweight in the field, Microsoft Project 2000. We found that although the Web-based apps have some useful features, they can't supplant boxed software.

ON THE MAT WITH ONPROJECT

IF YOU'RE NEW to project management, OnProject (www.onproject.com) offers a cost-effective way to manage your work, with many of the same features offered in Project 2000. OnProject has a straightforward browser-based interface that lets you set up a project in minutes, and its template design (suitable for any type of project) makes assigning tasks fairly simple. Predefined fields for start/finish dates, target budget, and project status are already provided so users can start with little fuss. But don't expect to find wizards or pull-down menus, as in Project 2000.

Managers can set user permission levels, and team members can update project data on their own. We especially liked OnProject's automatic e-mail notification, which tells a manager when a team member has updated a task or fallen behind schedule. Even better, OnProject facilitates input from clients, letting you give vendors access to reports or to discussions, thereby saving time and avoiding miscommunication. And because the program is Web-based, vendors don't need to install programs on their computer. OnProject also lets you create customized data reports to provide at-a-glance views of how projects are performing against time and budget goals. Further, it provides a Gantt chart (a graphical bar indicating the project's progress) and critical-path indicators that show when a project is in dan-



ONPROJECT allows managers to set permission levels and lets project participants follow the progress of a job.

ger of falling off schedule. Unfortunately, this information isn't presented well, and it can be difficult to follow. Consequently, we'd recommend OnProject primarily for relatively simple undertakings.

The program rents for \$50 per month for up to 20 users (and unlimited projects), with 30MB of free storage (each additional megabyte costs 6 cents); a 30-day trial version of OnProject.com is available at the Web site. By comparison, Project 2000 costs \$249. —Linda Grubbs

Jeff Bertolucci is a freelance writer based in Denver; Stan Miastkowski is a contributing editor, Harry McCracken is an executive editor, Yardena Arar is a senior editor, and Linda Grubbs is a staff editor for PC World.



KEEP THE HEART OF YOUR NETWORK PUMPING.

Built for e-business, backed by IBM –
the reliable new **IBM @server xSeries™**.

NEW IBM @server xSeries 200

IBM quality for small business
Intel Celeron™ processor 667MHz¹
128KB L2 cache
64MB memory standard/1500MB max²
15GB³ EIDE ATA-66 HDD⁴
standard/145.6GB max
48X-17X⁵ CD-ROM
Integrated 10/100 Ethernet
Toolless chassis design
3-year limited warranty⁶
Part #847811X

\$970⁷

SuccessLease™
for Small Business **\$34/mo.⁸, 36 MOS.**

CUSTOMIZE YOURS:

APC Smart-Uninterruptible Power Supply 700
(Part #94G3134) \$319⁹ or \$11/month⁸

64MB 133MHz ECC SDRAM Memory Upgrade
(Part #33L3079) \$119⁹ or \$4/month⁸

E51 FST 15" (13.8" viewable) Color Monitor
(Stealth Gray) (Part #633347N) \$159⁹ or \$6/month⁸

NEW IBM @server xSeries 230

The right blend of price and performance
Pentium III processor 1GHz
Dual processor capable
256KB L2 cache
128MB memory standard/4GB max
Dual channel Ultra160 SCSI
No HDD standard/218.4GB max
40X-17X CD-ROM
Integrated 10/100 Ethernet
Toolless chassis design
Light-Path Diagnostics
3-year limited onsite warranty
Part #865861Y

\$3,093⁷

SuccessLease
for Small Business **\$102/mo.⁸, 36 MOS.**

CUSTOMIZE YOURS:

20/40GB DDS/4 Internal Tape Drive
(Part #00N7991) \$879⁹ or \$31/month⁸

128MB 133MHz ECC SDRAM RDIMM
Memory Upgrade (Part #33L3123)
\$239⁹ or \$8/month⁸

18.2GB 10K-4 Ultra160 SCSI
HS SL Drive (Part #37L7205)
\$519⁹ or \$18/month⁸

Your network is your lifeline. And your network is in good hands with new IBM xSeries servers. These new e-business engines offer mainframe-class dependability and scalability – at remarkably affordable pricing. Better still, they come with the assurance of IBM support – both traditional and Web-based – which means you can count on high availability and help when you need it most. Select xSeries servers feature the power of Intel® Pentium® III processors, but all these machines are extraordinarily versatile and specially designed for the demands of e-business – including open standards like Linux. They're easy to set up, use, manage and upgrade, and enable seamless integration of all facets of e-business communication – the Internet, networking, critical applications and the relentless stream of data from suppliers and end users. So invest in a reliable IBM @server, and keep the flow of information coursing through your business.

@business tools



DIRECT TO YOU

ibm.com/smallbusiness/7623

1 888 **ShopIBM**, advantage code 7623
to buy direct or to locate an IBM reseller.

An IBM service and support advantage for small business

¹MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance. ²Maximum memory may require the replacement of standard memory with optional maximum memory module. ³GB equals one billion bytes when referring to hard drive capacity; accessible capacity may be less. ⁴Maximum internal hard disk drive capacity assumes the replacement of any standard hard disk drives and the population of all hard disk drive bays with the largest currently supported drives available from IBM. ⁵Variable read rate. Actual playback speed will vary and is often less than the maximum possible. ⁶For terms and conditions or copies of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the US and in Canada call 1 800 426-2255. Limited warranty includes International Warranty Service in those countries where this product is offered. Telephone support may be subject to additional charges. ⁷Pricing shown is price available from IBM directly; reseller prices may vary. IBM price does not include tax or shipping and is subject to change without notice. ⁸SuccessLease is offered and administered in the US, Canada and other countries by third-party providers of business financing approved by IBM Global Financing. SuccessLease terms and conditions provided by the third party. Featured monthly lease payments are based on a 36-month term with pre-specified purchase option at the end of lease, to qualified business customers only, installing in the US. A documentation fee and first month's payment due at lease signing. Any taxes are additional. Other lease terms and structures are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. All products ship with an operating system, except servers. IBM reserves the right to alter/withdraw product offerings and specifications at any time, without notice. SuccessLease and all IBM product names are registered trademarks or trademarks of International Business Machines Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Other company, product and service names may be trademarks or service marks of others. ©2001 IBM Corp. All rights reserved.



**SAVE
\$35**
when you
register by
2/16/01

Finally, Networking Made Easier

Connect with Top Experts to Simplify Networking for Small and Medium Businesses

NetworkWorld

PC WORLD

Choose from 8 convenient seminar locations:

March 27 Boston, MA
March 28 New York, NY
March 29 Chicago, IL
April 3 San Francisco, CA
April 4 Irvine, CA
April 5 Seattle, WA
April 11 Philadelphia, PA
April 12 Washington, DC

You are just one day away from mastering the new network products and services that can make your business more competitive and more profitable! *PCWorld* and *NetworkWorld* team up to produce **Networking for Small and Medium Businesses**, the must-attend event — featuring one of the top networking analysts, Dr. Jim Metzler of Ashton, Metzler & Associates. Interactive presentations, roundtable discussions and one-on-one time with leading networking specialists equip you with the information you need to build a network that's more efficient — and much easier to manage.

You won't want to miss hearing about:

- New networking hardware and software to support communications with your customers and business partners
- Internet and carrier service options
- Support for telecommuters
- How to deploy local area networks (LANs) and wide area networks (WANs)
- Application and management service provider options
- Optimum network security solutions

The End Result:

You gain a clearer understanding of key issues to boost the profitability of your business.

Space is limited — so register today!

www.networkworld.com/seminars/smb
(800) 643-4668

SPECIAL OFFER

**Register by
2/16/01 and the
cost is only \$75**

(a \$35 savings off the
regular registration
fee of \$110).

Looking to reach the Small and Medium Business market?

Call today and find out about premium sponsorship opportunities!

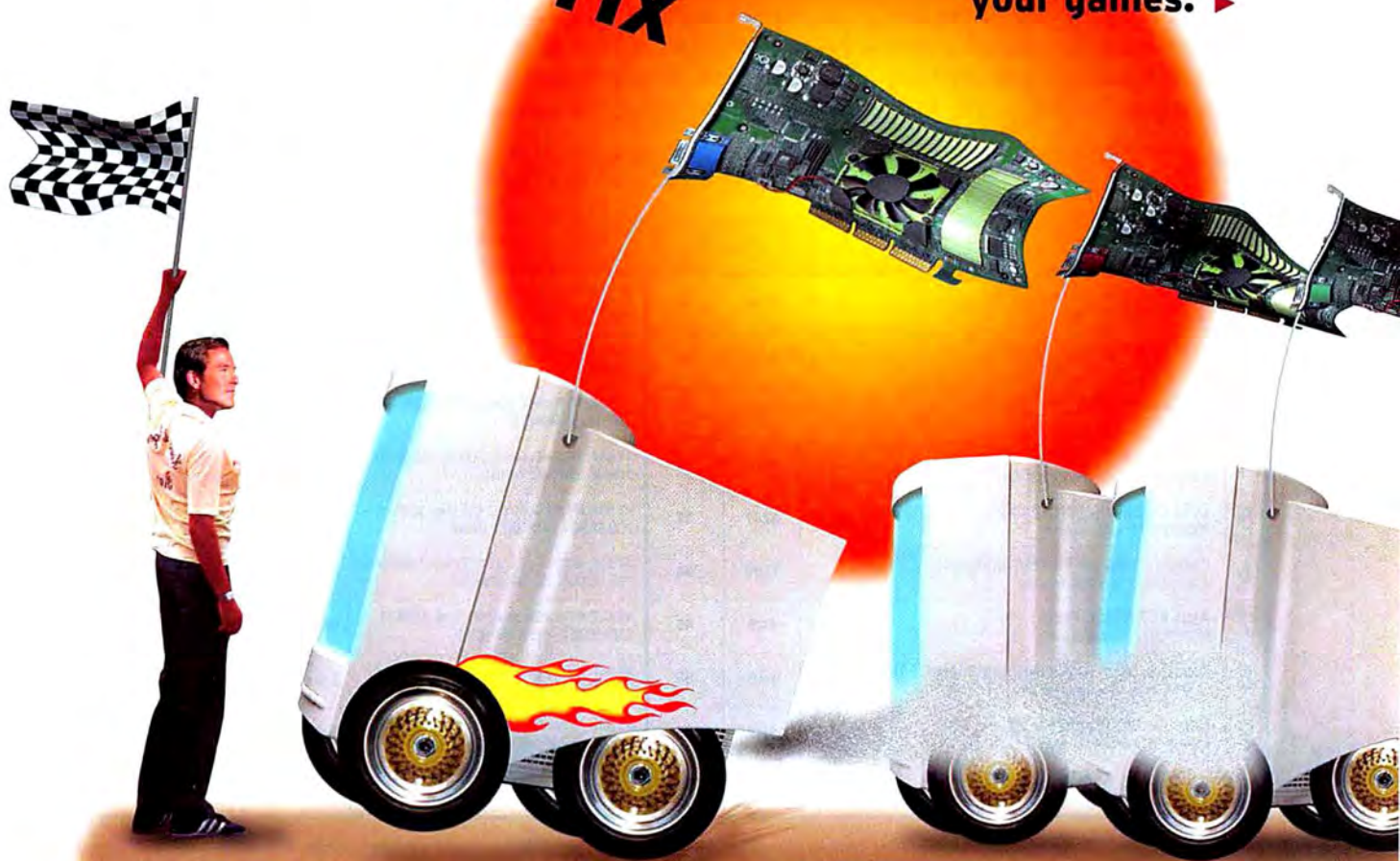
Contact Andrea D'Amato at 508-490-6520 or adamato@nww.com for complete details.

3D

Graphics Grand Prix

By Eric Dahl

Want games that cook? We **test 14 turbocharged graphics boards** that feature high-powered engines and **loads of on-board RAM** to find the ones that **can rev up your games.** ►



FAST, HIGH-RESOLUTION, million-polygon gaming action requires a sophisticated 3D graphics board. High-end boards with an abundance of processing power, such as those based on NVidia's GeForce2 GTS and GeForce2 Ultra chips, bring out the best in today's demanding 3D games, with astronomical frame rates and stunning graphics.

The most expensive boards, such as Creative Labs' 3D Blaster Annihilator 2 Ultra card, can hit a blistering 94 frames per second in Quake III at 1024 by 768 resolution at a color depth of 32 bits. At an even more difficult 1600 by 1200 resolution, the Annihilator managed 55 fps. But that level of performance carries a steep price: Be prepared to drop an average of \$300 to \$550 on a high-end card.

Still, an impressively quick graphics board needn't cost an arm and a leg. The proof? We put 14 of the latest boards through our grueling battery of tests, and six cards priced at under \$150 performed well enough to make our Top 10 chart. Inexpensive

boards based on ATI's Radeon chip and NVidia's GeForce2 MX chip offer reasonable 3D speed at much more palatable prices than their costly siblings.

SPEED TO SPARE

THE SWEET SPOT for most people running current games is at 1024 by 768 resolution in 32-bit color. Most monitors today support that resolution at a com-



fortable refresh rate of 75 Hz or higher, and in our tests most of the boards we looked at achieved a silky-smooth 60 fps at those settings. Though most people can't tell the difference once frame rates exceed about 60 fps, boards that can produce faster frame rates at a midrange resolution will typically sustain playable frame rates at higher resolutions.

For the casual gamer, any of the budget cards listed on our Top 10 chart will adequately run today's games. But for power-hungry gamers burdened with wads of cash, the latest \$500 NVidia GeForce2 Ultra-based graphics boards can provide double or triple the frame rates of the budget cards at some settings.

New technologies are pushing frame rates to new heights. The first time that we tested graphics boards supporting hardware transform and lighting processing (T&L) was during last year's roundup. Now most boards support it. T&L improves performance by relieving

the CPU of some of the number-crunching required for processing 3D effects. As a result, you see more-detailed 3D images yet still get high frame rates.

Computers draw 3D scenes using polygons, and they must render vast numbers of them to draw a realistic scene. That takes a lot of computing power. Before hardware T&L came along, your system's CPU did all this work using software.

Best Buy

CardExpert's GeForce2 MX board runs away with our top honor by pairing the performance casual gamers need with one of the lowest prices on our chart. You won't find many extras with this card, but at \$129, who needs them?

GRAPHICS BOARDS

FEATURES COMPARISON

	AGP BOARD	Street price (11/30/00)	Overall rating ¹	Features	
				Base specifications	Extra hardware features
1	CardExpert GeForce2 MX 800/539-2273 www.ginward.com	\$129	94	4X AGP, NVidia GeForce2 MX chip, 32MB of SDRAM, 350-MHz RAMDAC	DVD support, DVI-out
2	ATI All-in-Wonder Radeon 905/882-2600 www.ati.com	\$299	93	4X AGP, ATI Radeon chip, 32MB of DDR SDRAM, 350-MHz RAMDAC	DVD support, TV tuner, S-Video-in, S-Video-out, DVI-out
3	ATI Radeon 32MB 905/882-2600 www.ati.com	\$129	90	4X AGP, ATI Radeon chip, 32MB of SDRAM, 350-MHz RAMDAC	DVD support, S-Video-out
4	MSI MS-StarForce 816 510/623-8818 www.msicomputer.com	\$119	89	4X AGP, NVidia GeForce2 MX chip, 32MB of SGRAM, 350-MHz RAMDAC	DVD support
5	ELSA Gladiac GeForce2 GTS 800/272-3572 www.elsa.com	\$289	87	4X AGP, NVidia GeForce2 GTS chip, 32MB of DDR SGRAM, 350-MHz RAMDAC	DVD support, S-Video-in, S-Video-out
6	Creative Labs 3D Blaster Annihilator 2 800/998-1000 www.creative.com	\$300	86	4X AGP, NVidia GeForce2 GTS chip, 32MB of DDR SGRAM, 350-MHz RAMDAC	DVD support, S-Video-out
7	Asus AGP-V7100 Pure 510/739-3777 www.asus.com	\$129	85	4X AGP, NVidia GeForce2 MX chip, 32MB of SDRAM, 350-MHz RAMDAC	DVD support
8	Creative Labs 3D Blaster Annihilator 2 Ultra 800/998-1000 www.creative.com	\$499	83	4X AGP, NVidia GeForce2 Ultra chip, 64MB of DDR SDRAM, 350-MHz RAMDAC	DVD support
9	Hercules 3D Prophet II MX 877/484-5536 www.hercules.com	\$149	83	4X AGP, NVidia GeForce2 MX chip, 32MB of SDRAM, 350-MHz RAMDAC	DVD support
10	3dfx Voodoo4 4500 AGP 800/234-8750 www.3dfx.com	\$149	81	4X AGP, 3dfx VSA-100 chip, 32MB of SDRAM, 350-MHz RAMDAC	None



Best Buy

¹ Overall rating is based on 3D performance (42.5 percent), features (27.5 percent), price (20 percent), and support policies (10 percent). ² At 32-bit color depth and a refresh rate of 75 Hz. ³ Plus 10 hours of tech support on Saturday.

Graphics chips designed to accelerate the rendering of transform and lighting polygons can process those calculations faster than your CPU can, boosting frame rates. Our tests show that cards with T&L have an advantage over those that don't.

Some cards offer an option called full-scene anti-aliasing (FSAA) that smooths the jagged edges of 3D polygons. Unfortunately, enabling this feature may lower frame rates. We recommend that you experiment with settings to achieve a balance between frame rate and image quality.

THE BOARD EXAMS

WE TESTED EACH board using several 3D games: Unreal Tournament, a Direct3D test; Quake III Arena, an OpenGL game; MDK2, an OpenGL game that takes advantage of T&L acceleration; and Test Drive 6, a T&L-enabled Direct3D game. TrueSpace 4.2, a professional 3D rendering program, rounds out our test suite (see "Gamer's Glossary," page 127). The chart on page 126 shows test results for the boards at 1024 by 768 resolution, but we also ran tests at resolutions up to 1600 by 1200.

Of the 14 boards we tested, 10 carried an

NVidia GeForce2 MX, GeForce2 GTS, or GeForce2 Ultra graphics chip. We tested two boards based on ATI's Radeon chip and two based on 3dfx's VSA-100 chip. At press time, NVidia announced it had acquired 3dfx's "core graphics assets." That acquisition may affect the availability of cards based on 3dfx's technology.



Boards loaded with GeForce2 Ultra chips were by far the best performers in our tests, but they're costly upgrades—the least expensive Ultra board we tested, the 3D Blaster Annihilator 2 Ultra, costs \$499. ATI's Radeon chip fills a variety of niches. Thanks to speedy double-data-rate (DDR) memory, the \$299 All-In-Wonder Radeon is a top performer. And a different Radeon card fitted with single-data-rate (SDR) memory competed with GeForce2 MX-based boards for the best overall value. In the end, CardExpert's \$129 GeForce2 MX earned our Best Buy, offering enough performance for casual gamers at a low price.

1 CardExpert GeForce2 MX



WHAT'S HOT: The \$129 CardExpert GeForce2 MX delivers adequate performance at 1024 by 768 resolution and 32-bit color. In Unreal Tournament, it hit 62 fps; in Quake III, it ran at a playable 54 fps; and in our MDK2 tests, it clocked in at 61 fps.

WHAT'S NOT: Though it helps to keep the cost down, the board's SDR memory hinders performance at high resolutions in 32-bit color. This card couldn't complete our Test Drive 6 tests at 1600 by 1200 resolution in 32-bit color. Don't expect to find much in the way of features or software extras at this price, either. ►

Extra software features	Max 2D resolution ¹	Max 3D resolution ²	Support policies	
			Warranty (years)	Tech support (hours/days, charge)
Cyberlink Power DVD	2048 by 1536	2048 by 1536	3	9/5, toll-free
Ulead Video Studio 4.0, Matchware Mediator 5, Digital Immersion Merlin VR, Gemstar TV Guide Plus	2048 by 1536	2048 by 1536	5	10/5, toll call
None	2048 by 1536	2048 by 1536	5	10/5, toll call
MSI DVD, 3D Turbo 2000	2048 by 1536	2048 by 1536	3	9/5, toll call
Select up to three games from ELSA and receive a 50 percent discount	2048 by 1536	2048 by 1536	6	10/5, toll call
E-Color 3Deep color-calibration tool, Lava MP3/video player, demos	2048 by 1536	2048 by 1536	3	9/5, toll call
Asus DVD 2000 software player, E-Color 3Deep color-calibration tool, Soldier of Fortune	2048 by 1536	2048 by 1536	3	9/5, toll call
Lava MP3/video player, demos	2048 by 1536	2048 by 1536	3	9/5, toll call
E-Color 3Deep color-calibration tool, five game demos	2048 by 1536	2048 by 1536	3	10.5/5, toll-free
None	2048 by 1536	2048 by 1536	Lifetime	12/5, ³ toll-free

WHAT ELSE: While not exactly a standout, the CardExpert displayed fine image quality in our tests. The GeForce2 MX ships with a software DVD player, DVI-out, and an overclocking utility that lets you run the graphics processor faster than the manufacturer-specified speed.

BEST USE: The GeForce2 MX's price is right. Business users needing an inexpensive graphics upgrade or gamers building a budget system will find a great value here.

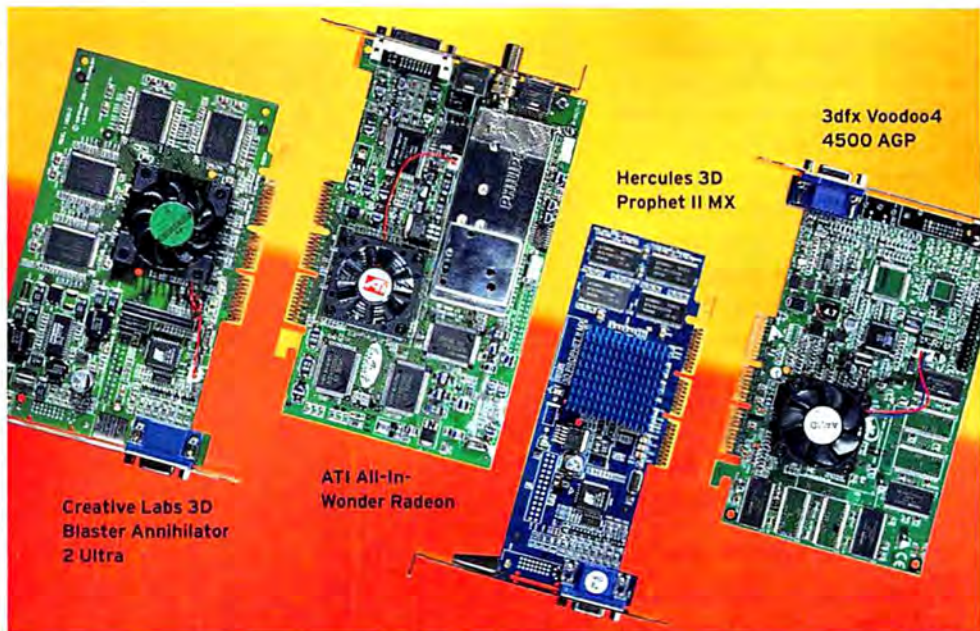
2 ATI All-In-Wonder Radeon

WHAT'S HOT: The All-In-Wonder Radeon sports some nifty extras, including a video-in/video-out capability that allows it to capture analog video and then export it back to videotape. It also features a TV tuner and sophisticated DVD decoding.

The board's DDR memory gives it a speed boost over its sibling, the Radeon 32MB, which uses SDR memory. The All-In-Wonder Radeon achieved 73 fps in Quake III at 1024 by 768 resolution in 32-bit color, and 86 fps in Test Drive 6 at the same settings. Unlike most of the boards

we tested, this one successfully completed our Test Drive 6 test at a resolution of 1600 by 1200 using 32-bit color depth.

WHAT'S NOT: If you're looking strictly to improve gaming performance, your \$300 would be better spent on a GeForce2-based card. ATI tunes its drivers for max-



TEST REPORT

Fast Frames for Great Games

Creative Labs' new 3D Blaster Annihilator 2 Ultra leads the pack in performance.

AGP BOARD	Overall performance score ²	Unreal Tournament 3D gaming rates and image quality ¹			Quake III 3D gaming rates and image quality ¹			MDK2 3D gaming rates and image quality ¹		
		1024 by 768 and 16-bit color depth	1024 by 768 and 32-bit color depth	Image quality	1024 by 768 and 16-bit color depth	1024 by 768 and 32-bit color depth	Image quality	1024 by 768 and 16-bit color depth	1024 by 768 and 32-bit color depth	Image quality
1 CardExpert GeForce2 MX*	78	69	62	Satisfactory	87	54	Very good	100	61	Very good
2 ATI All-In-Wonder Radeon	77	67	63	Satisfactory	78	73	Good	86	74	Satisfactory
3 ATI Radeon 32MB	73	67	61	Good	72	58	Very good	62	57	Good
4 MSI MS-StarForce 816	76	69	58	Satisfactory	84	51	Good	96	57	Good
5 ELSA Gladiac GeForce2 GTS	85	67	67	Satisfactory	96	84	Excellent	113	93	Satisfactory
6 Creative Labs 3D Blaster Annihilator 2	86	70	67	Excellent	97	83	Good	113	93	Good
7 Asus AGP-V7100 Pure	76	70	57	Poor	84	50	Good	95	55	Poor
8 Creative Labs 3D Blaster Annihilator 2 Ultra	91	67	69	Excellent	98	94	Excellent	113	110	Excellent
9 Hercules 3D Prophet II MX	73	70	60	Satisfactory	83	45	Excellent	96	59	Very good
10 3dfx Voodoo4 4500 AGP	69	68	43	Satisfactory	62	37	Very good	45	36	Poor

*Best Buy



HOW WE TEST Scores are based on tests evaluating frame rates (50 percent) and image quality (50 percent). We use GT Interactive's Unreal Tournament, Id Software's Quake III Arena, Interplay's MDK2 Demo, Infogrames' Test Drive 6, and Caligari TrueSpace 4.2 Benchmark for both performance and image-quality testing. We test graphics boards on a Dell Dimension 4100 Series with a PIII-933 CPU and 128MB of PC133 SDRAM, running Windows Me. For all frame rates, higher is better. (Videotape and movies run at 30 and 24 fps, respectively.) Data based on

imum performance in 32-bit color, so don't expect to boost frame rates by dropping this board's color depth to 16 bits.

WHAT ELSE: ATI's Radeon boards feature MPEG-2 decoding that yields better DVD picture quality on your monitor. This graphics board comes with a DVD software player, Ulead Video Studio 4 video editing software, Matchware Mediator 5 multimedia editing and presentation software, Digital Immersion's Merlin VR 3D modeling and animation software, and the Gemstar TV Guide Plus interactive TV Guide program.

BEST USE: Good gaming performance and a bevy of video features make the All-In-Wonder Radeon a great solution for gamers interested in video editing.

3 ATI Radeon 32MB

WHAT'S HOT: ATI's \$129 Radeon 32MB compares favorably to the GeForce2 MX boards. In our subjective viewing tests, the board impressed us with its image quality. In Test Drive 6, the Radeon sped to 71 fps in 1024 by 768 resolution—13 more frames per second than its nearest value-priced competitor. And unlike most boards we tested, the Radeon 32MB completed our Test Drive 6 test at 1600 by

1200 resolution using 32-bit color.

WHAT'S NOT: In Unreal Tournament this card stuttered in complex scenes. Availability is a problem, too: You'll have to look online or in smaller computer shops to find this inexpensive card.

WHAT ELSE: The Radeon 32MB features MPEG-2 decoding for a better DVD picture on PC monitors.

BEST USE: DVD playback and speedy 32-bit gaming performance make this card a good choice for gamers on a budget or business users looking for an inexpensive graphics upgrade.

4 MSI MS-StarForce 816

WHAT'S HOT: The StarForce turned in the second-best overall performance among boards based on NVidia's GeForce2 MX chip. In Unreal Tournament and MDK2 it scored 58 and 57 fps, respectively, at 1024 by 768 resolution and 32-bit color.

WHAT'S NOT: The StarForce's frame-rate scores lagged slightly behind those of the similarly priced CardExpert. Image quality lagged as well, with a yellowish tint and slight lack of contrast in Quake III. The board was unable to complete our Unreal Tournament and Test Drive 6 tests at 1600 by 1200 resolution in 32-bit color.

WHAT ELSE: This card includes a software DVD player and DVD support.

BEST USE: The \$119 MS-StarForce 816 makes a reasonable choice if you're looking for a budget gaming board.

5 ELSA Gladiac GeForce2 GTS

WHAT'S HOT: With fast DDR memory and a GeForce2 GTS chip, ELSA's Gladiac GeForce2 GTS shows off raw gaming speed. At 1024 by 768 resolution in 32-bit color, the \$289 Gladiac reached a screaming-fast 93 fps in MDK2. At 1600 by 1200 resolution in 32-bit color, the board posted scores of 33 and 36 fps in our MDK2 and Quake III tests, respectively.

WHAT'S NOT: We noted some lackluster image quality in TrueSpace, where moving and rotating objects flickered and became distorted. And images in Quake III and Unreal Tournament lost detail in the shadows. Like many boards we tested, the Gladiac couldn't complete our Test Drive 6 and Unreal Tournament tests at 1600 by 1200 resolution in 32-bit color.

Gamer's Glossary

➤ **DirectX** This set of application programming interfaces (APIs) was created by Microsoft to help programmers write multimedia applications that will work on any Windows PC, regardless of its hardware configuration. DirectX also allows programmers to make sure that their apps (games, for example) can take advantage of advanced hardware capabilities for faster performance, and it helps graphics board vendors create specialized drivers that get the most out of a graphics chip set.

➤ **Direct3D** One of Microsoft's DirectX APIs, Direct3D consists of a set of procedures for interacting with computer hardware, such as a graphics card. Complex graphics and game programs use Direct3D or OpenGL to draw 3D scenes.

➤ **OpenGL** Open Graphics Library, or OpenGL, is a set of APIs originally developed by Silicon Graphics. This programming standard is used for displaying graphics.

➤ **Curved-surface support** This technique allows developers to model 3D objects using curves, rather than a fixed number of polygons. Graphics hardware then breaks the curves into a more manageable number of polygons to render the objects. Curved-surface support reduces the amount of information that passes from the CPU to the graphics card, and it permits more-realistic 3D models—although portraying complex objects, such as a human form, can be very difficult using curves.

➤ **Multiple-matrix skinning** Movement of many 3D models is shown using *skeletal animation*, a technique in which a "skin" of polygons is stretched around invisible bones in the model. Graphics cards that support multiple-matrix skinning accelerate this animation technique, and they can use more matrices or control points around joints to provide more-realistic animation.

➤ **Key-frame interpolation** Graphics hardware and software use this animation technique to move an object between two positions, or *key frames*. Using the key frames as starting and ending points, an algorithm plots a smooth path to move the object from one position to another.

Test Drive 6 3D gaming rates and image quality ¹			TrueSpace 4.2 Benchmark frame rates and image quality ¹	
1024 by 768 and 16-bit color depth	1024 by 768 and 32-bit color depth	Image quality	1024 by 768 and 32-bit color depth	Image quality
91	58	Good	67	Excellent
95	86	Excellent	51	Excellent
86	71	Satisfactory	48	Excellent
85	54	Very good	66	Excellent
134	86	Satisfactory	65	Poor
135	85	Good	65	Poor
85	51	Good	66	Excellent
145	113	Excellent	65	Poor
63	41	Excellent	60	Poor
48	35	Satisfactory	79	Excellent

tests designed and conducted by the PC World Test Center. All rights reserved. ¹ Rates are measured in frames per second. ² Score is based on a normalized and weighted average of all tests.

WHAT ELSE: ELSA offers buyers of its Gladiac GeForce2 GTS card a 50 percent discount on up to three games.

BEST USE: Gamers who can't afford a GeForce2 Ultra board will find that the ELSA Gladiac GeForce2 GTS has the speed to hit respectable frame rates anywhere below 1600 by 1200 resolution in 32-bit color. Still, the number six Annihilator 2 offers slightly better image quality.

6 Creative Labs 3D Blaster Annihilator 2

WHAT'S HOT: Next to the expensive GeForce2 Ultra boards, the Annihilator 2 and ELSA Gladiac offer the best 3D performance on our chart. Both use NVidia's GeForce2 GTS chip to pump out realistic graphics at superhigh frame rates. Creative Labs' \$300 card comes away with a slight edge over the Gladiac in our image-quality tests, however.

WHAT'S NOT: We had to install older drivers from the installation CD-ROM, then restart and install the newer drivers we downloaded. The card produced some flickering when moving or transforming objects in our TrueSpace 4.2 test. But this board loses its edge over ELSA's Gladiac GeForce2 GTS by offering little software.

WHAT ELSE: The board ships with the Lava music and video player, as well as E-Color's Colorific and 3Deep software.

BEST USE: Great performance and relatively high image quality make the Annihilator 2 a pricey, but worthwhile, upgrade for performance-oriented gamers.

7 Asus AGP-V7100 Pure

WHAT'S HOT: NVidia's GeForce2 MX chip enables Asus to build a value-priced board that's a solid gaming performer. The \$149 AGP-V7100 Pure isn't the fastest around, but its gaming speed is adequate, and it rendered our TrueSpace test without a hitch. A bundled overclocking utility lets you squeeze extra speed out of the board.

WHAT'S NOT: The card's image quality was mediocre, with murky shadows in Unreal Tournament and Quake III.

WHAT ELSE: The AGP-V7100 turned in gaming performance comparable to other GeForce2 MX cards we tested. In MDK2 it managed 95 fps at 1024 by 768 resolution and 16-bit color. Asus bundles a software DVD player, 3Deep color-cali- ▶

DirectX 8 Kicks Games Into Gear

A BILLLOWING FLAG, a ripple on the water, a reflection in glass. These visual effects may seem like minuscule details, but they mark a milestone in computer game graphics. Previously, game developers couldn't create games that rendered these effects realistically. However, new capabilities in Microsoft's DirectX 8.0

technology promise to change forever the way computer games look.

DirectX is a software component of Windows that allows multimedia developers to support a wide range of computer hardware (such as your graphics board or sound card) by adhering to a single standard. With DirectX installed, those applications don't need to know what hardware you're using—as long as both software and hardware are DirectX-compatible. The latest version of DirectX offers game makers unprecedented freedom to create sophisticated scenes and effects, which in turn should lead to richer, more realistic games.

GAMES GET REAL WITH DIRECTX 8

KEITH GALOCY, developer relations manager for 3dfx, believes that DirectX 8 will aid developers tremendously. "The programming flexibility offered by new hardware and DirectX 8 will afford much more creativity in 3D engine design and artwork," he says. "This will let game creators mold their visuals after the mood or theme they're trying to create."

Game developers can take advantage of new features to create sophisticated scenes and effects for more realism. In particular, DirectX 8 supports programmable vertex and pixel shaders—features that provide greater control over morphing, lighting, and such reflections and geometric effects as ripples on water. Other features like 3D volume textures allow developers to create more-realistic smoke, clouds, fire, and holograms. With key-frame interpolation (see "Gamer's Glossary," page 127), or "tweening," animated characters will be able to move more smoothly and naturally.

A couple of DirectX elements are already available. Microsoft released DirectX 8 in early November, and ATI says its Radeon graphics cards, released last July, offer partial hardware support. However, ATI's driver—required to enable these features—was still in the final stages of testing at press time. Representatives of 3dfx, Matrox, and NVidia indicate that their future products will also offer hardware support for DirectX 8. NVidia says its next-generation chip set is slated to appear in the first half of this year.

The first DirectX 8-enabled game is MechWarrior 4: Vengeance. Not surprisingly, it's from Microsoft. Other vendors will soon follow.

—Peter Olafson



About to go postal on your printer?

Get Troubleshooting books
from Microsoft Press.

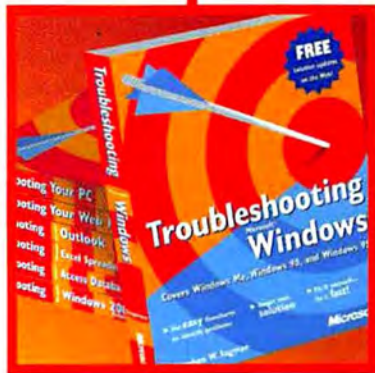
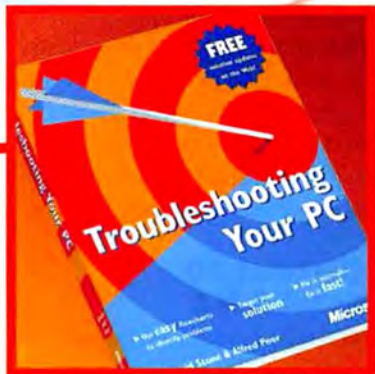
Zero in on computer problems.

And target your solution.

Fast!

Trouble with your hardware or software? Take aim with TROUBLESHOOTING books from Microsoft Press! These handy guides make it easy to solve your own computer problems—fast. Easy diagnostic charts help you zero in on what's wrong, then clear step-by-step instructions and helpful screenshots walk you through the fix you need. Plus, you can stay up to date—and outta trouble—with new solutions every month on the free Troubleshooting Web site. So forget the phone calls and the frustrating trial and error. Get fast, fix-it-yourself answers with TROUBLESHOOTING books from Microsoft Press. And hit the bulls eye!

Get all seven TROUBLESHOOTING books from your local reseller. Or visit us on line for more information. Microsoft Press. The tools you need to put technology to work. mspress.microsoft.com/4more/troubleshooting



Microsoft

Where do you want to go today?®

bration software, and the 3D game *Soldier of Fortune* with the AGP-V7100—a superb set of extras for a board this cheap.

BEST USE: The generous bundle may sway gamers looking for a cheap upgrade, but other GeForce2 MX cards on our chart perform better.

8 Creative Labs 3D Blaster Annihilator 2 Ultra

WHAT'S HOT: In almost every test, the Annihilator 2 Ultra set the standard in speed and image quality. In MDK2 and Unreal Tournament, this card broke 60 fps at our highest setting, scoring 73 and 63 fps, respectively. In fact, this was one of only five boards that managed to complete the Unreal Tournament test at 1600 by 1200 resolution using 32-bit color. And image quality in Unreal Tournament was by far better than any of the other cards. Gaming fanatics will be pleased with this board's stellar performance.

WHAT'S NOT: At \$499, the fastest board we tested doesn't come cheap. And like most of the other tested boards, the 3D Blaster Annihilator 2 Ultra couldn't complete the Test Drive 6 test at 1600 by 1200 resolution using 32-bit color.

WHAT ELSE: Creative Labs bundles a Lava music and video player and GeForce2 Ultra demos with the card.

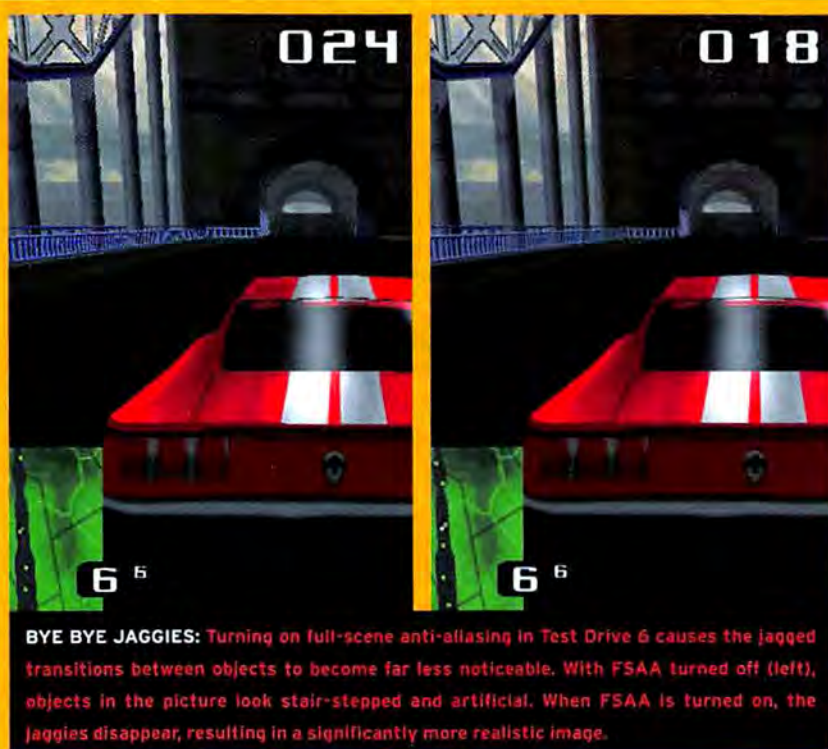
BEST USE: Gamers willing to pay top dollar for the absolute best in performance need look no further.

9 Hercules 3D Prophet II MX

WHAT'S HOT: As with most GeForce2 MX cards, the 3D Prophet II is a good value. Though far from the fastest board, the Hercules managed to run our Unreal Tournament test in 1024 by 768 resolution and 32-bit color at 60 fps. That's plenty of speed for casual gamers.

WHAT'S NOT: Texture transparency problems in TrueSpace 4.2 caused shapes to appear hollow and striped. This card's TrueSpace performance, along with low frame rates at higher resolutions, hurt its overall score. At \$149, it costs more than most comparable GeForce2 MX boards, and it lacks bundled games. The card couldn't complete Test Drive 6 at 1600 by 1200 resolution and 32-bit color depth.

WHAT ELSE: Hercules bundles 3Deep—



BYE BYE JAGGIES: Turning on full-scene anti-aliasing in Test Drive 6 causes the jagged transitions between objects to become far less noticeable. With FSAA turned off (left), objects in the picture look stair-stepped and artificial. When FSAA is turned on, the jaggies disappear, resulting in a significantly more realistic image.

a color-calibration utility from E-Color—and five game demos with this card.

BEST USE: This card performed well on our tests, but bargain hunters will find better values on our chart.

10 3dfx Voodoo4 4500 AGP

WHAT'S HOT: The Voodoo4 4500 AGP sports an enhanced anti-aliasing feature that removes the stair-stepping effect you see at the edges of 3D objects. When enabled in the driver, 3dfx's anti-aliasing improves image quality dramatically. Plus, this board offers something the others don't: a lifetime warranty.

WHAT'S NOT: The Voodoo4 performed poorly in our games. Colors were inaccurate in MDK2, appearing overly bright and displaying some noticeable anomalies. In Unreal Tournament, the overall picture was too dark; in Quake III, walls had a reddish cast. 3dfx's Voodoo4 and Voodoo5 boards lack hardware T&L acceleration, and it shows: Their performance trailed others in our tests with MDK2 and Quake III, both of which support T&L. Even at our lowest settings—640 by 480 resolution in 16-bit color—the Voodoo4 managed only 46 fps in MDK2.

WHAT ELSE: This board completed our

32-bit color Test Drive 6 test at 1600 by 1200 resolution—although its performance level (at 13 fps) was the slowest of the four cards that passed that test. Linux users will appreciate the availability of open-source drivers. 3dfx also provides toll-free tech support.

BEST USE: Other cards offer better value and performance, but open-source drivers may sway Linux users.

Eric Dahl is an associate editor at PC World. Peter Olafson is a San Francisco-based freelancer. Chart data by PC World Associate Editor Alexandra Krasne. Testing performed by Elliott Kirschling and Jeff Kuta of the PC World Test Center. ■

More Reviews



WE TESTED four other graphics boards that scored too low to make the chart. For reviews, visit www.pcworld.com/feb2001/boards. Also, read "How It Works: Graphics Boards," at www.pcworld.com/how_it_works/graphics.

- 3dfx Voodoo5 5500
- Asus AGP-V7100 Deluxe
- ELISA Gladiac GeForce2 Ultra
- Hercules 3D Prophet II Ultra



FIND THE RIGHT JOB

ONLINE

OUR **STEP-BY-STEP** GUIDE **HELPS**
YOU **CUT THROUGH** THE BEVY
OF **CAREER RESOURCES** ON THE
NET AND **USE THE TOOLS** TO
YOUR MAXIMUM ADVANTAGE.

BY MICHAEL GOWAN

SOON AFTER SUSAN BRUTON moved to San Diego to take a job as human resources specialist at IXL, an e-business services company, she was laid off. Since she had few contacts in the area, she turned to the Internet to find a new job.

She signed up with national job sites such as Monster.com and HotJobs.com, where she searched for job openings and posted her résumé for prospective employers to review. She also frequented regional sites, HR-specific sites, and the Web sites of companies she particularly ►

wanted to work for. Three weeks later, Bruton got a new job at CSA Travel Protection. A recruiter found her résumé on Monster and called her for an interview.

Piece of cake, right? It may sound that way, but finding a job online isn't easy. Even though she got several bites from interested companies, most of them were just nibbles. "The job sites gave me a false sense of security," Bruton says. "I'd get really excited about getting e-mail responses from different companies requesting more information. But then I'd never hear from them again."

Of the 82 prospective employers who looked at her résumé on Monster, only 1 called for an interview. Fortunately, that single call turned into a job she wanted. "I lucked out," she says.

Her frustration with online job hunting seems to be commonplace, according to both anecdotal evidence and a study by Forrester Research. Ads for some career sites suggest that you simply go online, check the listings, post a résumé, and—voilà—get a job. But in fact, there are a lot of additional steps involved. Finding a job on the Web requires quite a bit of leg-

work—even for human resources specialists, like Bruton, who are familiar with the ins and outs of the hiring process.

Nevertheless, the Internet offers bountiful resources that can help you. You can find career-development advice, tips for writing résumés, and industry gossip

online to help you locate the right job. You'll need to research

your field, craft a strong résumé, and look for jobs at relevant national, regional, and industry-specific sites.

Most important, however, you need to network—both online and offline. "Contacts are key to finding a great job," says Richard Bolles, author of *What Color Is Your Parachute?* and a number of other job-hunting guides. "Without contacts, job hunters usually look for work in ways that are opposite to how most employers prefer to hire."

What's more, having good contacts will give you access to jobs that may never hit the career sites. When companies have a job opening, they look first within the company because they already know whether their employees do good work and have a personality that fits their office environment. If the cupboard is bare,

employers seek recommendations from people in the company. As a last resort, they post an ad at a job site or in a newspaper, or turn to recruiters to look for viable candidates. Before we look at making contacts, however, let's explore the phenomenon of job hunting online.

SURVEYING THE SITUATION

MANY JOB SITES, especially those listed in the table below, list thousands of openings in a vast range of professions. But the quality of the jobs some sites post is less than stellar, according to a recent Forrester Research survey that asked 3000 users about their experiences with job boards. Some job seekers feel that ads are frequently misleading, according to Forrester Research analyst Charlene Li. "It's unclear if these jobs are real or if headhunters are just gathering résumés," she says. Instead of going through sites themselves, employers may hire headhunters to collect résumés, and then decide whether to pursue those prospects.

When Peter Weddle, publisher of *Weddle's Newsletter* and other guides for recruiters, asked people about their online job-hunting experience, he discovered that job seekers dislike how job sites work. Job hunters' expectations often exceed

HOW THE JOB SITES STACK UP

WEB SITE	Jobs listed (12/4/00)	Job search by	Résumé-building template	Job-search agent via e-mail	Research tools/forums	Résumé postable	Comments
America's Job Bank www.ajb.dninus	1,456,153	Job number, job type, keyword	●	●	○/○	●	Largest number of jobs, including military positions; simple interface; search results shown in a clunky table.
CareerBuilder www.careerbuilder.com	350,000	Job term, job type, keyword, location, salary	●	●	●/○	●	Listings from 75 sources, easy to apply for jobs from listing page; unlike at other sites, postings aren't dated.
Headhunter.net www.headhunter.net	255,178	Date posted, education, job term, job type, keyword, location, salary	○	●	●/○	●	Includes job postings from more than 10,000 companies; lacks forums and chat rooms.
HotJobs www.hotjobs.com	160,000	Company, interests, job type, keyword, location	●	●	●/●	●	Detailed job descriptions; lets you apply for a job from listing page; postings from more than 8000 companies.
JobBankUSA www.jobbankusa.com	32,000	Date posted, job term, keyword, location	●	●	●/○	●	Detailed résumé builder; can't specify city when returning ad-search results; searches may return few or no results.
JobTrak www.jobtrak.com	300,000	Date posted, job field, job term, job type, keyword, location	●	○	●/●	●	Culls posts from university sources; search engine requires password provided by contact at college career center.
JobWeb www.jobweb.com	None	Company	○	○	●/●	○	Lots of information about employers, including contacts; no job listings—useful as a research site only.
Monster www.monster.com	461,324	Job field, keyword, location	●	●	●/●	●	Tons of research tools and advice; site's popularity gives a résumé optimum exposure.
NationJob Network www.nationjob.com	40,000	Education level, job term, job type, keyword, location, salary	○	●	○/○	○	Multistep search function makes the process too long; site lacks résumé posting, forums, and research tools.
Yahoo Careers careers.yahoo.com	1,000,000	Company, job term, job title, job type, keyword, location	●	●	●/●	●	Easy-to-use résumé builder; site returns multiple results on job-ad searches; well-integrated chat features.



For a list of features useful for employers, go to www.pcworld.com/feb2001/job_hunt.

Recommended site.

¹ Should be available by the time you read this.

what they find online. They expect in-depth job descriptions, quick responses, and sites and links that actually work. But too often they encounter brief job ads (employers often use the same ads online as they do in the newspaper classified sections, where they pay by the word, so job descriptions are scaled down), long delays between the first contact and an interview, data forms that don't work properly, and sites with broken links.

Now for the good news: More employers are turning to the Web to find employees. And as more companies go digital with their want ads, the types of jobs listed online are growing more diverse. Today, as many administrative jobs as information technology positions are posted on the Web; just a few years ago, almost everything was technology-related.

One thing the Internet can't do for you is ace the interview. But Web sites such as Vault.com and WetFeet.com can give you pointers on how to impress your prospective employer when you finally do meet face-to-face. Now that you have a basic picture of the online job-hunting world, it's time to consider five essential steps that will help you find your dream job.

STEP 1: RESEARCH YOUR FIELD

WHERE DO YOU START your job hunt? That depends on whether you're ready to pursue a new career or plan to stay in your current field. If you're looking for an entirely new career path, start by taking some free aptitude tests on the Web to see what your talents are. Try several different tests, since no single test is perfect. For starters, check out the registration-required Princeton Review Online (www.review.com) and the Career Key (www.ncsu.edu/careerkey). Remember: These tests only give you suggestions. Just because one tells you that you'd make a great electrician doesn't mean you would not be an equally successful accountant.

If you're looking to stay in your current career—or if you've already settled on a new one—bone up on the latest events in the field. What are the current trends? Who are the major players? Researching your field online can give you useful data for determining where to apply—and it can also help you look knowledgeable during an interview: "Oh, yes, I've heard



"Job sites gave me a false sense of security. I'd get excited about getting e-mail from companies. But then I'd never hear from them again."

► Susan Bruton
Human Resources Specialist
CSA Travel Protection

about the recent developments in Slinky technology. It seems to me that..."

Reading up on the latest industry gossip could save you from joining a failing company. One place to get up-to-date information on your industry is at Vault.com. Another possibility is to join a discussion group at Wetfeet.com. Or find out about salaries at CareerJournal.com. One-stop shoppers can do many of these same things at job megasites such as Monster and CareerBuilder, which have research tools, discussion groups, and advice.

If you're Web savvy, you probably already use the best research tools on the Internet—search engines. AltaVista, Google, and HotBot are three great places to start looking. Search for a company name and keywords associated with the field. You can also use metasearch tools, such as BullsEye (www.intelliseek.com) and Copernic (www.copernic.com), which prowl through several search engines and newsgroups simultaneously and then list the results in one tidy screen. In addition, job boards—formerly just places to see want ads—have expanded to include news databases. When you search for a company at Monster, for example, the site pulls press releases from PR Newswire, Business Wire, and other news sources.

STEP 2: MAKE THAT RÉSUMÉ SHINE

A POLISHED RÉSUMÉ is "like an extended calling card—it helps you get to the interview," Bolles says. Craft your résumé before you start looking for a job—that way, when you find a job you want to apply for, all you have to do is modify it. You should tailor the résumé you submit so that it appeals to the particular employer you're considering.

Look at keywords (such as *manager* and *HTML-proficient*) in the job ad and ►

match them to your experience and training. Make sure those words appear in your résumé. A company may use software that searches for specific words; if your résumé lacks them, it will sink to the bottom of the barrel.

Keep your résumé concise (a single printed page is best), but try to convey as much information as possible about your qualifications. Use verb phrases ("Initiat-

ed casual Mondays") instead of drawn-out sentences ("I was instrumental in forming a committee to study the bureaucratization of our company processes through the accretion of ad hoc committees.")

Check for and remove typos and other errors. An employer flooded with résumés is likely to reject those with misspelled words and grammatical errors. Cite all the industry awards that you've received.

Include a professional objective so that prospective employers can recognize your career goal. Articulating your goal makes you look focused and determined. Indicate that both references and a hard-copy version of your résumé (assuming that you've e-mailed your résumé) are available upon request. If you work in a creative industry (arts, entertainment, or journalism, among others), indicate ►

SECRETS OF AN ONLINE RECRUITER

WHETHER YOU USE the Net to find the ideal employee or a great job, you need to think like a recruiter. How and where do these professionals search for candidates online? What must you do to hire or get hired? Here's an insider's perspective from a recruiter who works for one of the biggest companies in the nation—Bank of America.

BofA, like an increasing number of other companies, uses the Web to find candidates for its job openings. "Out of about 50,000 new hires each year, approximately 3000 are found through the Internet," says Tim DeVries, vice president of corporate staffing at Bank of America. The company lists jobs on national and industry-specific sites. But the Web still isn't a perfect resource for recruiters. Here's the scoop:

PC World: What advice do you have for job seekers who are planning to look for work on the Web?

Tim DeVries: Use keywords. Job seekers are still stuck in the build-a-perfect-résumé mind-set—make it look great. Instead, worry about the keywords you build into the résumé. Include words that describe your skills and experience.

PCW: What advice do you have for other companies recruiting on the Web?

TD: You can learn a lot through networking. Talk to others who have been where you're going. Call people who use the Web sites to find out if the sites are worth your while. You can easily save yourself a lot of trouble if you ask users beforehand about their experiences.

PCW: What sites does Bank of America use for recruiting candidates, and why did it decide on those particular sites?

TD: We use America's Job Bank, CareerBuilder, Dice, Headhunter, HotJobs, and Monster. We also purchase individual postings as



"You can learn a lot through networking. Talk to others who have been where you're going. Call people who are using the Web sites to find out if they're worth your while."

► **Tim DeVries**
Vice President/Corporate Staffing
Bank of America

needed at organizational sites such as the Association for Financial Professionals (www.afponline.org). We look at sites that will give us the most exposure. Monster, for instance, receives almost 5 million unique hits a month. But we've found that there are too many recruitment sites right now. Being at every site would be an administrative nightmare. Every time we sign up at a new site, we have to create new processes. A lot of technicalities are involved.

PCW: Has the proliferation of job sites helped Bank of America efficiently recruit employees?

TD: Yes and no. It's kind of a catch-22. With so many sites available, we often question if we should spread ourselves thin by being on all of them. Having an overabundance of job sites can be a negative thing. In a tight labor market, job sites have given us additional avenues. But at the end of the day, the whole thing is still a difficult process, since we have to be at so many different places. Ten years ago, there was a single main avenue: Employers would place an ad in the newspaper; then résumés would come in. Now with so many tools on the Internet, it's hard for recruiters, including us, to keep up with them.

PCW: What sorts of jobs get the most response on the Web?

TD: We list middle-management-level positions and technology jobs such as Java developer and Unix programmer. We see a lot more responses for our mid-management positions, though.

PCW: Are there any improvements that you think job sites ought to make to enhance their ease of use?

TD: There should be a standard interface for posting jobs, so recruiters don't have to rewrite the ad each time.

my new pc
doesn't raise
the bar. it
obliterates it.



DELL™ DIMENSION™ 8100 Series

Turbo-Charged PC

- Intel® Pentium® 4 Processor at 1.3GHz ■ 128MB RDRAM
- 40GB* Ultra ATA-100 Hard Drive (7200 RPM)
- 19" (18.0" vis., .26dp) M991 Monitor
- 32MB DDR NVIDIA™ TNT2 M64 4X AGP Graphics
- 48X Max CD-ROM Drive
- SB Live! Value Digital ■ harman/kardon Speakers
- V.90 56K Capable* PCI Telephony Modem for Windows*
- Integrated 3Com® 10/100 Ethernet Controller
- MS® Works Suite 2001 ■ MS® Windows® Me
- 3-Yr Limited Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN® Internet Access¹⁶ Included

\$1699



E-VALUE CODE
03834-500116u

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

- Harman Kardon HK-695 Surround Sound Speakers with Subwoofer, add \$70

Introducing the All-New Dell™ Dimension™ 8100 with an Intel® Pentium® 4 processor. Over-the-top performance for those who can handle it.

The Dell™ Dimension™ 8100 takes you to the next level and then some. We're talking speeds of 1.3GHz maximized by the latest Intel® Pentium® 4 processors. With up to 1GB of memory, you can multi-task without sacrificing performance. Arming you with quite possibly the fastest and most powerful desktop you've ever seen is just one more way Dell helps you get the most out of your PC. No matter how extreme your needs are.



DELL4me.com

contact us today

800.999.7882

www.dell4me.com

Includes Windows Millennium Edition — the home version of the world's favorite software.

*Telephone access (call your phone co. for details) and other surcharges for access may apply. Must register within 30 days of receiving computer and accept DellNet/MSN Terms of Service.

for newer technology, you'd need government clearance.

Dell's latest and greatest technology can be yours with or without the background check.

So you forgot to return a few library books and couldn't get into the FBI Academy. Well, here at Dell™, we don't discriminate. All of our customers are afforded the latest and greatest technology. Like the New Inspiron™ 4000, the ultimate balance of uncompromising performance and mobility. And, of course, we have all of the latest in printers, scanners, and software. So call on us to help build your perfect system or choose from one of the great systems below. Even easier than getting a library card.



Dell™ Inspiron™ 4000 Notebook

DELL™ NOTEBOOKS:

DELL™ INSPIRON™ 3800

Design and Affordability

- Intel® Celeron™ Processor at 600MHz
- 12.1" SVGA TFT Display
- 32MB 100MHz SDRAM
- 5GB¹ Ultra ATA Hard Drive
- Modular 24X Max CD-ROM Drive
- 2X AGP 8MB ATI Rage Mobility™ 3D² Video
- Internal V.90 56K Capable³ FaxModem
- Li-Ion Battery with ExpressCharge™ Technology
- MS® Works Suite 2001 ■ MS® Windows® Me
- 1-Yr Limited Warranty²
- 1-Yr Next-Business-Day On-site Service⁴
- 1 Year of DellNet™ by MSN® Internet Access⁵ Included

\$1199 or as low as **\$36** per mo. 45 mos.¹²
No payments for 90 days. E-VALUE Code: 03835-800111

DELL™ INSPIRON™ 4000

NEW—Thin and Light

- Intel® Pentium® III Processor at 600MHz
Featuring Intel® SpeedStep™ Technology
- 14.1" XGA TFT Display
- 64MB 100MHz SDRAM
- 5GB¹ Ultra ATA Hard Drive
- Modular Removable 8X Max DVD-ROM Drive
- 2X AGP 8MB ATI Rage Mobility™ 128 3D² Video
- Internal V.90 56K Capable³ FaxModem
- Li-Ion Battery with ExpressCharge™ Technology
- MS® Works Suite 2001 ■ MS® Windows® Me
- 1-Yr Limited Warranty²
- 1-Yr Next-Business-Day On-site Service⁴
- 1 Year of DellNet™ by MSN® Internet Access⁵ Included

\$1699 or as low as **\$51** per mo. 45 mos.¹²
No payments for 90 days. E-VALUE Code: 03835-800116

DELL™ INSPIRON™ 8000

NEW—Multimedia Mobile Desktop

- Intel® Pentium® III Processor at 700MHz
- 15" Super XGA+ TFT Display
- 128MB 100MHz SDRAM
- 10GB¹ Ultra ATA Hard Drive
- 8X Max DVD-ROM Drive
- NEW 4X AGP 32MB ATI Rage Mobility™-M4 3D² Video
- Internal V.90 56K Capable³ FaxModem
- 59Whr Li-Ion Battery ■ harman/kardon Audio
- MS® Works Suite 2001 ■ MS® Windows® Me
- 3-Yr Limited Warranty²
- 3-Yr Next-Business-Day On-site Service⁴
- 1 Year of DellNet™ by MSN® Internet Access⁵ Included

\$2349 or as low as **\$70** per mo. 45 mos.¹²
No payments for 90 days. E-VALUE Code: 03835-800124

DELL™ DESKTOPS:

DELL™ DIMENSION™ L Series

Affordable Desktop Solution

- Intel® Celeron™ Processor at 700MHz
- 64MB SDRAM ■ 10GB* Ultra ATA Hard Drive
- 15" (13.8" vis) E551 Monitor
- Intel® 3D* AGP Graphics ■ 48X Max CD-ROM Drive
- SoundBlaster 64 V PCI LC Sound Card
- PC Speakers
- V.90 56K Capable* PCI Telephony Modem for Windows*
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Limited Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access¹⁰ Included

\$699 or as low as **\$21** per mo. 45 mos.¹¹

No payments for 90 days. E-VALUE Code: 03835-500106

DELL™ DIMENSION™ L Series

Affordable Desktop Solution

- Intel® Pentium® III Processor at 866MHz
- 64MB SDRAM ■ 10GB* Ultra ATA Hard Drive
- 15" (13.8" vis) E551 Monitor
- Intel® 3D* AGP Graphics ■ 48X Max CD-ROM Drive
- SoundBlaster 64 V PCI LC Sound Card
- PC Speakers
- V.90 56K Capable* PCI Telephony Modem for Windows*
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Limited Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access¹⁰ Included

\$849 or as low as **\$26** per mo. 45 mos.¹¹

No payments for 90 days. E-VALUE Code: 03835-500108

DELL™ DIMENSION™ 4100 Series

Advanced Performance, Smart Value

- Intel® Pentium® III Processor at 933MHz
- 128MB SDRAM at 133MHz
- 20GB* Ultra ATA-100 Hard Drive
- 17" (16.0" vis, .26dp) E770 Monitor
- 32MB NVIDIA™ TNT2 M64 4X AGP Graphics
- 12X Max DVD-ROM Drive
- SB Live! Value Digital
- Altec Lansing* ACS-340™ Speakers with Subwoofer
- V.90 56K Capable* PCI Telephony Modem for Windows*
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Limited Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access¹⁰ Included

\$1299 or as low as **\$39** per mo. 45 mos.¹¹

No payments for 90 days. E-VALUE Code: 03835-500112

DELL™ DIMENSION™ 4100 Series

Advanced Performance, Smart Value

- Intel® Pentium® III Processor at 1GHz
- 128MB SDRAM at 133MHz
- 40GB* Ultra ATA-100 Hard Drive (7200 RPM)
- 17" (16.0" vis) P780 FD Trinitron* Monitor
- 32MB NVIDIA™ TNT2 M64 4X AGP Graphics
- 48X Max CD-ROM Drive ■ SB Live! Value Digital
- 8X/4X/32X Max CD-RW Drive
- Harman Kardon HK-695 Surround Sound Speakers with Subwoofer
- U.S. Robotics* V.90 56K Capable* PCI Telephony Modem
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Limited Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access¹⁰ Included

\$1799 or as low as **\$54** per mo. 45 mos.¹¹

No payments for 90 days. E-VALUE Code: 03835-500117

DELL™ SOLUTIONS:

SOFTWARE & ACCESSORIES

Printers:

- Epson® 777 Stylus Color Printer, add \$99
- HP® DeskJet® 932C, add \$149 after \$50 HP* Mail-In Rebate¹² (Reg. \$199)

Scanner:

- HP® ScanJet® 4300Cse, add \$99 after \$50 HP* Mail-In Rebate¹² (Reg. \$149)

Power Protection:

- APC Pro8T2 SurgeArrest, add \$39

Software:

- Ultimate Sports Pack Plus (Dimension™ only)¹³, add \$79
- Home Reference 4-pack¹⁴, add \$79

Camera:

- HP® C315 Digital Camera, add \$299

FINANCING & SERVICES

Payment Solutions:

- Dell™ Monthly Purchase Plan – Enjoy easy-to-budget, low monthly payments. Systems as low as \$21 a month for 45 months using the 90 Days Same As Cash feature of the plan¹⁵
- Dell™ E-Check – One convenient electronic payment from your checking account

Service Upgrades:

- Dell™ Dimension™ Premier 3-Yr At-Home Service¹⁶, add \$99
- Dell™ Inspiron™ 3800 and 4000 Notebook 3-Yr Next-Business-Day On-site Service¹⁶, add \$149



Includes Windows Millennium Edition — the home version of the world's favorite software.

¹⁰Telephone access (call your phone co. for details) and other surcharges for access may apply. Must register within 30 days of receiving computer and accept DellNet/MSN Terms of Service. You agree to be billed monthly fees after the initial service period. You may cancel service at any time. Offer valid for new customers only in U.S. households and must be over 18 years old with major credit card. Limited time offer. ¹¹Monthly payment based on 13.99% APR FOR QUALIFIED CUSTOMERS. OFFER VARIES BY CREDIT-WORTHINESS OF CUSTOMER AS DETERMINED BY LENDER. Under 90 Days Same As Cash feature, interest accrues during first 90 days if balance not paid within 90 days. Customers not eligible for 90 Days Same As Cash feature may be offered standard 48-month financing with APRs ranging from 16.99% to 23.99%. Example: \$1,650 purchase price, at 18.99%, 48 monthly payments at \$50. Taxes and shipping charges extra, and vary. From American Investment Bank, N.A. to U.S. residents with approved credit. Availability may be limited in some states. Limited time offer.

Prices, specifications, and availability may change without notice. Taxes and shipping charges extra, and vary. Cannot be combined with other offers or discounts. U.S. only. Offer valid for Dell Home Systems Co. only. ¹²For a copy of our Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, Texas 78682. At-Home or On-site service provided via third-party contract with customer. Technician will be dispatched, if necessary, following phone based troubleshooting. To receive Next-Business-Day service, Dell must notify the service provider before 5 pm (customer's time). Availability varies. Other conditions apply. ¹³For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. ¹⁴Download speeds limited to 56Kbps. Upload speeds are less (about 30Kbps) and vary by modem manufacturer and line conditions. Analog phone line and compatible server required. ¹⁵Software, packaging, or documentation may differ from retail versions. ¹⁶For rebate details and coupons, call 800-728-0065 for HP, Dell, the Dell logo, Dimension, Inspiron, DellNet and Delltime are trademarks of Dell Computer Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks, and Intel SpeedStep and Celeron are trademarks of Intel Corporation. MS, Microsoft, MSN, and Windows are registered trademarks of Microsoft Corporation. 3Com is a registered trademark of 3Com Corporation. HP and DeskJet are registered trademarks of Hewlett-Packard Corporation. Trinitron is a registered trademark of Sony Corporation. ©2000 Dell Computer Corporation. All rights reserved.

DELL4me.com

contact us today

800.999.7882

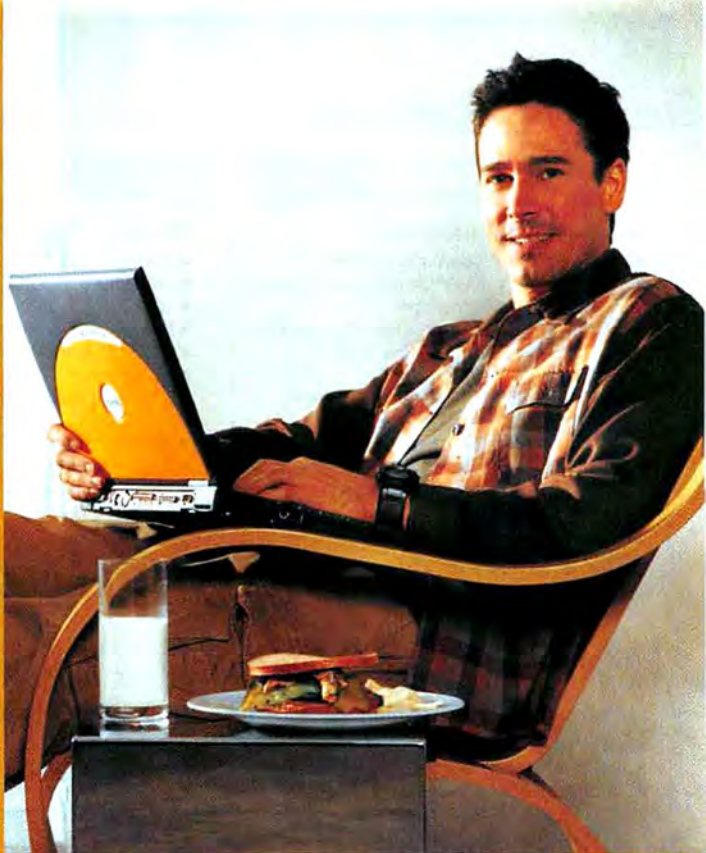
www.dell4me.com

my peanut butter
and sardine
sandwich?

personalized.

the notebook dell
built for me?

really personalized.



DELL™ INSPIRON™ 4000

Your Dream Machine

- Intel® Celeron™ Processor at 600MHz
- 14.1" XGA TFT Display ■ 64MB 100MHz SDRAM
- 5GB* Ultra ATA Hard Drive
- Modular 24X Max CD-ROM Drive
- 2X AGP 8MB ATI Rage Mobility™ 128 3D* Video
- Internal V.90 56K Capable* FaxModem
- Li-Ion Battery with ExpressCharge™ Technology
- MS® Works Suite 2001 ■ MS® Windows® Me
- 1-Yr Limited Warranty* ■ 1-Yr Next-Business-Day On-site Service*
- 1 Year of DellNet™ by MSN® Internet Access™ Included

\$1499



E-VALUE CODE
03836-800114

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

- Upgrade to 8X Max DVD-ROM Drive, add \$99
- Digital Audio To Go Bundle (External CD-RW, KOSS® Headphones, 10 CD-Rs)*, add \$249

Inside your New Dell™ notebook will be...
whatever you want there to be.

At Dell™, we believe that personal computers should be, well, personal. Sure, all Dell notebooks come with a powerful Intel® processor. But the rest is up to you. You don't have to be a computer expert. Just tell us what you want to do with your notebook. Personal finances? Let Dell install the killer financial software you'll need. Music? We'll set you up so you can download and play your favorite tunes. Games? Education? Internet? Just let us know and we'll make it happen. And with that Intel processor, it will happen fast. Keep in mind that your Dell notebook will be backed by our award-winning service and support. Consider it just another way Dell4me™ can help you build your dream machine. Strange midnight snacks, on the other hand, are your department.



celeron™
PROCESSOR

DELL4me.com

contact us today

800.999.7882

www.dell4me.com

Includes Windows Millennium Edition — the home version of the world's favorite software.

*Telephone access (call your phone co. for details) and other surcharges for access may apply. Must register within 30 days of receiving computer and accept DellNet/MSN Terms of Service.

that you can send samples of your work.

Another thing: Include a cover letter that explains why you want the job and why the employer should hire you. Then ask a friend or colleague to proofread and critique your résumé and cover letter before you send them to an employer.

If you plan to send your Word-formatted résumé via e-mail, save it in Word as *Text Only with Line Breaks*; then copy it and paste it into the body of your message. Many employers don't want to receive résumés as attachments.

For additional tips on crafting a dynamite cover letter and résumé, consult Web sites such as CareerBuilder, Monster, and Yahoo Careers. Also check out Rebecca Smith's *ERésumés & Resources* (www.eresume.com); it's full of formatting tricks for HTML-, scan-, and text-based résumés. You'll also find a gallery of excellent résumés to imitate. After all, sometimes the hardest part is getting started.

STEP 3: NETWORK, NETWORK, NETWORK

ONCE YOU'RE DONE with your research and have a killer résumé in hand, it's time to start talking to people. "To find the right job, talk to people in the industry that you'd like to work in. By asking what they like and dislike about their work, you can understand what you're getting into," says Bolles. "Networking can help you make the right decision."

"The Internet excels at helping you find contacts," Bolles adds. Participating in chat rooms and newsgroups is a good way to meet people in your field. Monster, Yahoo Careers, and several other career- and employment-related sites offer chat rooms and discussion groups for just that purpose. Recruiters have been known to hang out in chat rooms on occasion, looking for viable candidates.

Peter Weddle warns against silently lurking in these chat rooms in hopes of picking up the names and e-mail addresses of essential contacts. You need to participate in the discussion. Ask questions and offer opinions. Become known.

Professional associations host discussions as well. If you're an energy engineer, for instance, why not go to the Association of Energy Engineers' site (www.aeecenter.org)? To find associations in

your field, go to AssociationCentral.com. Spend a couple of minutes every day reading the posts and responding when you have something to contribute. That gets your name in people's minds. Your new contacts may know about jobs before the



REGIONAL SITES

TO HELP YOU get started, here's a list of regional job sites worth checking out:

MIDWEST

Chicago Jobs.com
www.chicagojobs.com
 Chicago Tribune Career Finder
www.chicagotribune.com/careers
 Michigan Works
www.michworks.org

NORTHEAST

Smartdog (Rochester, New York)
www.smartdog.org
 BostonWorks
bostonworks.boston.com
 New York New Media Association
www.nynma.org/jobs
 TriStateJobs.com
 (New York, New Jersey, Connecticut)
www.tristatejobs.com
 WashingtonJobs.com
www.washingtonpost.com/jobs

SOUTH

CarolinasCareerWeb
www.carollnascareerweb.com

SOUTHWEST

Arizona Jobs
www.arizonajobs.com
 Houston Employment, LLC
www.houstonemployment.com

WEST

Craigslist (predominantly San Francisco Bay Area)
www.craigslist.com
 Seattle-Jobs.com
www.seattle-jobs.com

openings are listed online or in newspapers. It's also vital to network in person. Go to job fairs. Attend alumni and professional association events. Mingle.

STEP 4: USE NATIONAL JOB SITES TO YOUR ADVANTAGE

HAVING PLENTY OF online options is great. But the surplus of career-oriented sites can easily lead to information overload—especially since features vary from site to site. So stay organized and be selective about the places you frequent. To get started, see our appraisal of the features of ten big national sites on page 136.

Two national contenders came out on top: Monster and Yahoo Careers. Both list tons of jobs (over 461,000 and 1 million, respectively). Their vastness may increase your chances of success, but it also means hours of searching. Although some sites offer more job-search tools than others, you can usually narrow your search by specifying the job type, keyword, or location. Yahoo Careers lets you zoom in by location, company, keyword, job term, job type, or job title. Keep in mind that the professions job sites cover vary. Some (including Dice.com) are better for high-tech jobs, while others (such as Wall Street Journal Interactive Edition at careers.wsj.com) are better for financial jobs.

National job sites also have such tools as résumé-building templates, job-search agents, and forums. Monster, in particular, is popular among job seekers for its ample research tools and helpful advice. Yahoo Careers, Monster, and a few others offer chats and discussion boards for networking, career advice to get you started, and industry-specific information to keep you up-to-date with what's going on in various industries and professions.

Many job sites, including our top picks, let you post your résumé for recruiters and employers to view. This might seem like the easiest way to find a job, but most employers don't want to sift through hundreds of résumés to find yours. Still, you might get lucky, as Bruton did. If you're not concerned about confidentiality, Weddle suggests, post your résumé on as many sites as you can, dating each file. You don't want to confuse a prospective employer who happens upon your latest résumé and a six-month-old version. ▶

Another thing to bear in mind: On many sites, your résumé is available to anyone who wants to look at it, including your current boss. And anyone who sees it can collect your name, address, phone number, and other personal information. To protect your privacy, consider providing only your e-mail address.

If you don't have time to go through the myriad job listings on the Web, sign up for an e-mail agent. JobBankUSA and Nation-Job Network are among the job sites that offer these. You tell the agent you want a job as a marketing director, for example, and it e-mails you every time it comes across a job listing that includes that title.

Some sites, such as CareerBuilder, have an agreement with and gather listings from local newspapers and put them in one place. And if these Web options don't pan out, ask your colleagues which sites have worked for them.

STEP 5: LOCALIZE YOUR JOB SEARCH

FACED WITH more than 40,000 national, regional, and field-specific sites on the Web, how do you choose the best one for your job hunt? The best strategy is to spread yourself around. Big national sites (such as Monster, HotJobs, and Yahoo Careers) are a good place to start, since they enjoy heavy traffic and have so many postings. But local and industry-specific sites can be more effective than national ones. "Monster and HotJobs are just too big. Neither offers the best jobs, especially in the design industry," says Megan O'Toole, a freelance graphic designer. "It's better to get industry-specific. For design work, Communication Arts (www.commartarts.com) is by far the best."

David Javate, who recently graduated from business school and has been looking for a job in marketing or in the music industry, finds local job sites useful resources. "Craigslist (www.craigslist.com), a San Francisco Bay Area regional site, works because its listings are local and sorted based on job fields," says Javate. A national job site such as HotJobs can be useful, too, because "it gives my résumé nationwide exposure—something that regional sites can't offer."

Still, "many employers favor locally based job-posting sites because they don't

IF YOU'RE LOOKING for a job in a specific field, consider visiting these Web sites:

ACCOUNTING/FINANCE

Accounting.com www.accounting.com

ExecuNet www.execunet.com

Wall Street Journal careers.wsj.com

DESIGN

Communication Arts www.commartarts.com

EDUCATION

Academic Employment Network

www.academply.com

Higher Education Jobs

www.higheredjobs.com

K-12jobs.com www.k-12jobs.com

ENGINEERING

Engineerjobs.com engineerjobs.com

GOVERNMENT

U.S.A. Jobs www.usajobs.opm.gov

HEALTH CARE

HealthJobSite.com www.healthjobsite.com

Journals of the American Medical

Association www.ama-assn.org

MedCareers.com www.medcareers.com

want to deal with an employee's relocation costs and other potential hassles," Bolles says. In addition, Weddle believes, recruiters tend to frequent one or two big national job sites and several regional ones, simply because they can find people more efficiently. Why not go where the employers are? Before Bruton found her new job, she spent time at regional job sites, including JobSummit.com—a site focusing on employment opportunities in Southern California—and at several HR-specific job sites such as HR Solutions (www.hrsolutionsinc.com).

You might also browse employment listings at company Web sites. "I like checking a company's Web site for job openings, but sometimes the listings aren't up-to-date, and overall, getting a response seems to take a long time," says O'Toole.

THE VERDICT?

THIS MULTITUDE of options may make finding work seem like too much work. But the best way to look for a job on the Internet is to take advantage of all your

INDUSTRY-SPECIFIC SITES



HOSPITALITY

HospitalityCareerNet

www.hospitalitycareernet.com

LEGAL

Law Jobs www.lawjobs.com

LegalHire.com www.legalhire.com

MARKETING/SALES

Accessalesjobs.com

www.accessalesjobs.com

Marketingjobs.com www.marketingjobs.com

SCIENCE

ScienceJobs.com www.sciencejobs.com

TECHNOLOGY

Dice.com www.dice.com

Techies.com www.techies.com

options. Do the research, put together a résumé, make contacts, scan the job listings, and post your résumé. Spend some time away from your PC. The traditional methods of finding a job remain worthwhile and can augment online efforts. Go out and talk to people, hit the libraries, and check the newspaper listings.

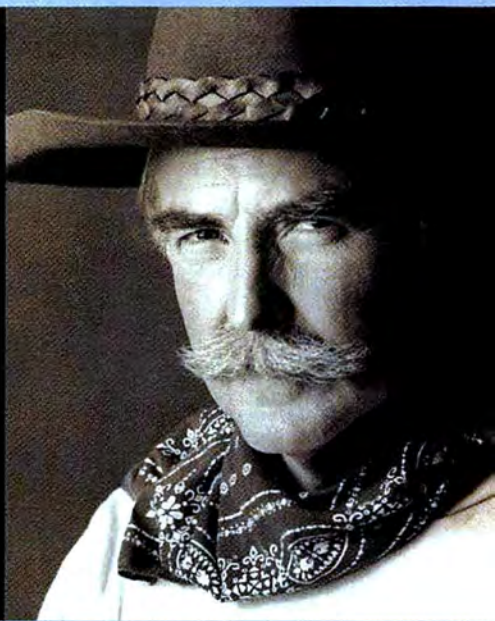
Keep in mind that online job hunting has its share of hazards—occasionally nonfunctioning tools or links and misleading and outdated job listings. But it raises your profile and significantly increases your chances of finding the right employment opportunity. And if you don't pluck that golden job right away, don't fret. Hang on to your self-esteem, and remember, there's always the lottery.



For a list of job sites for employers, go to www.pcworld.com/job_hunt. Freelance writer Michael Gowan, a two-time victim of dot-com failures, frequently browses Craigslist for that ever-elusive job. Associate Editor Grace Aquino also contributed to this article. ■



**"Tell me again
why I need a new
Plextor drive —
and smile when you say it."**



Is it possible to make a product that's too good? At a recent trade show, we met a Texas rancher who bristled at the idea that it might be time to put his trustworthy Plextor® out to pasture.

"Still works just fine — best drive I ever had. Don't need a new one."

Our Drives Are Built To Last

At Plextor, we're so concerned about detail that we design and build our own motors and PC boards. They're created to exacting standards based on more than 38 years of motor expertise, ensuring maximum accuracy and reliability for long life.

So is it possible to buy just one Plextor in your lifetime? There's no way to know. But say you did. You'd miss all the innovations of each new enhanced generation of drives.

Take Our Latest, Award-winning Family

Choose a CD-RW three-in-one drive with E-IDE (ATAPI) or one with super fast SCSI connectivity. You'll get unparalleled, error-free performance with blazing fast burn, rewrite and read speeds — perfect for diverse applications such as incremental backup, mastering new software and creating multimedia discs.

A Great Reason To Smile, Wouldn't You Say?

See what our great drives can do for your home, office or ranch. Stop by your local Plextor dealer. For the address, call **800.886.3935**, or visit www.plextor.com.

Recognized for Reliability



 **PLEXTOR®**

Stop the war over Internet access. Cut the cord.



Let your entire family share one Internet connection at the same time.

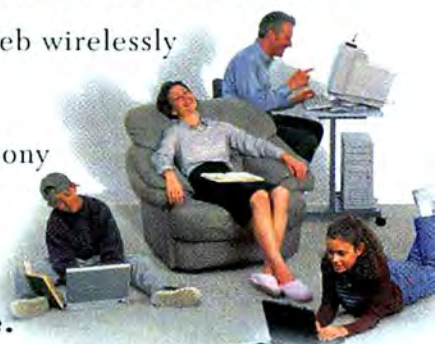
A Symphony™ cordless home network allows everyone to surf the Web wirelessly over a single dial-up, DSL or cable modem ISP account.

A Symphony home network is simple. Just slip a Symphony cordless networking card into each laptop or desktop you want to connect. No more wires. No more hassles.

Symphony spreads harmony throughout your home.

While the kids e-mail friends from the couch, and while your wife prints presentations from the patio, you can surf the Web in bed.

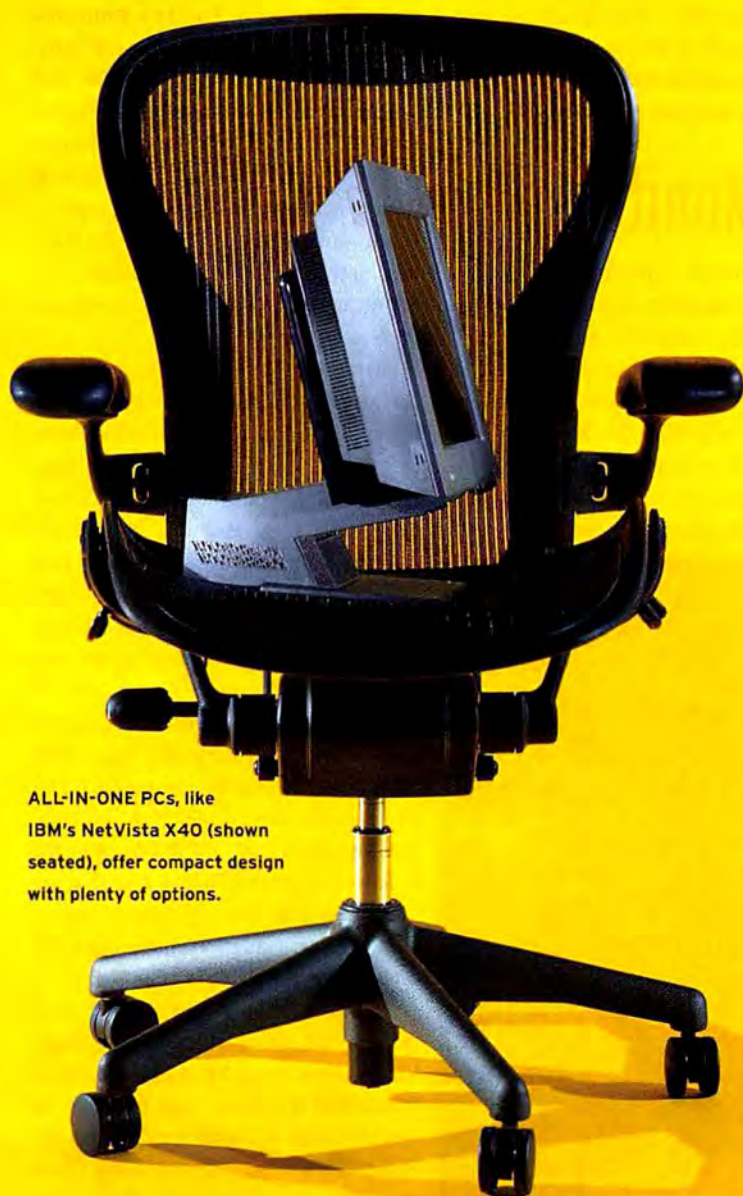
So give peace a chance. Order your Symphony cordless networking products on the Web at www.proxim.com/sy01 or call 888-549-3748 for the Symphony dealer nearest you.



Symphony
by proxim



Solutions for Small Spaces



ALL-IN-ONE PCs, like IBM's NetVista X40 (shown seated), offer compact design with plenty of options.

PHOTOGRAPHS BY KEVIN TWOMEY

The best PCs, flat-panel displays, and multifunction devices to turn your compact office into a place for serious business.

By Matthew McKenzie

MAYBE YOU'VE sworn off fighting rush-hour traffic and spending your life in a Dilbertian cubicle. Perhaps you're ready to secede from the corporate rat race and start your own business. Or maybe your small business has grown to the point where you need to accommodate and equip some employees of your own.

Whatever the reason, you have to set up a small office—and you're not alone. Last year, according to an International Data Corporation study, people in nearly 37 million U.S. households used a home office for telecommuting, working at part-time or second jobs, or running businesses. Employers have gotten into the act, too: More firms now offer telecommuting programs to recruit and retain employees.

When you decide to work at home, you face your first executive decision right ►

away: Where will you set up shop? If you have a spare bedroom or even a separate study in your home, consider yourself lucky: Millions of workers set up home offices by shoving the junk on the kitchen table aside and pulling up an extra chair. Some of us have scarcely enough room to hide the dirty clothes when company comes over—never mind dedicating a whole room to service as a 9-to-5 workspace.

Yet establishing a modern office involves more than clearing a place to sit and shuffle paperwork. Many small offices require the same electronic gadgets you'd find in any conventional office: a personal computer, a fax machine, a printer, a copier, a scanner, and more. By the time you cram all this hardware into your cozy office, you may not have room to turn around, much less get any work done.

Before you throw in the towel and slink back to the corporate mothership, however, consider your options for home-office furnishings carefully: If you pick the right space-saving hardware, you'll find you can set up a highly productive office in even the smallest space. For every space-wasting electronic hulk on the market, an elegant, compact alternative is available—if you're willing to pay a little more or make

a few compromises. We've rounded up a passel of excellent space-saving hardware options designed to demonstrate that good things do come in small packages.

Monitors

CONVENTIONAL COMPUTER monitors are among the worst space-stealers in a modern office. Large 17- and 19-inch displays may be more affordable than ever before, but they take up enough desktop real estate to qualify for their own zip codes. And though perching a monitor on a shelf or riser can help a little, you'll still forfeit a lot of prime desk space.

**DELL'S
INSPIRON
8000 (left) and
Micron's Client-
Pro CF ease
into even the
tightest office.**



The solution comes in the shape of a liquid-crystal display monitor—but it doesn't come cheap. LCD panels don't use bulky cathode ray tubes, so they occupy a fraction of the space a traditional CRT display needs. Today's flat-panel displays deliver great color quality and sharp pictures, and like CRT monitors, they sport useful options such as built-in USB hubs and integrated stereo speakers.

WHAT WE SEE IN LCDs

IN OUR RECENT REVIEW of 15-inch LCD panels ("Dream Screens," [www.pcworld.com/](http://www.pcworld.com/jan2001/screens)

jan2001/screens), **Philips's Brilliance 150P** ranked as a top buy. The 150P delivers a relatively sharp 15-inch picture and performs in either analog or digital mode. We noticed some jitters in its display of small text when we tested the 150P with a conventional analog graphics board—an important limitation for business users who devote a sizable amount of time to working with spreadsheets and other documents.

But the \$899 150P throws in some useful extras. In addition to a standard VGA hookup, it includes a Digital Video Interface (DVI) jack that works with the digital connectors on many new PCs and video cards. Integrated with the 150P are stereo speakers that deliver adequate (but by no means outstanding) sound quality, and a built-in microphone. An optional USB hub connects the panel to as many as four other USB devices.

If you're looking primarily for top-of-the-line picture quality, the \$949 **Elizo FlexScan L330** may be a better deal. The L330 has the same screen size and resolution as the Philips 150P, but we thought it delivered better graphics and sharper on-screen text. The L330 earns bonus points for its aesthetically pleasing black case (it's also available in beige).

On the other hand, the L330 doesn't ladle on the extras: It includes a single VGA output, no USB support, and no integrated speakers. And because its viewable angle is slightly smaller than the Philips's, the L330's display doesn't look



**PHILIPS (left) and
Elizo combine large
LCD screens with
svelte profiles.**

quite as good when viewed from the top or side; that can be a drawback if you plan to use it for group presentations. For many users, however, the Eizo's sharp, clear picture will carry far more weight than its lack of special features.

Of course, you first have to decide whether to pay nearly \$1000 for an LCD panel when you can get a perfectly good 17-inch CRT monitor for a third of the cost (see *Top 10 Monitors*, page 185). A 15-inch screen may not sound like a good deal for the price, but a 15-inch LCD monitor provides almost as much viewable screen area as many 17-inch CRT displays. And because LCD monitors deliver flicker-free images, they can reduce eyestrain if you spend a lot of time in front of your computer. On CRT monitors, a refresh rate of 70 Hz or higher is generally considered to be ergonomically acceptable and even the most sensitive viewer is un-

likely to detect flicker at a refresh rate of 85 Hz or higher. Also, when space is an issue, you'll appreciate having an easily movable unit that takes up far less space than a comparable CRT monitor does.

PCs

WHATEVER OTHER space savers you put in your work area, no office is complete without a computer. In settings where space is tight, a standard PC offers two equally unattractive options: Keep it on your desk and give up precious work space, or stick it under your desk and invest in a pair of kneepads.

One common solution is to purchase a laptop computer. Though many laptop systems are weaker and harder to use than their desktop cousins, the latest high-end laptops hold their own against many

powerful desktop systems. Dell Computer's new **Inspiron 8000** is a good example: A base model with a 600-MHz Celeron processor, 64MB of RAM, 8MB of video memory, and a 5GB hard drive costs \$1729. If you want a system that can handle whatever you throw at it, the Inspiron 8000 can carry 512MB of RAM, 32MB of video memory, and a 32GB hard drive for \$3327. And for users who like to mix work and play, the Inspiron includes such multimedia-friendly features as a crisp 15-inch display, a 24X CD-ROM drive, and integrated Harman Kardon speakers (DVD-ROM and CD-RW drives are optional). The 8000 also provides plenty of expansion room, with relatively unusual options such as an IEEE 1394 (FireWire) connector and an S-Video-out jack for connecting to televisions or other external video displays (for a full review of the Inspiron 8000, see *Top 15 Notebook PCs*, ►

Make Your Hardware Work for You

THOUGH THE RIGHT hardware can make even the tiniest office a lot more inviting, you can do a lot more to set up a productive and healthful office environment. When you're setting up your home or small office, bear in mind the following tips to stay healthy and productive:

Set Up a Dedicated Space

DEDICATE A SPECIFIC area of your home—no matter how small—as an office. "You need to take a home office as seriously as you would take a traditional office," advises Pam Robinson, an architect with Huntsman Architectural Group in San Francisco. "Home offices tend to get cluttered anyway, and you don't want to constantly unearth your workspace from the clutter of everyday life."

Leave Some Breathing Room

ADEQUATE VENTILATION is a big concern for office designers. "Computer equipment generates a lot of heat, and that can be a problem both for the computer and for the person using it," Robinson says. She advises against setting up an office in an attic, closet, or other poorly ventilated area. If you must keep a PC

in a cabinet or other enclosed space, make sure it gets enough air to stay cool—and turn it off when you aren't using it.

Don't Skimp on Your Chair

THINK YOU CAN make do with an old kitchen chair? Think again. According to physical therapist Terri Hansford, an ergonomics consultant to *PC World*, using the wrong office chair can cause major problems. A good chair should have armrests that don't interfere with the movement of your arms; good support for your upper and lower back (beware of backrests that slope up and away from your body), and adjustable height. Expect to pay from \$500 for a good, no-frills chair to \$700 or more. Remember that even the best chair won't help if you don't sit in it properly, which means keeping your hips back in the seat and your back in an upright position.

Stay Close to Your Keyboard

HANSFORD NOTES that serious problems, including repetitive motion injuries, can result from poor keyboard and mouse habits—especially among people who use laptop computers for day-to-day work. "The



problem is that you can't adjust a laptop keyboard and mouse that are attached to the display"; as a result users contort themselves into awkward, potentially injurious positions to accommodate a machine's fixed design. The best solution: Invest in a separate, full-size keyboard and mouse, along with an adjustable tray so you can keep both items close to your body and at the proper height for you.

Raise Your Monitor to Eye Level

TO PREVENT NECK and upper back problems, Hansford advises placing the monitor on a raised stand so you can view it without tilting your head. Rotating the screen downward helps eliminate glare, a frequent cause of headaches and eyestrain. Natural light is usually welcome, but Hansford suggests keeping your monitor at a right angle to the nearest window to cut down on glare.

www.pcworld.com/dec2000/inspiron).

Of course, you'll pay dearly for all that power, and a laptop has other drawbacks as well—including the ergonomic inadvisability of spending hours a day pecking at an undersize keyboard.

If a modest budget restricts your speed options, the \$1313 **Micron ClientPro Cf** may be a good solution (the price includes a 17-inch CRT monitor). The ClientPro Cf carries a relatively modest 600-MHz Intel Celeron processor, along with 64MB of RAM and a 7.5GB hard drive. And though the ClientPro Cf isn't as compact as a laptop, it's still about half the size of a typical PC box, making it easy to tuck under your monitor or beside your desk. Unfortunately, like most slimline PCs, the ClientPro doesn't have any expansion bays or slots—something to consider if you hope to upgrade in the future (for a full product review, see www.pcworld.com/reviews/clientpro).

If neither a laptop nor a small PC is right for you, consider a third option: an all-in-one PC that packs the display, motherboard, storage, and other hardware

in a single, space-saving unit. All-in-ones typically use LCD screens; the rest of the system is either attached to the back of the display or enclosed in the system's base. The result is an elegantly compact—but somewhat expensive—hybrid combining elements of desktop and laptop systems.

The **IBM NetVista X40** is a classic, stylish all-in-one PC: Its flat-panel LCD and

pared with a standard PC in this price range, but it should deliver enough punch for typical business users. Like Micron's ClientPro, the NetVista doesn't leave a lot of room for expansion, setting aside one open slot and no free drive bays. The built-in LCD monitor saves a lot of space, however, and if you're willing to pay a premium, the NetVista X40 makes a tempting alternative to the standard off-white box.

With any piece of computer hardware,
80 percent of users need only
20 percent of the product's features.

small desktop footprint are so engaging, you might want it for its looks alone. You can get the NetVista's standard configuration with a Celeron-533 or -633 processor or a Pentium III-600 or -800 CPU. The \$2330 version we reviewed included a 667-MHz Pentium III CPU and 128MB of RAM (for a full product review, see www.pcworld.com/reviews/netvista). The NetVista is light on horsepower com-

constrained by a tight budget. Some devices—such as LCD monitors and all-in-one PCs—look great and save space but may cost hundreds or thousands more than traditional hardware.

But other space-saving devices, including multifunction devices and small-form-factor PCs, offer economical and useful alternatives if you can live without some features. How much will you miss what

THE 80/20 RULE

Clearly, options for setting up an efficient, clutter-free office are legion, even if you are

Resources for Not-So-Big Workspaces

A QUICK SEARCH OF the Net will turn up lots of sites that offer advice about setting up a small office, but many of these are amateur operations, and their guidance is not always sound. From our online research, we compiled a short guide to reliable Web sites and other resources. Designed to serve as a starting point, this list is by no means exhaustive; a careful search of the Net or trip to the bookstore will likely yield a much longer list of reputable information sources.

Home Office Web Sites

- ◆ **HomeOfficeMag.com** (www.homeofficemag.com): Articles and tips on home office design, setup, technology, and more.
- ◆ **HomeOfficeLife.com** (www.homeofficelife.com): Interesting resources from author and home-office expert Lisa Kanarek—including a collection of tips submitted by readers.
- ◆ **National Association for the Self-Employed** (www.nase.org): Help for entrepreneurs.

◆ **Dwell Magazine** (www.dwellmag.com): Skippy, but you can order a free issue of the print publication, which mixes practical home design tips with arcane interior design pieces.

Books

- ◆ **Home-Based Business for Dummies**, by Paul Edwards, Peter Economy, and Sarah Edwards (Hungry Minds, \$20): General advice on starting a home business, including information on setting up a home office space.
- ◆ **The Home Office Planner**, by Barty Phillips (Chronicle Books, \$24.95): An illustrated guide to every aspect of home office design, from selecting the right materials for a built-to-order work area to choosing space-saving furniture, lighting, and other essential items.
- ◆ **Practical Home Office Solutions**, by Marilyn Zelinsky (McGraw-Hill, \$20): Coverage of everything from selecting an office chair to finding the right telecommunications service.
- ◆ **Organizing Your Home Office for Success**,



by Lisa Kanarek (Blakely Press, \$15): If your inner slob is giving you grief, fight back with this guide to putting together a well-organized office that optimizes limited space.

Online Shopping Sprees

- ◆ **www.hermanmiller.com**: Home of the famous Aeron office chair. Buyer beware: Herman Miller furniture doesn't come cheap, though you may be willing to spend the money once you've seen the sleek, elegant designs.
- ◆ **www.ikea.com**: A popular source of sturdy, inexpensive office furniture. Unfortunately, you can't buy furniture from the Ikea Web site; instead, you'll have to settle for a print catalog or find the nearest retail outlet.

**BROTHER'S MFC-7400c, HP's
LaserJet 3200, and Xerox's
WorkCentre XK50cx (left to right)...**



**...combine such essential office
functions as faxing, scanning, and
printing in a single machine.**

you give up? Many of us fancy ourselves power users, but the 80/20 Rule usually applies: For any piece of PC hardware, 80 percent of users need only 20 percent of the product's features. This precept may not hold true if you really are a power user—if you're a graphic artist, for example, you need the best computer, display, scanner, and color printer you can afford. But most of us can make do with something less than top of the line.

To avoid buying more (or less) hardware than you need, first figure out what kinds of tasks you need to accomplish and then buy equipment that gets the job done. You'll save money, conserve space, and increase your productivity.

Multifunction Devices

FORTUNATELY, one type of space-saving hardware saves money, too. Devices that combine printer, scanner, copier, and fax machine functions have been around for quite awhile. In their early days, these devices performed inconsistently, handling one or two tasks well but falling short in other areas. Over the past couple of years, however, vendors have rolled out multifunction devices that perform all their jobs just as well as the stand-alone competition at a fraction of the price.

If you decide to shop for an MFD, the features available will give you lots to think about. Models range from a \$200 desktop MFD featuring an ink jet printer to a

\$4000 corporate MFD with color copier, laser printer, and network card. If you expect to print a lot of text documents, you'll want an MFD with a monochrome laser, which may or may not come with color copying, faxing, and scanning features.

SMALL-SPACE STARS

ONE GOOD MIDRANGE, versatile device is the \$599 **HP LaserJet 3200**. According to its specifications, the 3200 can print up to 9 black-and-white pages per minute at 1200-by-1200-dpi resolution (*PC World's* in-house testing tends to find much lower speeds than those reported by the vendor), and it supports features such as manual duplexing and booklet printing. The built-in 600-dpi scanner and monochrome copier deliver strong combinations of speed and quality, and like many multifunction products, the 3200 lets you fax and copy without turning on your PC.

In our informal tests, setting up the 3200 was quick and easy (via a parallel or USB connection). In case you need to scan lots of business documents, the 3200 (like many of its peers) comes with optical character recognition software for scanning a document and dropping it into your favorite word processor for editing.

In contrast to the LaserJet 3200, the \$599 **Xerox WorkCentre XK50cx** is built around a color ink-jet printer. For hardcore document jockeys who rarely need color output, this model may not be ideal, but the XK50cx did produce sharp-looking text documents and high-quality color prints. And the XK50cx has an ace up its sleeve: a flatbed scanner for small or odd-

shaped items that might otherwise jam its automatic document feeder. If you need higher resolution than the Xerox's 600 dpi, pass on this device and invest in a more robust stand-alone scanner.

Installing and setting up the printer's individual color cartridges took a while, but we found the XK50cx's document management and OCR software intuitive and easy to use. And as with the competing devices we tested, the unit's built-in fax machine was adequate for most home office users, offering standard features like speed dialing, polling (sending to many people at once), and group dialing.

For multimedia hounds who need to transfer images from multiple sources, the \$399 **Brother MFC-7400c** offers the same basic features as the Xerox unit, but with a unique twist: built-in slots for CompactFlash and SmartMedia cards, the two most popular storage media for digital cameras. This arrangement enables you to get color prints from your camera by inserting the card, printing an index page of thumbnail images, and selecting the images you want to print at full size—all without using your PC. The built-in ink jet printer produced clear, sharp color output, though the included scanner wasn't quite as sharp as the ones in the Xerox and HP multifunction devices.

An optional \$299 print server plugs into the MFC-7400c's parallel port. With the print server installed, the device functions as a workgroup printer and can accept print jobs remotely over the Internet. Most home users don't need this feature, but small workgroups may find it useful.

Ultimately, your needs dictate the value of a multifunction device. MFDs certainly save space, and they can deliver the quality and the value that many small businesses need. On the other hand, MFD printers can't handle the same workload as stand-alone laser printers, and multifunction ink jet printers don't quite match good dedicated photo ink jet printers in color quality. So if you need a device that can deliver premium quality while toiling under a heavy workload, you should consider buying separate devices and look for space-saving opportunities elsewhere.

Matthew McKenzie is a San Francisco-based writer and technology consultant. ■



POWER USER

PRESARIO 7000T-1.4

\$2399*

As low as \$67 per month*

Intel® Pentium® 4 Processor, 1.4 GHz

128 MB PC800 SDRAM

30.0 GB (7200 rpm) UltraDMA Hard Drive†

16X DVD-ROM Drive†

8X CD-RW Drive†

56K ITU V.90 Modem†

Creative Labs 1373 Audio with 128 Voices

JBL Platinum Speakers with Digital Audio Port

32 MB SDR Creative 3D Blaster GeForce2 MX

Compaq CV735 17" Monitor (16.0" VIA)

Featuring Compaq.NET powered by MSN™

Personalize by choosing:

Compaq CV935 19" Monitor (18.0" VIA): Add \$180

DVD-RW Drive: Add \$356



PHOTO ENTHUSIAST

PRESARIO 5000T-866

\$1299*

As low as \$37 per month*

Intel Pentium III Processor, 866 MHz

128 MB 100 MHz SyncDRAM — up to 11 MB Shared for Video

30.0 GB UltraDMA Hard Drive†

16X DVD-ROM Drive†

8X CD-RW Drive†

56K ITU V.90 Modem†

ESS Allegro Integrated PCI Audio

JBL Platinum Speakers with Digital Audio Port

2X AGP with 64-bit Hardware Accelerated 3D Graphics

Compaq CV735 17" Monitor (16.0" VIA)

Featuring Compaq.NET powered by MSN™

Personalize by choosing:

Klipsch V2.1 Speakers: Add \$155

Compaq CV935 19" Monitor (18.0" VIA): Add \$180



POWER USER

PRESARIO 1800T-850

\$2899*

As low as \$81 per month*

Intel Pentium III Processor, 850 MHz,

featuring Intel SpeedStep™ Technology

15.0" TFT SXGA+ Active Matrix Display

128 MB SyncDRAM

20.0 GB UltraDMA Hard Drive

8X DVD-ROM Drive

ATI Mobility M3 with 16 MB Video Memory

56K ITU V.90 PCI Modem

Integrated 10/100 BaseT Network Port

Featuring Compaq.NET powered by MSN™

Personalize by choosing:

CD-RW Drive: Add \$150

32.0 GB (3400 rpm) UltraDMA Hard Drive†: Add \$300

MUSICIAN

PRESARIO 7000T-1.0

\$1499*

As low as \$42 per month*

Intel Pentium III Processor, 1.0 GHz

128 MB 133 MHz SyncDRAM expandable to 384 MB

20.0 GB (7200 rpm) UltraDMA Hard Drive†

40X Max CD-ROM Drive†

56K ITU V.90 Modem†

SoundBlaster™ Live! Value Audio

JBL Platinum Speakers with Digital Audio Port

32 MB nVidia TNT2 M64 Pro Graphics

Compaq CV735 17" Monitor (16.0" VIA)

Featuring Compaq.NET powered by MSN™

Personalize by choosing:

8X CD-RW Drive†: Add \$149

Klipsch ProMedia V.2 400 Watt Speakers: Add \$224

TRAILBLAZER

PRESARIO 1800T-800

\$2699*

As low as \$76 per month*

Intel Pentium III Processor, 800 MHz,

featuring Intel SpeedStep Technology

15.0" TFT XGA Active Matrix Display

128 MB SyncDRAM

20.0 GB UltraDMA Hard Drive

8X DVD-ROM Drive

ATI Mobility M3 with 16 MB Video Memory

56K ITU V.90 PCI Modem

256 KB Integrated "On-chip" Cache

Integrated 10/100 BaseT Network Port

Microsoft® Windows® 2000 Professional

Featuring Compaq.NET powered by MSN™

Personalize by choosing:

Compaq Global Case: Add \$79

15" SXGA+ Panel: Add \$150



JET SETTER

PRESARIO 1700T-750

\$2199*

As low as \$62 per month*

Intel Pentium III Processor, 750 MHz,

featuring Intel SpeedStep Technology

14.1" TFT Active Matrix Display

128 MB SyncDRAM

10.0 GB UltraDMA Hard Drive

8X DVD-ROM Drive†

ATI Mobility Hardware Accelerated 3D Graphics

with 8 MB Video Memory

56K ITU V.90 PCI Modem†

Hi-Capacity Lilon Battery

256 KB Integrated "On-chip" Cache

Featuring Compaq.NET powered by MSN™

Personalize by choosing:

Integrated Network Card: Add \$49

Additional A/C Adapter: Add \$49

Includes Windows® Millennium Edition — the home version of the world's favorite software.

*Desktop prices effective 1/1/01. All prices shown are Compaq Direct selling prices and do not include monthly Compaq.NET service fees, applicable sales tax and shipping, and vary by U.S. only, and are subject to change or cancellation without notice. Illustrations may not be to scale. 48 month term at 14.99% APR. Your APR may be higher. There is no fee for Compaq purchases billed directly to your account. However, there is an access charge fee of 3% of the U.S. dollar amount of each advance check (\$5 min./\$30 max.). *Free TurboTax software offer valid faster downloads from K56flex or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown; they may not reach 56 kbps, and will vary with line conditions. †CD-RW drive data transfer rates may vary as follows: for recording to CD-R media a minimum of 5545 kbps and a maximum of 21640 kbps; 24X Max CD-RW data transfer rates may vary from 1900 to 3600 kbps. 8X DVD-ROM drives read a minimum of 4463 kbps and a maximum of 10820 kbps. *Certain restrictions and exclusions apply. For warranty get a trademark of Compaq Information Technologies Group. © 2001 in the U.S. and other countries. Eddie Bauer is a trademark of Eddie Bauer Inc. Intel, the Intel Inside logo, and Pentium are registered trademarks, and Celeron and Intel SpeedStep are trademarks of Intel Corporation. Microsoft, Windows, and Windows 2000 are registered trademarks of Microsoft Corporation. MSN is a trademark of Microsoft Corporation. JBL is a trademark of JBL Inc. Klipsch is a trademark of Klipsch Corporation. ESS is a trademark of ESS Technology Inc. nVidia is a trademark of NVIDIA Corporation. ATI is a trademark of ATI Technologies Inc. Compaq, Compaq.NET, and Presario are trademarks of Compaq Information Technologies Group. All other trademarks are the property of their respective owners.

FAMILY CHAMPION

PRESARIO 5000T-866

\$999⁺

As low as \$28 per month¹

Intel Pentium III Processor, 866 MHz
128 MB 100 MHz SDRAM — up to 11 MB Shared for Video
20.0 GB UltraDMA Hard Drive²
40X Max CD-ROM Drive³
56K ITU V.90 Modem⁴
ESS Allegro Integrated PCI Audio
JBL Platinum Speakers with Digital Audio Port
2X AGP with 64-bit Hardware Accelerated 3D Graphics
Compaq CV535 15" Monitor (13.8" V/A)
Featuring Compaq.NET powered by MSN⁵

Personalize by choosing:

Compaq CV735 17" Monitor (16.0" V/A): Add \$70
8X CD-RW Drive⁶: Add \$149

WEB SURFER

PRESARIO 5000T-700

\$799⁺

As low as \$23 per month¹

Intel Celeron™ Processor, 700 MHz
64 MB 100 MHz SDRAM — up to 11 MB Shared for Video
10.0 GB UltraDMA Hard Drive²
40X Max CD-ROM Drive³
56K ITU V.90 Modem⁴
ESS Allegro Integrated PCI Audio
JBL Platinum Speakers with Digital Audio Port
2X AGP with 64-bit Hardware Accelerated 3D Graphics
Compaq CV535 15" Monitor (13.8" V/A)
Featuring Compaq.NET powered by MSN⁵

Personalize by choosing:

16X DVD-ROM Drive⁷: Add \$59
Compaq CV735 17" Monitor (16.0" V/A): Add \$70



ADVENTURER EDDIE BAUER™ SPECIAL EDITION PRESARIO 1400T

\$1999⁺

As low as \$56 per month¹

Intel Pentium III Processor, 700 MHz
13.3" TFT Active Matrix Display
64 MB SDRAM
6.0 GB UltraDMA Hard Drive²
8X DVD-ROM Drive³
Trident CyberBlade Hardware Accelerated 3D Graphics
56K ITU V.90 PCI Modem⁴
USB External Floppy Drive
Eddie Bauer™ Color Package
3-Year Warranty⁸
Featuring Compaq.NET powered by MSN⁵

Personalize by choosing:

10.0 GB UltraDMA Hard Drive²: Add \$100
128 MB SDRAM: Add \$200

WEB SURFER

PRESARIO 1200T-633

\$1099⁺

As low as \$31 per month¹

Intel Celeron Processor, 633 MHz
12.1" TFT SVGA Display
64 MB SDRAM
6.0 GB UltraDMA Hard Drive²
24X Max CD-ROM Drive³
Trident CyberBlade Hardware Accelerated 3D Graphics
56K ITU V.90 PCI Modem⁴
NiMH Battery
128 KB Integrated "On-chip" Cache
Featuring Compaq.NET powered by MSN⁵

Personalize by choosing:

APC Notebook Surge Protector: Add \$29
Compaq Carrying Case: Add \$39

SPECIAL OFFERS

FREE TAX HELP

Get free* TurboTax software with your Compaq Presario Desktop PC, and file your Federal taxes online. It's quick and easy.

ON-THE-GO TRAVEL KIT

Be ready for anything. Get the Compaq Travel Package for your notebook. Includes carrying case, A/C adapter, security lock, and surge protector for just \$99.

SPOTLIGHTS

LET US BUILD A PC FOR YOU

Choose your processor speed, hard drive, memory, and more. Then add options like digital imaging capabilities, DVD-ROM, and multimedia speakers. Just call us or visit our Web site.

MyMovieSTUDIO

Your Presario 7000T has everything you need to create and share home movies. Editing software, easy-access ports for your digital cameras and camcorders, plus a DVD-RW drive to capture and play your movies on any DVD player.



Prices represent exact configurations priced. Retail prices may vary. Compaq is not liable for omissions, pictures, or typographical errors in this advertisement. ¹Financing on approved credit by arrangement with Compaq Financial Services through MBNA America Bank, N.A. Payment based on a Compaq Presario 5000T or 7000T purchased between 1/7/01 through 2/17/01. TurboTax software will be on CD and shipped in PC box. ²For hard drives, GB= billion bytes. 40X Max CD-ROM data transfer rates may vary from 2500 to 6000 Kbps. JBL speakers are designed only for use with the data transfer rate may vary from 150 to 600 Kbps, for writing to CD-RW media, the data transfer rate may vary from 150 to 300 Kbps, for reading to CD media, the data transfer rate may vary from 1500 to 3600 Kbps. An appropriate license may be required. ³16X DVD-ROM drives may consult the Compaq Customer Support Center at 1-800-345-1518 U.S. or visit www.compaq.com/consumersupport. Microsoft Windows™ Millennium Edition installed. Compaq, the Compaq Logo, and Presario are registered in the U.S. Patent and Trademark Office. Imposition trademarks. © 2001 MS and Windows are registered trademarks, and MSN is a trademark, of Microsoft Corporation. Products and company names mentioned herein may be trademarks and/or registered trademarks of other companies. ©2001 Compaq Computer Corporation. 716A729/01





BUILD A HOUSE FOR YOUR IMAGINATION.

What does your imagination hold? A screenplay? The beginnings of a song? A picture of your next vacation?

Tell us, and we'll build a Compaq Presario PC that can bring it all to life. Like the ones shown here, with your choice of Intel® Pentium® III processors, DVD-ROM, accelerated graphics, and more, so you can be the architect of your dreams. Welcome to a new kind of technology. Inspiration technology, available direct from Compaq.

COMPAQ
Inspiration Technology



◀ One of the Presario PCs inside is right for you. Take a look.

>> Buy direct from Compaq

1-800-390-3272

toll - free

compaq.com/athome



PIONEER: LEADING THE WAY IN DVD-R TECHNOLOGY

www.pioneerusa.com

Compatibility, archivability, and the ability to make your own DVDs are the three most important and exciting features of the DVD-R format. DVD-R—a write-once medium that can store video, audio, graphics, electronic photographs, and any other type of digital information—represents a natural progression from CD-R technology to a higher-capacity medium.

In early 1998, Pioneer shipped the world's first DVD-R drive, a product that quickly became an indispensable tool in the professional video world. Today, businesses from every facet of the corporate world—including government, banking, legal, medical, and the entertainment/broadcast industries—depend on DVD-R to meet their write-once archival storage needs.

Pioneer

The beauty of DVD-R technology is its compatibility with existing DVD video players and DVD-ROM drives, says Andy Parsons, senior vice president of product development and technical support for Pioneer New Media Technologies Inc. "If you record something to DVD-R, it can be played on most DVD video players and DVD-ROM drives. This provides maximum interchangeability and portability of recorded discs, much as CD-R media does in the CD world. Interchangeability is important, because you can always find a player or drive that will play your disc—a capability that is critical in the real world. DVD-R is the only writable DVD format that can do that.

"Pioneer has always tried very hard to ensure that our products provide the best likelihood of compatibility. It's important to us to make products that will conform well to the existing world, and that will allow as many people as possible to use the technology."



DVD-R is also a very secure medium, so corporations with stringent archival requirements "don't have to worry about accidental erasures," notes Parsons. And DVD-R media has a very long life expectancy—100 years, in the case of Pioneer discs. "You get the key benefits of optical discs—quick random access, durability, and long life. You can put whatever you want on DVD-R, run it all day long without wear and tear, and then store it for many years."

But perhaps the "killer app" for DVD-R lies in the emerging consumer market, where you can be your own Steven Spielberg or Oliver Stone. "A fundamental capability of DVD-R is the ability to make your own DVDs," says Parsons. "You can digitize your old camcorder or videotape footage on your PC, store it to DVD-R disc, and watch it in your living room instead of on your computer, if you prefer," he explains. "And when you're done watching it, you can send the disc to relatives to watch on their DVD video players. Again, DVD-R's interchangeability is what makes this possible."

As demand for blank DVD-R media grows, "it has the potential to become very inexpensive," says Parsons. "As demand increases to a high-enough volume, there is no reason why DVD-R discs can't be as inexpensive as CD-R discs are today."

That's good news for today's corporate archivist as well as tomorrow's Steven Spielberg.



Forward Thinking



R/RW

**Pioneer recordable technology,
the natural progression of optical recording**

Industry professionals around the world rely on Pioneer when they record to DVD. Like CD-R and CD-RW, the write once DVD-R and rewritable DVD-RW formats allow you to record with confidence.



Jim Harrington
COO
Archive Digital
New York

"Archive Digital is entrusted with irreplaceable historical footage daily. The storage capacity, search engine capabilities and high resolution of Pioneer's DVD-R technology make it the obvious choice."

"Bringing DVD technology to the courtroom allows attorneys instant access to demonstrative evidence and pre-recorded testimony, reducing court time, paperwork and costs while engaging and visually stimulating jurors and judges."

"We provide a full suite of DVD solutions from interactive programming to replication and duplication of this highly interactive and portable format."

"Potentially the most complex and creative format devised for multimedia content."

Brian Clune
Vice President
Video Solutions
California



Paul LaVigne
President
Digital Video
Michigan



David Anthony
President
Metropolis DVD
New York



Pioneer

PIONEER NEW MEDIA TECHNOLOGIES, INC.
Optical Systems Division

for more information, call
1-800-444-6784 ext. 212
or visit www.pioneerusa.com

Pioneer's DVD recordable drives and media are available through local resellers nationwide.



ALIENWARE SYSTEMS

OFFER EXTRATERRESTRIAL PERFORMANCE

www.alienware.com

If extra-terrestrials looking for high-performance PCs approach you with the order, "Take me to your leader," you'd do well to guide them to Alienware Corporation. Just look at some of the comments customers have posted on Alienware's web site:

"I just want to thank you for such a well-built product," says Marty. "My new Area 51 computer is truly 'all that and a bag of chips.'... I will be referring your excellent company to my friends who are looking for a computer system that is a cut above the rest."

Another user, David Shor, writes, "Thank you, guys, for building the best system money can buy! There are no false claims about performance level. The machine I got from you just smokes."



"Alienware, you are supreme," gushes Jack Powell. "I am now on my second Alienware system.... I fell in love with the first and am now in love with this one. There is no better-built computer on the market, and the components are absolutely cutting-edge.... I wouldn't consider buying a computer system from someone else."

"I have never had the pleasure of using a machine that was built to such perfection," Mario Viscardi adds. "The speed of the machine is amazing!"

Users aren't the only ones enthusiastic about Alienware's computer systems. "Alienware's top-of-the-line system packs a lot of brand-name punch into a reasonably priced package," writes *PC Gamer*, which has given Alienware its Editor's Choice award every year for the past three years. Alienware also won *Maximum PC's* "Kick-Ass Award" and was described by that magazine as "the fastest PC we've ever seen, bar none!"



Alienware's success is due in part to its vision of building high-performance computer systems that go beyond word-processing and Net-surfing capabilities to include full-blown multimedia options. The company strives to use the latest 3D accelerators and the best hardware possible, allowing users to custom-configure their systems by choosing the best brand-name components.

The South-Florida-based company, which was recently named a Microsoft System Builder Gold Member, prides itself on its customer service and support, which is also praised by its customers.

"The minute I began talking to your service reps, I knew I was in good hands," explains Michael Cooke. "They made me feel confident in the product I was purchasing, offered suggestions, and gave their input on the hardware.... Keep up the good work and keep setting the standards for what should be expected from any company."

Abraham Egnor says, "I love you guys. I sent you a message about losing the Software DVD player. I expected to get a reply sometime this week, maybe asking me for more info. Instead I got a reply the next day, with the software attached. Two words: jaw droppage. And it works. I'm not used to things going this well, especially where computer problems are concerned."

High performance, service, and support. It's no wonder many consider Alienware "out of this world."



ALIENWARE

GREY

Intel® Pentium® III Processor at 866 MHz
High-Performance Heatsink/Cooling System
Intel® 815e Chipset Motherboard w/5 PCI
128MB SDRAM (PC-133)
Floppy Drive 1.44MB
15GB 7200 RPM Hard Drive Ultra ATA100
NVIDIA GeForce2 GTS™ 32MB DDR Video Card
SoundBlaster LIVE! 3D Sound Card
Cambridge FPS1500 4.1
Subwoofer & Speaker System
56X EIDE CD-ROM Player
White Hydraulic ATX Mid-Tower Case 300 Watt PS
Microsoft Internet Keyboard
Microsoft Intellimouse PS/2
U.S. Robotics V.90 56K Voice/Fax/Modem
Microsoft Windows Millennium OS
1-Year Toll-Free 24/7 Technical Support
with Alienware On-Site Home Service
Personalized Technical Support Manual
Optimized & Configured for High-Performance
FREE FUNC Technical Surface Pad

\$1,399.00

Financing: \$38/MO., 48 MOS.

HIVE-MIND

Intel® Pentium® III Processor at 1 GHz
High-Performance Heatsink/Cooling System
Intel® 815e Chipset Motherboard w/5 PCI
128MB SDRAM (PC-133)
Floppy Drive 1.44MB
30GB 7200 RPM Hard Drive Ultra ATA100
NVIDIA GeForce2 GTS™ 64MB DDR Video Card
SoundBlaster LIVE! 3D Sound Card
Altec Lansing ACS 54 Gaming 5-Piece
Subwoofer & Speaker System
Pioneer 16X/40X DVD Player
White Hydraulic ATX Mid-Tower Case 300 Watt PS
Microsoft Internet Keyboard
Microsoft Intellimouse PS/2
U.S. Robotics V.90 56K Voice/Fax/Modem
Microsoft Windows Millennium OS
1-Year Toll-Free 24/7 Technical Support
with Alienware On-Site Home Service
Personalized Technical Support Manual
Optimized & Configured for High-Performance
FREE FUNC Technical Surface Pad

\$1,899.00

Financing: \$52/MO., 48 MOS.

AREA51

Intel® Pentium® 4 Processor at 1.5 GHz
High-Performance Heatsink/Cooling System
Intel® 850 Chipset Motherboard w/5 PCI
128MB RDRAM (PC-800)
Black Floppy Drive 1.44MB
40GB 7200 RPM Hard Drive Ultra ATA100
NVIDIA GeForce2 Ultra™ 64MB DDR Video TV-Out
Koolmaxx Video Cooling System
SoundBlaster LIVE! 3D Sound Card
Klipsch 4.1 ProMedia v.2 4.0 THX 400-Watt
Subwoofer & Speaker System
Pioneer 16X/40X DVD Player
Plexwriter 12X/10X/32X CDR-W IDE
Black Hydraulic ATX Mid-Tower Case 300 Watt PS
Black 107-Enhanced Keyboard
Microsoft Intellimouse Explorer
U.S. Robotics V.90 56K Voice/Fax/Modem
Microsoft Windows Millennium OS
1-Year Toll-Free 24/7 Technical Support
with Alienware On-Site Home Service
Personalized Technical Support Manual
Optimized & Configured for High-Performance
FREE FUNC Technical Surface Pad

\$3,299.00

Financing: \$90/MO., 48 MOS.

"The fastest PC we've ever tested, bar none!"

-Maximum PC



Cases available in eight different colors.

FREE SHIPPING

On all Systems via FedEx 2nd Day Air

MONITORS

17" Viewsonic Q71	.27dp	\$230.00
17" Viewsonic G70B	.27dp	\$275.00
19" Viewsonic E790B	.26dp	\$389.00
21" Viewsonic GS815	.26dp	\$789.00
22" Viewsonic PF815	.25dp	\$845.00

ALIENWARE.COM™

13462 Southwest 131 Street Miami, Florida 33186

TOLL FREE: 800-494-3382

Intel, Intel Inside Logo and Pentium are registered trademarks of Intel Corporation.



PC AMERICA: INVENTORY MANAGEMENT AT POINT OF SALE

www.pcamerica.com

While many motorists in Dimondale, Mich. say the family-owned Windmill Truck Stop is a home away from home, its controller, Kevin Edelmann, says it's been more like a house of accounting horrors. Besides monitoring retail fuel sales in the truck stop's "truckers only" area, he also has to keep an eye on commuters' and travelers' purchases in the king-sized complex's convenience store, family restaurant, motel, and auto service center. "Keeping track of all of that inventory has been a nightmare," Edelmann says.

The Point of Sale (POS) system that the Windmill had been using since 1982 did a fine job of ringing up sales, but it couldn't tell store managers anything about what was on the shelf. "The system only broke sales down by department," Edelmann says. "So it couldn't tell the difference between a tube of toothpaste and a bottle of shampoo."

Edelmann found only a few POS solutions that were easy to use, Microsoft Windows-based, and able to support multiple input devices. And none of them could manage the 20,000-plus items in the Windmill's convenience store and restaurant. "We desperately needed a solution that could bring all of these components of our business together," he says.



PC AMERICA

Things finally turned around at the Windmill once Edelmann deployed PC America's Cash Register Express (CRE 2000), a Windows-based POS program that works with ordinary PCs and peripherals, as well as barcode scanners, receipt printers, and pole displays [which show charges at the checkout counter]. Now all of the Windmill's cashiers can use touch screens and barcode scanners to enter orders and update inventory. And setting up CRE 2000 could not be easier, says Edelmann. "PC America did



The home page for PC America speeds you to the point-of-sale products you need.

an excellent job pulling all of the hardware together initially. But the great thing about their software is that it can grab any component I want off the shelf and throw it together in no time. This is one slick program."

The Windmill has processed more than half a million transactions with CRE 2000 and PC America's Restaurant Pro Express (RPE 2000) since October 1999. And Edelmann predicts that PC America will continue to develop the software he needs to keep things running smoothly. "PC America is constantly improving upon their products," he says.

Now PC America is helping retailers like the Windmill to move beyond the sale itself to increase revenues. A new feature in CRE 2000 gives businesses the ability to print coupons on the bottom of sales receipts on an Epson TM-T88II receipt printer. They can use the coupons to advertise specials on slow business days (e.g., "10 Percent Off All Purchases Every Tuesday"), or to give their customers discounts on overstock items (e.g., "Get a Free Six-Pack of Pepsi on Your Next Visit").

CRE 2000's couponing feature promises retailers an excellent route to a crucial dimension in retail sales. "Repeat business is the most important aspect of any business," says PC America's president, Howard Gosman. "With this addition to our POS package, we are giving our customers a quick and easy-to-use method for creating it."



Cash Register Express Software for Windows...\$495

Computerize any type of retail store using Cash Register Express for Windows. Computerization pays for itself, saving you thousands of dollars, giving you peace of mind, and making the best use of your time. Cash Register Express



has more than 250 of the most desired point of sale features to help you leapfrog past your competition by controlling costs, reducing errors and increasing efficiency.

More Software for Your Retail Store

- ♦ Video Express
- ♦ Salon Express
- ♦ Auto Express
- ♦ RestaurantPro Express
- ♦ Barcode Express
- ♦ Label Works
- ♦ Inventory Track Express

- ♦ Credit Card Software
- ♦ All Single or Multiuser

All PC America Software requires Microsoft Windows. The software was written in Visual Basic using Microsoft Access Files. The source code is available.

CASH REGISTER EXPRESS™

More Profit!

More Sales!

More Customers!

*Save Time, Reduce Theft,
Speed Checkout, Increase Accuracy,
Reduce Costs, Make Better Business
Decisions by computerizing
your Retail Store.*



Dealers Wanted!

Join our dealer program.
It's **FREE**. It's the fastest way
to make money...AND
we make it **EASY**.

MORE INFO?

- ♦ Call Toll Free
1-800-722-6374
- ♦ www.pcamerica.com
- ♦ Fax on Demand
1-845-267-3551



**SYSTEMS
START AT
\$495.**

Cash Drawers \$189*
MMF, Logic Controls,
Indiana, APG

Programmable Keypads \$495*
Logic Controls, Cherry, Genovation
Credit Card Readers \$189*
Unitech, Mag-Tek

*All prices depend on make and model.



Barcode Scanners \$495*
Metrologic, Symbol, NJCR, Percon, PSC



Receipt Printers \$299*
Star, Ithaca, Citizen, Epson



Barcode Printers \$799*
Cognitive Solutions Barcode Blaster



Pole Displays \$289*
Logic Controls



Portable Data Collectors \$695*
American Microsystems AMS3000

1-800-PC-AMERICA

Call Toll Free 1-800-722-6374
PH: 1-845-267-3500
FX: 1-845-267-3550

PC America
60 N. Harrison Ave.
Congers, NY 10920



164 Power PCs



170 Midrange PCs



174 Budget PCs



178 Notebook PCs



180 Home PCs



183 Printers



185 Monitors

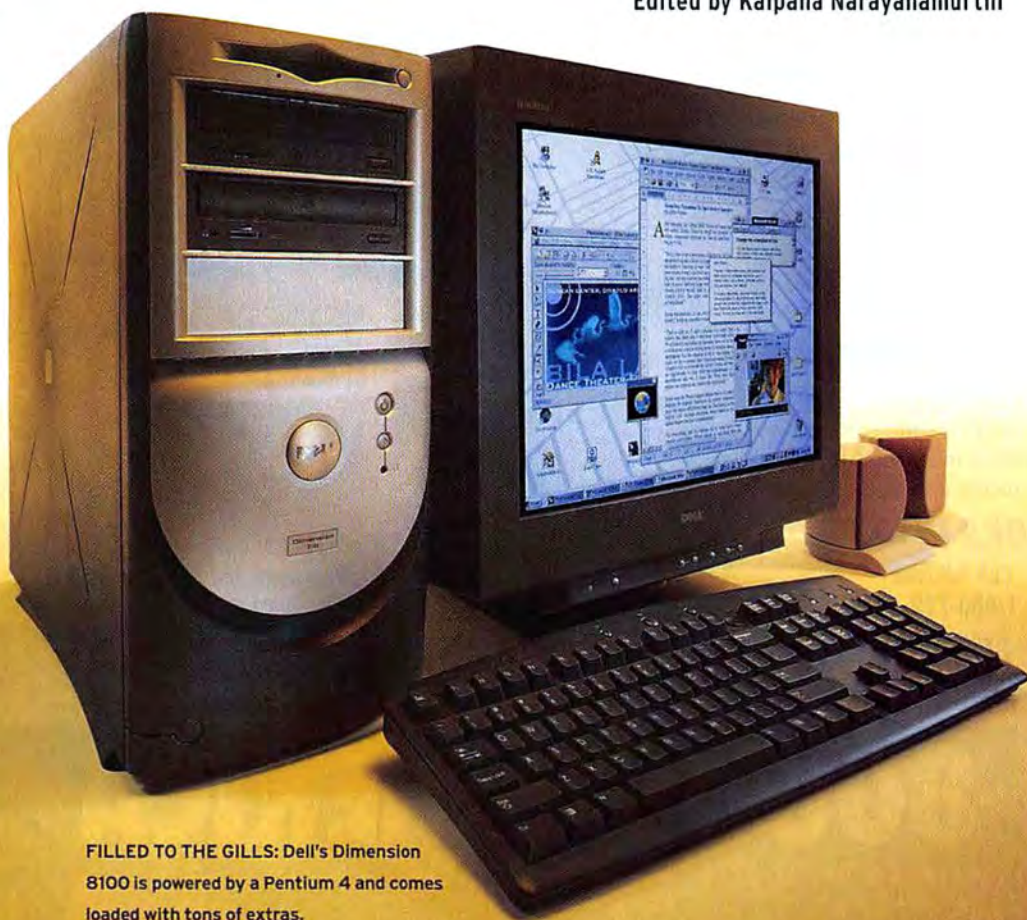


187 CD-RW Drives



Pentium 4 *Fast* *OR* *Fizzle?*

Edited by Kalpana Narayanamurthi



FILLED TO THE GILLS: Dell's Dimension 8100 is powered by a Pentium 4 and comes loaded with tons of extras.

ON PAPER, Intel's Pentium 4 processor holds great promise. It combines the highest clock speed ever seen in a desktop-bound CPU, an astounding 42 million transistors, and Intel's first new chip architecture since the Pentium Pro arrived on the scene in 1995.

Intel expects the Pentium 4's attractiveness to extend beyond mere paper. According to company spokesperson George Alfs, the P4 targets

consumer enthusiasts and business power users (in other words, the well-heeled). "It really will shine with 3D graphics, video editing, and entry-level workstation applications," he says. The chip maker introduced the P4 at clock speeds of 1.4 GHz and 1.5 GHz, but it should release a 2-GHz version by the third quarter of 2001.

Unfortunately, our tests show that—while it is a fast processor—the Pentium 4 isn't yet as impressive as its paper trail might indicate.

This month we tested a Dell Dimension 8100 that featured a 1.5-GHz P4. Equipped with its brand-spanking-new processor and running Windows 2000 Professional, the system earned a fast score of 194 on our PC WorldBench 2000 test suite. That tally is 20 points above the average for 1-GHz Pentium III systems with the same amount of RAM and the same OS. That's a sizable increase, but not as large as you might expect, considering that the processor has a 50 percent higher clock speed. However, PC WorldBench 2000 emphasizes common business applications, and we've found that Intel's assertions about the P4's strengths running multimedia applications do ring true (see "Pentium 4: Boon or Bust?" www.pcworld.com/jan2001/p4).

As more P4 systems come in and run the WorldBench gauntlet, we'll have a better sense of how well this next-generation processor performs.

In addition to having a P4 CPU, the Dimension 8100 boasts Intel's new 850 chip set. The 850 uses a 400-MHz front-side bus—providing a much fatter pipe for internal data transmission—plus four USB ports for added connectivity; it also supports the Ultra DMA/100 hard drive

standard (for more about what

Ultra DMA/100 does, see "Does Ultra DMA/100 Make a Difference in Your System's Performance?" page 166).

ATHLON ATHLETICS

AMD TRAILS in the competition for highest clock speed, but its newest processor—a 1.2-GHz Athlon—powers some fleet systems and could be a powerful contender. The HP Pavilion 9720A-T1200, number three in the power section of the *Top 15 Home PCs* chart, used the new chip and Windows Millennium Edition to score a 162 on our PC WorldBench 2000 tests. That's just one point behind the average score of the three P4 systems we tested for our January news story. Those systems also used Windows Me, but they had 256MB of RAM whereas the Pavilion 9720A-T1200 carries just 128MB.

Our *Top 15 Notebook PCs* chart has a new midrange Best Buy: the Gateway Solo 5300. This \$2274 laptop offers classy black-and-silver looks in a 5.1-pound package. Also new on the chart are the speedy but pricey IBM ThinkPad A21p, at number two in the power section, and the Dell

Latitude CPTs 600ST, at number two in the budget section, which offers dual pointing devices and a modular bay that can hold up to eight different peripherals.

Freelance writers Dan Littman, Joel Strauch, and Carla Thornton—along with PC World editors Richard Baguley, Seán Captain, Lisa Cekan, Rebecca Freed, Kalai Murugesan, and Alan Stafford—contributed to the articles in this month's *Top 100*. Laboratory testing was performed by Curt Buehler, Ulrike Diehlmann, Matt Halloran, Robert James, Elliot Kirschling, Jeff Kuta, and Thomas Luong of the PC World Test Center. Please refer to page 16 for contact information. ▶

YOUR GUIDE TO THE TOP 100

QUESTIONS ABOUT OUR CHARTS? The following information should answer them.

How do the charts work? Each month we test a large number of PCs, printers, monitors, graphics boards, and scanners, and compare them with previously reviewed products. Only the best products land on the *Top 10* and *Top 15* charts, which are refreshed monthly. System configurations are shown as tested. Vendors may have since changed components.

What does the overall rating mean? This 100-point scale reflects results from our hands-on evaluations and performance tests. A score in the 90s is exceptional, while one in the 70s is above average.

What does the PC WorldBench 2000 score mean? It's a measure of how fast a PC can run a mix of common business applications as compared with our baseline machine, an HP Pavilion 8380 with a PII-400 CPU, 96MB of RAM, and an 8GB hard drive. For example, a PC that scores 200 is twice as fast as the baseline system.

Where do the scores for reliability, support quality, and support policies come from? Reliability and support quality scores are based on surveys of *PC World* readers and on anonymous support calls made by *PC World* staff. The policies score is based on vendor support policies.

TOP 10 GRAPHICS BOARDS ON HIATUS: The graphics boards chart has been superseded by this month's comprehensive roundup on page 123. The graphics boards chart will be in its usual spot next month.



POINT YOUR browser to www.pcworld.com/top400 for late-breaking reviews of desktop computers. In the *Top 400* section, you'll find comprehensive reviews and ratings. You'll also find details on the PC WorldBench 2000 test suite at www.pcworld.com/benchmark.

TOP 10 POWER PCs

	SYSTEM: \$2400 AND OVER	Month tested	★ Overall rating	Street price (11/10/00)	PC WorldBench 2000 performance score ¹	Faster	Base configuration
1	 Dell OptiPlex GX300 800/388-8542 www.dell.com	Nov 00	97	Inexpensive: \$2566	Good	179	Outstanding: Pentium III-866, 128MB of RDRAM, 256KB L2 cache, 20GB hard drive, 19-inch monitor, Windows 2000
2	 Dell Dimension XPS B1000r Special Edition 800/388-8542 www.dell.com	Aug 00	96	Average: \$2819	Good	178	Outstanding: Pentium III-1000, 128MB of RDRAM, 256KB L2 cache, 40GB hard drive, 19-inch monitor, Windows 2000
3	 Polywell Poly 830K7-1100 800/999-1278 www.polywell.com	NEW	96	Inexpensive: \$2495	Outstanding	240	Outstanding: Athlon-1100, 256MB of SDRAM, 256KB L2 cache, two 30GB hard drives with RAID card, 19-inch monitor, Windows NT 4.0
4	 Xi Computer 1100K MTower SP 800/432-0486 www.xicomputer.com	Jan 01	94	Inexpensive: \$2462	Outstanding	180	Very good: Athlon-1100, 128MB of SDRAM, 256KB L2 cache, two 30GB hard drives with RAID card, 19-inch monitor, Windows 98 SE
5	 Dell Dimension 8100 800/388-8542 www.dell.com	NEW	92	Very expensive: \$3509	Outstanding	194	Outstanding: Pentium 4-1500, 128MB of RDRAM, 256KB L2 cache, 40GB hard drive, 19-inch monitor, Windows 2000
6	 Sys Performance 1100T 800/613-9963 www.sys.com	Dec 00	92	Average: \$2818	Outstanding	229	Outstanding: Athlon-1100, 128MB of SDRAM, 256KB L2 cache, 30GB hard drive, 19-inch monitor, Windows NT 4.0
7	 Tangent Medallion Pro 800/342-9388 www.tangent.com	Jan 01	91	Very inexpensive: \$2409	Outstanding	201	Very good: Pentium III-1000, 256MB of SDRAM, 256KB L2 cache, 30GB hard drive, 17-inch monitor, Windows 2000
8	 HP Vectra VL400 800/752-0900 www.hp.com/desktops	Oct 00	91	Inexpensive: \$2488	Very good	188	Outstanding: Pentium III-933, 128MB of SDRAM, 256KB L2 cache, 30GB hard drive, 19-inch monitor, Windows 2000
9	 Premio Apollo 820R 800/677-6477 www.premiopc.com	Dec 00	90	Inexpensive: \$2502	Very good	168	Outstanding: Pentium III-1000, 128MB of RDRAM, 256KB L2 cache, 41GB hard drive, 19-inch monitor, Windows 98 SE
10	 Kingdom Royale PIII-933 800/385-3436 www.kingdomcomputers.com	Sept 00	78	Expensive: \$3199	Good	171	Good: Pentium III-933, 128MB of SDRAM, 256KB L2 cache, 27GB hard drive, 15-inch LCD monitor, Windows 2000
 Best Buy		Percent of overall rating		Price: 15 percent	Performance: 20 percent		Base configuration: 10 percent

¹ A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 163.

² We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).



THE FIRST PENTIUM 4-BASED system we've tested for the Top 100, the Dell Dimension 8100, hits the chart in fifth place. While it's swift and packs tons of extras, an enormous price tag prevents it from climbing higher. Another new system, the Athlon-1100-based, Windows NT-running Polywell Poly 830K7-1100, blazed through our PC WorldBench 2000 test suite to set a new high score of 240, and claims third place on the chart.

1 DELL OPTIPLEX GX300



WHAT'S HOT: By keeping its price trim, the OptiPlex GX300 holds on to the top spot. This Pentium III-866 system earned a PC WorldBench 2000 score of 179—about 6 percent above the average for similarly configured systems running Windows 2000. Opening the wide midsize tower case proves simple, thanks to a release button on the front of the system. A swing-out power supply allows easy access to the three

open, tool-less drive bays, and the five open PCI slots are totally clear of obstructions. Dell's 19-inch UltraScan P991 flat-screen CRT monitor produces bright, rich colors and crisp text at all resolutions, including 1600 by 1200.

WHAT'S NOT: The OptiPlex GX300 comes with RDRAM (128MB of it), which means that future memory upgrades won't be cheap. Unfortunately, the performance benefits of RDRAM haven't been impressive in the tests we've run to date.

WHAT ELSE: The bundled Microsoft Natural Keyboard allows comfortable, quiet typing for those who like one-piece ergonomic-style keyboards. (Dell does offer other keyboard choices for those who want them.) The 8X/4X/32X CD-RW drive adds an option for backing up data. A case lock, chassis-intrusion detection, a network interface card (with Wake-on-LAN), and the included OpenManage Client remote-administration software round out the corporate features.

BEST USE: For businesses looking for a fast, managed Windows 2000 system, this OptiPlex offers substantial power.

2 DELL DIMENSION XPS B1000R SPECIAL EDITION



WHAT'S HOT: This PIII-1000 Dell system posted a strong score of 178 on our PC WorldBench 2000 tests. The system sports both a 12X DVD-ROM drive and an 8X/4X/32X CD-RW

Extra features	Design and expandability ¹	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)
Very good: Dell NVidia GeForce NV10 graphics card with 32MB of SDRAM, 8X/4X/32X CD-RW drive, network card, Microsoft Natural Keyboard, OpenManage Client, case lock	Good: tool-less slots and bays; midsize tower; 3 open drive bays, 5 open slots	Outstanding	Good/Outstanding	24/7, toll-free	3/3
Outstanding: Dell NVidia GeForce 256 graphics card with 64MB of DDR SGRAM, 12X DVD-ROM drive, 8X/4X/32X CD-RW drive, V.90 modem, network card, Microsoft Office 2000 SBE	Good: case easy to remove; midsize tower; 3 open drive bays, 2 open slots	Outstanding	Good/Good	24/7, toll-free	3/1
Good: Creative Labs Tech G80040 graphics card with 64MB of SDRAM, 4X/4X/24X CD-RW and 4X DVD-ROM combo drive, network card, Lotus Smart Suite Millennium Edition	Good: roomy interior; midsize tower; 3 open drive bays, 3 open slots	¹	Fair ²/Good	24/7, toll-free	3/5
Good: Hercules 3D Prophet II GTS graphics card with 64MB of DDR SDRAM, 16X-40X CD-ROM drive, V.90 modem, Microsoft Office 2000 Professional	Good: spacious interior; midsize tower; 3 open drive bays, 4 open slots	¹	Fair ²/Outstanding	24/7, toll-free	3/3
Outstanding: Dell NVidia GeForce2 GTS Ultra graphics card with 64MB of DDR SDRAM, 12X DVD-ROM drive, 12X/8X/32X CD-RW drive, V.90 modem, network card, Microsoft Office 2000 Pro	Good: well-organized interior; midsize tower; 3 open drive bays, 3 open slots	Outstanding	Good/Good	24/7, toll-free	3/1
Good: Matrox Millennium G400 Max graphics card with 32MB of SGRAM, 8X/4X/32X CD-RW drive, network card	Very good: cluttered but roomy case; midsize tower; 5 open drive bays, 3 open slots	¹	Good ²/Good	24/7, ⁴ toll-free	Varies ⁵ /5
Good: Gainward CardExpert NVidia GeForce2 MX graphics card with 32MB of SDRAM, 12X DVD-ROM drive, network card	Good: difficult to access interior; midsize tower; 5 open drive bays, 5 open slots	¹	Fair ²/Outstanding	24/7, toll-free	3/3
Good: Matrox Millennium G400 graphics card with 16MB of SGRAM, 4X/4X/32X CD-RW drive, network card, HP EDIagTools and ProtectTools 2000 administration software	Good: easy to access memory; midsize tower; 2 open drive bays, 5 open slots	Good	Fair/Good	24/7, toll call	3/3
Very good: ELSA Gladiac-32 graphics card with 32MB of SGRAM, 12X DVD-ROM drive, 8X/4X/32X CD-RW drive, network card, Microsoft Office 2000 SBE	Good: plenty of expansion room; midsize tower; 4 open drive bays, 3 open slots	¹	Fair ²/Fair	10/5, toll-free	3/3
Very good: Cardex NVidia TNT2 M64 graphics card with 32MB of SDRAM, 40X-52X CD-ROM drive, LS-120 drive, V.90 modem, Microsoft Office 2000 Professional, McAfee VirusScan	Good: good expansion possibilities; midsize tower; 3 open drive bays, 4 open slots	¹	Good ²/Fair	12.5 ⁴ /6, toll-free	Varies ⁵ /1
Extra features: 10 percent	Design and expandability: 15 percent	Reliability: 15 percent	Support and warranty: 15 percent		

¹ Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs. For tech-support quality, this rating may also depend on our anonymous support-quality calls.

⁴ Support hours drop to 9 hours Monday-Friday after one year.

⁵ Six years on CPU and main RAM, three years on other parts.

⁶ Ten hours on Saturday.

⁷ Five years on CPU and main RAM, one year on other parts.

drive, and its Dell NVidia GeForce 256 graphics card with DDR memory offers both analog and digital video output. That output looks very nice indeed—the 19-inch UltraScan P991 flat-screen CRT monitor delivers richly saturated colors and ultrasharp text, even at resolutions higher than the standard 1280 by 1024.

WHAT'S NOT: You'll still pay a substantial \$2819 for the privilege of having speed and top-notch components.

WHAT ELSE: Getting the midsize tower up and running is a snap, thanks to Dell's detailed setup guide and well-labeled rear ports. The huge reference and troubleshooting manual houses tons of detailed information. Dell includes Microsoft Office 2000 Small Business Edition for the \$2819 price. The side of the case slides off easily after you release two latches, making access to the innards quick and painless. The fairly cluttered interior offers two open PCI slots and

three open drive bays for future expansion. A handsome Harman Kardon HK595 three-speaker set with subwoofer pumps out well-rounded sound and is a highlight of the multimedia features.

BEST USE: This Dimension will please those who are looking for a speedy, tricked-out 1-GHz system.

New on the Chart

3 POLYWELL POLY 830K7-1100

NEW **WHAT'S HOT:** Based on an Athlon-1100 processor, the Poly 830K7-1100 blazed to a score of 240 on our PC WorldBench 2000 tests, setting a new high for systems running Windows NT 4.0. This souped-up powerhouse offers 256MB of RAM and 60GB of storage on two 30GB hard drives connected by an IDE RAID card, so you can pump



THE DELL OPTIPLEX GX300 provides loads of expansion room within its uncluttered interior.

more data through the pipe than you could with just one drive. A Creative Labs Tech G80040 graphics card with 64MB of SDRAM is another bonus.

WHAT'S NOT: The Poly 830K7-1100's unusual 4X/4X/24X CD-RW and 4X DVD-ROM combo drive uses one less ▶

drive bay than a configuration with two separate drives, but it's much slower than the best stand-alone drives. Keys clack loudly during typing, and the backspace key is annoyingly small.

WHAT ELSE: The ViewSonic GS790 19-inch monitor displayed rich colors and sharp text at both 1024 by 768 and 1280 by 1024 resolution. The shiny silver mid-size tower case looks more like a tiny train engine than a corporate system, but we prefer its sophisticated look to that of previous Polywell cases, which had more of a spray-painted appearance. To access the interior, you must remove the entire case, though it comes off easily—just push two buttons on the sides. The cables connecting the two hard drives to the RAID card crowd the interior, but three open PCI slots and three open bays provide adequate expansion room.

BEST USE: Any office could benefit from the Poly 830K7-1100's speedy performance and attractive features.

5 DELL DIMENSION 8100

NEW WHAT'S HOT: The Dimension 8100, the first Pentium 4 system we've tested for the Top 100, comes with a 1.5-GHz P4. It also boasts the Intel 850 chip set, which allows it to provide four USB ports (at the rear), Ultra DMA/100 hard drive support, and a 400-MHz front-side bus for greater connectivity and faster

internal data transmissions. The good news doesn't stop there—the Dimension 8100's cutting-edge 12X/8X/32X CD-RW drive (among the fastest available) lets you burn discs in a flash. And a Dell NVIDIA GeForce2 GTS Ultra graphics card with 64MB of DDR SDRAM handles high-resolution graphics and offers digital video output for expanded connectivity (specifically to some flat-panel monitors). This system ships with the exceptional Dell UltraScan P991 monitor, a 19-inch that displays vibrant colors and crisp text at all resolutions, including the maximum 1600 by 1200.

WHAT'S NOT: You pay the piper for the wealth of features—the Dimension 8100 will set you back \$3509. Also, the system uses Rambus memory, so any RAM upgrades will cost you even more cash.

WHAT ELSE: The jury's still out on whether the Pentium 4 processor significantly improves performance. According to Intel, you shouldn't expect much improvement with business applications—an understatement, according to our tests. Running Windows 2000, this system earned a score of 194 on our PC WorldBench 2000 tests—20 points higher than a 1-GHz PIII system recorded, but not that impressive given that the P4 has a 50 percent higher clock speed. The wide



DRESSED TO IMPRESS: The Polywell Poly 830K7-1100 sports a new look with its sleek silver case.

gray-and-black midsize tower with matching keyboard and mouse is more aesthetically pleasing than the previous bland beige Dimensions. Tool-less access to drive bays, a swing-out power supply, and tool-less case opening make working on the system easy (although replacing the case's side takes a lot of pressure). The neat interior has three open PCI slots and three open drive bays for expansion.

BEST USE: The Dimension 8100's P4 processor didn't provide the impressive performance boost we expected from a 1.5-GHz system, but the system is quick and well equipped—albeit expensive. It warrants consideration by small to medium-size offices willing to pay the high cost for its top-notch features. ▶

Does Ultra DMA/100 Make a Difference in Your System's Performance?

TECH TREND SOME OF THE latest PCs we've seen—including Dell's Dimension 8100—incorporate the new Intel 850 chip set, which provides support for the latest hard drive interface, Ultra DMA/100. This new interface supports a 50 percent faster top transfer rate than its Ultra DMA/66 predecessor. However, only small chunks of data can take full advantage of Ultra DMA/100's faster data path, so you may not see a substantial increase in performance.

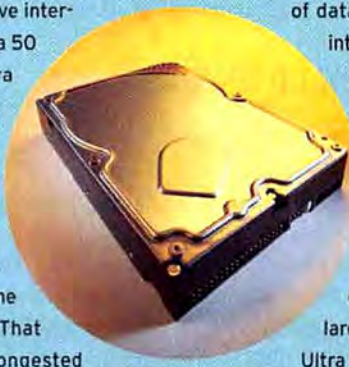
Widening the data highway doesn't necessarily improve the flow of overall traffic dramatically. Imagine you were to broaden a freeway that became overloaded with traffic only during rush hours. That would improve traffic flow just at those peak congested periods—the rest of the time, traffic would motor along as usual.

Today's hard drives can't sustain data transfers fast enough to overload even the older Ultra DMA/66 interface. The "rush-hour" excep-

tion applies only to relatively tiny bursts of data. The sustained rate—the speed at which drives can read, write, and transmit large amounts of data over an extended period—is limited by a drive's internal workings: things like how fast it spins, or drive head and servo technology.

In addition, a faster hard drive's effect on how quickly your system operates will vary depending on what application you use. Word processing, spreadsheets, and other typical office applications won't benefit much, because they tend to access the hard drive relatively infrequently. However, tasks such as file searches as well as copying large files and folders should get speedier.

Ultra DMA/100 isn't a lost cause, though. Internal components have steadily become more efficient in modern hard drives. Drives will continue to gain speed, and their sustained transfer rates will eventually surpass Ultra DMA/66's capabilities.



Hearing the phrase
"essential resource"
makes most people think of water.

We think of printers.

Color printers to be exact. Maybe we're obsessive, but consider the upside. Who better to buy a printer from than a fanatic.

Case in point: the **MINOLTA-QMS** magicolor® 2200 desktop color laser printer. It prints color and monochrome in one printer, 20 ppm monochrome and 5 ppm in color, and offers multiple language support. The magicolor® 6100 also prints monochrome and color, plus it can print in 11"x17" and larger. And both the 2200 and the 6100 come with Crown® II, a patented technology that improves printing performance and reduces network traffic.

We do obsess about printers so you probably don't want to get stuck in an elevator with us. But you'll certainly appreciate what a little obsession has done for our product. To learn more, call: **1-800-49COLOR** or visit us online at: www.minolta-qms.com



The essentials of imaging

MINOLTA
QMS

Look into the southern sky. What do



A clear view of the southern sky is your clear path to the Internet's richest content—delivered at blazing speeds via satellite. Where land-based broadband services are limited by geography, broadband Internet access powered by DirecPC is not. DirecPC uses your existing modem to request information from the Web, then uses a satellite to



\$149


DirecPC®

HUGHES
NETWORK SYSTEMS

DirecPC hardware and services purchased separately. Prices shown are MSRP. Your usage may be limited by the Fair Access Policy. For more information visit our Web site at www.direcpc.com. Speeds may vary. DirecPC is a registered trademark of Hughes Network Systems, a unit of Hughes Electronics Corporation. All other trademarks are the property of their respective owners. Hughes DIRECTV receiver sold separately. ©2000, Hughes Network Systems.

Call your authorized Hughes dealer or call
1-800-DIRECPC for the nearest dealer.

you see?

We See Broadband Everywhere™

bypass slow landlines to deliver the content you want—at speeds up to 14 times faster than a 28.8 modem! And the price for the fastest Internet access available nationwide isn't much more than you're paying now for dialup access. Which should give you a whole new perspective of the southern sky.

Visit our Web site at
www.direcpc.com.





DirecDuo™

Want the best of both worlds? DirecDuo delivers blazing fast broadband Internet access AND DIRECTV®—using the same antenna! Think of it, download speeds of up to 400 Kbps combined with more than 210 channels of movies, sports and other DIRECTV programming. So before you decide to buy one without the other, think twice. Think DirecDuo—the only way to get DirecPC and DIRECTV from one antenna. That southern sky's looking better and better.



TOP 10 MIDRANGE PCs

	SYSTEM: \$1400 TO \$2399	Month tested	★ Overall rating	Street price (11/10/00)	PC WorldBench 2000 performance score ¹	Base configuration
1	 Dell Dimension 4100 800/388-8542 www.dell.com	(NEW)	92	Average: \$1808	Very good 186	Very good: Pentium III-933, 128MB of SDRAM, 256KB L2 cache, 20GB hard drive, 17-inch monitor, Windows 2000
2	 Gateway Select 1100 800/315-2536 www.gateway.com	Jan 01	90	Average: \$1991	Outstanding 175	Very good: Athlon-1100, 128MB of SDRAM, 256KB L2 cache, 20GB hard drive, 17-inch monitor, Windows 98 SE
3	Micro Express MicroFlex 1100B 800/989-9900 www.microexpress.net	Jan 01	89	Very inexpensive: \$1499	Outstanding 173	Good: Athlon-1100, 128MB of SDRAM, 256KB L2 cache, 15GB hard drive, 17-inch monitor, Windows 98 SE
4	Sys Performance 850T 800/613-9963 www.sys.com	Jan 01	89	Average: \$1940	Outstanding 217	Outstanding: Athlon-850, 128MB of SDRAM, 256KB L2 cache, 30GB hard drive, 19-inch monitor, Windows NT 4.0
5	ABS Performance Athlon 1 800/876-8088 www.buyabs.com	Jan 01	86	Average: \$1799	Very good 152	Outstanding: Athlon-900, 128MB of SDRAM, 256KB L2 cache, 30GB hard drive, 19-inch monitor, Windows Millennium Edition
6	Micron ClientPro Cn 800/642-7667 www.micronpc.com	Oct 00	86	Average: \$1978	Very good 158	Good: Pentium III-933, 128MB of SDRAM, 256KB L2 cache, 15GB hard drive, 17-inch monitor, Windows 98 SE
7	NuTrend Business Athlon 1 888/482-6678 www.nutrend.com	Jan 01	86	Very inexpensive: \$1499	Very good 149	Very good: Athlon-800, 128MB of SDRAM, 256KB L2 cache, 30GB hard drive, 17-inch monitor, Windows Me
8	Compaq Deskpro EX 800/888-5858 www.compaq.com	Nov 00	85	Inexpensive: \$1604	Good 193	Outstanding: Pentium III-733, 128MB of SDRAM, 256KB L2 cache, 15GB hard drive, 19-inch monitor, Windows NT 4.0
9	Systemax PVW-1000A Excite PC 800/728-8586 www.systemaxpc.com	Oct 00	84	Average: \$1898	Very good 176	Very good: Athlon-1000, 128MB of SDRAM, 512KB L2 cache, 30.7GB hard drive, 17-inch monitor, Windows 2000
10	IBM NetVista A40 6578-PBU 800/426-2968 www.ibm.com/pc	Jan 01	79	Average: \$1941	Good 168	Very good: Pentium III-866, 128MB of SDRAM, 256KB L2 cache, 20.4GB hard drive, 17-inch monitor, Windows 2000
 Best Buy		Percent of overall rating ▶		Price: 17 percent	Performance: 18 percent	Base configuration: 10 percent

¹ A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details see "Your Guide to the Top 100" on page 163.

² We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).



DELL'S LATEST ITERATION of its Dimension 4100, this one with a Pentium III-933 processor, replaces its PIII-800 predecessor in the top spot. The bottom half of the chart undergoes a bit of a shakeup, as IBM's NetVista A40 6578-PBU, tested in January, makes a debut in the tenth spot.

1 DELL DIMENSION 4100


 **WHAT'S HOT:** Powered by a PIII-933 processor and running Windows 2000, this Dimension 4100 posted a score of 186 on our PC WorldBench 2000 tests—6 points above the average for similarly configured systems we've tested. The 17-inch Dell M781s monitor displayed vibrant colors, and text remained crisp at all resolutions except the maximum 1600 by 1200, where it blurred slightly. The system manual offers plenty of helpful illustrations, and the setup guide and color-coded rear ports make assembly worry-free.

WHAT'S NOT: Although you can remove the side panel of the blue-on-beige midsize tower without tools, replacing the case's side takes some work.

WHAT ELSE: The cables that crisscross the system's interior could impede upgrades, but once you get them out of the way, you'll find plenty of expansion room, thanks to four open PCI slots and four open drive bays. For business users, our test system came bundled with Microsoft Office 2000 Professional and both a network card and a modem. Although the sturdy Dell QuietKey keyboard allows smooth typing, it is not especially quiet.

BEST USE: The Dimension 4100 would suit any business that is looking for great performance at a moderate price.

2 GATEWAY SELECT 1100

 **WHAT'S HOT:** From its sleek midsize tower case, which opens and shuts via simple sliding switches, to its tool-less-access PCI slots and drive bays, the Select 1100 has many well-designed features. You can remove even the power supply without tools. Drives slide in and out of the four open bays smoothly, and a thumbscrew at the rear of the system releases a plastic lever that secures the expansion slots. With its Athlon-1100 processor providing the muscle, the Select 1100 posted a PC WorldBench 2000 score of 175, making it one of the most powerful systems we've tested running Windows 98 SE.

WHAT'S NOT: The Select 1100 lacks a reset button, so if the system hangs, you may

Extra features	Design and expandability *	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)
Very good: Dell NVIDIA GeForce2 GTS graphics card with 32MB of DDR SGRAM, 12X DVD-ROM drive, V.90 modem, network card, Microsoft Office 2000 Professional	Good: easily expandable; midsize tower; 4 open drive bays, 4 open slots	Outstanding	Good/Good	24/7, toll-free	3/1
Very good: Creative Labs CT5823 graphics card with 32MB of SDRAM, 20X-48X CD-ROM drive, V.90 modem, network card, Microsoft Office 2000 Small Business Edition	Good: tool-less drive bays and slots; midsize tower; 4 open drive bays, 2 open slots	Good	Fair/Outstanding	24/7, toll-free	3/3
Very good: ELSA Erazor X2 graphics card with 32MB of SGRAM, 12X DVD-ROM drive, V.90 modem, network card	Very good: spacious interior; midsize tower; 4 open drive bays, 3 open slots	Good	Fair/Outstanding	24/7, toll-free	4/4
Very good: Matrox Millennium G400 graphics card with 32MB of SGRAM, 8X/4X/32X CD-RW drive, network card, case lock	Very good: easy to upgrade; midsize tower; 5 open drive bays, 3 open slots	Good	Good/Good	24/7, toll-free	Varies 1/5
Outstanding: Leadtek WinFast GeForce2 MX graphics card with 32MB of SDRAM, 16X DVD-ROM drive, 8X/4X/32X CD-RW drive, V.90 modem, network card	Good: well-organized interior; midsize tower; 3 open drive bays, 2 open slots	Good	Fair/Fair	9/5, toll-free	3/lifetime
Good: VisionTek NVIDIA TNT2 M64 graphics card with 32MB of SDRAM, 20X-48X CD-ROM drive, network card, Microsoft Office 2000 SBE, LANdesk Client Manager	Very good: tool-less case removal; midsize tower; 5 open drive bays, 5 open slots	Good	Good/Outstanding	24/7, toll-free	Varies 1/1
Good: Leadtek WinFast GeForce2 MX graphics card with 32MB of SDRAM, 40X-52X CD-ROM drive, V.90 modem, network card, Microsoft Office 2000 SBE	Good: roomy case allows for easy expansion; midsize tower; 4 open drive bays, 2 open slots	Good	Fair/Good	9/5, toll-free	3/lifetime
Good: Mitac NVIDIA TNT2 M64 graphics card with 16MB of SDRAM, 20X-48X CD-ROM drive, network card, Compaq Intelligent Manageability	Satisfactory: roomy interior; midsize tower; 2 open drive bays, 2 open slots	Good	Fair/Good	24/7, toll-free	3/1
Outstanding: VisionTek NV994.0 graphics card with 32MB of SDRAM, 12X DVD-ROM drive, 4X/2X/24X CD-RW drive, V.90 modem, network card, Microsoft Office 2000 SBE	Good: plenty of room to expand; midsize tower; 3 open drive bays, 3 open slots	Good	Fair/Good	24/7, toll-free	Varies 1/3
Satisfactory: integrated Intel 815 graphics with UMA, 20X-48X CD-ROM drive, network card, IBM Universal Manageability	Satisfactory: tool-less case removal; desktop; 1 open drive bay, 2 open slots	Good	Good/Good	24/7, toll-free	3/3
Extra features: 10 percent	Design and expandability: 15 percent	Reliability: 15 percent	Support and warranty: 15 percent		

* Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs. For tech support quality, this rating may also depend on our anonymous support-quality calls.

* Support hours drop to 9 hours Monday-Friday after one year.

* Five years on CPU and main RAM, three years on other parts.

have to flip the switch on your power strip. Our test system's midrange price mandated a basic 20X-48X CD-ROM drive, though you can order the machine from Gateway with an 8X/4X/32X CD-RW drive instead for \$129 more.

WHAT ELSE: The 17-inch Gateway EV700 monitor produced rich colors in our test images, and text looked sharp at all resolutions except the highest (1280 by 1024), where it began to blur around the edges. Two front-mounted USB ports augment the standard two in back. Though the thick system manual is not specific to the Select 1100, it contains plenty of upgrading information and many helpful color illustrations. The attractive bundle includes Microsoft Office 2000 Small Business Edition and a microphone.

BEST USE: Small-office users who are looking for a powerful all-around system with easy, tool-less upgradability should consider this Gateway.

Also of Note

ALL-IN-ONE systems tend to fall short of our Top 10 charts because their expensive flat-panel displays contribute to big price tags. We tested Acer's all-in-one, the Veriton FP2, which sports two hot-swappable external drive bays. The floppy and CD-ROM drives are easily interchangeable with optional CD-RW and DVD-ROM drives or a second hard drive. With Intel LANdesk Client Manager and a network card, this DMI-compliant system delivers far more than just sleek blue-and-black looks. Another bonus: The Veriton FP2's monitor can be removed and attached to a stand, adding to the system's versatility. On the minus side, though, the FP2 offers no open PCI slots. And in our most recent reader survey (see www.pcworld.com/jan2001/service), Acer earned only a Fair



QUICK ON ITS FEET: Dell's Dimension 4100 earned an impressive 186 score on our WorldBench tests.

rating for reliability and service.

Hewlett-Packard's E-PC s10 isn't quite an all-in-one. It's compact, but its monitor is not built-in, which gives it some versatility as well: You can pair it with either a flat-panel display or a conventional CRT. Its compact case sits either flat as a ►

pedestal for a monitor or on its side as a minitower. Our test unit came with an excellent display, the HP L1510—a 15-inch LCD that delivered rich colors and crisp text and can pivot into portrait mode. Running Windows 2000 with a PIII-800E processor, the E-PC s10 earned a score of 167 on our PC World-Bench 2000 tests. That's eight points below the average for similarly configured systems, though it's still speedy enough for almost any office task. However, expansion isn't an option: No open slots or drive bays are available.

The \$1941 IBM NetVista A40 6578-PBU, originally tested for our January issue, edges onto the chart this month thanks to some other systems dropping off. This machine sports some of the latest corporate features: It is DMI-compliant, and it comes with IBM's Universal Manageability Services management software. The 17-inch IBM G76 monitor that shipped with our test system offers rich colors and crisp text. As for its perfor-



COMPAQ'S DESKPRO EX keeps its hold at number eight on the chart thanks to its swift performance.

mance, the A40 6578-PBU posted a 168 score on our PC WorldBench 2000 tests, using an 866-MHz PIII processor and running Windows 2000. While that score falls four points below the average for similarly configured systems, it's a relatively insignificant margin, making this system a viable option for both big and small businesses looking for strong performance and manageability features.

Aside from the Dell Dimension 4100 and the IBM A40 6578-PBU making debuts, the chart witnesses little change this month. All five of the freshman systems that rushed January's *Top 10 Midrange PCs* chart remain in place, thanks to their strong performances on our World-

Bench tests as well as their extra features.

Micron's ClientPro Cn, at number six, originally debuted on the *Top 10 Power PCs* chart in October. Then price drops switched it to the midrange chart. With plenty of expansion room inside its mid-size tower case and with Microsoft Office 2000 Small Business Edition bundled, this system could definitely meet a small business's needs.

Another speedy system—Compaq's Deskpro EX—remains on the chart for a fourth month. Running Windows NT 4.0 and using a PIII-733 processor, this system scored a 193 on our PC WorldBench 2000 tests. It comes with Compaq's Intelligent Manageability software and is DMI-compliant, so it could fit well in a small or medium-sized business. ▶



ROOMY INTERIOR: Micron's ClientPro Cn offers five open PCI slots and five open drive bays in its case.

MORE REVIEWS ONLINE



THE FOLLOWING SYSTEMS didn't score high enough to reach the *Top 10 Midrange PCs* chart. For write-ups, visit PCWorld.com (www.pcworld.com/t10pcs).

- ◆ Acer Veriton FP2
- ◆ Hewlett-Packard E-PC s10

Cooling Off: How Many Fans Should Your System Have?

TECH TREND IF YOU LISTEN closely, you can probably hear your PC's fans whir as they work to cool the internal components. Most PCs have a fan to cool the CPU and another inside the power supply; some include a chassis fan as well.

If your system runs too hot, sensitive circuits and chips on your components may deteriorate and consequently work improperly or not at all.

Computer manufacturers generally provide an adequate number of fans to cool the system. They use a complicated analysis to determine the amount of air that must pass through the system to keep it from overheating. But some systems may require extra cooling. For example, if you install multiple hard drives or other interior components, or if you are overclocking parts such as the CPU or graphics board, you might want to add a chassis fan if



one isn't installed already. The tools to test a system's cooling requirements aren't available to consumers. However, if your PC's motherboard has a temperature sensor, you can monitor your CPU's temperature with software such as MBM4 (available at www.pcworld.com/downloads).

Apple's tiny G4 Cube takes a different approach: Instead of fans, it uses vertical convection cooling, says Stan Ng, product line manager for the Cube. "As the components within the Cube heat up, they heat the air in the center channel [basically a large heat sink], and the air rises, creating a vacuum and pulling in cool air through the bottom," he explains.

It might be a while before Windows PCs come in a self-cooling 8-inch-square box. Until then, be sure enough fans are running inside your system to prevent it from overheating.

Save up to

\$400 on all

WinBook Si's!



700/12.1"/64/6/CD-ROM

- Intel® Celeron™ processor
- 700 MHz
- Thin (1.6") & Lightweight (6.9 lbs.)
- 12.1" Color Display
- 64 MB SDRAM, upgrade to 256 MB
- 6 GB Ultra DMA Hard Drive
- 56k* Capable v.90 Internal Fax/Modem
- NiMH Battery
- CD-ROM Drive built-in, no need to swap
- 1 Year Limited Extendable Warranty
- Microsoft Windows® Me, pre-installed

\$999 was \$1399



800/12.1"/64/6/CD-ROM

- Intel® Pentium® III processor
- 800 MHz
- Thin (1.6") & Lightweight (6.9 lbs.)
- 12.1" SVGA TFT
- 64 MB SDRAM, upgrade to 256 MB
- 6 GB Ultra DMA Hard Drive
- 56k* Capable v.90 Internal Fax/Modem
- Lithium Ion Smart Battery
- CD-ROM Drive built-in, no need to swap
- 1 Year Limited Extendable Warranty
- Microsoft Windows® Me, pre-installed

\$1299 was \$1699



800/14.1"/64/6/DVD-ROM

- Intel® Pentium® III processor
- 800 MHz
- Thin (1.6") & Lightweight (7.1 lbs.)
- 14.1" XGA Active Matrix Color Display
- 64 MB SDRAM, upgrade to 256 MB
- 6 GB Ultra DMA Hard Drive
- 56k* Capable v.90 Internal Fax/Modem
- Lithium Ion Smart Battery
- 8x DVD-ROM Drive built-in, no need to swap
- 1 Year Limited Extendable Warranty
- Microsoft Windows® Me, pre-installed

\$1699 was \$1999

Upgrade to 800 MHz, 128 MB and a 10 GB hard drive for \$1999! (was \$2299)

Use our toll-free number to call our highly knowledgeable sales consultants or check out our easy-to-use website where you'll find all the latest products and accessories you need to order your next notebook!

These
Winbook Si's
both feature
the Intel®
Pentium® III
processor!

Special Offers!

Upgrade to a
3 Year
Warranty
Limited
Time
Offer! **\$99**
on any WinBook Si
Sorry, not available to residents of Florida.

Special
RAM
pricing!
64 MB 128 MB
\$99 \$199
Visit www.winbook.com
for more savings.

Includes Windows® Me -
the home version of the
world's favorite software.

Order Online at:
www.winbook.com 800-846-6049

* 56k modems are capable of 56 kbps downloads. Due to FCC rules that restrict power output, however, current download speeds are limited to 53 kbps. Upload speeds are limited to 33.6 kbps. Actual speeds may vary depending on line conditions. Prices and specifications valid in U.S. only and subject to change without notice. All purchases are subject to availability. For a complete copy of Guarantees and Limited Warranties, contact WinBook Computer Corporation or our website at www.winbook.com/warranty.html.
©2001 WinBook Computer Corporation. All rights reserved. WinBook is a registered trademark of Micro Electronics, Inc. All rights reserved. Intel, the Intel Inside logo and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation.

WinBook®
Critically Proven.



tick, tick, tick, **tick**

introducing
VIPCs

quick
SHIPPING

full 5/3 year
WARRANTY

Finally...

good things come to those who *don't* wait.

When you need a custom PC quickly, you need a VIPC—the build-to-order Systemax™ PC that ships in 48 hours or less, guaranteed. Once your order is taken and your credit is approved, we immediately begin building your customized VIPC. 48 hours later, your VIPC is out *our* door and on its way to *yours*.

VIPC custom-configurable options include*:

- Intel® Processor speeds up to 933 MHz
- Hard drive options up to 30 GB
- Video memory options up to 16 MB

**MidWest Micro Recommends
Windows® 2000 Professional
for business.**



Call today to get your first VIPC started!

(800)235-9027

www.mwmicro.com/VIPC4

MIDWEST MICRO

A **Systemax™** Company

*Some advertised options may be unavailable. Contact your MidWest Micro Account Manager for further details.
Order will ship within two business days (weekends and holidays excluded).
Overnight and 2-day delivery upgrade options available at additional cost. Other restrictions may apply.
Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corp.

Look into the southern sky. What do you see?

We See AOL Anywhere

Introducing AOL PLUS Powered by DirecPC. High-Speed Internet Access That's Up To 14 Times Faster Than a 28.8K Connection. Now, people everywhere—within the continental United States—

can enjoy high-speed Internet access, streaming video and blazing file downloads with the new AOL PLUS Powered by DirecPC satellite service. This high-speed access is combined with exclusive broadband content and



features available only to AOL PLUS subscribers. Thanks to AOL PLUS Powered by DirecPC, broadband has no boundaries!

- **Launch your high-speed connection in a snap—AOL PLUS Powered by DirecPC makes broadband so easy!**
- **Transform your online experience into a complete multimedia showcase with streaming audio, video and more!**
- **Discover blazing speed beyond 56K—surf the Internet at incredible speeds.**






HUGHES
NETWORK SYSTEMS

Visit our Website at direcpc.com or
use America Online Keyword: Satellite



The AOL PLUS monthly fee is in addition to your standard AOL monthly fee. AOL PLUS Powered by DirecPC requires a dial-up connection and analog modem. Your free month of service begins at the time of satellite activation. Connection speeds may vary due to location, environmental conditions and/or your computer and the quality of telephone service. Cancellation fees may apply. AOL PLUS Powered by DirecPC requires an unobstructed view to the South. AK and HI are not eligible for satellite access. Go to AOL keyword AOL PLUS for full Terms & Conditions for this product at time of registration and activation. Hughes Network Systems is a unit of Hughes Electronics Corporation. DirecPC and Broadband Everywhere are trademarks of Hughes Electronics Corporation. All other trademarks are the property of their respective owners. ©2000, Hughes Network Systems.

TOP 10 BUDGET PCs

	SYSTEM: UNDER \$1400	Month tested	★ Overall rating	Street price (11/10/00)	PC WorldBench 2000 performance score ¹	Base configuration
1	 Micro Express MicroFlex TB850B 800/989-9900 www.microexpress.net	Dec 00	98	Inexpensive: \$1049	Outstanding 155	Outstanding: Athlon-850, 128MB of SDRAM, 256KB L2 cache, 20GB hard drive, 17-inch monitor, Windows 98 SE
2	 Dell Dimension L800r 800/388-8542 www.dell.com	Jan 01	97	Inexpensive: \$1009	Very good 143	Very good: Pentium III-800EB, 128MB of SDRAM, 256KB L2 cache, 10GB hard drive, 17-inch monitor, Windows Me
3	Dell OptiPlex GX100 800/388-8542 www.dell.com	Sept 00	94	Very inexpensive: \$947	Satisfactory 111	Good: Celeron-600, 64MB of SDRAM, 128KB L2 cache, 10GB hard drive, 17-inch monitor, Windows 98 SE
4	NuTrend Athlon Special 2 888/482-6678 www.nutrend.com	Jan 01	93	Average: \$1129	Outstanding 152	Very good: Athlon-850, 128MB of SDRAM, 256KB L2 cache, 20GB hard drive, 17-inch monitor, Windows Me
5	Sys TaskMaster 750D 800/613-9963 www.sys.com	Jan 01	90	Average: \$1184	Outstanding 169	Outstanding: Duron-750, 128MB of SDRAM, 64KB L2 cache, 20GB hard drive, 17-inch monitor, Windows 2000
6	PC Connection Epiq BVS 4000 800/800-0011 www.pcconnection.com	(NEW)	87	Inexpensive: \$1099	Good 139	Outstanding: Pentium III-800EB, 128MB of SDRAM, 256KB L2 cache, 20GB hard drive, 17-inch monitor, Windows 98 SE
7	Polywell Poly 830KX-750D 800/999-1278 www.polywell.com	Dec 00	87	Average: \$1125	Good 134	Very good: Duron-750, 128MB of SDRAM, 64KB L2 cache, 20GB hard drive, 17-inch monitor, Windows Me
8	Compaq Deskpro EXS 800/888-5858 www.compaq.com	Nov 00	85	Very inexpensive: \$927	Satisfactory 106	Good: Celeron-566, 64MB of SDRAM, 128KB L2 cache, 10GB hard drive, 17-inch monitor, Windows 98 SE
9	HP Brio BA410 800/752-0900 www.hp.com/desktops	Dec 00	80	Average: \$1186	Satisfactory 132	Very good: Celeron-700, 128MB of SDRAM, 128KB L2 cache, 15GB hard drive, 15-inch monitor, Windows 2000
10	Tiny Custom Business 850 888/878-8469 www.tiny.com/us	(NEW)	79	Average: \$1239	Good 132	Good: Pentium III-850, 64MB of SDRAM, 256KB L2 cache, 20GB hard drive, 17-inch monitor, Windows Me
 Best Buy		Percent of overall rating ▶		Price: 22 percent	Performance: 13 percent	Base configuration: 10 percent


¹ A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 163.

² We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).



THE TOP HALF of our Budget chart remains intact this month, with Micro Express's MicroFlex TB850B retaining the top spot for a third time. The Dell Dimension L800r also stays put in second place. PC Connection's Epiq BVS 4000 debuts at number six, thanks to its outstanding base configuration and reasonable price. Also new this month is the very compact Tiny Custom Business 850, which squeezes onto the chart at number ten.

1 MICRO EXPRESS MICROFLEX TB850B

 **WHAT'S HOT:** The MicroFlex TB850B scores with expandability. To open this basic midsize tower, you remove a single thumbscrew from the back of the top panel and then smoothly slide out the sturdy side panel. A cavernous and tidy interior offers five open PCI slots and four open drive bays. The accompanying spiral-bound system manual contains a handy list of manufac-

turers' tech support phone numbers and lots of illustrative screen shots.

WHAT'S NOT: Though the 17-inch Impression 7VX monitor handily rendered rich colors, it displayed fuzzy text at just 1024 by 768 resolution. At the maximum resolution of 1280 by 1024, text blurred heavily. No business software came bundled with our test system.

WHAT ELSE: Powered by an 850-MHz Athlon CPU, this system earned a PC WorldBench 2000 score of 155—just a

point below the only other Athlon-850 system running Windows 98 SE we've tested. Once you get used to it, the Microsoft Natural Keyboard allows smooth, quiet, and comfortable typing.

BEST USE: Any budget-minded small-office buyer looking for solid performance at a reasonable price is sure to appreciate this \$1049 package.

2 DELL DIMENSION L800R



WHAT'S HOT: The 17-inch Dell M781S monitor displays vibrant colors and produces crisp text at 1024 by 768 resolution (with only slight blurring when bumped up to the maximum resolution of 1280 by 1024). The standard beige minitower permits tool-less entry, and you can add drives to the storage bays without using any tools either. A sturdy cardboard box houses lots of helpful documentation, including a hefty reference and troubleshooting man-

Extra features	Design and expandability *	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)
Good: VisionTek NVIDIA GeForce2 GTS graphics card with 32MB of SGRAM, 8X DVD-ROM drive, V.90 modem	Very good: neat, spacious interior; midsize tower; 4 open drive bays, 5 open slots	,	Fair ¹ / Outstanding	24/7, toll-free	4/4
Satisfactory: integrated Intel 810 graphics with UMA, 17X-48X CD-ROM drive, V.90 modem, Microsoft Works Suite 2000, Norton AntiVirus	Satisfactory: cramped interior; minitower; 1 open drive bay, 2 open slots	Outstanding	Good/ Good	24/7, toll-free	3/1
Satisfactory: integrated Intel 810 graphics with UMA, 20X-48X CD-ROM drive, network card, chassis-intrusion detection, Wake-on-LAN	Satisfactory: sturdy case, easy to access memory; midsize tower; 3 open drive bays, 4 open slots	Outstanding	Good/ Outstanding	24/7, toll-free	3/3
Very good: Leadtek WinFast 3D S325 graphics card with 32MB of SDRAM, 12X DVD-ROM drive, V.90 modem, network card, Corel WordPerfect Office 2000	Good: open bays easily accessible; midsize tower; 4 open drive bays, 2 open slots	,	Fair ¹ / Good	9/5, toll-free	3/lifetime
Good: Gigabyte GA-622-16 graphics card with 16MB of SDRAM, 17X-40X CD-ROM drive, network card, Wake-on-LAN, Norton Utilities 2000, Norton AntiVirus	Good: small, neat interior; minitower; 2 open drive bays, 2 open slots	,	Good ¹ / Good	24/7, ⁴ toll-free	Varies ¹ /5
Good: integrated Intel 815 graphics with UMA, 22X-52X CD-ROM drive, V.90 modem, network card, Wake-on-LAN, Corel WordPerfect Office 2000	Satisfactory: adequate expansion room; midsize tower; 4 open drive bays, 1 open slot	,	Fair ¹ / Outstanding	24/7, toll-free	3/3
Good: Micro-Star MS-8808 graphics card with 32MB of SDRAM, 22X-48X CD-ROM drive, V.90 modem, Lotus SmartSuite 9.0 Millennium Edition	Good: cramped interior; midsize tower; 4 open drive bays, 2 open slots	,	Fair ¹ / Good	24/7, toll-free	3/5
Good: integrated Intel 815 graphics with 4MB AGP display cache, 20X-48X CD-ROM drive, network card, Microsoft Office 2000 SBE, Compaq Intelligent Manageability	Satisfactory: tidy interior; compact; 2 open drive bays, 2 open slots	Good	Fair/ Good	24/7, toll-free	3/1
Good: integrated Intel 815 graphics with UMA, 17X-48X CD-ROM drive, network card, Microsoft Office 2000 SBE	Satisfactory: swing-out power supply; minitower; 1 open drive bay, 2 open slots	Good	Fair/ Good	24/7, toll call	3/3
Satisfactory: integrated Intel 815 graphics with UMA, 22X-48X CD-ROM drive, network card, Microsoft Office 2000 SBE	Good: well-kept interior; minitower; 2 open drive bays, 2 open slots	,	Good ¹ / Good	24/7, toll-free	3/1
Extra features: 10 percent	Design and expandability: 15 percent	Reliability: 15 percent	Support and warranty: 15 percent		

¹ Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs. For tech-support quality, this rating may also depend on our anonymous support-quality calls.

⁴ Support hours drop to 9 hours Monday-Friday after one year.

⁵ Six years on CPU and main RAM, three years on other parts.

ual, a setup poster, and a quick-setup guide. In our most recent reader survey, Dell was the only vendor to receive an Outstanding grade for system reliability.

WHAT'S NOT: The minitower lacks a reset button, and replacing the flexible plastic side of the case involves lots of maneuvering. Though 128MB of RAM comes installed, the system has to share it with the integrated video (due to the Intel 810 motherboard). Generally, you can expect systems without their own dedicated video memory to perform more slowly when processing graphics.

WHAT ELSE: Using a PIII-800EB processor and running Windows Me, the Dimension L800 earned a PC World-Bench 2000 score of 143—average for its configuration, but definitely impressive for a budget system. The software bundled with the system includes Microsoft Works Suite 2000 and Norton AntiVirus. Despite its name, the sturdy Dell Quiet-

Key keyboard allows smooth but not terribly quiet typing. Two open PCI slots and one open drive bay create room for future expansion.

BEST USE: At its low price (\$1009), the Dell Dimension L800 offers ample performance for any cost-conscious small-business user.

New on the Chart

6 PC CONNECTION EPIQ BVS 4000

NEW **WHAT'S HOT:** The Epiq BVS 4000 features a network interface card with Wake-on-LAN—a rare feature for a budget system to offer. Documentation includes a quick-setup guide and a detailed overall system manual packed with helpful illustrations.

WHAT'S NOT: Colors on the 17-inch Epiq KM712 monitor appeared too light, and text blurred at 1024 by 768 resolution.



THE PC CONNECTION EPIQ BVS 4000 offers sufficient expansion room inside its basic beige case.

The Epiq BVS 4000 used its PIII-800EB processor to score a 139 on our PC World-Bench 2000 tests—that's 12 points below the average for similarly configured systems running Windows 98 SE.

WHAT ELSE: Though you can remove the 22X-52X CD-ROM and floppy drives ▶

from their bays without using tools, the system's case design requires you to take off the front panel first. After you remove two thumbscrews, the side of the basic beige midsize tower case slides off and goes back on smoothly. One open PCI slot and four open drive bays provide adequate room for expansion. The sturdy keyboard lets you type smoothly and quietly. Corel's WordPerfect Office 2000 came bundled with our test system.

BEST USE: In view of its reasonable price, the Epiq BVS 4000 would be suitable for a cost-conscious small business.

10 TINY CUSTOM BUSINESS 850

NEW WHAT'S HOT: This Tiny boasts a network interface card and Microsoft Office 2000 Small Business Edition—nice finds in such an inexpensive system. Its thick system manual contains lots of upgrading and general information, as well as a variety of color images. With a setup poster and color-coded rear ports, assembling this system is simple.

WHAT'S NOT: We were unimpressed with the Custom Business 850's sluggish performance. Blame it on the PC's paltry 64MB of RAM and its integrated video memory (which uses some of the system's main memory). This PIII-850 Windows Me system could muster only a 132 score on our PC WorldBench 2000 tests. Increasing the memory allotment would improve the system's speed, as would a graphics card; the unit's Intel 815 motherboard accepts an AGP card upgrade.

WHAT ELSE: You must remove two



LIVING UP TO ITS NAME: The Tiny Custom Business 850 offers up Microsoft Office 2000 SBE in a petite case.

screws to take the side off the nondescript beige minitower. Once you remove the screws, the side slides off and goes back on smoothly. Inside the small but well-kept interior, two open PCI slots and two open drive bays provide reasonable expansion room. Colors on the 17-inch Goldstar 17N display appeared slightly washed out, but text looked sharp at 1024 by 768 resolution. At 1280 by 1024 resolution, however, text began to look blurry. The well-constructed Tiny multimedia keyboard offers 14 programmable hot keys and smooth, quiet typing.

BEST USE: Though a bit on the slow side, the Custom Business 850 covers the basics for a reasonable price.

Also of Note

BEYOND THE CHART this month lie some small-footprint systems that are easy on the wallet. Kingdom's compact 1700N, which also stands on its side as a minitower, offers two front-mounted USB ports and two more on the rear. Kingdom throws in Microsoft's Works Suite 2000, too—all for a reasonable \$1399 price. The compact design means limited expandability, however, and the PIII-667 processor and measly 64MB of RAM translate into poor performance, as the system's PC WorldBench 2000 score of 115 attests.

Another compact model, the \$1368 Toshiba Equium 8000S,

shows excellent design foresight: A cage for the PCI slots swings up to allow easy access (though you can use only two of the four slots due to cramped space), and the hard drive and CD-ROM drive snap in and out without tools. The system ships with LANdesk Client Manager for network manageability and a loop-style case lock for added security. Unfortunately, its performance lagged, resulting in a 119 PC WorldBench 2000 score. That's not bad for a

Celeron-700 system, but it's ho-hum compared to the performance of other systems in the 8000S's price range.

Though not a compact model, Compaq's \$1191 Deskpro EXS's desktop case won't crowd your workspace. Running Windows 98 and using a PIII-733 processor with 64MB of RAM, the Deskpro EXS earned a 129 on our PC WorldBench 2000 tests—competitive with the few other systems we've tested with such a chintzy RAM allotment. However, that same score falls 13 points below systems with a more suitable 128MB of RAM.

Another Compaq Deskpro EXS, number eight on the chart, still holds on to its spot because of its dirt-cheap \$927 price tag. Its performance won't win any awards, but you won't get much better at this low price point.

Otherwise, this month's chart didn't change significantly. The top five systems hold their ground, and all three of January's newcomers—Dell's Dimension L800r, NuTrend's Athlon Special 2, and Sys's TaskMaster 750D—retain their positions, thanks to strong performance. The TaskMaster 750D's WorldBench score stands out as the fastest on the chart. ▶

MORE REVIEWS ONLINE



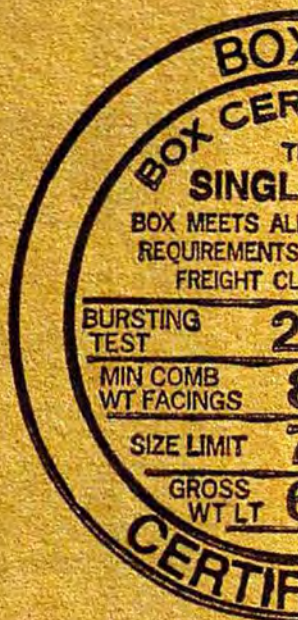
THE FOLLOWING SYSTEMS didn't score high enough to reach the Top 10 Budget PCs chart. For write-ups, visit PCWorld.com/t10pcs.

- ◆ Compaq Deskpro EXS
- ◆ Kingdom 1700N
- ◆ Toshiba Equium 8000S



ARMED WITH HP's EDIagTools diagnostic software, the HP Brio BA410 can be a useful corporate system.

**YOU'RE ALREADY
CEO, CFO, AND
VP OF HR.**



**WHY BE THE SHIPPING
DEPARTMENT TOO?**



MAIL BOXES ETC.®

We'll take it from here.™

Let Mail Boxes Etc.® handle it. Whether you need to overnight business documents or fulfill product orders, we can pack and ship it all – big or small, across the country, or around the world. We can be your copy center and mailroom, too. Then, you can concentrate on the things that you do best.

Store locations: 1-800-789-4MBE Franchise opportunities: 1-877-MBE-SALE www.mbe.com

MBE Centers are owned and operated by licensed franchisees of Mail Boxes Etc. USA, Inc. in the USA, and by its master licensees or their franchisees outside of the USA. Services vary by location. ©2000 Mail Boxes Etc. USA, Inc. 4102831200

TOP 15 NOTEBOOK PCs

	POWER NOTEBOOK: \$2700 AND OVER	Month tested	★ Overall rating	Street price (11/10/00)	PC WorldBench 2000 performance score <small>Faster</small>	Base configuration
1	 Dell Inspiron 4000 800/388-8542 www.dell.com	Dec 00	94	Very inexpensive: \$2737	Very good 164	Very good: Pentium III-750/600, 14.1-inch active screen, touchpad, eraserhead, 128MB of SDRAM, 20GB hard drive, Win 2000
2	IBM ThinkPad A21p 888/746-7426 www.ibm.com/pc/us/thinkpad	NEW	90	Very expensive: \$4049	Outstanding 182	Very good: Pentium III-850/700, 15-inch active screen, trackpoint, 256MB of SDRAM, 32GB hard drive, Windows 2000
3	IBM ThinkPad T20 888/746-7426 www.ibm.com/pc/us/thinkpad	Sept 00	88	Average: \$3249	Satisfactory 136	Satisfactory: Pentium III-700/550, 14.1-inch active screen, eraserhead, 128MB of SDRAM, 12GB hard drive, Windows 98 SE
4	Dell Latitude CPx J750GT 800/388-8542 www.dell.com	Sept 00	88	Average: \$3297	Good 153	Very good: Pentium III-750/600, 14.1-inch active screen, touchpad, eraserhead, 128MB of SDRAM, 20GB hard drive, Win 2000
5	Gateway Solo 9300xl 800/846-2000 www.gateway.com	Sept 00	85	Average: \$3370	Good 145	Outstanding: Pentium III-700/550, 15.7-inch active screen, touchpad, 128MB of SDRAM, 20GB hard drive, Windows 2000
MIDRANGE NOTEBOOK: \$2000 TO \$2699		Percent of overall rating ▶		Price: 14 percent	Performance: 20 percent	Base configuration: 5 percent
1	 Gateway Solo 5300 800/846-2000 www.gateway.com	NEW	87	Average: \$2274	Good 147	Good: Pentium III-650/500, 14.1-inch active screen, touchpad, 128MB of SDRAM, 10GB hard drive, Windows 2000
2	Acer TravelMate 602TER 800/733-2237 www.acer.com/aac	Sept 00	86	Average: \$2400	Good 127	Very good: Pentium III-650/500, 13.3-inch active screen, touchpad, 128MB of SDRAM, 12GB hard drive, Windows 98 SE
3	Chem USA ChemBook 8200B 800/866-2436 www.chemusa.com	Sept 00	85	Inexpensive: \$2059	Good 127	Satisfactory: Pentium III-650/500, 13.3-inch active screen, touchpad, 128MB of SDRAM, 6.4GB hard drive, Windows 98 SE
4	HP Omnibook XE3 800/462-8947 www.hp.com	Jan 01	83	Inexpensive: \$2249	Good 133	Good: Pentium III-700/550, 15-inch active screen, touchpad, 64MB of SDRAM, 10GB hard drive, Windows 2000
5	Acer TravelMate 524TXV 800/733-2237 www.acer.com/aac	Nov 00	83	Average: \$2299	Satisfactory 108	Good: Pentium III-650/500, 14.1-inch active screen, touchpad, 64MB of SDRAM, 12GB hard drive, Windows 98 SE
BUDGET NOTEBOOK: UNDER \$2000		Percent of overall rating ▶		Price: 17 percent	Performance: 17 percent	Base configuration: 5 percent
1	 Dell Inspiron 3800 800/388-8542 www.dell.com	Jan 01	95	Inexpensive: \$1349	Very good 113	Satisfactory: Celeron-600, 12.1-inch active screen, touchpad, eraserhead, 64MB of SDRAM, 5GB hard drive, Windows 98 SE
2	Dell Latitude CPTs 600ST 800/388-8542 www.dell.com	NEW	92	Expensive: \$1807	Very good 113	Satisfactory: Celeron-600, 13.1-inch active screen, touchpad, eraserhead, 64MB of SDRAM, 6GB hard drive, Windows 98 SE
3	Gateway Solo 1150cl 800/846-2000 www.gateway.com	Dec 00	86	Inexpensive: \$1299	Good 96	Satisfactory: Celeron-550, 12.1-inch active screen, touchpad, 64MB of SDRAM, 6GB hard drive, Windows Millennium Edition
4	Fujitsu LifeBook i-4177 877/372-3473 www.fujitsupc.com	Jan 01	86	Inexpensive: \$1299	Good 99	Satisfactory: Celeron-500, 12.1-inch active screen, touchpad, 64MB of SDRAM, 6GB hard drive, Windows 98 SE
5	Compaq Armada 100S 800/345-1518 www.compaq.com	Nov 00	77	Average: \$1599	Satisfactory 85	Good: AMD K6-2+533, 13.3-inch active screen, touchpad, 64MB of SDRAM, 5GB hard drive, Windows 98 SE
 Best Buy		Percent of overall rating ▶		Price: 20 percent	Performance: 14 percent	Base configuration: 5 percent

* Unless otherwise noted, all notebooks come with a lithium ion battery.

* Includes computer; adapter; power cord; and floppy, DVD-ROM, or CD-ROM drive.

* Due to insufficient data from survey, score is based on responses to anonymous calls for tech support.

* Insufficient data to give a rating.



YOU SCREAM, I scream, we all scream for more screen. More notebook screen, that is. Bigger screens with higher resolutions let us see bigger spreadsheet sectors, inspect greater detail in photographs and maps, and enjoy better-looking DVD movies.

The physical dimensions of notebook screens have topped out at 15.4 diagonal inches of viewable area. But the maximum resolution on some expensive new laptops continues to climb. This month, IBM's ThinkPad

A21p debuts in second place on the power list. Its UXGA resolution—a whopping 1600 by 1200 pixels—more than doubles the number of pixels on the XGA screen that many other notebooks on the chart use. The rest of the ThinkPad A21p is just as impressive, including its performance: It earned a PC WorldBench 2000 score of 182, a new mobile land-speed record. Its high-end goodies come at a stiff price,

Extra features ¹	Design and ease of use	Battery life (hours:min)	Travel weight (pounds) ²	Vendor's system reliability	Tech support quality/policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)
Good: multipurpose bay, 10X-24X CD-ROM drive, built-in modem, Microsoft Office 2000 Small Business Edition	Very good: great choice for sharing; optional color palm rests and screen back dress up looks	Very good/ 4:10	Average/ 7.9	Good	Good/ Good	24/7, toll-free	1/1
Very good: multipurpose bay, 8X DVD-ROM drive, built-in modem, Lotus SmartSuite	Excellent: decked-out system includes video-in, 1600 by 1200 screen, huge hard drive	Good/ 3:45	Average/ 8.3	Good	Good/ Fair	24/7, toll-free	3/3
Very good: multipurpose bay, 6X DVD-ROM drive, built-in modem and network card	Very good: travel ThinkPad adds Bluetooth port, network jack, and great electronic manual	Good/ 3:21	Light/ 6.5	Good	Good/ Fair	24/7, toll-free	3/3
Good: multipurpose bay, 10X-24X CD-ROM drive, PC Card modem	Outstanding: dual pointing devices and a smorgasbord of possible add-ins	Good/ 3:15	Average/ 8.6	Good	Good/ Good	24/7, toll-free	3/3
Very good: two multipurpose bays, 10X-24X CD-ROM drive, LS-120 drive, built-in modem, PC Card network card	Outstanding: drive-in-movie-size screen dominates fast SUV of desktop replacements	Good/ 3:24	Heavy/ 9.6	Fair	Fair/ Good	24/7, toll-free	3/3
Extra features: 5 percent	Design and ease of use: 10 percent	Battery life: 8 percent	Weight: 8 percent	Reliability: 20 percent	Support and warranty: 10 percent		
Good: multipurpose bay, 10X-24X CD-ROM drive, built-in modem and network card	Very good: removable hard drive, handsome black-and-silver case, but wobbly keyboard	Good/ 3:07	Average/ 7.1	Fair	Fair/ Fair	24/7, toll-free	1/1
Good: multipurpose bay, 4X/2X/20X CD-RW drive, built-in modem and network card, Microsoft Works 2000	Very good: LAN-ready lightweight with ultra-soft, quiet keyboard; CD-RW replaces floppy	Very good/ 4:21	Light/ 6.7	Good	Good ³ / Fair	24/7, toll-free	1/1
Satisfactory: multipurpose bay, 12X-24X CD-ROM drive, built-in modem and network card	Satisfactory: takes fewer add-ins than other notebooks; built-in modem requires extra cable	Very good/ 4:13	Light/ 6.3	Fair ⁴	Fair ⁵ / Fair	24/7, varies ⁶	1/3
Satisfactory: 8X DVD-ROM drive, built-in modem and network card	Average: business laptop has improved CD player controls, cursor lock; Bluetooth-ready	Good/ 3:26	Average/ 8.2	Good	Fair ⁷ / Poor	24/7, toll call	1/1
Good: multipurpose bay, 6X DVD-ROM drive, built-in modem and network card	Very good: network-ready laptop can attach optional USB camera	Good/ 3:45	Average/ 7.7	Good	Good ⁸ / Fair	24/7, toll-free	1/1
Extra features: 5 percent	Design and ease of use: 10 percent	Battery life: 8 percent	Weight: 8 percent	Reliability: 20 percent	Support and warranty: 10 percent		
Satisfactory: multipurpose bay, 10X-24X CD-ROM drive, Microsoft Works 2000	Excellent: thinnish, adaptable business laptop comes in different colors	Good/ 3:17	Average/ 8.3	Good	Good/ Good	24/7, toll-free	1/1
Good: multipurpose bay, 14X-24X CD-ROM drive, built-in modem	Excellent: dual pointing devices; modular bay holds eight different peripherals	Very good/ 4:19	Average/ 8.3	Good	Good/ Good	24/7, toll-free	3/3
Limited: 10X-24X CD-ROM drive, built-in modem	Satisfactory: sleek, iBook-like design; built-in speakers offer boom-box sound	Satisfactory/ 2:27	Average/ 7.8	Fair	Fair/ Good	24/7, toll-free	3/3
Satisfactory: multipurpose bay, 8X DVD-ROM drive, built-in modem, Microsoft Works 2000	Very good: boxy legacy-light portable with lots of multimedia features	Satisfactory/ 2:19	Average/ 7.7	Fair	Poor/ Fair	24/7, toll-free	1/1
Satisfactory: 10X-24X CD-ROM drive, built-in modem, Microsoft Office 2000 SBE	Poor: basic and compact; nonremovable floppy and CD-ROM drives; so-so sound	Satisfactory/ 2:52	Average/ 7.6	Fair	Fair/ Fair	24/7, toll-free	1/1
Extra features: 5 percent	Design and ease of use: 10 percent	Battery life: 8 percent	Weight: 8 percent	Reliability: 20 percent	Support and warranty: 10 percent		

¹ Support toll-free from 8:30 a.m. to 5:30 p.m. PST; toll call at other times.

however—at \$4049, it's the most expensive notebook we've seen in some time.

New notebooks from Gateway and Dell snag places on this month's midrange

FULL REVIEWS ONLINE



FOR DETAILED write-ups of all the new notebooks that we tested this month, visit PCWorld.com (www.pcworld.com/top400).

and budget lists, respectively. You might call the Gateway Solo 5300, our new mid-range Best Buy, a low-cost alternative to the ThinkPad. It offers a 14.1-inch screen in a 5.1-pound package (excluding peripherals)—almost as lightweight as a ThinkPad T20, but for a lot less money.

Contributing Editor Carla Thornton regularly covers notebooks for PC World. ▶

IBM'S THINKPAD A21p: Large UXGA screen, fast CPU, and a fat price to go with it.



TOP 15 HOME PCs

	POWER SYSTEM: \$2000 AND OVER	Month tested	★ Overall rating	Street price (11/10/00)	PC WorldBench 2000 performance score ¹	Base configuration ²
1	 Gateway Select 1100 Deluxe 800/315-2536 www.gateway.com	Nov 00	87	Very expensive: \$2903	Very good 164	Very good: Athlon-1100, 128MB of SDRAM, 256KB L2 cache, 60GB hard drive, midsize tower, 19-inch monitor, Windows Me
2	Sony VAIO Digital Studio RX280DS 888/315-7669 www.sony.com/vaio	Dec 00	84	Average: \$2648	Very good 164	Good: Pentium III-1000, 128MB of SDRAM, 256KB L2 cache, 61GB hard drive, minitower, 17-inch monitor, Windows Me
3	HP Pavilion 9720A-T1200 800/752-0900 www.hpshopping.com	NEW	83	Inexpensive: \$2269	Very good 162	Good: Athlon-1200, 128MB of SDRAM, 256KB L2 cache, 30.7GB hard drive, tower, 17-inch monitor, Windows Me
4	ABS Performance 1 800/876-8088 www.buyabs.com	Oct 00	83	Inexpensive: \$2259	Good 156	Very good: Pentium III-866, 256MB of SDRAM, 256KB L2 cache, 40GB hard drive, midsize tower, 19-inch monitor, Windows 98 SE
5	Compaq Presario 7000T 800/345-1518 www.compaq.com	Dec 00	81	Expensive: \$2816	Good 155	Very good: Pentium III-1000, 128MB of SDRAM, 256KB L2 cache, 75GB hard drive, midsize tower, 19-inch monitor, Windows Me
MIDRANGE SYSTEM: \$1200 TO \$1999		Percent of overall rating ▶		Price: 10 percent	Performance: 20 percent	Base configuration: 10 percent
1	 Dell Dimension 4100 PIII-933 800/388-8542 www.dell.com	NEW	92	Expensive: \$1819	Good 154	Good: Pentium III-933, 128MB of SDRAM, 256KB L2 cache, 20.4GB hard drive, midsize tower, 17-inch monitor, Windows Me
2	Tiny Computers T-Bird 1000 888/818-8469 www.tiny.com	NEW	86	Average: \$1699	Very good 160	Very good: Athlon-1000, 128MB of SDRAM, 256KB L2 cache, 40.9GB hard drive, minitower, 19-inch monitor, Windows Me
3	ABS Multimedia System 2 800/876-8088 www.buyabs.com	Dec 00	85	Inexpensive: \$1349	Very good 160	Very good: Athlon-950, 128MB of SDRAM, 256KB L2 cache, 30GB hard drive, midsize tower, 19-inch monitor, Windows 98 SE
4	HP Pavilion 8720I ⁵ 800/752-0900 www.hpshopping.com	Oct 00	85	Expensive: \$1799	Good 154	Good: Pentium III-933, 128MB of SDRAM, 256KB L2 cache, 40.8GB hard drive, midsize tower, 17-inch monitor, Windows 98 SE
5	Polywell Poly 830KR-1000 800/999-1278 www.polywell.com	Dec 00	84	Very expensive: \$1999	Outstanding 167	Outstanding: Athlon-1000, 256MB of SDRAM, 256KB L2 cache, dual 30GB SCSI hard drives, midsize tower, 19-inch monitor, Windows Me
BUDGET SYSTEM: UNDER \$1200		Percent of overall rating ▶		Price: 15 percent	Performance: 15 percent	Base configuration: 10 percent
1	 Dell Dimension L866r 800/388-8542 www.dell.com	NEW	89	Expensive: \$1129	Very good 144	Good: Pentium III-866, 128MB of SDRAM, 256KB L2 cache, 10.2GB hard drive, minitower, 17-inch monitor, Windows Me
2	NuTrend Athlon Force 2 888/482-6678 www.nutrend.com	NEW	79	Very expensive: \$1149	Outstanding 161	Very good: Athlon-900, 128MB of SDRAM, 256KB L2 cache, 20.5GB hard drive, midsize tower, 17-inch monitor, Windows Me
3	Polywell Poly 700KD 800/999-1278 www.polywell.com	Oct 00	77	Expensive: \$1111	Good 131	Very good: Duron-700, 128MB of SDRAM, 64KB L2 cache, 20GB hard drive, midsize tower, 17-inch monitor, Windows 98 SE
4	IBM NetVista A20i 227610U 800/426-2968 www.pc.ibm.com/us/netvista	NEW	77	Inexpensive: \$868	Satisfactory 104	Satisfactory: Celeron-600, 64MB of SDRAM, 128KB L2 cache, 10.2GB hard drive, minitower, 17-inch monitor, Windows Me
5	Sony VAIO PCV-J120 888/315-7669 www.sony.com/vaio	NEW	73	Expensive: \$1098	Good 132	Good: Pentium III-700, 128MB of SDRAM, 256KB L2 cache, 20.4GB hard drive, minitower, 15-inch monitor, Windows Me
 Best Buy		Percent of overall rating ▶		Price: 20 percent	Performance: 10 percent	Base configuration: 10 percent

¹ Performance word scores reflect comparisons of PCs in the same price category running the same operating system. For more details, see "Your Guide to the Top 100" on page 163.

² Vertical cases are towers (over 20 inches), midsize towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Horizontal cases are desktops (5 inches or taller) or compacts (under 5 inches).



IF YOU THINK the fastest PCs carry the biggest price tags, you'll find some surprises this month—not all the top performers are in the power section. A \$300 cut moves the Polywell Poly 830KR-1000, the fastest home system that we've tested, onto our midrange chart. Close behind is the speedy NuTrend Athlon Force 2, our second-place budget system, whose blazing PC WorldBench 2000 score of 161 contrasts pleasantly with its economy price of \$1149.

But the costliest systems on our chart prove there is more to power than raw speed. HP's hulking Pavilion 9720A-T1200, for instance, comes with a boatload of extras, including a high-performance NVidia-based graphics board, a network card, and both DVD-ROM and CD-RW drives. Dell leaves the power chart this month, as it has discontinued the Dimension XPS B1000r—clearing

Extra features	Setup/ ease of use	Graphics	Reliability/ support	Comments
Very good: Gateway GeForce2 GTS graphics board with 64MB of DDR SDRAM, 16X DVD-ROM drive, 8X/4X/32X CD-RW drive, V.90 modem	Good/ Very good	Very good	Fair/ Fair	PRO: Excellent monitor and sound system, latches provide easy access to drive bays. CON: Premium processor imposes premium price.
Very good: ASUS AGP-V7100 graphics board with 32MB of SDRAM, 16X DVD-ROM drive, 8X/4X/32X CD-RW drive, network card (NIC), V.90 modem	Satisfactory/ Good	Good	Good/ Fair	PRO: Fast, stylish system with a beautiful monitor, ideal for video and graphics fans; modest price drop. CON: Includes only a chintzy sound system.
Outstanding: ASUS AGP-V7700 graphics board with 64MB of DDR SDRAM, 16X DVD-ROM drive, 8X/4X/32X CD-RW drive, NIC, V.90 modem	Satisfactory/ Good	Good	Fair/ Fair	PRO: Loads of extra features and room for expansion. CON: Gigantic case could be a tight fit for home offices, but we would like to see a bigger monitor.
Very good: Leadtek WinFast GeForce2 GTS graphics board with 32MB of DDR SGRAM, 10X DVD-ROM drive, 12X/10X/32X CD-RW drive, V.90 modem	Good/ Satisfactory	Good	1/Fair ⁴	PRO: Superb five-speaker sound system; \$100 price drop this month. CON: Small text looked sharp at 1024 by 768, but blurred at 1280 by 1024.
Outstanding: Creative Labs GeForce2 GTS graphics board with 64MB of DDR SDRAM, 16X DVD-ROM drive, 8X/4X/32X CD-RW, NIC, V.90 modem	Good/ Good	Very good	Poor/ Fair	PRO: Fast, fully loaded system. CON: Slowest PC in this power lineup; comes with only second-rate speakers.
Extra features: 10 percent	Setup/ease of use: 5 percent	Graphics: 15 percent	R & S: 30 percent	
Very good: Dell GeForce2 GTS graphics board with 64MB of DDR SDRAM, 12X DVD-ROM drive, V.90 modem	Outstanding/ Good	Very good	Outstanding/ Outstanding	PRO: Solid graphics performer from a vendor with the highest reliability and service ratings. CON: Sound system is uninspiring.
Outstanding: MYGA-NVG11A graphics board with 32MB of SDRAM, 8X DVD-ROM drive, 4X/4X/24X CD-RW drive, V.90 modem, scanner, ink jet printer	Satisfactory/ Very good	Good	1	PRO: Fast family PC with extra peripherals and software. CON: DVD movie playback is very dark; limited expansion room. Printer and scanner are low-end.
Good: Leadtek WinFast 3D S325 graphics board with 32MB of SDRAM, 10X DVD-ROM drive, V.90 modem	Satisfactory/ Satisfactory	Good	1/Fair ⁴	PRO: \$140 cheaper this month; speakers and subwoofer deliver full, rich sound. CON: Low frame-rate scores on game tests; DVD movies appear dark.
Outstanding: ASUS AGP-V7700 graphics board with 32MB of DDR SGRAM, 16X DVD-ROM drive, 8X/4X/32X CD-RW drive, NIC, V.90 modem	Good/ Good	Very good	Fair/ Fair	PRO: Provides handsome display quality and comes with a network card. CON: Very limited expansion room; sound system lacks a subwoofer.
Very good: Leadtek WinFast GeForce2 GTS graphics board with 32MB of DDR SGRAM, 8X/4X/32X CD-RW drive, V.90 modem	Good/ Good	Good	1/Fair ⁴	PRO: \$300 off fastest PC on chart; dual SCSI hard drives in RAID configuration. CON: No DVD-ROM drive; minimal documentation.
Extra features: 10 percent	Setup/ease of use: 10 percent	Graphics: 10 percent	R & S: 30 percent	
Good: integrated graphics with UMA, 22X-48X CD-ROM drive, NIC, V.90 modem	Outstanding/ Good	Limited	Outstanding/ Outstanding	PRO: Rich, clear display quality and sound. CON: Noisy hard drive, lacks a reset button, design is anything but stylish.
Very good: Leadtek WinFast 3D S325 graphics board with 32MB of SDRAM, 12X DVD-ROM drive, NIC, V.90 modem	Satisfactory/ Good	Satisfactory	1	PRO: System's speed redefines budget performance; handsome multimedia keyboard. CON: Lackluster frame-rate scores in our gaming tests.
Very good: Micro-Star MS-8808 graphics board with 32MB of SDRAM, 10X DVD-ROM drive, V.90 modem	Very good/ Satisfactory	Good	1/Fair ⁴	PRO: Solid performer; ample expansion room. CON: Speakers sound a bit muddy; game play is somewhat choppy at high resolution.
Satisfactory: integrated graphics with UMA, 22X-48X CD-ROM drive, V.90 modem	Satisfactory/ Good	Poor	Good/ Fair	PRO: Better-than-average CRT monitor and upgrade options for a budget system. CON: Very weak graphics performance.
Good: integrated graphics with UMA, 4X/4X/24X CD-RW drive, NIC, V.90 modem	Good/ Good	Poor	Good/ Fair	PRO: Clear display quality, loads of useful video and graphics software. CON: Slow integrated graphics limit use as a video-editing machine.
Extra features: 10 percent	Setup/ease of use: 10 percent	Graphics: 10 percent	R & S: 30 percent	

¹ Insufficient data to give a rating.

⁴ Due to insufficient data from survey, score is based on responses to anonymous calls for tech support.

⁵ Previously named the Pavilion 8700i-933.

the decks for a Pentium 4-based system we'll review next month. But Dell newcomers capture top honors in both the midrange and budget categories. Second

FULL REVIEWS ONLINE



FOR WRITE-UPS on all the systems we reviewed this month, visit PCWorld.com (www.pcworld.com/top400/newhomepcs).

on the midrange chart comes the Tiny T-Bird 1000. Tiny systems have been sluggish in the past, but this Athlon-1000 PC, scoring 160 on PC WorldBench 2000, can run with the best of them.

Finally, two low-cost entrants join our budget chart. IBM's NetVista A20i 227610U (not the svelte model with the LCD screen) and Sony's VAIO PCV-J120 take slots four and five this month. ▶



WHEN NOTHING but the biggest will do: HP's giant Pavilion 9720A-T1200.



a major Breakthrough in system performance

New Technology in Diskeeper® 6.0 makes it the most powerful and intelligent network defragmenter ever created...

DISKEEPER is proven to increase system speed on average 56 – 81% on Windows® NT® — even more on Windows 2000. So how do you make the world's best selling network defragmenter even better? We made it faster!

Cutting-edge algorithms in new Diskeeper 6.0 give it blazing speed to defragment any drive on your network. Only nominal system resources are used in a lightning-quick process. In addition, we created **Smart Scheduling** to make defragmenting your network easier and more automated. This option lets you go beyond setting fixed schedules and allows run times to be dynamically configured based on the condition of your disks.

Experience the power of a hardware upgrade... at a fraction of the cost. Buy new Diskeeper 6.0 today! For more info and FREE Trialware go to www.diskeeper.com/dkinfo.

- New "Set It and Forget It"™/Smart Scheduling™ options.
- Server version controls remote machines running Windows 95/98/Me/NT/2000 — even when mixed.
- **Safe and Compatible:** Certified for Windows 2000.
- Volume Licensing, Gov't/Educational Discounts available.

**Executive
Software**
Focused Development of System Management Tools
www.execsoft.com
1-800-829-6468

FREE! DISKEEPER LITE

Available for
FREE download
on our web site!



TOP 10 PRINTERS

	INK JET PRINTER	Street price (11/10/00)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/color graphics	Cost per page for monochrome/color (cents)	Comments
1	 Lexmark Z32 Color Jetprinter 800/752-0900 www.lexmark.com	\$70	93	2.5/0.3	Good/ Good	7.1/20	 FEATURES: Rated 7.5 ppm monochrome/3.5 ppm color. 1200-by-1200-dpi maximum resolution, 100 sheets input, 25 output. SUMMARY: The Z32 has impressive print quality for its \$70 price, producing clean text and rich, detailed images. Its performance is slow, however, and consumables are costly.
2	 HP DeskJet 932C¹ 800/752-0900 www.hp.com	\$199	93	4.1/0.7	Good/ Good	3.6/11.1	 FEATURES: Rated 4.5 ppm monochrome/2 ppm color. 2400-by-1200-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: As retested, the 932C has faster text speed, raising its overall standing. Print quality remains strong, with sharp text, smooth grays, and detailed—if somewhat light—color graphics.
3	Lexmark Z42 Color Jetprinter 800/539-6275 www.lexmark.com	\$129	91	4.5/0.5	Good/ Good	5.2/19.1	 FEATURES: Rated 10 ppm monochrome/5 ppm color. 2400-by-1200-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: The Z42 is one of the faster models on the chart for text, and it prints both text and color graphics smoothly and evenly. Gray-scale images are not as impressive, however.
4	Lexmark Z52 Color Jetprinter 800/539-6275 www.lexmark.com	\$179	90	5.4/0.6	Very good/ Very good	5.2/19	 FEATURES: Rated 15 ppm monochrome/7 ppm color. 2400-by-1200-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: The higher-end model in Lexmark's Z line of ink jets, the Z52 produces sharp text and smooth images for a reasonable price. It also prints text quickly.
5	Xerox DocuPrint M750 800/832-6979 www.xerox.com	\$149	89	4.2/0.8	Very good/ Good	5.9/17	 FEATURES: Rated 10 ppm monochrome/6 ppm color. 1200-by-1200-dpi maximum resolution, 150 sheets input, 50 output. SUMMARY: With high text speed and crisp text quality, the M750 offers a lot for \$149. Features such as a large input tray and a straight paper path make it an even better bargain.
6	Lexmark Z12 Color Jetprinter 800/539-6275 www.lexmark.com	\$50	89	2.4/0.4	Good/ Adequate	7.1/12.9	 FEATURES: Rated 6 ppm monochrome/3 ppm color. 1200-by-1200-dpi maximum resolution, 100 sheets input, 25 output. SUMMARY: The Z12 is the cheapest in the Top 10 at a mere \$50, but sluggish text and graphics speeds and the lack of a black cartridge (it has a color ink cartridge only) pull it down.
7	HP DeskJet 842C 800/752-0900 www.hp.com	\$149	85	2.6/0.5	Good/ Good	7.2/14.6	FEATURES: Rated 4.6 ppm monochrome/3.1 ppm color. 600-by-1200-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: HP's DeskJet 842C has a good price, but its performance is rather slow. Output quality is a mixed bag: dark and crisp text and smooth but foggy graphics. Documentation is outstanding.
8	Epson Stylus Color 880 800/463-7766 www.epson.com	\$149	84	4.5/1.2	Good/ Good	3.3/11.6	 FEATURES: Rated 12 ppm monochrome/9 ppm color. 2880-by-720-dpi maximum resolution, 100 sheets input, 30 output. SUMMARY: Quick performance and good text and color graphics mark the Stylus Color 880. As with most of Epson's printers, print quality improves significantly on glossy paper.
9	Compaq IJ1200 (NEW) 800/345-1518 www.compaq.com	\$149	83	4.5/1.0	Good/ Very good	5.2/19.1	 FEATURES: Rated 10 ppm monochrome/5 ppm color. 2400-by-1200-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: With the same print engine as Lexmark's Z42, this Compaq performed very similarly to the Lexmark, but a slightly higher price and less-impressive support pull it down.
10	Epson Stylus Color 980 800/463-7766 www.epson.com	\$249	82	6.6/2.0	Adequate/ Adequate	3.5/9.8	 FEATURES: Features: Rated 13 ppm monochrome/10.5 ppm color. 2880-by-720-dpi maximum resolution, 100 sheets input, 30 output. SUMMARY: Speediest on the chart, this unit is almost as fast as a monochrome laser. But its smudged, jagged text and filmy, dotted graphics fall short. Has good software bundle.



Best Buy



Recommended for home



Recommended for printing photos

For reviews of printers we tested this month, visit www.pcworld.com/t10printers.

HOW WE TEST The overall rating we assign to each ink jet printer is based on a combination of seven measures, given the following weightings: price (25 percent), print quality (20 percent), features (15 percent), ease of use (15 percent), speed (10 percent), service and support (10 percent), and cost of consumables (5 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

¹ Retested.

BECAUSE IT received new drivers, we retested the venerable HP DeskJet 932C this month. The unit's text speed increased to 4.1 pages per minute this time around, while graphics speed held at 0.7 ppm.

The 932C continues to produce sharp text and graphics. Of two new ink jets, the \$149 Compaq IJ1200 debuts at number nine, but Kodak's Personal Picture Maker 200—a \$299 photo printer with slots for a CompactFlash card—misses the chart. ▶

Impress everyone with your photographic memory.

Is it live or is it Memorex?™



Memorex®

Flash Memory Products



TOP 10 MONITORS

	17-INCH MONITOR	Month tested	Street price (11/10/00)	Overall rating	Quality of text/graphics	Comments
1	 ViewSonic EF70 800/888-8583 www.viewsonic.com	Sept 00	\$255	87	Very good/ Excellent	FEATURES: 16.1-inch viewable area, .25mm stripe-pitch Diamondtron NF tube, ¹ up to 87-Hz refresh rate, ² Plug and Play ready, ³ three-year warranty, 24-hour daily toll-free support. SUMMARY: Deep, saturated color in graphics keeps this model at the top. Sophisticated on-screen control menu is easy to navigate with standard buttons on the front bezel.
2	 Samsung SyncMaster 700NF 800/726-7864 www.samsungmonitor.com	July 00	\$284	87	Very good/ Very good	FEATURES: 16-inch viewable area, .25mm stripe-pitch Diamondtron NF tube, ¹ up to 85-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. SUMMARY: Radiant colors and fine detail make this a good choice for heavy graphics work. Easy-to-use on-screen controls are set on a retracting panel.
3	CTX International PR705F 800/888-9052 www.ctxintl.com	Jan 01	\$269	87	Very good/ Excellent	FEATURES: 15.9-inch viewable area, .24mm stripe-pitch FD Trinitron tube, ¹ up to 85-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 12-hour weekday toll-free support. SUMMARY: The PR705F produces smooth text and graphics for a great price. On-screen menus are especially easy to use, with well-labeled icons.
4	DecaView GF385 888/707-6688 www.decaview.com	(NEW)	\$259	87	Very good/ Very good	FEATURES: 16-inch viewable area, .34mm stripe-pitch FD Trinitron tube, ¹ up to 100-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 10-hour daily toll-free support. SUMMARY: DecaView's new chart maker displays clean text and graphics, and the price is right. The control panel is easy to use, with well-marked word descriptions and pictures on menu options.
5	NEC MultiSync FE700 888/632-6487 www.necmitsubishi.com	Feb 00	\$279	86	Very good/ Very good	FEATURES: 15.6-inch viewable area, .25mm stripe-pitch Diamondtron NF tube, ¹ up to 87-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. SUMMARY: Displays rich colors on photos and Web pages, but text in word processing documents and spreadsheets could be sharper. On-screen controls require lots of button pressing.
6	LG Flatron 795FT-Plus 800/243-0000 www.lgeus.com	Sept 00	\$310	85	Very good/ Very good	FEATURES: 15.9-inch viewable area, .24mm stripe-pitch LG Flatron tube, ¹ up to 120-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 12-hour daily toll-free support. SUMMARY: Bright, saturated color makes this model a good choice for extensive graphics work. The small, sophisticated on-screen controls on the front bezel are simple to use and navigate.
7	Eizo Nanao FlexScan T561 800/800-5202 www.eizo.com	Nov 00	\$489	85	Excellent/ Excellent	FEATURES: 15.9-inch viewable area, .25mm stripe-pitch Diamondtron NF tube, ¹ up to 118-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 8-hour weekday toll-free support. SUMMARY: Superb image quality sets this model apart from the others—but for a pretty penny. Meager support hours; confusing on-screen controls make using the manual essential.
8	Sceptre D77D 800/788-2878 www.sceptre.com	(NEW)	\$299	84	Excellent/ Very good	FEATURES: 16-inch viewable area, .26mm stripe-pitch Diamondtron NF tube, ¹ up to 85-Hz refresh rate, ² Plug and Play ready, ³ five-year warranty, 9-hour weekday toll-free support. SUMMARY: This reasonably priced new model produces clean, distinct text and rich color. On-screen menus include only pictures and no words, making them difficult to decipher without the manual.
9	Dell M781p 800/289-3355 www.dell.com	(NEW)	\$269	84	Very good/ Very good	FEATURES: 16-inch viewable area, .25mm stripe-pitch FD Trinitron tube, ¹ up to 100-Hz refresh rate, ² Plug and Play ready, ³ TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. SUMMARY: Both text and images appear rich and detailed, though their quality is not as outstanding as on some similarly priced displays. On-screen controls are well marked and easy to use.
10	Iiyama i70A 800/394-4335 www.iyamadirect.com	Jan 01	\$269	84	Very good/ Excellent	FEATURES: 16.1-inch viewable area, .25mm stripe-pitch Diamondtron NF tube, ¹ up to 85-Hz refresh rate, ² Plug and Play ready, ³ three-year warranty, 12-hour weekday toll-free support. SUMMARY: Rich graphics, fine text, and a reasonable price distinguish this recent model. Easy-to-use controls include a zoom feature and well-marked menus.



Best Buy

For reviews of products that didn't make the chart, visit www.pcworld.com/t10monitors.

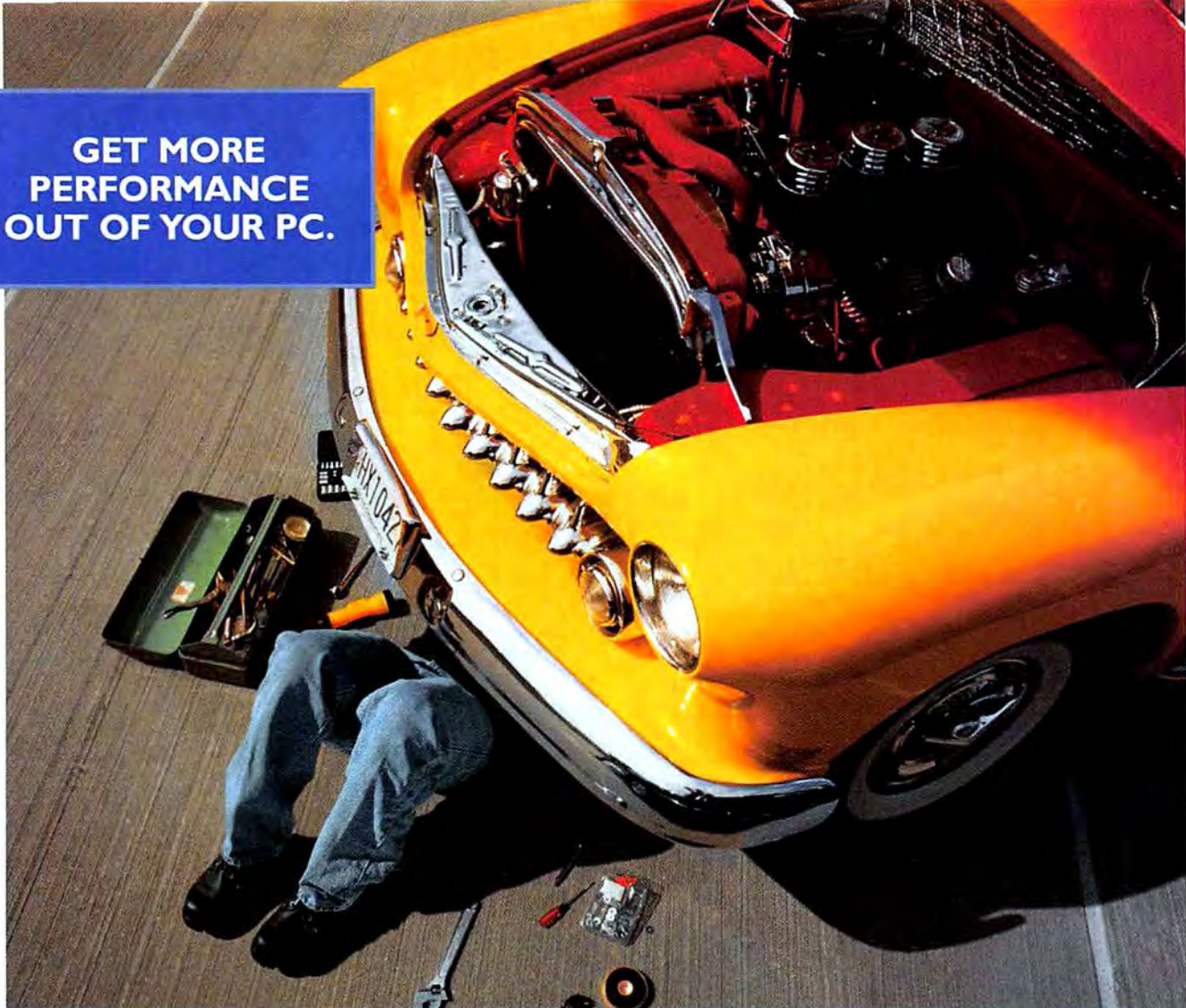
TEST HOW WE TEST Ten judges rate a monitor's text and graphics quality. We evaluate each unit on how well it displays typical business letters, a newsletter, spreadsheets, Web pages, and scanned images. The overall rating is based on text and graphics quality (25 percent each), price (25 percent), features and ease of use (20 percent), and service and support (5 percent). The best possible overall rating is 100. Data based on tests designed and conducted by PC World Test Center. All rights reserved. ¹ Uses an aperture grille whose parallel wires near the sides of the screen are strung farther apart than those at the middle. ² Maximum refresh rate at 1024 by 768 resolution. ³ Plug and Play monitors and graphics cards can communicate bidirectionally. However, Windows 95 does not fully utilize monitor Plug and Play.



THREE NEW MONITORS make the chart this month. DecaView's \$259 GF385 jumps onto the Top 10 at number four, with beautiful graphics, sharp text, and well-labeled menus and controls.

The \$299 Sceptre D77D and the \$269 Dell M781p hit the chart at numbers eight and nine, respectively. Both produce clean text and images and are easy to use. The \$329 Nokia 710C missed the chart. Next month, we'll look at 19-inch CRTs. ▶

**GET MORE
PERFORMANCE
OUT OF YOUR PC.**



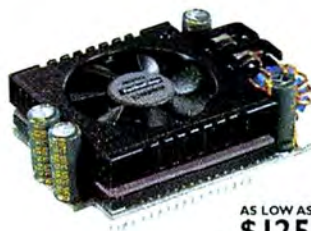
IF YOU ARE PLANNING ON CRUISING AROUND THE INTERNET, MAKE SURE YOU HAVE ENOUGH HORSEPOWER. Kingston® TurboChip® products are designed as plug-and-play upgrades that extend the life of your desktop or mini-tower by increasing system performance by as much as 280%. Call your Kingston sales representative at (800) 533-8680 to find out why the best deal on a faster system is upgrading the system you already own.



AS LOW AS
\$198

TURBOCHIP 566

Upgrades Celeron and Pentium II, Slot 1 based systems running 66MHz bus speed.



AS LOW AS
\$125

TURBOCHIP 400

Upgrades AMD-K5, AMD-K6 and Pentium based systems with 3D multimedia capabilities.



AS LOW AS
\$99

TURBOCHIP 233

Upgrades most Pentium based systems running 75MHz and up with genuine Intel 233MHz MMX Pentium processing power.



17600 Newhope Street, Fountain Valley, CA 92708 USA (714) 435-2600 Fax (714) 438-1879
© 2000 Kingston Technology Company, Inc. All rights reserved. All trademarks and registered trademarks are the property of their respective owners.



TOP 10 CD-RW DRIVES

	CD-RW DRIVE	Street price (11/22/00)	Overall rating	Performance/support policies	CD-R write speed for 430MB/CD-RW write speed for 100MB (min:sec)	Comments
1	 Plexor PlexWriter 12/10/32A 800/886-3935 www.plexor.com	\$249	85	Excellent/ Very good	5:14/1:32	FEATURES: 12X/10X/32X, IDE, internal, 2MB buffer, Adaptec Easy CD Creator 4.02 and DirectCD 3.01, one-year warranty, 11-hour weekday toll-free support. SUMMARY: Plexor's fastest drive drops by \$11. Excellent CD-R and CD-RW write speeds and a set of useful features make this drive our top pick overall.
2	 Plexor PlexWriter 8/4/32A 800/886-3935 www.plexor.com	\$159	85	Very good/ Very good	7:06/3:43	FEATURES: 8X/4X/32X, IDE, internal, 4MB buffer, Adaptec Easy CD Creator 3.5c and DirectCD 2.5b, one-year warranty, 11-hour weekday toll-free support. SUMMARY: Budget unit offers 8X performance and features for \$26 less this month. It extracts digital audio quickly, and its AudioFS drivers allow drag-and-drop extraction of CD audio tracks.
3	Pacific Digital 8824ei 888/333-6732 www.pdc.com	\$169	82	Very good/ Good	7:13/1:56	FEATURES: 8X/8X/24X, IDE, internal, 2MB buffer, NTI CD-Maker 2000 and BackupNow, MusicMatch Jukebox, Sound Forge XP Demo, one-year warranty, 10-hour weekday toll-free support. SUMMARY: For a super-low price (\$10 less this month), this drive combines 8X CD-R and CD-RW speeds with packet-writing, mastering, and music software.
4	Ricoh MediaMaster MP7120A 877/742-6479 www.ricohdms.com	\$249	82	Excellent/ Excellent	4:43/1:28	FEATURES: 12X/10X/32X, IDE, internal, 4MB buffer, Prassi's AbCD 1.3 and PrimoCD, one-year warranty, 15-hour weekday toll-free support. SUMMARY: With help from Prassi's mastering software, this drive shatters our old CD-R write record by 13 seconds—but it lacks the buffer underrun technology of its pricier MP9120A sibling.
5	Ricoh MediaMaster MP9120A  877/742-6479 www.ricohdms.com	\$349	82	Excellent/ Excellent	4:46/1:27	FEATURES: 12X/10X/32X, IDE, internal, 2MB buffer, Prassi's AbCD 1.3 and PrimoCD, software DVD player, one-year warranty, 15-hour weekday toll-free support. SUMMARY: This two-in-one drive combines exceptional CD-writing performance with 8X DVD-playing capability, but a hefty \$349 price and a lengthy installation process hold it back.
6	Sony Spressa Professional CRX140E/CH2 800/352-7669 www.storagebysony.com/spressa	\$179	82	Very good/ Very good	7:04/3:24	FEATURES: 8X/4X/32X, IDE, internal, 4MB buffer, Sony CD Extreme 1.1, Prassi AbCD 1.3, one-year warranty, 12-hour weekday and Saturday toll-free support. SUMMARY: Sony's CD Extreme and Prassi's AbCD provide excellent mastering and packet-writing. Sony's SCSI version, the CRX140S/CH, offers virtually identical performance.
7	Creative Labs CD-RW Blaster 8432 800/998-1000 www.creative.com	\$150	81	Very good/ Very good	7:13/3:27	FEATURES: 8X/4X/32X, IDE, internal, 2MB buffer, Nero 4.0, Prassi AbCD 1.3.3, one-year warranty, 14-hour weekday toll support. SUMMARY: Though its software bundle could be heavier and its speed could be faster, this drive does provide steady performance with Direct Memory Access (DMA) enabled.
8	Hewlett-Packard CD-Writer Plus 9150i 970/635-1500 www.hp.cdwriter.com	\$199	81	Very good/ Satisfactory	7:10/3:25	FEATURES: 8X/4X/32X, IDE, internal, 4MB buffer, Adaptec Easy CD Creator 3.5 and DirectCD 3.0, one-year warranty, 12-hour weekday toll support. SUMMARY: Quick 32X CD-R and stable 8X CD-R and 4X CD-RW performance; easy installation. HP's 9150i model has identical hardware but a software bundle better suited to creating music CDs.
9	Yamaha CRW8824EZ 714/522-9011 www.yamaha.com	\$200	80	Very good/ Very good	7:14/1:57	FEATURES: 8X/8X/24X, IDE, internal, 2MB buffer, Adaptec Easy CD Creator 4.02c, DirectCD 3.01c, and Toast 4.1; Adobe PageMill 3 and PhotoDeluxe BE 1.1; MusicMatch 5.1; one-year warranty; 9-hour weekday toll-free support. SUMMARY: Cuts 8X/4X/32X CD-RW drive's write time in half for faster backups, but CD-ROM read performance is slow.
10	Acer CRW1032A 888/723-2238 www.acer.com	\$199	80	Good/ Excellent	6:08/3:25	FEATURES: 10X/4X/32X, IDE, internal, 4MB buffer, Adaptec Easy CD Creator 4.02c and DirectCD 3.01d, one-year warranty, 24-hour weekday and weekend toll-free support. SUMMARY: This drive's CD-R speed is a bit slower than that of other 10X drives, but its 4X CD-RW performance is on target. Acer offers unmatched tech support hours.



Best Buy

For capsule reviews of this month's new CD-RW drives, visit www.pcworld.com/reviews/cd-rws.

HOW WE TEST We test CD-RW drives on a Micron Millennia Celeron-400 system with 64MB of RAM, a 13GB hard drive, and Windows 98. To gauge CD-ROM read performance, we use Testa Labs' CD Tach 98 version 2.0 and install Microsoft's Office 2000 suite in its default configuration. To determine CD-R write performance, we burn 430MB of data to CD-R on the fly from an image file. To test CD-R read performance, we copy the same 430MB of data to the hard drive. We evaluate digital audio extraction speed by extracting a 250MB track from an audio CD and saving it to the hard drive. We measure CD-RW packet-writing performance by copying 100MB of files to a CD-RW disc twice. Overall ratings are based on performance (40 percent), price (20 percent), features (20 percent), tech support policies (10 percent), and ease of installation (10 percent). *Speeds for CD media: CD-R write/CD-RW write/CD-ROM read; 1X = 150 KBps with CD media, 1.38 MBps with DVD media.



WHO SAYS YOU CAN'T have it all? Ricoh's combo drive, the \$349 MediaMaster MP9120A, adds 8X DVD playback to top-tier 12X/10X/32X CD-RW performance. Well-priced drives from

Plexor—our reigning Best Buys, the PlexWriter 12/10/32A and PlexWriter 8/4/32A—prove you can get performance without paying top dollar. Whatever your choice, if music mastering is your focus, look to utilities bundled with your drive for help. ■

HERE'S HOW



WINDOWS TIPS

SCOTT DUNN

Preview Images in Windows Explorer



WHEN WINDOWS EXPLORER is open and I click on a .bmp file, it displays a thumbnail preview on the left side of the right pane. It used to do that for .gif, .jpg, and other file types, but not anymore. I haven't been able to reassociate those files to restore the feature. What should I do? —David Turner, Little Rock, Arkansas

THIS WINDOWS EXPLORER feature is available in Windows NT, 98, 2000, and Millennium Edition, but it works in Windows 95 only when Internet Explorer's Desktop Update feature is installed. The folder you're searching in must be set to display Web contents. In Windows 9x, click Explorer's View menu and make sure *as Web Page* is checked. In Windows 2000

and Me, choose *Tools•Folder Options*, select *Enable Web content in folders*, and click OK. If an HTML template has been applied to a folder whose contents aren't displayed in the image-preview area, select the folder in the left pane, right-click an empty part of the right-hand pane, choose *Customize This Folder*, and use the *Customize This Folder Wizard* to choose a new tem-

plate or to remove customizations. If the image preview area in any version of Windows is too narrow, the area may suddenly disappear. Simply drag an edge of the window to make it wide enough to accommodate the image preview.

Now you should see an image on the left side of the folder when you select a .bmp, .jpg, .gif, or other compatible file format. Unfortunately, this feature can disappear when a poorly designed installation program tampers with the Registry settings for the image files Windows is to preview. Even if you know what software caused the glitch, uninstalling the guilty party won't necessarily restore the health of Registry entries corrupted by the rogue installer. You have to do that manually—a complicated procedure.

That brings up our usual warning: Boobies committed while editing the Registry can cause serious problems (such as preventing Windows from starting), so proceed at your own risk. Always back up Registry files before making any changes.

In Windows 9x, make copies of the User.dat and System.dat files in the Windows folder before you do anything else. In Windows NT, choose *Start•Run*, type *rdisk*, and press <Enter>. In the Repair Disk Utility, click *Update Repair Info* and follow the on-screen prompts. In Win 2000, choose *Start•Programs•Accessories•System Tools•Backup*. In the Backup window, choose *Tools•Create an Emergency Repair Disk*. When prompted to do so, insert a floppy disk and check *Also back up the registry to the repair directory*. Click OK.

Once you've backed up your Registry, you're ready to reset. Choose *Start•Run*, type *regedit*, and press <Enter> to launch the Registry Editor. Click the plus sign (+) next to the HKEY_CLASSES_ROOT folder icon, or double-click the icon itself. From there, navigate to the folder (called a key in Registry lingo) corresponding to the

extension of the file type that Explorer is not previewing properly. For example, to fix the preview information for .jpg files, go to the .jpg key. If it has a plus sign next to it, click that to expand the tree diagram

for the complete .jpg key. There you'll find a key called ShellEx. (If you don't see it, no problem: Just right-click the .jpg

icon in the left pane and choose **New•Key**. Then type **ShellEx** and press **<Enter>**.)

Click the plus sign next to the ShellEx key to expand the keys underneath. There should be a key named {BB2E617C-0920-11d1-9A0B-00C04FC2D6C1}. If it's not there, take a deep breath, right-click the ShellEx key in the left pane, and choose **New•Key**. Then type {BB2E617C-0920-11d1-9A0B-00C04FC2D6C1} and press **<Enter>**. (You can now exhale.)

Select the key to see its contents in the right pane. It should include an icon labeled (Default) and, to the right, a series of numbers in braces, as shown in

FIGURE 1. If it doesn't, and you created the



FIGURE 1: RESTORE WINDOWS EXPLORER'S Image preview by altering the Registry Editor.

key yourself, double-click the (Default) icon in the right pane to edit its value data. If the key was already there but has the wrong value, right-click in the right pane and choose **New•String Value**. Type (Default) and press **<Enter>**. Double-click the (Default) icon to edit its value data. Then in the Value data box, type {7376D660-C583-11d0-A3A5-00C04FD706EC} (including the braces) and click **OK**.

Finally, proofread your typing, both for the new key and for the string value. If you did everything right, your preview should return whenever you select a .jpg file in any Explorer or folder window that is set to view Web content.

Of course, this example fixes only the .jpg file type. You need to repeat the procedure for the .gif key and any other key that refuses to show a preview. The method outlined above won't work for every file type, but you should be able to preview images having any of the following extensions: .art, .bmp, .dib, .gif, .jfif, .jpe, .jpeg, .jpg, .png, and .wmf. Have fun!

EXPAND YOUR FILE SEARCH TO ALL LOCAL DRIVES

95 IF YOU USE Windows 95 but never installed Internet Explorer 4's Desktop Update, your Windows file searcher lacks a convenient way to search all local hard drives at once. To remedy this, choose **Start•Find•Files or Folders**. Leave the Named box in the Find All Files window blank. In the 'Look in' line, type the drives you use for global searches, separated by semicolons—for example: **c:\d\;e\;f**. To save this setting, click **Find Now**, but click **Stop** as soon as the search function locates a few files. (Otherwise, you'll likely elicit an error message saying that the search exceeds the maximum number of files found.) Click the **Options** menu and

WINDOWS TOOLBOX

Manage Your Life More Easily With FooBar

OKAY, I ADMIT IT: I downloaded Matrix Software's \$30 FooBar shareware utility because I love the name. But FooBar is actually a handy-dandy floating toolbar with oodles of practical features. It supplies a place to jot down Web passwords, a tool for calculating bills based on a specific rate, and an activity time tracker. You also get a clock, a calendar, a to-do list, an address book, and a reminder that displays messages, plays sounds, and launches applications. Want more? There are sticky notes, a universal Open dialog box for launching files from your Documents folder, and customizable menus for opening apps and documents. You can get a trial version of FooBar from PCWorld.com's Downloads. Matrix Software's Web address is www.matrixsoftware.com.



CONTENTS

WINDOWS TIPS

- 188 Preview image files with Windows Explorer's thumbnails; expand file searches.

ANSWER LINE

- 190 Hard-disk clusters, lost and found; customize your programs' start-up sequence.

INTERNET TIPS

- 198 Capture streaming video for offline viewing; both sides of the MP3 file-sharing debate.

WORD PROCESSING

- 200 Give your documents a professional look with vertical justification; faster font-list display.

HARDWARE TIPS

- 202 Solve PC problems by restoring a recent backup; USB keyboards with PS/2 connectors.

UPGRADE GUIDE

- 206 Ready for Windows Me? A step-by-step guide.



Privacy Watch: So you think Internet voting should replace punch-card ballots—but what if it can't keep who you vote for a secret? See www.pcworld.com/features/Internet_vote.

Smart Consumer: Does using online grocery stores beat a walk in your local supermarket? To find out, visit www.pcworld.com/heres_how/online_groceries.

confirm that no check mark appears next to **Save Results**. If **Save Results** is checked, click it to remove the check mark.

Next, choose **File•Save Search**. An icon named **All Files** should appear on your desktop; you can rename it something like **All Drives Search** if you wish. Right-click the **Start** button and choose **Open** or **Explore**. Move your new icon to a convenient folder within the **Start Menu** folder. Now, any time you want to search all your hard drives at once, just select this icon from your chosen menu in the **Start** menu and away you'll go.



You can find files mentioned in this article at www.pcworld.com/downloads, and you'll find more tips at www.pcworld.com/heres_how. Windows Tips pays \$50 for published tips and questions. Scott Dunn is a contributing editor for PC World.

YOUR QUESTIONS ON: Windows' StartUp sequence ♦ Diagnosing a sluggish PC

Why Do I Keep Getting Lost Clusters?



NORTON UTILITIES keeps telling me that I've got lost clusters. Why do I keep getting them?

Dave Knowles, Calgary, Alberta

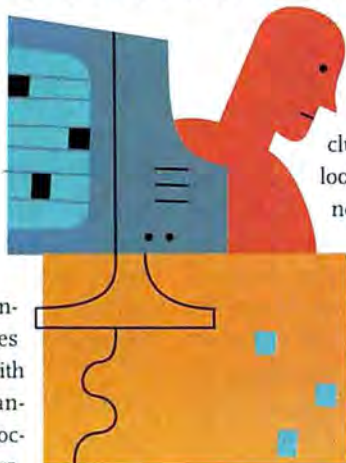
WINDOWS MANAGES files by dividing your hard drive into small sections called *clusters*. Each file uses one or more clusters to store data, and Windows tracks all the clusters in use. Each cluster in use is associated with a single file. Windows knows not to allow a file to put new data in clusters currently associated with another file. By contrast, when you delete a file, its clusters become available again.

A lost cluster (which is also known as a lost file fragment) appears to Windows as in use, but it does not have a file associated with it. Programs such as ScanDisk and Norton Disk Doctor find and fix lost clusters.

What causes lost clusters? Crashes, mostly—by Windows and by applications. If a program crashes while it is creating, copying, or enlarging a file, some of the file's clusters may not be re-marked as available—even though the file that the clusters are associated with no longer uses or needs them. That leaves clusters marked as in use, but with no files or other clusters pointing to them.

A loose or defective drive cable can also cause lost clusters by creating bad sectors within clusters. If your system and applications don't crash often but you still end up with lost clusters, try removing your PC's case and checking the ribbon cables running between the drives and the motherboard. I know of no way a bad drive by itself could cause lost clusters, however.

In theory, you could lose clusters by defragging your drive while running other applications, although today's defraggers make that unlikely. Still, it's safer to defragment your hard drive with no other programs open.



When a disk scanner finds a lost cluster, it gives you two options: Save the contents of the cluster as a file so you can look at it and decide if you need it, or mark the cluster as unused to free up wasted disk space.

The safest option is to save the contents as a file, but I have never found anything worth saving in a lost cluster, and I stopped saving

them years ago. They virtually always contain extra copies of information that is safely stored elsewhere on the drive.

CONTROL THE STARTUP MENU SEQUENCE



I WANT TO KEEP some programs in my StartUp menu from starting until others have finished loading.

How can I control the sequence of commands in the Start•Programs•StartUp menu?

Kelvin D. Luong,

Garden Grove, California

BECAUSE STARTUP loads everything at once, the biggest program will be last to finish no matter the preset order; there's no way to change the order in the StartUp menu itself. Here are two solutions: One creates a batch file; the other costs \$20.

Free Folder Encryption

IN MY OCTOBER 2000 column, I recommended either a zip program or Encrypted Magic Folders for encrypting the contents of a folder. Bruce Stephenson of Tampa recommends an excellent alternative: Nick Payne's free Cryptext utility. It's not as convenient as Encrypted Magic Folders—you have to remember to re-encrypt the files after you decrypt them—but its 160-bit key encryption is hard to beat. Cryptext is available at www.pcworld.com/downloads. Reach the author at www.pcug.org.au/~njpayne.

First, the batch-file method: Start by launching Notepad, then select *Start•Run*, type `c:\windows\start menu\programs\startup`, and press **<Enter>** to show the contents of your StartUp menu in a folder window.

Right-click the shortcut for the program you want to load first and select *Properties*. Make sure that the Shortcut tab is selected in the Properties dialog box (it should be the default selection), and that the contents of the Target field are highlighted. Press **<Ctrl>-C** to copy the contents to the clipboard, then press **<Esc>** to close the dialog box. In Notepad, press **<Ctrl>-V** to insert the command as the first line of the batch file, then press **<Enter>**.

If you want a program to run undisturbed until it finishes and closes, add the command `start /w` to the beginning of the line. For instance, to make sure that nothing else is running while ScanDisk automatically checks your hard drive, use the command `start /w scandisk.exe c: /n` (don't forget to put a space before each forward slash). Repeat the process for every icon in the menu, giving each its own line in the batch file.

If you simply want to give a program enough time to load before the next one starts, insert a pause: Place the command `choice /n /t:y,xx`—where `xx` is the number of seconds (such as `choice /n /t:y,30` for a 30-second pause)—on a line by itself between the other two commands. This command will pause the system until you indicate that you want to proceed, or for 30 seconds if it receives no response. ►



**So many labels.
So little time.**

Prints over 40 standard label styles, plus custom sizes. Fast.

Two seconds. That's all it takes to print labels or Internet postage directly from your computer. With the DYMO® LabelWriter, you eliminate the hassle of printing labels with standard printers. The LabelWriter comes with its own easy-to-use label design

software and integrates seamlessly into Microsoft Word®, Outlook®, GoldMine® and ACT!™

With the amount of time and money a LabelWriter will save you, you'll wonder how you ever ran your business without it.

DYMO®
LabelWriter


For more information, call 1.888.296.8552 or visit dymo.com

Available from Buy.com • CDW 1.800.800.4239 • Global 1.800.8GLOBAL • Insight 1.800.INSIGHT
Microwarehouse 1.800.397.8508 • PC Connection, Inc. 1.800.800.1111. Plus Staples and Micro Center stores.

On the bottom of the batch file, start a new line and enter the command `cls`. Make sure there is nothing—not even a blank line—after it. Save it as `c:\windows\start menu\programs\startup\startup.bat`. Open the file, and if it works, remove all other icons from your StartUp folder.

The \$20 solution is Cool Bay Software's Auto Start Manager shareware, which lets you drag shortcuts from the StartUp menu (or elsewhere) into the program, set program load order, and select all sorts of options (see **FIGURE 1**). Delay a program's execution by seconds or days, launch it only with a certain hardware configuration or on particular days of the week, or make one program wait until its predecessor is done loading. You can download Auto Start Manager from www.pcworld.com/downloads. Cool Bay Software can be reached at www.autostartmanager.com.

SUDDENLY SLUGGISH COMPUTER

 MY 18-MONTH-OLD PC has become sluggish...like it's sleepy. Sometimes it takes 10 to 15 seconds for a folder to open. I've run ScanDisk, defragged, and looked everywhere I can think of, but I can't find the problem. Any suggestions?

Dave Fraser,

Bensalem, Pennsylvania

WELL, YOU'VE ALREADY done the first thing I would have advised: Defragment your hard drive. Those who haven't defragged within the last couple of weeks should do so by going to *Start>Programs>Accessories>System Tools>Disk Defragmenter*. But what, besides fragmentation, can


slow down your system over time?

The problem could be software you've recently added. Many Windows programs load parts of themselves every time you boot, slowing down your system. See "Get Your PC to Boot Up Faster" in my August 2000 column (www.pcworld.com/aug2000/answer) for tips on how to find out what is and is not loading.

Another possibility is a virus. Update your virus scanner and do a fresh scan. If you're on a network, there may be a problem with your network card or configuration. Ask an administrator to review your settings.

There's one last place to look for a clue. Right-click *My Computer*, select *Properties*, and choose the *Performance* tab in the System Properties dialog box. The last words in the Performance status box should be 'Your system is configured for optimal performance'. If they don't appear, you'll see a description of your problem.

SHARE DESKTOP SETTINGS

 I USE MULTIPLE computers, all of which are used by several people, but we don't like each other's desktop settings. Can I transfer my settings to another computer and easily switch between my settings and someone else's?

Ryan Morse, Oceanside, California
YOU WANT TO CREATE and distribute desktop themes. A number of programs will let you do this, but I recommend the Desktop Architect freeware (see **FIGURE 2**).

You can download Desktop Architect from www.pcworld.com/downloads, and you can reach Ken Foster, the program's author, at www.desktoparchitect.com.

Windows doesn't install desktop themes by default. Windows 98 users can install themes from the Control Panel's Add/Remove Programs applet. The "official" way for Windows 95 users to add themes is to buy Microsoft Plus 95—no easy feat, since the program is no longer sold. After you install Desktop Architect, you'll be able to use, save, and distribute themes.

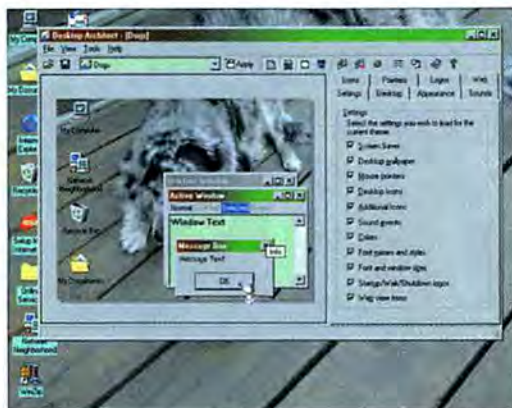


FIGURE 2: SAVE THE LOOK OF YOUR DESKTOP and distribute it as a "theme" with Desktop Architect.

To save your current settings as a theme, launch Desktop Architect and select *File>Save*. Select a location and give the file a name. Now you've got a theme, but unless its wallpaper, sounds, fonts, and other files all come with Windows, simply transferring your theme file to another computer won't work. You have to transfer all the other files it uses as well.

That's where Desktop Architect beats Windows 98's own Themes tool. To bring all the files together, select *Tools>Package*. A wizard will walk you through the creation of either a .zip or an .exe file for putting the individual files your theme requires in the right place. I recommend creating an .exe file for easy distribution.

The target computer will have to support Desktop Themes, whether via Windows 98, Plus 95, or Desktop Architect. To add your own theme, run the .exe file you created in Desktop Architect, then right-click your desktop, select *Properties*, click the *Themes* tab, and select your theme from the pull-down menu.

One final note: Switching back and forth between themes is easiest if you have put them all in the same folder. By default, that folder should be `C:\Program Files\Plus\Themes`.



Find files from this article at www.pcworld.com/downloads. Send questions to answer@pcworld.com. Answer Line pays \$50 for published items. Read Contributing Editor Lincoln Spector's humorous writing at www.thelinkspector.com.

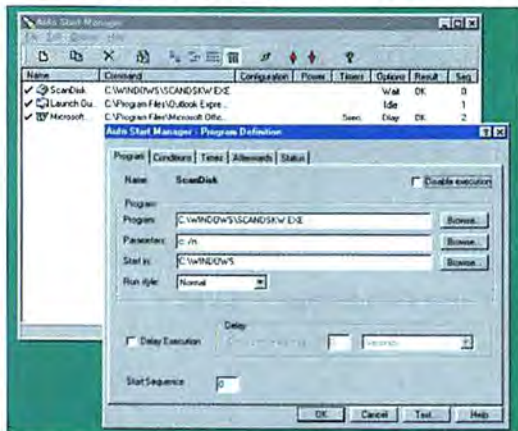


FIGURE 1: A CUSTOMIZABLE STARTUP MENU is yours with the \$20 Auto Start Manager shareware program.

Does your technology
suit your business needs?



GatewayTM
People Rule.SM



Gateway recommends Microsoft® Windows® 2000 Professional for business.

Solo® 3350 Ultraportable

- Intel® Pentium® III Processor 600MHz featuring Intel® SpeedStep™ Technology
- 12.1" XGA TFT Display
- 64MB SDRAM
- 6GB Hard Drive
- External Floppy Media Bay
- Integrated V.90 56K¹ Modem
- Integrated 10/100 Ethernet
- 1" thin, 3.65 lbs.*
- Microsoft® Windows® 98
- 1-Year Parts and Labor Limited Warranty²

\$2199 or \$77 per mo./36 mos. business lease³

Solo 5300 Performance Portable

- Intel Pentium III Processor 650MHz featuring Intel® SpeedStep™ Technology
- 14.1" XGA TFT Display
- 32MB SDRAM
- 6GB Hard Drive
- Modular Floppy Drive
- Modular CD-ROM Drive
- MS® Windows 98
- 1.38" thin, 4.9 lbs.*
- 1-year Parts and Labor Limited Warranty²

\$1799 or \$63 per mo./36 mos. business lease³

Traveler Bundle 3350

- Deluxe Carrying Case
- Extra Battery
- Mobile Access Portable Support Kit

\$339 saving you 24%



For the businessperson who's always on the move, this PC can keep up with you.

Solo Productivity Pack 1.0

- 64MB Memory Upgrade
- MS Office SBE
- Online Training Subscription⁴

\$199 saving you 53%



For the power-player whose business doesn't always take place in the office, now they can take the office with them.

Frequent Flyer

Telecommuter



Ad Code: 005081



call 1-800-846-2572, click www.gateway.com or visit a Gateway Business SolutionSM center at a Gateway Country[®] store.

Gateway Professional[™] V700Cse Desktop

- Intel[®] Celeron[™] Processor 700MHz
- 32MB SDRAM
- 10GB Hard Drive
- LE500 15" Monitor (13.8" viewable)
- Integrated Intel[®] 3D AGP Graphics
- 20x min/48 max CD-ROM
- 10/100 Ethernet Card
- MS Windows 98 SE
- MS Works Suite 2001
- 3-Years Parts and Labor Limited Warranty²

\$699 or \$25 per mo./36 mos. business lease³

Gateway Professional[™] M866 Desktop

- Intel Pentium III Processor 866MHz
- 128MB 133MHz SDRAM
- 10GB Hard Drive
- EV700 17" Monitor (15.9" viewable)
- Intel 3D AGP Graphics
- 20x min/48 max CD-ROM
- 10/100 Ethernet Card
- MS Windows 98 SE
- MS Office 2000 Small Business
- 3-Years Parts and Labor Limited Warranty²

\$1249 or \$44 per mo./36 mos. business lease³

Small Business Accounting Pack 1.0

- QuickBooks 2000 • Online Training Subscription⁴
- Canon[®] S400 Color InkJet Printer

\$199 saving you 37%

MS Office Productivity Pack 2.0

- Upgrade to MS Office Professional from Office SBE
- MS Office Pro Learning Library on CD

\$249 saving you 33%



When you have to manage both the office and its budget, this PC works as hard as you do.



Designed to power big applications as well as multi-tasking with ease.

Office Manager

Power-User



2. Visit gateway.com, call 1-800-846-2000 or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of applicable limited warranties and service agreements. Services may be provided by third parties. An authorized representative will determine the method of service provided. You may be required to take or send your product to an authorized location for service. If you purchased on-site service, it will be provided only if an authorized representative determines it is necessary because your problem cannot be corrected through other means. On-site service is not available in all locations and excludes mice, keyboards, docking stations, external peripherals and monitors. See agreements for specific terms and limitations.

3. Leasing provided by independent leasing companies to qualified commercial customers. Lease terms subject to change without notice or obligation.



Gateway™ 6400 Server

- Intel Pentium III Processor 800MHz with 256K L2 Cache (supports up to 2 Processors)
- 133 MHz Front-Side Bus Support & 64-Bit PCI I/O Technology
- 128 MB PC133 ECC SDRAM (expandable to 2GB)
- 9GB Ultra 160 SCSI (7200rpm) Hard Drive
- 9-Bay Minitower with 7 PCI Expansion Slots
- Integrated Motherboard with Dual Channel Ultra 160 SCSI, 10/100 Ethernet & PCI Graphics
- HP® OpenView™ ManageX Event Manager
- 3-Year Limited Warranty²
- 3-Year On-site Service²
- FCC Class A Emissions Standard⁴

\$1599 or \$56 per mo./36 mos. business lease³



When you need to keep the lines of communication open, there's nothing better than a custom-built network for your business.

Networker

Gateway™ Networking Solutions

If you need help installing a new network or upgrading an existing one, Gateway™ Networking Solutions is the answer. Because everyone's needs are different, a certified engineer will visit your site for free to assess your business needs and develop a customized solution just for you.

Gateway Personalized Help Desk

Reap many of the benefits of an in-house IT department without the overhead and expense. This service provides personalized tech support for a fraction of the cost. The Gateway technical support team will have access to your detailed technology profile and past support issues, to expedite the problem-solving process and save you time and money.

Gateway eSupport – Complete Online Technical Support

Get immediate access to valuable diagnostic and repair tools online, including do-it-yourself repairs, live interactive Web-based tech support, and an intuitive interface for accessing tech assistance, training and customer service information.



Gateway
People Rule.™

call 1-800-846-2572, click www.gateway.com
or visit a Gateway Business SolutionSM center at a Gateway Country® store.
Gateway recommends Microsoft® Windows® 2000 Professional for business.

4. On-line training: Instructor-led courses subject to availability, and students may be required to purchase course materials for certain courses. Customers need Internet access to use this service, and Gateway is not responsible for any connection charges. Gateway Country training: Passes are not transferable. No refunds are allowed for Upgrade Passes. Training available at participating Gateway Country locations. Courses listed may not be available in all locations. All training: Prices and courses subject to change without notice. Prices exclude shipping and handling and tax. Gateway training is not offered as vocational or job training.
5. FCC Class A products may not be sold for home use.

Subtract AOL Plus ♦ How fair is MP3 file copying? ♦ Browser-based HTML editor

Capture Video Streams Into Files, Then Onto CDs

FOR MY 40TH birthday, my wife Betsy bought me tickets to see one of my favorite performers—Neil Young—at one of the world's most beautiful venues, Red Rocks Amphitheater just outside Denver. Although late September in the Rockies can be glorious, the weather's unpredictable. This year it snowed, and the unpleasant prospect of sitting in the dark as freezing rain turned to snow outweighed our love for the plaid-clad one.

To diminish my disappointment at missing the show, I started looking around on the Net for some Neil concert footage—and lo and behold, I found a streaming Webcast of the Red Rocks show that Neil & Co. played two days before our snowy date. But who wants to sit in front of the computer watching video play in an itty-bitty on-screen window? Not Betsy. No matter how many times I tried to launch the highest-quality version of the video—a 300-kbps stream—it crapped out after only a few seconds. Never mind that I recently graduated to a blazing-fast cable-modem connection. How could I watch the Webcast video that somebody (Neil, presumably) put online?

I needed to capture that video stream, save it as a file, convert it to MPEG format, burn it to a recordable CD, and pop the disc into my DVD player (most DVD drives can play CD-ROMs formatted according to the Video CD standard). Unfortunately, streaming video is meant to stay that way—you won't find any 'download'

or 'save as' links at most of the streaming sites. Even the trick of right-clicking the link and choosing *Save Target*

As (in Internet Explorer) or *Save Link As* (in Navigator) doesn't work with streaming files. Steve Bass offers a solution to this problem in this month's *Home Office* column (see page 45).

You can use Real's RealPlayer 8 Basic to capture audio and video streams in the Real Video (.ram) format and save them on a hard disk in .rm format—if whoever creates the file decides to allow the feature. You have to look pretty hard

to find the free Basic version of the player, not the \$30 Plus edition, on Real's Web site (www.real.com/player).

RECORD THE UNRECORDABLE

TO CAPTURE A Real stream for offline viewing, choose *Play•Record Audio* or *Play•Record Video*, or right-click the audio or video clip and choose the record command from the pop-up menu. Don't get your hopes up, though. After several hours of browsing, I found precious few clips that had a selective-record feature enabled. One potential solution is Streambox's Streambox VCR (www.streambox.com/products/index.

Add AOL Plus? No Thanks!

IF YOU USE America Online 5 or 6 over an office LAN, DSL, cable-modem, or other high-speed connection, AOL automatically detects the fast connection and downloads an add-on called AOL Plus that offers video content geared to broadband speeds. If you don't want the AOL Plus window on your AOL desktop, or it conflicts with other software, or you switch to a slower connection, you can remove the add-on program. Type **remove AOL plus** in the AOL address field, press **<Enter>**, and follow the instructions.



FIGURE 1: CAPTURE WINDOWS MEDIA streams with the free ASFRecorder, and view them when and where you like.

readme file (choose *Help>Show Readme-File*) offers extensive tips for identifying streaming-file addresses that are cloaked by server scripting or other devices intended to keep streams beyond our control.

Once the file is on your hard disk, you can burn it to a Video CD, which you can then watch on either a computer or a TV using most any DVD player. Video file-format conversion and CD-burning tricks are beyond the scope of this column, but you'll find instructions for just about any conceivable task at the authoritative VCD Help Web site (www.vcdhelp.com).

IS FILE-COPYING THEFT?

NAPSTER MAY NOT survive the lawsuits against it, but file-copying will undoubtedly live on in other utilities. So, is it stealing? Libraries share books much like Napster shares songs, although it's illegal to photocopy entire books in a library. Until the courts sort it out, you're on your own to reconcile the innate freedom of digital media with the rights of the people creating it. Here are some sites that can help you educate yourself about the issues:

Artists Against Piracy (see **FIGURE 2**) is a coalition of recording artists, including Christina Aguilera, Blink-182, Garth Brooks, Herbie Hancock, Hootie & the Blowfish, Sarah McLachlan, and Dwight Yoakam, who support the Recording Industry Association of America's anti-Napster position. The coalition's motto is "If a song means a lot to you, imagine what it means to us." (www.artistsagainstopiracy.com/home.html)



FIGURE 2: ARTISTS AGAINST PIRACY is one of several Web sites dedicated to opposing Napster-style file sharing.

Cuckoo's Egg Project, an anti-Napster vigilante monkey-wrenching site, publishes instructions on how to make and share Cuckoo's Eggs—MP3 files masquerading as well-known tunes but with only the first few seconds of the song. The rest of the file is white noise or a repeating cuckoo-clock sound. (www.hand-2-mouth.com/cuckooegg)

Electronic Frontier Foundation's Campaign for Audiovisual Free Expression takes the position that while pirating an artist's work is illegal, not all file-copying is piracy. The group argues that the Digital Millennium Copyright Act of 1998 may be unconstitutional. (www.eff.org/cafe)

Fairtunes.com lets you pay the artists whose recordings you have downloaded. The site isn't specific about its remuneration process, but it promises to forward your payment to any artist in a "fast and accountable way." (www.fairtunes.com)

The Home Recording Rights Coalition campaigns for the consumer's right to use audio/video equipment and PCs to make copies of music and video for noncommercial purposes. Check out the HRRC's summary of the 1992 Audio Home Recording Act (www.hrhc.org/html/ahra_summary.html), a law that may play a central role in determining the legality of Napster and other file-sharing technologies. (www.hrhc.org)

The Recording Industry Association of America represents the interests of record companies in legal and legislative venues. The RIAA provides a detailed explanation of its position on what file copiers can and cannot download. (www.riaa.com/Music-Rules-2.cfm)

SpeakOut.com's Napster Activism Center contains plenty of

DOWNLOAD OF THE MONTH

Use Any Browser to Edit Your Web Site

NOW THERE'S NO excuse for leaving the broken links on your Web site dangling indefinitely. A new service, HTMLWorks (www.htmlworks.com) lets you edit your site from any browser. You don't need to keep the master files on hand, and you

don't have to download the software. It runs on the HTMLWorks Web site (if this keeps up, we may have to rechristen this part of the column). You may not want to use the service for all your work, however, especially if you're accustomed to




using WYSIWYG editors. HTMLWorks offers a preview mode, but you have to know HTML to edit pages. Still, HTMLWorks is free and offers valuable tools for optimizing your site, validating its HTML code, checking for broken links, and boosting your search-engine ranking.

information and has links to Napster-related sites, both pro and con, plus opinion polls on copyright and piracy issues. (www.speakout.com/Activism/napster) **PCWorld.com** discusses the legalities of MP3 use from a user's perspective (www.pcworld.com/mp3_rights), including how to obtain legal digital audio files, and what you can and can't do with them. You'll get an even broader perspective by reading about the technology underlying the MP3 file format in Michael Gowan's informative article "How It Works: MP3" at www.pcworld.com/how_mp3.



Find files from this article at www.pcworld.com/downloads. Send your questions and tips to nettips@spanbauer.com. We pay \$50 for published items. Scott Spanbauer is a contributing editor for PC World.

Personalize your Internet with Netscape®



The image shows a man in a grey shirt and black pants, wearing headphones, standing next to a large computer monitor. The monitor displays the Netscape 6 web browser interface. The browser window shows the Netscape homepage with various sections like Music, News & Reviews, and a sidebar with a Buddy List. The man is pointing at the browser window.

Michael Cunningham is a software developer and a real music lover. He'll find Netscape an ideal way to be more productive online because he can personalize the Internet for the way he works. With new Netscape 6, Michael can keep all of his most important information at his fingertips for fast and easy access. He can stay in touch with coworkers through his buddy list and listen to Netscape Radio during the day for inspiration. At Netscape.com, he can quickly find news and information to help him keep up with what's happening in his field. Other features like search, email and a personalized home page can help Michael streamline his work tasks (so he has more time for concerts). But Netscape is not just for software developers. Try Netscape today and see what it's like to experience the Internet your way.

Visit Netscape.com today. It's free.



The power of the Internet made simple

Beautify Documents With Vertical Justification

APPEARANCE MATTERS—both for documents and for people. Facing pages in a Word document that have even bottom margins make a better impression on readers. When you change font size or use Word's default widow-and-orphan controls, however, you may be left with ragged bottom margins. Vertical justification lets you avoid this problem without leaving widows and orphans (those one- or two-word lines left at the end of a paragraph) languishing on page corners.

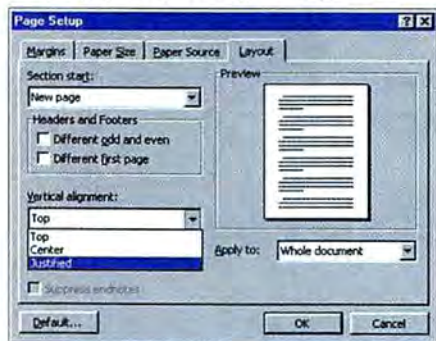


FIGURE 1: VERTICAL justification balances text between top and bottom page margins in Word.

Word adds a small amount of space between paragraphs to keep the bottom margins even—just as some books do.

Open the document and select **File•Page Setup**. Click the **Layout** tab in the Page Setup dialog box, choose **Justified** in the 'Vertical alignment' drop-down list, and pick **Whole document** in the 'Apply to' list (see FIGURE 1). Click **OK** to apply the new formatting. Word repaginates the document and adjusts the space between paragraphs to fill pages to the bottom margin.

If the last page of the document is only a partial page (as is often the case), Word spreads the text out to the bottom margin. To fix this, press **<Ctrl>-<End>** to jump to the end of the document, then press **<Ctrl>-<Page Up>** to jump to the top of the last page. Press **<Shift>-<Ctrl>-<End>** to select all the text on the page, and select

File•Page Setup. Beneath the **Layout** tab, choose **Top** in the 'Vertical alignment' list, and **Selected sections** in the 'Apply to' list. Click **OK**. Word will insert an invisible section break on the previous page and will properly align the last page.

FONT DISPLAY WISDOM

THE HANDY DROP-DOWN font list on Word 2000's Formatting toolbar shows each font name in its actual font. If you have hundreds of fonts installed, though, the list may take several seconds to display. You can speed up the font-list display by setting it to show font names only in Word's default font, such as Arial or New Times Roman. Select **Tools•Customize**, click the **Options** tab, deselect **List font names in their font**, and then click **Close**.

CHANGE THE DATE FORMAT

THERE'S A TRICK to changing the default date and time format in Word 97 and 2000. Select **Insert•Date and Time**, pick a format, and click **Default** and **Yes** in the confirmation box. Now when you insert a date in your document, press **<Alt>-<Shift>-D** instead of selecting 'Insert•Date and Time'. This shortcut will insert the date, using the new format. If you select the menu command, it will insert the date in Word's default format rather than the date format that you selected.

FIND AND REPLACE INVISIBLE ITEMS

THE FIND AND REPLACE tools in Word 97 or 2000 aren't much help when you're working with invisible items—tabs, paragraph marks, page and section breaks, and the like. You could use Word's shortcut

Experiment Safely With Documents

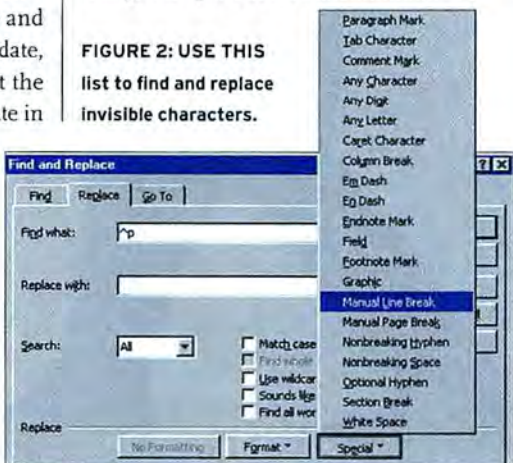
THE FORMATTING FEATURES in modern word-processing programs may tempt you to experiment with layouts and styles to get just the right look. If you want to return to a document's original format, simply using repeat undo (**<Ctrl>-Z**) can be ineffective. Play it safe and work on a copy of the document rather than on the original. To create a copy, select **File•Save As** (or press **<F12>**), and give your document a different file name. Now you can revert to the previous format by reloading the original document.

characters to represent these items, but they're hard to remember. To find and replace invisible items without taxing your memory, select either **Edit•Find** or **Edit•Replace**, and place your cursor in the 'Find what' or 'Replace with' field in the resulting dialog box. Click **More** to expand the dialog box, and then choose **Special** to display a list of characters representing non-text functions (see FIGURE 2). From the list, select the item you want to search for or replace with, and click the appropriate button to carry out your search or replace operation. To insert more than one special character in a dialog box, or to combine a special character with normal text, repeat the above process as necessary.



Find additional tips at www.pcworld.com/heres_how. Send questions and tips to george_campbell@pcworld.com. We pay \$50 for published items. Visit Contributing Editor George Campbell at www.osomin.com. ■

FIGURE 2: USE THIS list to find and replace invisible characters.



Stranded by traditional delivery systems?



Now available with DirecPC!
edgeUcast™

It's Broadband to Your Brain!

EdgeUcast is our exciting new broadband eLearning service Powered by DirecPC that delivers high-quality, affordable business training and professional development directly to your small business or home office. Expand your business savvy with experts from PBS The Business & Technology Network and the National Technological University Corporation (NTUC).

Learn all about it at www.edgeucast.com

If you're in the business of distributing large amounts of data to multiple sites across wide distances, you need more than a traditional network — and more than just the Internet. You need a way to cost-effectively deliver **high bandwidth** information at the fastest speeds available nationwide. What you need is DirecPC®.

For just a few hundred dollars per site, you can equip your remote clients with a state-of-the-art satellite system, capable of receiving IP multicast content — or any other data — at up to **24 megabits per second**. Anytime, anywhere in the country. And it doesn't matter how many sites you have in your network. In fact, the more sites you add, the cheaper it usually gets. How many terrestrial networks can make that claim?

Call us at **877-253-2390** to find out how DirecPC can come to your rescue.

Find out how other businesses are putting DirecPC to work in financial data delivery, distance learning, software distribution, and dozens of other applications worldwide. Visit us at <http://bizinfo.direcpc.com> for more information.



HUGHES
NETWORK SYSTEMS

© 2000, Hughes Network Systems. DirecPC® is a registered trademark of Hughes Network Systems, a Hughes Electronics Corporation company. Your usage may be limited by the Fair Access Policy. For more information visit our Web site at www.direcpc.com.

Safer Registry backups ♦ USB-PS/2 keyboards ♦ Cure for a slow PC clock

Fix PC Woes by Going Back in Time

WE ALL WISH we could turn back the clock sometimes. When your PC starts behaving erratically or stops working altogether, finding the corrupted file or hardware incompatibility causing the problem can be difficult and time-consuming. Wouldn't it be nice to revert to a time when your system worked flawlessly? If you're using Windows 98 or Windows Millennium Edition, you probably can.

THE LATEST IS GREATEST

ONE OF THE BEST (some might say few) reasons to upgrade to Windows Me is for its System Restore utility, which continu-

tion, such as the installation of new software.

Restoring a backup is easy: Select **Start • Programs • Accessories • System Tools • System Restore**, and then click **Restore my computer to an earlier time**. The System Restore utility displays a calendar of the past month (see **FIGURE 1**). Choose a date on the calendar to display that day's backups in the right-hand pane. Then select the backup you want and follow the prompts.

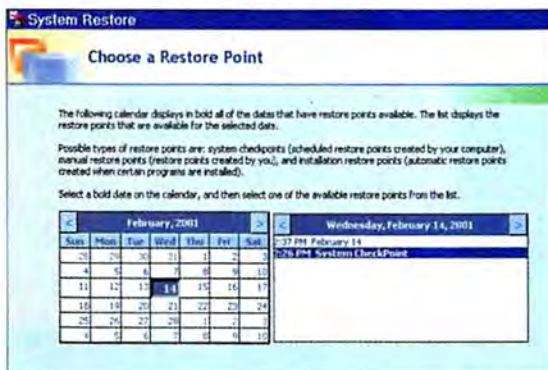


FIGURE 1: SEND YOUR PC BACK to a healthier time by selecting an old configuration from System Restore's calendar.

ously tracks changes to all your key files. When new hardware, software, or some other change starts causing trouble, the utility lets you roll your system's configuration back to a point in time when everything was working.

System Restore improves on Windows 98's Registry Checker by offering three ways to take a snapshot of your system: It automatically backs up your PC once a day; it lets you manually create a backup anytime you choose; and it automatically creates a backup just before any "event" that changes your PC's configura-

tion, such as the installation of new software. Restoring a backup is easy: Select **Start • Programs • Accessories • System Tools • System Restore**, and then click **Restore my computer to an earlier time**. The System Restore utility displays a calendar of the past month (see **FIGURE 1**). Choose a date on the calendar to display that day's backups in the right-hand pane. Then select the backup you want and follow the prompts.

Be sure to pick the correct backup: The further into the past you go, the more files you sacrifice, and any hardware or software you've installed after the chosen restore date will be disabled. Start by restoring the most recent backup and see if that corrects the problem. If it doesn't, move back another day or two and try again. If you want to return to your most recent configuration, it's easy to undo any changes.

WINDOWS 98 REGISTRY'S CHECKERED PAST

IF YOU'RE RUNNING Windows 98, you don't have the easy-to-use System Restore interface or its ability to restore application software. Instead, you have the Registry Checker, which automatically backs up your Registry files each day as you shut

Windows' Seal of Approval

SURE, YOU CAN SAVE a few bucks by purchasing PC components from a no-name manufacturer, but you may be asking for trouble. Before you buy, check Microsoft's Hardware Compatibility List. You'll find all the hardware makes and models that meet Microsoft's requirements for Windows 98 or Windows Me. It also has a tool to determine whether your system can be upgraded to Windows 2000. The list and other compatibility tools are on the Microsoft Web site at www.microsoft.com/hcl/default.asp.

down (one reason why following Windows' standard shutdown procedure is important). The backups are stored in the `Windows\Sysbackup` folder as .cab files named `rbxxx.cab`, where xxx is the number of the backup—001, 002, and so on. These numbers don't reflect the actual dates that the files were backed up, however. If you're looking for the most recent backup, check the modification date of the files in Windows Explorer.

By default, Registry Checker saves only the backups made in the last five days. Since it can take more than five days to discover a problem, it's best to increase that number. You can set up to a maximum of 99 backups (and change other settings) by opening the file `scanreg.ini` in

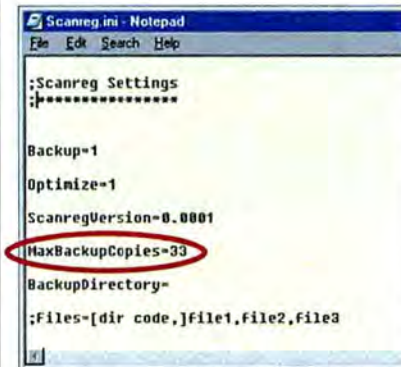
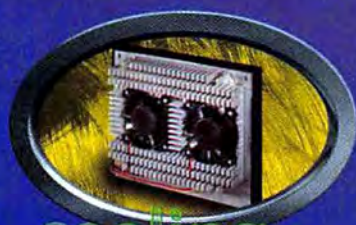


FIGURE 2: RESET SCANREG.INI for a larger number of Registry Checker backups.

Notepad and changing the `MaxBackupCopies=` setting (see **FIGURE 2**).

It's best to keep at least a month of backups. Of course, the more copies you ▶



cooling
devices



enclosures



base systems

PC POWER & COOLING, INC.

#1 Website[®] for PC Power Supplies

heat alarm
& accessories



power
supplies



redundant
power



[locator](#) | [products](#) | [specials](#) | [prices](#) | [accessory prices](#) | [ordering](#) | [contact](#) | [support](#) | [oem](#)
[build your own PC](#) | [product brochure](#) | [about pc power & cooling](#) | [what's new](#)

Cool Computer Upgrades for as little as \$2.00!

PC POWER & COOLING, INC.

What's New

<ul style="list-style-type: none"> ATX/ATX12V power supply Turbo-Cool 250 W ATX power supply Standard 250 W ATX power supply Standard 450 W ATX power supply Turbo-Cool 450 W ATX power supply ATX power supply tester Box-Cool 25 W ATX power supply Power Supply Tester 	<ul style="list-style-type: none"> The solution to a huge problem! The most powerful ATX available! Same low price as the 250 W replaced! Ultra quiet and high-performance! 100% peak power! 100% regulated! The first universal, universal tester! Cools 1-3 drives up to 40 W all-year! Low-noise and ultra-quiet! 250 W (300W) 13.5mm built-in ACAT
---	---

Whether it's 16-step instructions on building your own system, an interactive guide to power supply selection, 360° views of our professional cases, or 18 accessories under \$10, you'll find it at www.pcpowercooling.com

PC POWER & COOLING, INC.

Distinctive style, heavy-duty construction, 10 drive bays, ATX/ATX case profile, extra cooling and EMI suppression. You can't beat our advanced, 100% peak power! 100% regulated! 100% universal, universal tester! Cools 1-3 drives up to 40 W all-year! Low-noise and ultra-quiet! 250 W (300W) 13.5mm built-in ACAT

professional enclosures

"sturdier than an engine block."

TEN GREAT REASONS TO SELECT THE INDUSTRY'S BEST, THE TURBO-COOL® 450 ATX AND TURBO-COOL® 600 ATX/ATX.

- 1. 100% PEAK POWER**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 2. BUILT-IN LINE CONDITIONING**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 3. AUTO-SELECT INPUT**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 4. ULTRA-CLEAR OUTPUT**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 5. INDEPENDENT REGULATION**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 6. 100% PEAK POWER**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 7. 100% PEAK POWER**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 8. 100% PEAK POWER**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 9. 100% PEAK POWER**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!
- 10. 100% PEAK POWER**
The only power supply that can deliver 100% peak power to all 10 drive bays, 100% regulated, 100% universal, universal tester!

PC POWER & COOLING, INC.

Choose from a wide variety of custom accessories to further enhance your system.

accessories

Celebrating Our 16th Anniversary!

www.pcpowercooling.com

(800) 722-6555 Fax: (760) 931-6988

*Based on searches made at MSN and Yahoo

New Products!

Tech Info!

Weekly Specials!

Online Ordering!

keep, the more disk space you consume—you may need up to 3MB for each backup. But the sacrifice is worth it if you can spare the disk space.

You can emulate Windows Me's System Restore by manually backing up your files before each major "event." From *Start>Run*, type **scanreg.exe** and select *Yes* when prompted to make a backup. Doing so creates one of the above-mentioned .cab files with an alphanumeric name. Rename the file in Windows Explorer so it's easily identified and not overwritten as part of the normal .cab file rotation.


Registry Checker can't back up all your applications, but it can back up more than just the Registry files. By default, Registry Checker stores the `system.dat` and `user.dat` Registry files, as well as two old Windows 3.1 files: `system.ini` and `win.ini` (for backwards compatibility). You can add other files to the list—`autoexec.bat` and `config.sys` are recommended—by editing the last line of `scanreg.ini`. Don't forget to remove the leading semicolon to activate the change.

To restore your backup files, restart your PC in DOS mode and enter **scanreg** at the DOS prompt. If you try to run **scanreg** from within Windows using either Start-Run or a DOS window, what you will actually be running is a different program—**wscanreg**—which backs up only the Registry files.

When you run `scanreg`, you'll see a list of your backup files. Pick your desired file and it will be restored. Any files with altered, nonalphanumeric names, such as

the “event” files described above, won’t appear on the list. To restore these files you must open Windows Explorer, find the desired .cab file in the Windows\System32 folder, and double-click it. You’ll see a list of all the files stored in that .cab file (see **FIGURE 3**). Copy the files you want to restore over the originals—in other words, save them with the same name in the same directory—and reboot.

INCOGNITO KEYBOARD

 I RECENTLY purchased and installed a USB keyboard, but my PC won't recognize it when I boot to

DOS. Is there anything I can add to the config.sys or autoexec.bat files that will fix this?

Dwight Myers.

Kennewick, Washington


THERE AREN'T ANY special commands you can put into the old DOS autoexec.bat or config.sys configuration files. The problem is, your PC's BIOS must support a USB keyboard. And even if yours does so, it may not be enabled in the CMOS setup program.

To find out whether your system supports a USB keyboard, open the CMOS setup program when your PC first starts. (You should see an announcement on the boot-up screen telling you to hold down <Delete>, <F1>, or some other key to enter the program.) Look for a feature that enables the USB keyboard. If you don't find such a feature,

then your system may not support USB keyboards. Although most PCs shipped in the last couple of years do provide such support, not all do. If yours doesn't, check with your computer's manufacturer to see if a BIOS update is available for your system.

The good news is that Microsoft, Logitech, and other USB keyboard makers anticipated this problem and added a PS/2 connector to their keyboards along with the USB connector so that people in your position wouldn't be left out in the cold (see **FIGURE 4**).

WHERE DOES THE TIME GO?

 EVER SINCE I upgraded my system to Windows 98 SE, I've found that my PC's clock loses about five minutes each night while the machine is off. After I reset the clock it keeps good time all day. Is there a setting in Windows, or somewhere else, that will allow me to correct this?

Gayle Nimmons.

Santa Barbara, California

THERE'S NO Windows setting that adjusts the calibration of your PC's clock, and there's little chance that the slowdown is caused by the Windows upgrade. A small battery on the motherboard pow-



FIGURE 4: A USB KEYBOARD WITH A PS/2 adapter ensures you can use it with PCs that do not support USB.

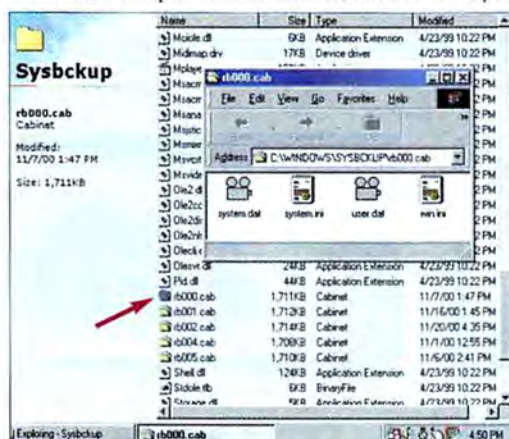



FIGURE 3: TO RESTORE .CAB FILES, open the Sysbkup folder via Windows Explorer and copy over the originals.

ers your PC's clock when the system is powered down. A slow clock usually indicates that the battery needs replacing. If the battery dies completely, you risk losing your PC's basic hardware settings, which are stored in CMOS.

The battery is usually a small photo-style disk that should be easy to replace. Your user manual will list your battery's type and its location on the motherboard. Carefully follow the directions for replacing the battery. If you do it right, you may save all your CMOS settings—but you should still write them down (or save a copy of them using Norton Utilities or a shareware program) before changing the battery.



 For other hardware tips, see www.pcworld.com/heres_how. Kirk Steers is a PC World contributing editor. Hardware Tips welcomes your tips and questions and pays \$50 for published items. ■

Now available — USB and parallel port model!



← 7 inches →



Even with this much empty space... you can install a Backpack CD-Rewriter.

When we say anybody, we mean ANYBODY can instantly write, play and re-write CDs at home or on the road. And from any IBM-compatible Pentium desktop or notebook. Our brainy parallel port technology offers both superior performance and universal fit. Simply plug the backpack cd-rw into your parallel printer port. Then plug your printer into the backpack cd-rewriter. As if that weren't easy enough, we're now the first and only to offer parallel port "hot pluggability," which means you



← 7 inches →

can attach and detach the drive without restarting your computer!

The backpack cd-rw writes and rewrites at 4x, just as fast as internal models, so you can make a full CD in 20 minutes. It comes in two sleek versions, measuring about the same width as the average human head: the classic desktop model and the portable bantam. Our new PC Card adapter gives you the versatility of dual port connection and faster read-back speeds.

Your biggest dilemma will be choosing which one to buy.

backpack cd-rewriter

MicroSolutions
The port•ability leader.

Ph: 800-890-7227 (US and Canada)
or 815-756-3411, Fax: 815-756-2928
Internet: www.micro-solutions.com



Upgrade to Windows Me

THE LATEST ADDITION to the Microsoft Windows family of operating systems, Windows Millennium Edition (Windows Me, for short), isn't an earth-shaking upgrade, but it does add some system protection features, multimedia, and bug fixes to Windows 98 Second Edition.

If you're happily running Windows 98 SE, there's no compelling reason to upgrade to Windows Me. But if you're still plugging along with Windows 95 or you want improved stability or multimedia features, upgrading may make sense.

Windows Me's better, more-comprehensive integrated help system includes numerous step-by-step troubleshooters for diagnosing tough problems. The OS backs those up with some handy automatic recovery tools to get your computer up and running when you're stuck. Microsoft has also added a digital audio and video player, a basic video editor, more home

THE TOP DOWN

Benefits: New multimedia tools, fewer bugs, and system protection

Costs: Typical street price: \$60 (Windows 98 upgrade); \$90 (Windows 95 upgrade)

Expertise level: Beginner

Time required: 1 to 1.5 hours

Requirements: Pentium 150 or higher, at least 32MB of RAM (64MB recommended), 480MB to 645MB of hard drive space

Vendor: Microsoft (www.microsoft.com/windowsme)



networking features, the latest version (5.5) of Internet Explorer, and more.

The downside? Microsoft stripped out many underlying 16-bit DOS features that were an integral part of Windows 9x. Starting from a DOS prompt now requires a boot disk. And older 16-bit ISA cards that rely on DOS drivers (older mo-

dem and sound cards, for example) may not work with Windows Me. The same goes for some older applications.

Unfortunately, as of press time, Microsoft hadn't compiled a comprehensive list of the hardware and software that won't work with Me. You have to check vendor Web sites for compatibility information. During installation, however, Windows Me will check for incompatible software and ask you to uninstall it before proceeding. The install program will not catch every application, however. And if your hardware isn't compatible, Windows Me won't find or install it. As a result, you must plan carefully.

Once you've finished your upgrade, see "Windows Your Way" on page 98 for more on getting the most out of Windows Me.

Stan Miastkowski is a contributing editor for PC World.

PAIN-FREE UPGRADE

BEFORE YOU INSERT the Windows Me CD-ROM into your PC's drive, it's essential that you make some background preparations. Here's a checklist:



1. Although Windows Me includes drivers for a wide range of hardware, it can't cover everything. Visit the Web sites of the vendors that made your system's add-in cards, modem, printer, scanner, and so on, and download the latest drivers with Me support.



2. Run ScanDisk (*Start*Programs*Accessories*System Tools*ScanDisk*), followed by Disk Defragmenter (*Start*Programs*Accessories*System Tools*Disk Defragmenter*), on all drives in your PC.



3. Scan your PC for viruses. Then, temporarily disable virus scanning, which can interfere with the installation of software, including Windows Me.



4. Do a complete backup of the files on your PC.

5. Make sure all applications are closed before you begin upgrading.

CONSIDER A CLEAN INSTALL

IF YOU'VE BEEN using your computer for a while, your Windows folder is probably chock-full of unused files, partially uninstalled applications, and bad Registry entries. Upgrading to Windows Me won't solve those problems. In fact, it could make them worse.

Erasing all the files on your hard drive and installing Windows Me from scratch will let you start afresh. But this approach has a downside: You'll have to reinstall all your applications. And backing up all your data files before you start is even more important.

Before embarking on a clean install, check to see whether your PC can boot from the CD-ROM drive. Open your PC's setup program (in most cases you access this by holding down a

particular key at start-up; check your manual if necessary), and look for a setting that instructs your PC to attempt to boot the CD-ROM drive before trying the other drives. If that option is available, you can set your PC up to boot from the Windows Me installation disk.

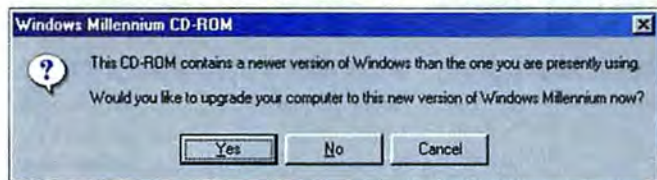
If your computer won't boot from your CD-ROM, use the Windows Startup floppy disk created by Windows 9x to boot your PC. It contains drivers needed to access your CD-ROM drive from DOS.

If you do a clean install, you'll need to use your original Windows 9x CD-ROM at one point in the process. Windows Me will ask you to insert it during setup to confirm that you're actually upgrading from a prior version of Windows.

1 Copy the Windows Me setup files to your hard drive (optional). Inserting the Windows Me Upgrade CD-ROM automatically starts the setup process, but we strongly recommend that you first copy the setup files to your hard drive and leave them there (assuming you have the space), and run setup from the hard drive. That way, Windows Me won't ask you to insert the CD-ROM every time thereafter when you install a new feature or make system changes.

To copy the Windows Me CD-ROM using your existing version of Windows, open Windows Explorer (*Start*Programs*Windows Explorer*), go to drive C:, create a new folder (*File*New*Folder*), and name it something like WinMeCD. Then copy all the files and folders in the CD-ROM's WIN9X folder to the hard drive's newly created folder.

2 Start the setup. Make sure your existing version of Windows is running (if you're doing a clean install, boot from the CD-ROM or floppy disk). If you opted to copy all the upgrade files to your hard drive (as outlined in step 1), run setup.exe from the hard drive. If you just want to install from the CD-ROM, insert the Windows Me CD-ROM in your drive. The installation should start automatically. If it doesn't, run setup.exe from the CD-ROM.

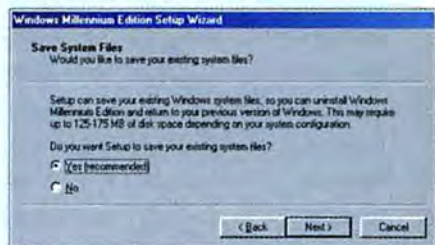


The screen will ask whether you want to upgrade. Click Yes, and setup will begin.



3 Fill in the blanks. You know the drill. You must accept the Microsoft license agreement and then fill in the long product key (found on the back of the Windows Me CD-ROM case). Setup will then check to see whether you have enough drive space to upgrade.

4 Save your old version of Windows. Setup will ask if you want to save the existing Windows files. We advise you to do this, since it will allow you to return to your prior version of Windows if setup fails to complete correctly.



5 Make a start-up disk. Follow the on-screen directions to create a bootable floppy start-up disk. This is an essential step if you run into problems starting Windows Me in the future. Once you've created it, make sure you label it, and put it in a safe place.



After setup finishes, boot from the disk to verify that the CD-ROM drive works.

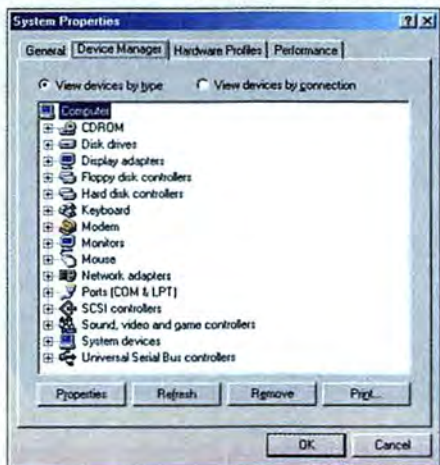
6 Sit back and relax. Windows Me will now begin the large-scale automatic process of installing files and setting up the operating system. Expect to see Windows restart your PC several times as it detects and installs hardware. If everything goes without a hitch, you should be up and running Windows Me in 15 to 30 minutes.



7 Check the setup and install (optional) drivers. Select *Start>Settings>Control Panel*, open the *System* applet, and click the *Device Manager* tab. Next, make sure no entry has an exclamation point next to it, since this symbol indicates a problem. If you see an exclamation point anywhere, double-click the entry and run the associated troubleshooter to solve the problem.

This is also the time to confirm that Windows Me detected and installed all your existing hardware. Click the plus signs next to the various entries, and make sure everything (modems, sound cards, and so on) shows up in the list. If any item is missing from the list, select *Start>Settings>Control Panel*, open the *Add New Hardware* applet, and follow the directions. This is also the step where you'll need to install those updated drivers you downloaded before starting the upgrade.

Even if Windows Me detected and installed all your hardware, now is a good time to install any other updated drivers that you have. Details vary; follow the directions that came with the driver.



8 If you have problems. If problems occur during setup, follow the on-screen directions. If Windows Me won't start after installation, boot your computer using the start-up disk you created in step 5 and follow the directions. If Windows acts strangely or shows error messages, go to *Help* and access the troubleshooters. If problems persist, go to the Windows Me Solution Center at www.microsoft.com/windowsme/support/solutions/default.asp. Alternatively, you can contact Microsoft tech support directly. As a last resort you can use the files saved during setup to restore your original version of Windows. To do this, boot your PC with the start-up floppy you created in step 5 and run *uninstall.exe*.

PC WORLD

MARKETPLACE

FOR ADVERTISING INFORMATION
CALL TOLL FREE:

888/254-0711

Senior Vice President of Sales
Neal Mandel 212/655-5157

Midwest Northwest
Lisa Commando 212/652-0875 Maritza Alvarez 212/655-5172

Southeast Sales Manager/Northeast
Shirley Nixon 212/655-5114 Debra Robbins 212/655-5111

SHOP
HERE

INTERNET/ISPs

1 Host.com	800/978-9911
AIT	800/878-4084
A Plus net/Solo Web	858/558-8449
Apollo Hosting	877/525-HOST
Backbone Internet	888/241-HOST
Blue Genesis	800/266-4881
Compare Webhost	954/630-3737
Easyspace	www.easyspace.com
Fatcow.com	877/5FATCOW
Hostcentric	800/996-3987
Onepine Internet	212/439-4399
Online Marketing	800/741-6813
Timehost Network	800/758-1530
WebSiteSource.com	877/HOST-001

PRODUCTIVITY

Cougar Mountain Software	800/388-3038
Crichlow Data	800/678-4535
E-Book	408/919-6675
Micro 2000	800/864-8008
Worth Data	800/345-4220

TRAINING/ENTERTAINMENT

Academic Discount Superstore	800/580-9237
American Institute	800/767-2427
Lantell Learning	800/526-8355
Learnkey.Com	800/865-0165
Smart Certify Direct	877/TRAINING
Transcender	615/726-8779

SYSTEMS/PERIPHERALS

Granite Digital	510/471-6442
-----------------------	--------------

MEMORY/UPGRADES

1-800-4-MEMORY	800/463-6679
Data Memory Systems	800/662-7466
Imemorymall.com	877/636-6255

SERVICES/SUPPLIES

AtWebcams.com	800/262-7298
Action Software	440/942-9091
Ai Squared	800/859-0270
Dell Computers	888/243-9969
Drivesavers	800/440-1904
ebarcode.com	800/400-6437
Eco-Data Recovery	800/339-3412
Floppy Copy	800/732-3475
Form Systems	800/245-5775
Great Lakes Case & Cabinet	814/734-7303
Inkjet Southwest	800/447-3469
MCK Communications	888/454-7979
Mr. Ink Jet	815/744-3475
PC Chairs	800/935-5260
Search 4 U/Big Clearance	888/828-3636
Softman	888/999-2611
StarSurplus.Com	877/392-3772

All the Web Hosting & Email Tools to build your business!



HOT TOOLS!

- PHP
- Perl
- FrontPage
- CGI-BIN
- MySQL
- SSL
- Java Applets
- Real Audio & Video
- ASP
- Cold Fusion
- MS Access
- And More!



"In our business it's called: 'You bet your reputation.' With BlueGenesis.com we feel confident that we are getting cutting edge features and excellent support."

Rich Helms, Partner,

Web Developer:
Write Stuff Writing Services

We challenge you to find a more robust, user friendly and cost effective Hosting & Email Solution.

Plus: state of the art E-COMMERCE Capabilities included with packages.*

*begin with BRONZE PACKAGE

This is Web Hosting
made EASY!

The Developer's Paradise!

Superior Platform:

- NT & UNIX Hybrid Solution
- Robust Customer Self Management Tool
- Totally Redundant, Scalable and Secure
- 99% Network Uptime Guarantee

DOMAIN REGISTRATION
Starting from \$14.99
HOSTING SOLUTIONS
Starting from \$9.99

NO SETUP FEES!

Blue Genesis

Turn your Website on at www.BlueGenesis.com

sales@bluegenesis.com • www.bluegenesis.com • 1-800-266-4881

The Evolution Of Streaming

See the future of
Internet video broadcasting
visit

www.livemediahosting.com

- Full on-site production services through our network of professional videographers.
- Complete solutions, from pre-production consultation to content encoding and audience tracking.
- Rich media content delivery via a global satellite system that bypasses congested landlines and links to our network of servers located at the "edge" of the Internet.
- Engage your audience with interactive chat & forums.
- Generate revenue with our secure pay-per-view and e-commerce packages, and insertion of advertisements into your Webcasts.
- Complete managed Web hosting services in our secure data centers.

LIVEMEDIAHOSTING.COM

Contact us at 1-800-996-3987 or
video@hostcentric.com

Media Solutions Group **hostcentric**

The Hostcentric logo™ and Hostcentric are registered trademarks of Hostcentric, Inc. © 2000 Hostcentric, Inc

Web Hosting



Activated in
10 minutes or
it's FREE!*
24-7

\$9.95
mo.

www.-your-name-.com

Unlimited Space!*

Unlimited Usage!*

24/7 Tech Support

2 E-mail • Web Statistics

CGI • Front Page 2000

FREE DOMAIN NAME!
SAVE \$70!

RESELLERS

www.yourclient.com as low as \$3.60/mo.
www.server4me.com from \$49/mo.



www.websolo.com

(858)558-8449 (877)275-8763

*Some restrictions apply. See our website for details, or call our friendly staff.

Backbone Internet
WEB HOST .com

WEB HOSTING

As low as

\$9

per month

**30 DAY MONEY
BACK GUARANTEE**

[.COM .NET .ORG]

IP with every account

User Friendly

Reliable

Affordable

24/7 Tech

**NO SET
UP FEE**

www.backboneinternet.com

Toll Free 888-241-HOST(4678)

WEBMASTERS

► **5 YOURCOMPANY.COM's**
120 Megs—\$14.95/mo.
► **1 WEB SITE \$7.95/mo.**
► **First 60 Days Free**
► **Unix or NT, MS FrontPage 2000**
► **FAST RELIABLE NETWORK & SERVERS**
► **SECURE SERVERS & SHOPPING CART**
► **24x 7x 365 TELEPHONE & EMAIL**
► **TECHNICAL SUPPORT**
► **DEDICATED SERVER \$150/mo.**
New York City area connectivity - \$6K Dial in \$16.95/mo.
Fast Page Loading/No Busy Signals
Verizon InfoSpeed DSL 640K \$49.99/mo. Free modem.
Covad TeleSpeed Business DSL 192K \$99.00/mo.
TI 5590.00/mo. Free Cisco router.

212-439-4399

ONEPINE INTERNET
WWW.ONEPINE.COM

511 6th Ave., Suite 1 • New York, NY

Want Fast, Reliable Web Site Hosting At A Discount Price?

\$13.96
per month
NO SETUP FEES!

As low as \$13.96/mo
for 200 MB
Fast, Reliable
Web Site Hosting

**99.9%
UPTIME
GUARANTEE**

Direct Backbone Fiber Optic
Connections to the Internet
99.9% Uptime Guarantee

Resellers Get A
Link On Our Site
Up To 7 months
FREE Hosting!
Virtual Control Panel
Unlimited Email
Discount Domain
Registration



Web Based Email
Search Engine Submission
Free Design Software
Free Statistics Software
Free E-Commerce Software



Open Your Internet Store!
All You Need Is Our Commerce Account.

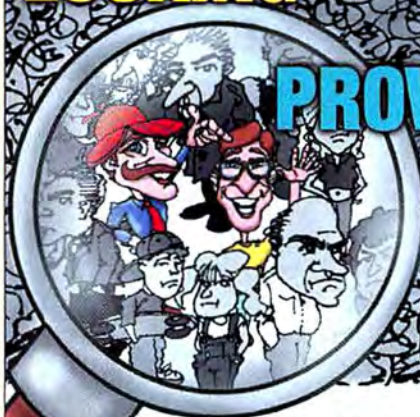


Apollo Hosting, Inc.



www.apollohosting.com 877-525-HOST(4678)

LOOKING for the perfect HOST PROVIDER?



**we'll
find
them
for you!**

Imagine being able to go to one source
to answer all your hosting questions! CompareWebHosts.com is a
premier Internet company providing the ultimate tool for consumers
to research hosting companies and web designers all over the world.
CompareWebHosts.com was recently featured on ZDTV as a top resource
to find a hosting company.

CompareWebHosts.com technology will minimize your efforts in finding a
suitable hosting company. **And it is FREE!**



www.CompareWebHosts.com • (954) 630-3737
sales@CompareWebHosts.com

Timehost web hosting

[dedicated servers] [ecommerce] [resellers] [virtual hosting]

Free Domain

Get Yours!

With plans starting at
9.95

Timehost provides hosting solutions on multiple
platforms giving you the ability to choose
the best package for your site.

Web Based Administration
Pre-installed Perl Scripts
Secure Server

Dedicated IP Address
Redundant Backbone
Frontpage 2000 Extensions

POP Email
Online Statistics
Toll-Free Support

www.timehost.net

toll free: (800) 758-1530 or (888) 598-1772

*See website for details on this exciting offer.

UNLIMITED DOMAINS NO MONTHLY FEE

1-HOST

Basic Web Hosting Accounts
start at

\$12.50
per month

- Automated Virtual Servers for Resellers
- Reseller Control Panel
- UNLIMITED bandwidth, POP accounts
autoresponders, mail forwarding
- FREE domain reg., search eng. reg.,
frontpage ext., majordomo, SSL



http://www.1-host.com sales@1-host.com

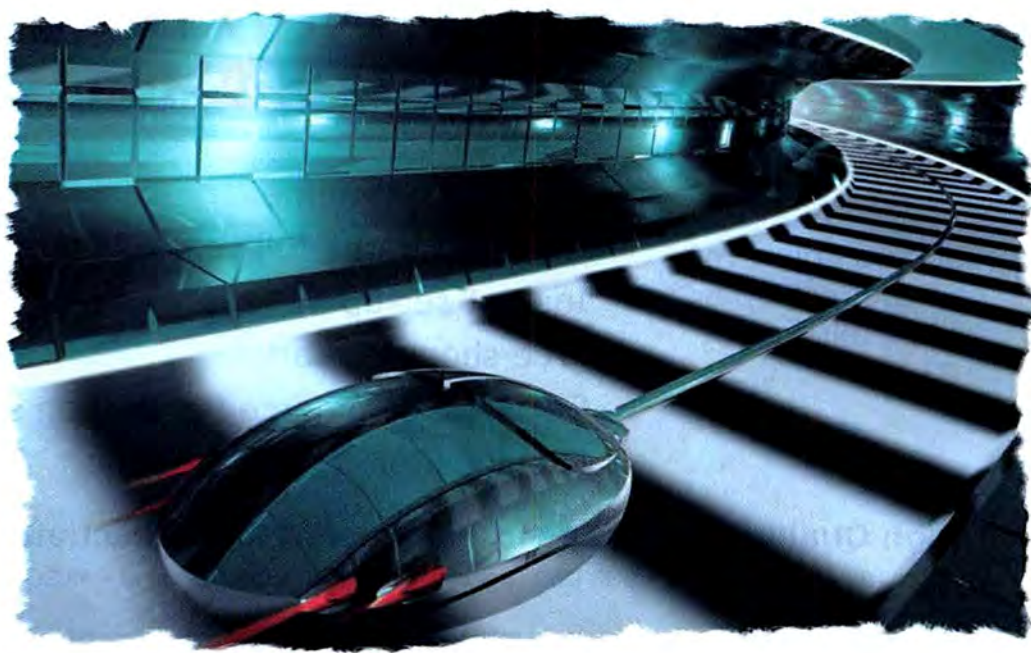
1-800-978-9911

Web Hosting

E-Commerce

Dedicated Servers

Domain Registration



Exceed Your Limitations.

OLM – Fast-Track Internet Solutions. Reliability. It's why thousands of businesses and individuals rely on OLM for Web hosting, e-commerce, reseller programs, domain registration and more. They rely on OLM's DS-3 multi-homed connections to the world's largest backbone providers for redundancy that guarantees high-speed Web access. The result? Scalable, integrated Internet solutions...99.9 percent uptime... outstanding prices...24/7 tech support...and a 30-day money-back guarantee. Exceed

your limitations. Rely on an industry leader — OLM.

800-741-6813

sales@olm.net

www.olm.net

Visit www.olm.net/promo and save up to 50% off our standard or e-commerce hosting.

MIVA
CERTIFIED
Business Partner

 **LM**
Your Internet Solution

MARKETPLACE Shop Here! Internet • ISPs



Sign Up Now!

fatcow web hosting

www.fatcow.com

Sign up online for
instant set-up or
call us toll-free at
1-877-5 FATCOW

- ✓ Free domain name
- ✓ Hosting for one full year
- ✓ Instant set-up
- ✓ Free shopping cart
- ✓ Secure e-commerce transaction support
- ✓ Fabulous toll-free tech support

High Quality • High Speed • Reliable T-3 Connectivity

100MB • 100 email accounts • 5GB Data Transfer • CGI/PHP • Control Panel • MySQL • Moo

\$99 a year...including domain name!

From £5.00 pa / \$8.00 pa
inc. InterNIC / Registrar fees

Domain Registration

Web Site Hosting
Web re-direction
CGI-Bin / ASP
RealAudio
Ecommerce packages
.com registrar transfers \$6

order online:
easyspace.com

Accredited ICANN registrar

ADVANCED *Internet* TECHNOLOGIES, INC. eCommerce WEB HOSTING

"AIT's unique & powerful Virtual Server Technology (VST) gives you the competitive edge"
"Includes lots of **FREE** standard features you can **RESELL**"

Web Hosting As Low As

7⁹⁵

RESELLERS

Additional Domains (Linux)

\$2

Additional Domains (Windows 2000)

\$5

Call TOLL FREE

1-800-878-4084

<http://www.AITcom.net>

sales@aitcom.net



Rated #1 Web Hosting
Company with RateHosts

Server Features:

- FREE Domain Name Registration
www.yourcompany.com
- TOLL FREE Technical and Billing Support
- Dedicated IP Address on VST
- 99.9% Network Uptime Guaranteed
- 30 Day Money Back Guarantee
- Unlimited Hits
- Application and Ecommerce Hosting
- Ecommerce Enabled and Ready
- Secure Credit Card Processing
- Redundant OC12 & DS3 Backbones
- Redundant Cisco 7000 Series Routers
- On-Site UPS & Generator Backup
- Your Own FTP Directory
- Your Own CGI-BIN
- Access to all config files
- Unlimited POP Email Accounts
- Unlimited Email Forwarding/Aliases
- Unlimited Email Autoresponders
- Anonymous FTP
- Password Protected Directories
- Easy to Use Control Panel
- Online Billing Status
- Real Time Ticket Support System
- Webalizer Statistics and Log Files
- Daily Tape Backups/DataVault
- MS FrontPage Extensions
- FREE Marketing Newsletters
- FREE Park Domains
- FREE SSL & PGP
- FREE CGI/JAVA Libraries
- FREE AIT Mail Listing & PAL
- FREE MCart Webstore / Shopping Cart
- FREE Guestbook & ChatRoom
- FREE Customer Support Queue
- Telnet Access - SSH Access
- mSQL and MySQL Database Support
- Real Audio/Video capabilities
- Macromedia/Adobe/NetObjects Fusion
- MCPS/ CyberCash/ Payment Net
- eTools Office Suite - Chat, Web Based Email
- BBS, Auction, Calendar, Banner Exchange
- WAP Enabled (Wireless)
- FREE Search Engine Submission

No Setup Fee If Switching From A Competitor
Ask About a Month of **FREE** Hosting

Your Hosting Solution	Virtual Server 1	Virtual Server 2	Virtual Server 2+	Virtual Server 3	Virtual Server 3+	Window2K Powersite	Win2K Reseller
Disk Space (can be customized)	155 MB	300 MB	340 MB	700 MB	720 MB	155 MB	350 MB
Data Transfer	30 GB	40 GB	50 GB	60 GB	70 GB	20 GB	40 GB
Max # of domains you can host	N/A	25	25	75	75	N/A	25
Base Monthly Server Cost	\$18.95	\$59.95	\$89.95	\$149.95	\$199.95	\$18.95	\$89.95
Max. per domain cost @ \$2.00/domain/mo	N/A	\$50.00	\$50.00	\$150.00	\$150.00	N/A	\$125.00*
Max. possible cost to you/ month	\$18.95	\$109.95	\$139.95	\$299.95	\$349.95	\$18.95	\$214.95
Your monthly gross profit @ \$19.95 domain	N/A	\$498.75	\$498.75	\$1,496.25	\$1,496.25	N/A	\$548.75**
Your monthly net profit	N/A	\$388.80	\$358.80	\$1,196.30	\$1,296.30	N/A	\$333.80

*Additional domains for Windows2000 Reseller Hosting Solution - \$5.00/month

**Monthly Gross Profit reflects resell price of \$21.95

Dedicated and Co-location Solutions

DOMAIN REGISTRATION

FREE Private Label

Domain Registration

Put this on your website

www.your_client.com

As Low As **9⁵⁰**

www.nameit.net

The N@meIT Corporation

Resell on a commission basis or at a discount
Transfer existing domains for **\$9.50**

N@meIT provides all of these powerful value added services to its RSP's and strategic partners!

Registration Service Provider Program

Features	Regular	Bronze RSP 1-3 domains	Copper RSP 4-11 domains	Silver RSP 12-39 domains	Gold RSP 40-75 domains	Platinum RSP 75+ domains	CRSP (Referrals)	Private Label Domain Registration
Cost Per Domain/per year*	\$34	\$24	\$23	\$22	\$21	\$10	\$24	Retail \$24
Commission earnings**	N/A	N/A	N/A	N/A	N/A	N/A	\$10	To You \$14
Ecommerce Certification Free	✓	✓	✓	✓	✓	✓		
Webhosting Certification Free	✓	✓	✓	✓	✓	✓		
Domain Management Tool (Demo)	✓	✓	✓	✓	✓	✓	✓	In development
Free Parking	✓	✓	✓	✓	✓	✓	✓	✓
Real time Modifications	✓	✓	✓	✓	✓	✓		
Free Search Engine Submission	✓	✓	✓	✓	✓	✓		

It is EASY to create and maintain your web site with our Control Panel!

Everything you need to create a professional-looking web store in minutes!

WOW!
Get a website for only \$13.96/month.

Registered Web Presence Provider for Microsoft® FrontPage®

99.9% UPTIME GUARANTEE

\$13.96 per month
no setup fees

Web Site Source

"We make it EASY to do business on the Web."

www.WebSiteSource.com Tel: 877.HOST.001

Super Savings for Students, Teachers & Schools!

ACADEMIC DISCOUNTS

FREE CATALOG AVAILABLE!

Macromedia Web Design Studio only \$239!

All Adobe Titles	Call!	EyeCandy 4000	\$69	Mathematica	\$129
AutoCAD LT 2000i	\$299	Filemaker Pro 5	\$148	Office 2000	Call!
Coda Finale 2001	\$199	FinalDraft 5	\$139	Painter 6	\$199
CodeWarrior Pro 6	\$109	Fireworks 4	\$98	Sibelius	\$229
Director 8	\$329	Flash 5	\$98	Vectorworks 8.5	\$329
Dreamweaver 4	\$98	Freehand 9	\$98	Omega	Call!
		Lightwave 6	\$789	Wacom 6x8	\$284

Visit us online for more savings, specials, bundles, and 24hr ordering.

1-800-580-9237 FAX ID'S & POS TO 512-450-0263

ACADEMIC SUPERSTORE

www.AcademicSuperstore.com

Get Certified!

800-526-8355

www.Lantell.com

Windows 2000 MCSE	\$549
Windows Accelerated.....	\$279
A+ Certification.....	\$239
Novell CNE 5	\$359
CISCO CCNA.....	\$139

Anywhere, Anytime, Always
the leading edge of learning.

AICS is now
American College of Computer & Information Sciences

- Earn your B.S. or M.S. degree
- No classes to attend
- Self-paced study
- Prepare for a hi-tech job

For a free catalogue call

1-800-767-2427

or visit **www.aics.edu**

aicis

American College
of Computer & Information Sciences

ACCREDITED MEMBER DISTANCE EDUCATION TRAINING COUNCIL

Micro2000

The **ULTIMATE** A+ Bundle

includes tools for the future...

Micro 2000's A+ Certification Bundle contains the two most powerful tools you could have in your arsenal:

Wave's A+ Certification Bundle - which contains extensive training guides, 3 hours of instructional video, and 7 hours of realistic simulations. Also included is Wave's own Challenge Interactive which contains over 1100 sample test questions to make sure you're ready to pass.



Micro-Scope 8 - recognized by technicians everywhere. Micro-Scope is operating system independent and communicates directly with the hardware with results far more accurate than DOS or windows based diagnostics. Includes excellent FREE phone support. Our technicians can walk you through any technical situation, whether you're in your office or on-site.

CALL NOW

1-800-864-8008

Micro 2000, Inc.

1100 E. Broadway, Glendale, CA 91205

www.micro2000.com

PC WORLD ACTION CARDS SELL!



Your competition doesn't want you to know it, but this card pack really works. PC World Action Cards are mailed right to the most recent PC World subscribers. It's a cost effective alternative, and it couldn't be easier. We do all the work for you.

Your competition doesn't want you to know:

- How many leads it generates
- How cost effective it is
- How easy it is

You'll never know unless you call a VentureDirect National Media Specialist today at (212) 655-5157. Call today for a free estimate.

VENTUREDirect

Direct Response Marketing & Media Solutions WORLDWIDE

60 Madison Ave., New York, NY 10010 Phone: 212.684.4800 Fax: 212.576.1129
e-mail: sales@ven.com www.venturedirect.com

Unique 3D Page-Flipping Album

www.flipalbum.com/m18

- ▶ Instantly create a digital photo album which looks and feels like a real album
- ▶ Easy to use interface with cool 3D animated page-flipping
- ▶ Automated slideshows and Autoflip function allows easy hands-free picture viewing
- ▶ Resize and open multiple albums to manage pictures easily



DARE TO COMPARE

COUGAR MOUNTAIN POINT OF SALE® BLOWS AWAY THE COMPETITION IN PRICE AND PERFORMANCE.



COUGAR MOUNTAIN POINT OF SALE

More Point of Sale & built-in Accounting features than any other single software package. All for one low price!

Only **\$899.50**

Single user, shipping & handling extra.

Create-A-Station

- Cougar Mountain Point of Sale for Windows® pre-installed
- Pentium-powered technology
- 32 MB of RAM
- CD-ROM
- 15" SVGA Monitor

- 10/100 base-T Ethernet
- Compact cash drawer with media slot
- Receipt Printer
- Compact PC 101 keyboard
- Built-in security
- USB ports
- 2 Hours of FREE Technical Support

- 1 year FREE parts
- Integrated credit card swipe (optional)
- Customer display (optional)
- Bar code scanning (optional)

Hardware & Software All-In-One
\$2495.00



Call: **1-800-388-3038** PC



visit us on the web

www.cougarmtn.com

Paid to Pass™

Cash for passing Windows 2000 MCSE Exams

\$200
cash
bonus

Let's face it, there's a price to pay for Windows 2000 MCSE certification. You'll spend countless hours learning how to administrate Windows 2000 and then cram all night for the exams. Once you pass the exams, who will be the first to reward you?

LearnKey will pay you up to \$200 when you use the **ALL NEW! MasterExam** to pass your Windows 2000 MCSE exams! MasterExam provides numerous questions, a variety of question types, and multiple testing modes to prepare you for the exams, objective by objective. MasterExam will enable you to apply the knowledge you've gained and give you an inside advantage on test day. So before you spend another dime on certification training, contact LearnKey and ask how you can get **Paid to Pass**.

\$145
ea.

MasterExams available for:

- Windows 2000 Professional Administration
- Windows 2000 Network Infrastructure Admin
- Windows 2000 Server Administration
- Windows 2000 Directory Services Admin

1.800.865.0165 www.learnkey.com

- Complete Windows2000 courses at www.learnkey.com
- **SAVE 10% on Windows2000 training & MasterExams.** Use code #4026 when ordering.

* \$50 cash bonus per MCSE exam. Limit 4 exams. Certain conditions apply. Contact LearnKey for details.

Microsoft Certified
Solution Provider

ALL NEW!
MasterExam™
Test Prep Software

Source Code #4026

Learn From
The Experts™



"Master Your Network Guaranteed"

Get the knowledge and skills you need to maximize network performance...Guaranteed.

Solving your network problems is really very simple. The only thing that can increase network efficiency, speed and performance is your own networking knowledge and skills. SmartCertify Direct's training courses give you the ability to end networking frustration and prepare for IT certification quickly and easily. Our courses combine the effectiveness and personalization of classroom training with the convenience and affordability of self-study training for an interactive online study solution guaranteed to get you IT certified. In addition, our courses are codeveloped with industry leaders like Microsoft®, Novell® and Cisco® to further ensure your success.

MCSE
MCP
Linux™
Office 2000

Cisco®
CNE™
Novell® CIP
CNA

PC Repair
A+® Certification
Networking
UNIX®

MCSD
Visual C++®
Visual Basic®
Java™ 2

C++
Webmaster
Lotus®
Oracle® and More!

Visit
www.it-train.com
and Register
to Win a Dell™
Pentium® III
PC!

End networking frustration today!

Call TOLL FREE **1-877-TRAINING** for a free course catalog!

TOLL FREE 1-877-872-4646



25400 US Hwy. 19N., #285, Clearwater, FL 33763 • 1-800-475-5831 • (727) 724-8094 • Fax (727) 726-6922
Copyright © 2000 SmartForce, PLC. SmartCertify Direct, the SmartCertify Direct logo and SmartCertify's ClassWare are trademarks of SmartForce, PLC. All other trademarks are property of their respective holders.

SmartCertify
Direct
Preparing You
for a Successful IT Career

PC

If IT Certification is the ocean,
we're your life raft.

NEW
TranscenderCerts
for the
2000 MCSE
NOW AVAILABLE!

Meet April, Spike and Rachel. They and the rest of the Transcender gang of exam development experts lead the way to certification with realistic and accurate exam preparation tools for Microsoft®, A+®, Network+™, and Cisco® Certification. TranscenderFlash™ quiz software drills you on your knowledge of the fundamentals while TranscenderCert™ exam simulations test your readiness for the real thing. TranscenderCert features include customized exams, randomized exams, simulation questions, a score report history, and computer adaptive testing. With Transcender, you can be absolutely sure when you are ready. Guaranteed.* Call the gang today and get Transcender. TranscenderCert and TranscenderFlash are available directly from Transcender.

To order Transcender products,
download at www.transcender.com,
call (615) 726-8779, fax (615) 726-8884, or
mail to P.O. Box 282189, Nashville, TN 37228.

www.transcender.com

Transcender®
Corporation



Certification.

Guaranteed.

Copyright © 2000 Transcender Corporation. All rights reserved. Transcender, TranscenderFlash, and TranscenderCert are either registered trademarks or trademarks of Transcender Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. A+, Network+, and Cisco are either registered trademarks or trademarks of CompTIA. Cisco is a registered trademark of Cisco Systems, Inc. Macintosh is a registered trademark of Apple Computer, Inc. All other trademarks are the property of their respective owners. *Call or visit our Web site for details on the Money Back If You Don't Pass Guarantee.

Custom **ULTRA-3 SCSI LVD 160MB/s** - **Ultra 66 IDE** - **Firewire 1394**

Get Ultra SCSI Performance, use our Quality Cables & Active Terminators.

High Performance Solutions for Ultra66 IDE and Firewire Improves Reliability.

SCSIVue™ Active Terminator

Seven models available with optional Remote LED Pak. These are the finest terminators available, they fix SCSI problems and improve reliability.

Benefits:

- Improves SCSI Bus Performance
- Less Errors, More Reliable Data Transfer
- Diagnoses Problems • Analyzes Signal Quality

Features:

- Active Regulation • Fast 50 & Fast Wide 68
- Status Indicators • Gold Contacts

Hot Swap Powered Terminator

Now you can safely remove any SCSI device from a SCSI chain by simply clicking a switch. Optional Power Supply can provide termination power to portable setups or when termination power is not being supplied by other devices.

Gold Diagnostic Adapters

Both 50 pin and 68 pin (all combinations)

From: **\$39**

Gender Changer

68 Pin Drive to 50 Pin IDC (runs wide drive as narrow)

Drive Bus Changer (runs 68 pin on 50 pin bus)

80 Pin SCA Drive to 68 Pin (converts SCA to 68 SE or LVD)

From: **\$49**

For Adapter: Ultra Wide Cards

- Adapters with partial termination built in for 68 to 50 converters (converts Host Adapter)

SCSIVue™ Gold Diagnostic Cables

From: **\$39**

Benefits:

- No Loss Of Important Data
- Faster Performance
- Test Cable Integrity

Features:

- Diagnostic Indicators • Large Ferrite Filters
- Triple Shielding (Unique Design)
- Double Gold 20u" Plated Connectors
- Extra Heavy 26 Gauge Wire • 100 Styles in Stock

Gold VHD Ultra SCSI Cables

Features:

- New 8mm Ultra 160 LVD SCSI Connector
- Triple Shielding (Unique Design)
- Double Gold 20u" Plated Connectors
- Diagnostic Indicators • Large Ferrite Filters

FireVue™ Gold Firewire 1394 Cables

Diagnostic LED monitors power on the Firewire cable. Gold Connectors, Ferrite Beads, and perfect cable characteristics. Lengths up to 32', both 4 and 6 pins.

From: **\$29**

FireVue™ Firewire 1394 to Cardbus

The perfect solution for any POMA Laptop or Portable computer. This card is both Mac and PC compatible. Gives you two 1394 6-pin Firewire connectors. Supports up to 400Mb speed.

From: **\$159**

FireVue™ Firewire 1394 to PCI Host

Gives you four 1394 6-pin Firewire connectors. IEEE Standard compliant with auxiliary power connector on card. Supports up to 400Mb speed. Both Mac and PC compatible.

From: **\$159**

Granite Cables Are The Best Because They're Engineered Right.

Granite "The Solution Company"

LVD-TPO Teflon™ Internal Cables

Benefits:

- Less Errors, Ultimate Performance
- Silver Wire Improves Signal Quality

Features:

- Perfect 90 or 132 Ohm Impedance • Custom in 1 Day
- Triple Pronged Connector • Gold contacts Silver Wire

50 Pin Replacement Cable for External Drive Cables

From: **\$29**

SCSI Cable Tester - LED Readout

This Digital SCSI Cable Tester can test all the popular cable styles for opens, shorts, and unreliable operation. Battery powered for easy use on any system.

Special Package of all 3: **\$99**

IDEVue™ Gold Ultra 66 TPO Cables

Ultra 66 TPO Cables use 80 conductor cable and special 40 pin connectors. The best you can buy.

From: **\$29**

IDEVue™ Ultra 66 Hot Swap Bay

The IDE Ultra66 Hot Swap Bay works with hard drives and removable drives. Includes cooling fan, key lock, and 96 pin high reliability interconnection. LED indicators for Power and HDD Activity.

From: **\$39**

IDEVue™ Ultra 33 Raid Controller

Speeds up to 55MB/s! 1/2 of a Terabyte with today's new larger capacity drives. Cost effective and fast. Linux, Win 98, NT, 2000

From: **\$445**

External Ultra SCSI Cases

Ultra SCSI Custom Teflon Cable Available • Custom Enclosures in 1 Day for Raid & Arrays

From: **\$99**

Temperature ALARM! Automatic Monitor & Control

From: **\$99**

14 & 29 Bay Ultra SCSI Towers

From: **\$999**

Bay Cooler Kit keeps those HOT Ultra SCSI Drives COLD as ICE!

From: **\$399**

Dual Fan & Bracket \$29

From: **\$99**

Active Digital SCSI Repeater

Models for all SCSI types • Fixes SCSI Cable Problems • Doubles Cable Length (up to 18')

From: **\$99**

FREE Technical Support!!!

Available to everyone, customer or not.

Efficient Businesses Use Barcodes!

Does your company print and scan barcodes?



OR

Do you still count using your fingers?

ebarcode.com

"the Internet's leading barcode resort"

1-800-400-6437

MR. INK JET

Leading Ink Jet Refilling Technology... Complete Refilling Kits

Reduce your printing costs up to 80% by refilling your existing cartridges.

REFILL KITS AND CARTRIDGES AVAILABLE FOR

Hewlett Packard, Canon, Epson, Lexmark, Apple, Xerox, Okidata, Brother, Compaq, NEC, and Digital

order online

www.inkjetkits.com

call for more info

800-644-3475

STOP

Don't Ruin Your Printer

with generic Universal Ink Refill Kits! Use the best OEM compatible inks from your Ink Refill Specialist

Inkjet Southwest

Save Up to 90% with Black, Color or New Combo Kits Available for HP, Canon, Lexmark, Epson, Apple

Save Up to 50% On New Compatible Cartridges Guaranteed To Perform Same As Name Brands

Same Day Shipping / 3 Business Day Delivery
* will replace or refund if not fully satisfied

www.inkjetsw.com

1-800-447-3469



WEBCAMS

The Web has Eyes!



Imagine a Camera

System you can

Control or View

from your Browser!

Anywhere - Anytime!

www.A1WebCams.com

1-800-262-7298

www.BarCodeHQ.com

Bar Code Labeling LabelRIGHT Software – \$295

- Any format, any label WYSIWYG
- Formats for Sears, K-Mart, Penney's, WalMart, EIA, AIAG, etc.
- Code 128, UPC/EAN, 2 of 5, Codabar, Code 39
- Lines, boxes, rotations, color, PCX, BMP, etc.
- Simple custom operator interface
- Prints to LaserJet, DeskJet, and Dot-Matrix
- DOS version too – only \$279



Bar Code Fonts for Windows and Mac – \$199

- Insert bar codes into any font based Windows program
- Prints Code 39, UPC/EAN, Code 128, PostNet, Codabar, 12 of 5
- Hotkey desktop translation or DLL for programmers

Bar Code Printers

- Complete Package – \$895
- Thermal Transfer Printer for bar codes, text and graphics
- Includes Windows or DOS software, cable, labels & ribbon
- Up to 4 inch label width
- High speed and industrial models available



Wireless Readers



- Cordless on-line scanning
- Transmits up to 100 feet
- Complete one-way Wand – \$595
- Two-way Laser with Base – \$1650
- No license necessary
- Base attaches as a second keyboard
- Serial attachment also available

USB

Wireless Terminals RF Data Terminal

- 1,000 ft. range (1,000,000 sq. ft.)
- Scan and key data on-line
- Computer sends display and triggers voice messages on Terminal
- All programming on host (VB, C, Access, etc.)
- Bar code input by Wand, Laser or CCD
- Base Station – \$845 (up to 16 Terminals)
- Complete Terminal with Wand – \$1215
- With integrated Laser scanner – \$1790



Fixed Readers

Keyboard Wedge Wand – \$299

- Attaches as second keyboard
- No software needed
- For Windows, DOS, Mac
- Code 39, UPC/EAN, 128, 2 of 5, 93, Codabar, etc.
- Wand, Laser, CCD, Slot Badge and Magstripe
- Integrated Laser and CCD models available



Laptop Laser Reader – \$795

- Does not draw power from laptop
- 4 AA batteries in handle or uses wall power
- Attaches to DB-9 serial port
- Supplied program makes scanned data appear as keyed

Don't buy new readers just for USB interface!

With the Wedge Saver™, any manufacturer's wedge reader can be attached to a PC or Mac USB port. The Wedge Saver™ can convert any 5 pin or 6 pin mini-din connection reader to a USB reader in seconds for only \$49



Portable Readers

Batch Data Collection Unit



- 256K unit with wand – \$759
- Scan and key data to memory
- Battery operated (3 AAs)
- Upload collected data to host computer – serial or keyboard
- 2 built-in inventory programs
- Patented voice prompts
- XModem serial upload
- Windows and DOS uploading software included at no charge
- Easy to create custom prompts and custom voice messages.
- Cord attached Wand, Laser or CCD

USB

- 256K built-in Laser model – \$1299
- Laser scanner built into top of the reader
- Easy one-handed scanning
- Comes with shock absorbing rubber boot and wrist strap
- Lifetime warranty on scan element



Call Us Toll Free 800-345-4220

Broadest Selection of Bar Code Products in the Industry

- Technically superior products direct from the manufacturer
- Toll free technical and pre-sale support
- 24-hour turnaround on repairs
- 30-day money back guarantee
- 14 years of service

or visit our website at

www.BarCodeHQ.com

for a complete catalog and bar code primer

Phone: 831-458-9938 • Fax: 831-458-9964 • Europe: +353 1 6614 566

Worthington Data Solutions is now...



iMemoryMall.com

B2B, B2C, B2G

Toll Free 877-636-6255

We carry over 50K listings for SDRAM, PC100, PC133, Rambus, Notebook, Desktop, Laser Memory

The Newest and Hottest Memory Website, Daily Contest, Memory Auction, Online C/S, Tech, Order Tracking

Compare online, get up to 10 quotes and save

SAME DAY SHIPPING
(by 5:00 EST)

Listed on site as of 11-29-00

SDRAM	PC-100/133	Notebook	SDRAM
168pin	64mg - \$39.95	144pin	32mg - \$39.95
168pin	128mg - \$69.95	144pin	64mg - \$59.95
168pin	256mg - \$159.95	144pin	128mg - \$109.95

imemorymall.com

41625 Enterprise Circle So. #31, Temecula, CA 92590

Ph. 909-296-6015, Fax 909-296-6018

Email: sales@imemorymall.com Website: www.imemorymall.com

Gain The Advantage



ADVANTAGE 2000

Workstations for communicating to the world.



Great Lakes

case & cabinet co., Inc.

www.greatcabinets.com

Eastern: 814.734.7303 • Fax: 814.734.3907

Email: glcc@greatcabinets.com

Western: 775.829.9913 • Fax: 775.829.9926

MEMORY

DATA MEMORY SYSTEMS - CALL 800-662-7466

Lifetime Memory Guarantee - 30 Day Money Back

AC Adapters
Batteries
Cables
Camera Memory
Computer Sys.
DIMMs
Iomega Stuff
Modems
Monitors
Networking
Notebook Mem.
Printer Memory
SDRAM
SIMMs
Storage Drives
Surge
Suppressors



Memory

- ✓ PC66 SDRAM
- ✓ PC100 CL2/CL3
- ✓ PC133 SDRAM
- ✓ ECC & EDO

.....

Networking

- Client/Server Systems
- Ethernet Cards & Conns.
- Hubs
- CAT5 Cabling

DMS has all you need to network your business

Since 1986, DMS has provided customers with the best memory prices, guarantee and service anywhere!

Nothing has changed...

Secure Online Shopping
www.datamem.com



DMS
DATA MEMORY SYSTEMS
24 Keewaydin Dr.
Salem, NH 03079
Fax: 603-898-6585

Big Deal
Windows 2000 Server
\$517

Super Big Deal
BackOffice 4.5/2000
\$899

BIG
CLEARANCE.COM

Current Software. Clearance Prices.

Buyers, Sellers & Dealers Welcome

Acrobat V4.0	from \$204	NT Server V4.0	from \$389
FrameMaker V6.0	from \$599	Office 2000 Pro	from \$242
Illustrator V9	from \$289	Office 2000 Pro Upgrade	from \$199
PageMaker V6.5.2 Plus	from \$227	Office 2000 SBE	from \$189
Photoshop V6.0	from \$509	Project 2000	from \$267
WordPerfect Office 2000	from \$49	Visual Studio Enterprise	from \$569
WordPerfect Office 2000 Pro	from \$79	Visual Studio Pro	from \$399
CoralDRAW V9.0/V10.0	from \$109	Visual Basic/C++	from \$179
Lotus SmartSuite V9.5	from \$49	BackOffice 4.5/2000	from \$899
Flash/Dweaver/Freehand	from \$149	BackOffice SBS 4.5/2000	from \$699
Windows 2000 Pro	from \$145	SQL Server V7.0/2000	from \$1095
Windows NT Workstation 4.0	from \$69	Exchange Server V5.5/2000	from \$1049
Windows 98 2nd Edition	from \$59	SystemWorks 2000/2001	from \$19
Windows Me	from \$55	Norton Anti-Virus 2000/2001	from \$19
Windows 2000 Server	from \$517	ACT! 2000	from \$45
Windows 2000 Server Upgrade	from \$379	pcAnywhere 9.0/9.2	from \$39
Windows 2000 Adv.Server	from \$2099	WinFax Pro V10.0	from \$54

And that's not all! Call now or visit our website for current pricing on our full-line of products.

FREE SHIPPING!
www.bigclearance.com **888-828-3636**

MARKETPLACE Shop Here! Memory • Upgrades • Services • Supplies

STAR Surplus.com

LIQUIDATIONS
EXCESS/CLEARANCE
FACTORY CLOSE-OUTS

41625 Enterprise Cr. South-B1
Temecula, CA 92590
TOLL FREE (877) 392-3772
(909) 296-9814 • Fax: (909) 296-9818
E-mail: sales@starsurplus.com
www.starsurplus.com

NEW CPU's		NEW Simms / Dimms / Rimm's	
Intel Pent III 833/66/850	\$369/269/259	1x32 Eds or FPM 4MB	\$4.95
Intel Pent III 800/750/733	269/199/199	2x32 Eds or FPM 8MB	9.95
Intel Pent III 667/650/600	169/169/149	4x32 Eds or FPM 16MB	32.95
Celeron 733/700/600	129/109/79	8x32 Eds or FPM 32MB	69.95
Intel Pent II 450/400/350	\$119/109/99	16mg SDRAM	PC66.....\$ 25
Intel Pent II 333/300/266	119/99/59	32mg SDRAM	PC66/PC100/PC133...29
Intel Pentium 75 - 233mmx	from \$7 - 49	64mg SDRAM	PC66/PC100/PC133...39
AMD DURON 700/650/600	87/69/59	128mg SDRAM	PC66/PC100/PC133...69
AMD K7 1g/900/850	299/199/179	256mg SDRAM	PC66/PC100/PC133...159
ALL AMD / Xeon / Pentium Pro / Cxix	Call \$5		

Notebook Memory					
	32MB	64MB	128MB		
Acer	..\$39	..\$59	..\$109	Gateway	..39 ..59 ..109
Compaq	..39	..59	..109	IBM	..39 ..59 ..109
CTX	..39	..59	..109	Nec	..39 ..59 ..109
Dec	..39	..59	..109	Toshiba	..39 ..59 ..109
Dell	..39	..59	..109	Winbook	..39 ..59 ..109
Fujitsu	..39	..59	..109	May not apply to all models	

Product currently listed on our site as of 11/29/00. May require min. purchase.

PC Tel 56K v. 90 PCI Modem	\$ 11.95
Axus 1GHz Motherboard	\$ 79.95
2 Button Browser Mouse w/ Scroll-Ps/2	\$FREE**
IBM 17 PPM Laser Printer w/1000 Sheet Feed!	\$399.95
Athec Lansing ADAB80 Dolby System (5 pc)	\$ 99.95
Gateway 19 inch Monitor	\$199.95
HP Scanner 2300CSE USB Scanner	\$ 39.95
ATX 6 Bay Mid Tower Case w/250w Power	\$ 34.95
Corel WP2000 Suite	\$ 24.95
Intel 1GHz CPU Chip	\$499.95

Call / Email / Fax us your requirements on original and spare parts from Compaq, HP, IBM, SUN, Toshiba. We can source for less!

Prices subject to change without notice.

SIGHT. FOR SORE EYES.



Introducing **BIGSHOT**.[®] The only screen magnifier specifically designed to fight computer eyestrain.

Now you can surf the net, read email and crunch numbers, without straining to see the screen. BigShot magnifies all Windows programs and works great on desktops and laptops.

Download a free 30 day trial version from:
www.bigshotmagnifier.com
800-859-0270

Save \$10 by ordering online. Use Priority Code "PCWorld1"

Record phone calls on your PC!



- Save calls as WAV files.
 - Any phone, digital or analog.
 - Add notes. E-mail recorded calls and voice mails.
- www.capturecalls.com**
or 888-454-7979.

InstantReplay™ mck communications

THE ORIGINAL CHEAP SOFTWARE

www.buycheapsoftware.com

TOLL FREE 888-999-2611
Phone: (310) 305-3644
Fax: (310) 305-3645

FREE Anti-Virus 2000
*orders over \$150

MICROSOFT		
Windows 2000 Pro	CD-Man.-Lic. Full oem Ver	\$142
Windows Me	Upgrade Retail Box, from Win 98	\$44
Windows Me	Upgrade Retail Box, from Win 95	\$84
Windows 2000 Server	S-client, Full Retail Box	\$679
Office 2000 Pro	Full Ver.-CD-Manual	\$299
Office 2000 Pro	Upgrade	\$249*
Office 2000 Pre	SR-1 Full Ver. CD/Manual	\$359
Office 2000 Small Bus. Ed.	CD-Man. Full Ver. OEM	\$189
Office 97.2 Small Bus. Ed.	w/1000 98 OEM	\$119
Word 2000	Full oem Version	\$59
Works 4.5 and Money 99	Full oem Version	\$22
Project 2000	Full Version, CD-Manual-CD	\$259
FrontPage 2000	Full Version CD-Manual	\$97*
Visual C++ Pro 6.0	Plus Full Ver. CD-Manual	\$159
Visual C++ Enterprise 6.0	Plus Full Version	\$329
Visual Basic Pro 6.0	Plus Full Ver. CD-Manual	\$169
Visual Basic Enterprise 6.0	Plus Full Version	\$329
Visual Fox Pro 6.0	Plus Full Ver. CD-Manual	\$189
Visual Studio Pro 6.0	Full Ver. CD-Manual	\$389
Visual Studio Ent. 6.0	Plus Full Ver. CD-Man.	\$539
Windows 98.2	CD-Manual-Lic. Full OEM Ver	\$90
Windows 95 OSR 2.5	w/CD-Manual-License OEM	\$62
DOS 6.22	Full OEM Version	\$49
MS NT & BACKOFFICE 4.5 In Stock		
NT Workstation 4.0	CD-Man.-Lic.-COA-F/V oem	\$89
NT Server 4.0	CD-Manual w/5 CAL License	\$399
2000 Advanced Server	Full Retail w/25 CAL	\$1649
Exchange 2000	Full Retail Box w/5 CAL	\$1099
SQL Server 2000	Full Retail Box w/5 CAL	\$1299
BackOffice 4.5 Small Bus. Ser.	Full Ver.-S Client	\$799
w/NT 4.0 SQL 7.0 Exchange 5.5/Prin/Moem/Info Mail Fax		
BackOffice Server 4.5	Full Version-S Client	\$1199
w/NT 4.0 SQL 7.0 Exchange 5.5/Prin/Moem/Info Mail Server		
ADOBE		
Acrobat 4.0	Full Retail Version	\$225
Photoshop 6.0	Full Retail Version	\$509
Pagemaker 6.5	Plus Full Retail Version	\$339
Illustrator 9.0	Full Retail Version	\$289
Illustrator 9.0	Full Academic Version	\$199
InDesign 1.5	Full Retail Version	\$599
Live Motion 1.01	Full Retail Version	\$149
GoLive 5.0	Full Retail Version	\$259
COREL & LOTUS - All Full Versions		
Wordperfect 2000 & Lotus Millennium 9.5	OEM	\$99
Wordperfect Office 2000 Std.	w/CD-eManual OEM	\$45
Wordperfect Office 2000 Pro	w/CD-eManual OEM	\$69
Wordperfect Office 8.0 Std.	w/CD-Reg. OEM	\$29
CorelDraw 10.0	Graphic Suite Retail Upgrade Bundle	\$289
CorelDraw 9.0	Graphic Suite Full OEM CD's only	\$219
Lotus Millennium 9.5	CD-Man. Full OEM Ver.	\$49
SYMANTEC - All Full Versions		
Norton Anti-Virus 2001	w/CD-Electronic Manual oem	\$16
Norton Anti-Virus 2000	w/CD-eManual	\$14
Norton System Works 2000 Pro	CD only oem	\$24
Norton System Works 2001 Pro	Retail Box	\$69
PC Anywhere32 9.0	Host & Remote - Full OEM Version	\$37
PC Anywhere32 9.2	Host & Remote - Full Version	\$49
ACT 2000	CD-Electronic Manual Full OEM Version	\$47
ACT 2000	CD-Manual Full Version	\$75
Winfax Pro 10.0	w/CD-Electronic Manual	\$49
Norton Utilities 2001	w/CD-Electronic Manual	\$38
DEALER INQUIRIES WELCOME		
No Credit Card Surcharge *Price after Man. rebate		
SoftMan Products Co		
12654 W. Washington Bl. #103, Los Angeles, CA 90066		
Prices subject to change without notice. All trademarks are property of their respective owners. Call for pricing on products not listed.		

ACTION SOFTWARE

www.actioncd.com
(440) 942-9091

Browse our online catalog for the best prices on productivity and entertainment software



WHOLESALE SOFTWARE DISTRIBUTOR

PCchairs.com

FREE Delivery!

Factory Direct - 49 Years in Business!



COMFORT - One Size does not fit everyone! Get a chair matched to your height and weight.

- ★ 45-day no risk "Sit Test"
- ★ Money Back Guarantee
- ★ 15-Year Warranty

All orders ship within 48 hours

Shop at: WWW.PCchairs.com

Waukesha, WI 800-935-5260

refurbished

tested
retested
guaranteed

approved by inspector #35.

And again by #24.



Ask about Dell™ computers, like this OptiPlex™ desktop, featuring Intel® Pentium® III processors.

When you buy a refurbished Dell™ Factory Outlet system, you can be sure you're getting a good one. That's because every desktop and notebook we sell is completely reconditioned, then tested to make sure it's running at Dell's high standards. And even if our systems pass the first time, we retest them. Plus, we guarantee every computer with our same-as-new Limited Warranty.* It's easy to find a system that meets your needs – most include Intel® Pentium® III processors. You can browse our selection of discounted systems on our Website 24 hours a day. Then call one of our sales representatives to order. Dell technology that's tested, retested and guaranteed. What's not to like?

find the system that's right for you. speak with our helpful reps:
mon–fri 7am–9pm CST • sat 10am–6pm CST • promo code 29PCW



DELL factory outlet

shop online. buy on the phone.

888.697.1599

www.dell.com/outlet

DELL.COM

All systems refurbished and for U.S. only. Dell Computer Corporation cannot be held responsible for errors in typography or photography. For a complete copy of our guarantees or limited warranties, write Dell Computer Corporation, Attn: Warranties, One Dell Way, Box 8621, Round Rock, TX 78682. Dell, the Dell logo, and OptiPlex are trademarks of Dell Computer Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks of Intel Corporation. ©2000 Dell Computer Corporation. All rights reserved. SUPPLIES ARE LIMITED AND CHANGE DAILY.

MEMORY/UPGRADES

wordprocessor for your manifesto.
 database for your lint collection. Elvis screensaver.
5 web browsers. dancing babies.
 Attack of the Evil Mutant Martian 6 chat windows.
 Zombie Accordion Playing Ninjas.
 mp3 player. anti-everything programs.
 about a bazillion drivers.

One thing's for sure, you need more memory.

Get more of what you bought your PC for.

1-800-4-MEMORY

WE CAN BEAT ANY
 QUOTED PRICE ON
 ANY MEMORY
 FROM ANYWHERE
 Lifetime Warranty
 No Restocking Fee

www.18004memory.com

* When ordered through our "Compatibility-Assured" Phone-In Center

SERVICES/SUPPLIES

COMPUTER CHECKS

For Laser/Inkjet Printers

- Guaranteed lowest price in the country!
- FAST turn-around time — 24-72 hours in-plant
- FAST, low-cost shipping via UPS



Prices start at
\$10.95!

- Software compatibility guaranteed including Quicken, Quickbooks, Peachtree, custom programs and many more.
- Quick, easy ordering from our website.
- Your logo imprinted FREE
- NEW catalog available New check styles & 7 colors to choose from, envelopes, deposit slips, continuous checks and new printable deposit slips for Quickbooks*

www.checksforless.com

Call: 1-800-245-5775

Fax: 1-800-893-0177

Email: fsystem1@maine.rr.com

EiPrinting

72 Auburn Street
 Portland, ME 04103-2170

SERVICES/SUPPLIES

DATA RECOVERY:

7 reasons to choose DriveSavers



1. Fastest, most successful data recovery service available.
2. Recommended and certified by all drive companies to maintain your warranty.
3. Advanced, proprietary data recovery techniques.

4. Retrieve recovered data instantly with DATAEXPRESS™ over secured Internet lines

5. 24-hour, onsite & weekend service available.

6. Featured on CNN, BBC, Forbes; also in Popular Mechanics, PC World, InfoWorld, & others.

7. Federal & State Contracts.



800-440-1904

SERVICES/SUPPLIES



- ▶ CD-ROM REPLICATION
- ▶ CD-R DUPLICATION
- ▶ DISKETTE DUPLICATION
- ▶ PRINTING
- ▶ CUSTOM PACKAGING



Floppy Copy
 INCORPORATED
 Integrated Software services

1-800-732-3475

www.floppycopy.com

PRODUCTIVITY

POINT OF SALE!

Before You Buy or Sell
 Another Point Of Sale Package,
 Take A Serious Look At



The POS Software You Can Depend On!

- Point of Sale • Accounts Payable
- Inventory Control • General Ledger
- Accounts Receivable • Mailing List

Over the past 15 years, The General Store has replaced over 40 competitive packages. The General Store is a dependable, powerful, and flexible software solution that has been installed in retail stores around the world.

Call today for more information and a FREE DEMO, or visit our web site at www.thegeneralstore.com.

800-678-4535
 Lakeland, FL 33801

SERVICES/SUPPLIES



Win95+NT, DOS, MAC
 Novell, OS/2

- FLAT RATE
- NO EVALUATION FEE
- 18 YEARS EXPERIENCE
- 24 HR. SERVICE AVAILABLE
- CALL US LAST!

800-339-3412

561-691-0019 • 561-691-0014 Fax
www.eco-datarecov.com

4115 Burns Rd. Palm Beach Gardens, FL 33410

**Shopping
 for computer
 products?**

The fastest, easiest way to get your hands on exactly what you're looking for is the **PC World Marketplace** classified ads. From memory and software to peripherals and service, it's where one-stop shopping begins.

PC WORLD Marketplace



PRESIDENT, CEO Jeff Edman
Executive Assistant to the President
Patricia Owen

ADVERTISING SALES

PUBLISHER
Bob Ostrow (508/370-0844)
EAST

ASSOCIATE PUBLISHER/EAST
Wayne Silverman (201/587-7318)

New York City
Thalia M. Karakitsios, Regional
Manager (201/587-0900)
Sales Associate Lisa Iozzia

**New England/Long Island, NY/
Eastern Canada**
Laurie Gomes, Account
Manager (508/370-0846)

Sales Associate Angela Beaudoin
Mid-Atlantic/Southeast
Judy Sutter, Senior Account
Manager (404/845-2884)

Sales Associate Charlye Gandee
Midwest/Ohio/Michigan
Kathy McKay, Senior Account
Manager (847/759-2723)

Sales Associate Tammy O'Sullivan

NORTHWEST

**Mid S.F. Peninsula/Oregon/
Washington/Montana/Wyoming/
Western Canada**

NORTHWEST ADVERTISING DIRECTOR
Roy Kops (415/243-0500)
South Bay/Fremont, CA
Alicia Langer, Account Manager
(415/243-0500)

Sales Associate Vanessa Grenfell
San Francisco Bay Area
Leslie Piper, Account Manager
(415/243-0500)

Northwest

Duane Hampson, National
Advertising Manager (415/243-0500)
Sales Associate Teresa Avila

SOUTHWEST

Southern California
SOUTHWEST ADVERTISING DIRECTOR
Susan Green (949/442-4021)

Sales Associate Sheila Morales
Texas/Southwest
Harvey Diamond, Senior Account
Manager (972/398-2608)

Sales Associate Janine Copsey
Tim Urlaub, Account Representative
(415/243-0500)

CUSTOM PUBLISHING/EVENTS

**ASSOCIATE PUBLISHER, MARKET
DEVELOPMENT** Michael Carroll
(508/370-0842)

Sales Associate Luanne Kiley

CONSUMER ADVERTISING SALES
Eastern U.S.
Edman & Company (212/551-1121)

Michigan/Pennsylvania/Ohio
Heth & Associates (248/642-7273)

Western U.S.
Hutch Looney & Associates
(323/931-3444 X222)

**PC WORLD MARKETPLACE/
PC WORLD ACTION CARDS**
Neal Mandel (212/655-5157)

PC WORLD REPRINTS
Mike Shober (717/399-1900 x129)

PCWORLD.COM AD SALES

ASSOCIATE PUBLISHER
Gabrielle Green (707/766-6139)

Client Services Manager
Michael Dwornik (415/975-2674)

Northwest
Melissa Gruber, Regional Manager
(415/974-7373)

Southwest
Cindy Crow, Account Manager
(949/442-4005)

Mid-Atlantic/Southeast
Sean Murphy, Account Manager
(510/836-0467)

**New England/Midwest/Eastern
Canada**
Jason Bishop, Account Manager
(508/370-0877)

MARKETING & RESEARCH

DIRECTOR OF MARKETING AND RESEARCH
Sandy Wong

MARKETING
PR MANAGER Amy Dalton
MARKETING SPECIALIST Kristen Burks
PRESENTATION SPECIALIST Jenean East
MARKETING COORDINATOR
Karen Grayson
MARKETING ADMINISTRATIVE ASSISTANT
Anna Harrah

RESEARCH

RESEARCH MANAGER Gerry Davidson
RESEARCH ANALYSTS Lisa Huck,
Alison Fennings Wetherall

CONSUMER MARKETING

VICE PRESIDENT, CONSUMER MARKETING
Shawne Burke Pecar
ASSOCIATE CIRCULATION DIRECTOR
David Cobb

DIRECTOR, SINGLE COPY SALES
Cheryl Stephenson
MANAGER, SINGLE COPY SALES
Patrick Bonstead

SENIOR MANAGER, RETENTION MARKETING
Lisa Radler
**SENIOR MANAGER, SUBSCRIPTION
ACQUISITION** Judy Apostol
Marchessault

SUBSCRIPTION MARKETING MANAGER
Linda Trinh
**ASSISTANT MANAGER, RETENTION
MARKETING** Patrick McConnell
CUSTOMER SERVICE SPECIALIST
Tina Phelps Jimenez

**MEMBER ACQUISITION MARKETING
MANAGER, PCWORLD.COM**
Rafael Sosa
EMARKETING MANAGER, PCWORLD.COM
Nicole Cukierman

PRODUCTION

SENIOR PRODUCTION MANAGER
Nancy Jonathans
ASSISTANT PRODUCTION MANAGER
Lisa S. Mireles
ADVERTISING TRAFFIC MANAGER
Yvette B. Joplin

PCWORLD.COM STAFF

GENERAL MANAGER Ulla McGee
DIRECTOR, BUSINESS DEVELOPMENT
Kate MacIntyre
REPORTING ANALYST Anna Randag
**AUDIENCE AND BUSINESS DEVELOPMENT
COORDINATOR** Raffi Aghapekian
CUSTOMER SERVICE SPECIALIST
Michael E. England
DIRECTOR, APPLICATIONS DEVELOPMENT
Newton Bailey

LEAD SOFTWARE ENGINEER Jim Hutson
APPLICATIONS DEVELOPERS
Arturo Flores, Patrick O'Sullivan,
Karen Windus
**EDITORIAL APPLICATIONS DEVELOPMENT
MANAGER** Matthew Newton
TECHNOLOGY PRODUCTION MANAGER
Victoria Klum

PRODUCER Yosune Camio
PRODUCTION COORDINATOR
Silvina Colnett
DIRECTOR OF MIS Mary Zones
SYSTEMS ADMINISTRATOR Tom Cowan

ADMINISTRATION

**HUMAN RESOURCES AND
INFORMATION SYSTEMS**
SENIOR VICE PRESIDENT
Richard Wiloughby
DIRECTOR Katherine Coldwell
HR REPRESENTATIVE Julie McKie
VICE PRESIDENT, CTO Henri Froissart
DIRECTOR, INFORMATION SYSTEMS
Norman Noble

SENIOR NETWORK ANALYST
Walter Clegg
CLIENT SERVICES MANAGER
Mariaelena Robles
NETWORK MANAGER Rodney Barnes
IT DEVELOPER/ANALYST Stan Erhart
INFORMATION SYSTEMS SPECIALISTS
Eileen Quan, Gabe Ramos,
Shawn Sadler

FINANCE
SENIOR VP, CDO/CFO Vicki Peilen
DIRECTOR, FINANCE Diane Ryzek-Rae
**EXECUTIVE DIRECTOR OF ACCOUNTING AND
OPERATIONS** Pat Murphy
ACCOUNTING MANAGER Michelle Reyes
BUSINESS MANAGER Thomas Pena
ACCOUNTING ADMINISTRATION
Judith Bratton, Andrew Lyon-Hall,
Jason Villeneuve

**DIRECTOR, ADVERTISING ACCOUNT
SERVICES** Kevin Greene
**MANAGER, FINANCIAL ADVERTISING
SERVICES** Diane Hacker
ADVERTISING SERVICES COORDINATOR
Carla Estrada-Marin

PC World is a business unit of International Data Group (IDG). Headquartered in Boston, IDG informs more people worldwide about information technology than any other company in the world. With annual revenues of \$2.35 billion, IDG is the leading global provider of IT media, research, conferences, and expositions. IDG publishes more than 290 computer newspapers and magazines and 700 book titles in 75 countries, led by the *Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, *Channel World*, and *For Dummies* global product lines. IDG offers online users the largest network of technology-specific sites around the world through IDG.net (www.idg.net), which comprises more than 225 targeted Web sites in 55 countries. IDG is also a leading producer of 168 computer-related expositions in 35 countries, and research arm International Data Corporation (IDC) provides computer industry research and analysis through 49 offices in 41 countries worldwide. Company information is available at www.idg.com.

THE COMPANY: IDG is the world's leading IT media, research and exposition company. Founded in 1964, IDG had 1998 revenues of \$2.35 billion and has more than 9,000 employees worldwide. IDG offers the widest range of media options which reach 90 million IT buyers in 75 countries representing 95% of worldwide IT spending. IDG's diverse product and services portfolio spans six key areas including: print publishing, online publishing, expositions and conferences, market research, education and training, and global marketing services.

PUBLICATIONS: More than 90 million people read one or more of IDG's 290 magazines and newspapers in 75 countries each month. IDG's five global publication product lines—*Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, *CIO*, and *Channel World*—account for more than 175 of these titles, delivering a consistent class of buyers throughout the world.

BOOKS: In book publishing, IDG Books Worldwide has a diverse portfolio of technology, business, professional and how-to book brands, including the acclaimed *For Dummies* series, as well as computer-based learning tools. IDGB has a higher ratio of bestsellers to books published than any other technology publisher.

ONLINE: IDG offers online users the largest network of technology specific Web sites around the world through IDG.net (<http://www.idg.net>), which comprises more than 240 targeted Web sites in 55 countries. IDG.net provides a global gateway to the Web's richest content via highly targeted sites

that reflect the distinct information needs of each audience they serve. IDG Web sites are supported by the world's only global IT news organization: 2,000 journalists in 75 countries reporting the latest technology news and analysis in multiple languages around the world.

RESEARCH: International Data Corporation (IDC) is the world's leading provider of information technology data, analysis and consulting. With research centers in 42 countries and more than 500 research analysts worldwide, IDC is uniquely positioned to provide a global perspective on IT market and technology trends, serving more than 3,900 corporate and government agencies worldwide. IDC/Link is the leading provider of worldwide market research in consumer computing, including personal computing, interactive entertainment, and online services.

EVENTS: IDG World Expo is a leading producer of more than 168 globally branded conferences and expositions in 35 countries. Industry leading international event series include E3Expo, Macworld Expo, ComNet, Windows World Expo and ICE (Internet Commerce Expo). Leading conferences include Agenda, DEMO, and Spotlight, in addition to customer-sponsored events such as the Netscape Developers Conference and new launch events such as LinuxWorld Conference and Expo. IDG produces 15 conferences and expositions in China alone, and was first to offer expos in emerging markets throughout Asia, Eastern Europe and Latin America.

EDUCATION: IDG's training subsidiary, ExecuTrain, is the world's largest computer training company, with more than 230 locations worldwide and 785 training courses. ExecuTrain specializes in the education of business professionals, teaching clients how to use popular business-related software through hands-on, instructor-led and multimedia training. ExecuTrain also offers technical training designed to help technology professionals keep pace with technological advancements, as well as custom training solutions for an organization's unique software requirements.

GLOBAL SOLUTIONS: IDG Global Solutions helps the industry's leading IT companies build international brand recognition by developing globally integrated marketing programs via IDG's print, online and exposition products worldwide. IDG's diverse portfolio of global partnership services includes customized research, customized publishing, targeted conferences and seminars, and direct response tools.

Further information about the company can be found at www.idg.com.

Page number	Advertiser	URL
79	ABS Computer Technologies, Inc.	www.abspc.com
11	Acer America	www.acer.com
159	Alienware	www.alienware.com
131-134	Ameritrade	www.ameritrade.com
26	Anthro Corporation	www.anthro.com
83	APC	http://promo.apcc.com
42	Asante Technologies	www.asante.com
30	ATI	ati.com
225	C I Host	cihost.com
57	Capella Education	www.capellauniversity.edu
C2-1	CDW Computer Centers, Inc.	www.cdw.com
12-13	Compaq Computer Corp.	www.compaq.com
22-23	Compaq Direct Plus	www.directplus.compaq.com
152-154	Compaq Consumer	www.athome.compaq.com
24	Corel	www.corel.com
8	Corio Inc.	www.corio.com
14-15	Crucial Technology	www.crucial.com
59	Dazzle	dazzlepc.com
91-95	Dell Computer Corp.	www.dell.com
96-97	Dell Computer Corp.	www.delleworks.com
139-142	Dell Computer Corp.	www.dell4me.com
C5-C8	Dell Computer Corp.	www.dell.com
38-39	Diamond Rio	www.diamondrio.com
191	Dymo LabelWriter	www.dymo.com
34-35	Earthlink	www.earthlink.net
72-73	Epson America, Inc.	www.epson.com
109D	Everdream Corporation	www.everdream.com
182	Executive Software	www.diskeeper.com
2-3	FileMaker	www.filemaker.com
46	FrontRange Heat Division, Inc.	www.frontrange.com
40	Fujitsu PC Corporation	www.fujitsupc.com
65-67	Gateway	www.gateway.com
193-196	Gateway	www.gatewayatwork.com
107	Harcourt Learning Direct	www.harcourt-learning.com
168-169	Hughes Network Systems	www.direcpc.com
173B	Hughes Network Systems	http://bizinfo.direcpc.com
201	Hughes Network Systems	http://bizinfo.direcpc.com
115, 117, 119, 121	IBM	ibm.com/smallbusiness7055
43	iiyama North America	www.iiyama.com
186	Kingston Technology	www.kingston.com
177	Mail Boxes Etc.	www.mbe.com

Page number	Advertiser	URL
81	McAfee.com	www.mcafee-at-home.com
184	Memorex	www.memorex.com
4-5	Microsoft Corporation	www.microsoft.com
129	Microsoft Corporation	www.microsoft.com
205	Microsolutions	www.micro-solutions.com
173A	Midwest Micro	www.mwmicro.com/VIPC4
167	Minolta/QMS	www.qms.com
70	MSHOW.com	MSHOW.com
55	NEC-Mitsubishi Electronics Display of America, Inc.	necmitsubishi.com
68-69	NEC-Mitsubishi Electronics Display of America, Inc.	necmitsubishi.com
33	NeoPlanet	www.neoplanet.com
199	Netscape	www.netscape.com
161	PC America	www.pcamerica.com
203	PC Power & Cooling Systems	www.pcpowercooling.com
122	PC World Conferences	www.networkworld.com/seminars/smb
157	Pioneer New Media Technologies, Inc.	www.pioneerusa.com
145	Plextor	www.plextor.com/home.html
146	Proxim	www.proxim.com
36	Ricoh Corporation	www.ricoh-usa.com
63	Safeweb	www.safeweb.com
6-7	Samsung America	www.samsungmonitor.com
89	Sonic WALL	www.sonicwall.com
75	Sony Electronics	www.sony.com
105	Sony Electronics Inc.	www.sony.com
48-49	Systemax	www.systemax.com
18	Tektronix Incorporated	www.xerox.com/officeprinting/fast1704
109B	Tiny Computer	www.tiny.com
20-21	Toshiba America	www.toshiba.com
28-29	Toshiba EID	www.copiers.toshiba.com
17	Toyota	www.toyota.com
61	USA.Net	USA.Net
109	Veritas	www.veritas.com/homesolutions
27	Viewsonic	www.ViewSonic.com
87	Visa	www.visa.com
44	Wal-Mart	www.walmart.com
173	WinBook	www.winbook.com
85	Xerox Corporation	www.xerox.com/inkjet



**We will hold your hand
each step of the way.**

SERVICES

Shared Web Hosting

- ▶ 2000MB of Storage
 - ▶ Unlimited Bandwidth
 - ▶ Unlimited Email Accounts
 - ▶ Free Shopping Cart System
 - ▶ Instant Setup (be online within 10 seconds)
 - ▶ Choice of Unix/NT/W2K
- Monthly: \$20**

Managed Dedicated Servers

- ▶ 633MHz Processor
 - ▶ 64MB RAM
 - ▶ 30GB EIDE Drive
 - ▶ 20GB of Bandwidth
 - ▶ Menu-Driven Admin. Software
 - ▶ Full "Root" Access
- Monthly: \$99**

WHY C I HOST?

Rock-Solid Reliability - C I Host guarantees your site will be up more than 99.9% of the time. Our custom built servers ensure that each hardware component comes from the best vendors.

Lightning-Fast Speed - C I Host has OC-3 and DS-3 connections to the world's fastest Internet providers giving you the fastest connection times in the industry.

World-Class Support - C I Host staffs Linux, NT and Windows 2000 specialists 24 hours a day, 7 days a week to provide instant support for any of your needs.



C I HOST

888-868-9931 | www.cihost.com

Call today and give a sales associate the following code to receive your FREE gift & 50% off your setup fees. Promo code: IW12

News Flash: Bill Gates Is Right!

"WHENEVER THE COMPUTER INDUSTRY has a panel about the digital divide and I'm on the panel, I always think, 'Okay, you want to send computers to Africa, what about food and electricity—those computers aren't going to be that valuable.'"

Thus spake Bill Gates last October in a speech in Melbourne, Australia, according to the *New York Times*. The Microsoft magnate went on to add: "They want to sit on the panel and talk about how the computers will solve all the world's problems. They're amazing in what they can do, but they have to be put into the perspective of human values. And certainly as a father of two children, thinking about the medicines I take for granted that are not available elsewhere, that sort of rises to the top of the list."

Cynics might argue that Gates would take exactly that position in order to inflate the already considerable status of his recent philanthropic efforts. I prefer to think that in figuring out how to best use his fortune, Gates has given more thought to the matter than most technologists. I also think he's right.

A LITTLE REALISM, PLEASE

TECHNOLOGY ACCOMPLISHES so much that its advocates—sometimes including Gates himself—often overstate its possibilities. To hear some tech promoters tell it, once we all have high-speed connections to a world of information from our desks, our living rooms, and our cell phones, we will somehow be as gods. It's a very pretty idea, except for the fact that nobody has yet managed to invent digital food, clothing, or shelter.

This is nothing new. Technologists of earlier eras touted the phonograph, movies, radio, and TV in their turn as having great potential for improving education—just as today's techies push the Web. But though each of these media offered amazingly detailed not-for-credit courses in popular (and occasionally higher) culture, formal offerings amounted to little more than unintentionally hilarious hygiene films and lite news for teens.



Technologists **tend to ignore that humans are not computers.... We stubbornly prefer our analog ways.**

Today's tech apologists insist that the Web's interactivity will make things different this time; of course, they said precisely that about CD-ROM-based multimedia right up to its virtual demise at the hands of the Web.

Can technology stop wars? The first computers helped develop nuclear weapons, and the monstrous concept known as mutually assured destruction prevented worldwide conflagration for half a century. But smaller wars have burgeoned, and though modern computers have done a great job of improving weapons of all stripes, they haven't been nearly as useful at providing ways to neutralize them.

Only rarely does technology overcome humans' hidebound personal and cultural habits. Computers can count fast (though not always perfectly), but they can't change people's feelings about a presidential election. Computers can help develop new drugs, but they can't assure that those drugs are widely available or affordable, or deliver them where they are needed most. Computers can pinpoint pockets of poverty, but they can't do much to eliminate them. Computerized robots can perform some unpleasant, repetitive jobs, but they don't offer to find employment for the people they replace.

What technologists tend to ignore is that humans are not computers. We're not just messy and unpredictable; we often wallow in our very messiness and unpredictability. In many instances, we stubbornly prefer our analog ways to those of the digital world. Sometimes we need to pick up an actual bat and ball, not simply perform the analog equivalent on a computer screen. And even the most wired among us endure endless flights to meetings, seminars, and conventions where we can meet people in the flesh rather than merely exchanging

information via e-mail or teleconference.

In our lifetimes, technological breakthroughs have delivered any number of once-unimaginable boons that we have now come to take for granted. Given that history, it's not entirely unreasonable to assume that technology can do anything. But Gates's sobering remarks remind us of technology's limitations—and that overestimating its potential can be a serious mistake.

PC World Contributing Editor Stephen Manes is a cohost of Digital Duo, a series appearing on public television stations nationwide. For program information, see www.digitalduo.com. ■



Volume 19, number 2. *PC World*® (ISSN 0737-8939) is published monthly by PC World Communications, Inc., 501 Second St., #600, San Francisco, CA 94107. Periodicals postage paid at San Francisco, California, and additional mailing offices. Canada Post International Publications Mail Product, (Canadian Distribution) Sales Agreement No. 663549. POSTMASTER: Send address changes to *PC World*, Subscription Dept., P.O. Box 55029, Boulder, CO 80328-5029. Editorial and business offices: 501 Second St., #600, San Francisco, CA 94107, 415/243-0500. Copyright © 2001, PC World Communications, Inc. All rights reserved. The trademark PC World is owned by International Data Group and used under license by PC World Communications, Inc. PC World Top 100®, Top 100®, PC World Top 100®, Top 100®, and Consumer Watch® are trademarks of International Data Group, Inc., and used under license by PC World Communications, Inc. Printed in the United States.

STRONG AS AN OX. LIGHT AS A FEATHER.

[INTRODUCING THE NEW DELL INSPIRON 4000.]



For years, you've been trying to find a workhorse of a notebook that doesn't carry the weight of one. Well, look no further. Introducing the New Inspiron™ 4000, one of Dell's lightest notebooks ever — the ultimate balance of uncompromising performance and mobility. Powered by either an Intel® Celeron™ or Pentium® III processor, you'll be able to bring your work home or to the park, without missing a beat. The New Inspiron 4000 is also fully customizable, all the way to its swappable color palm rests. Tailor your notebook to match your personality. And you won't need the strength of an ox to carry it around.

DELL™ INSPIRON™ 4000

NEW—Style, Freedom, Simplicity Notebook

- Intel® Celeron™ Processor at 600MHz
- 14.1" XGA Display
- 64MB SDRAM ■ 5GB¹ Ultra ATA HD
- Modular 24X Max Variable CD-ROM
- 8MB ATI Rage Mobility™ 128 3D* Video, 2X AGP
- Smart Li-Ion Battery ■ MS® Office 2000 Small Business
- MS® Windows® Me ■ 1-Yr NBD On-Site Service*

\$1499  **E-VALUE CODE**
03833-890114

BUSINESS LEASE: \$41/MO., 48 MOS.**

- Upgrade to 128MB Memory, only \$99
- 3-Yr NBD On-Site Service*, add \$149



**USE THE POWER OF
THE E-VALUE CODE.**
Match our latest technology with our latest prices. Enter the E-VALUE code online or give it to your sales rep over the phone.
www.dell.com/evalcode

VALUE



GET EXACTLY WHAT YOU'RE LOOKING FOR

888.894.8697

WWW.DELL.COM

Includes Windows Millennium Edition — the home version of the world's favorite software.

Call: M-F 7a-9p | Sat 10a-6p | Sun 12p-5p CT | Canada: 800-232-6978 | Mexico: 001-877-269-3379 | GSA Contract #GS-35F-4076D

DELL™ BUSINESS DESKTOPS:

DELL™ DIMENSION™ L Series

Affordable Business Desktop

- Intel® Celeron™ Processor at 700MHz
- 64MB SDRAM (up to 512MB)
- 10GB¹ Ultra ATA HD (up to 20GB¹)
- 15" (13.8" vis) E551 Monitor
- Intel® 3D® AGP Graphics ■ 48X Max CD-ROM
- SoundBlaster 64V Integrated Sound
- harman/kardon® Speakers
- Integrated Intel® 10/100 NIC
- MS® Windows® Me & MS® Works Suite 2001
- & Norton® AntiVirus™
- 3-Yr Ltd Warranty² ■ 1-Yr NBD On-Site Service³

\$699  **E-VALUE CODE**
03832-590106

BUSINESS LEASE: \$19/MO., 48 MOS.¹¹
■ 3-Yr NBD On-Site Service³; add \$99

DELL™ DIMENSION™ L Series

Affordable Business Desktop

- Intel® Pentium® III Processor at 866MHz
- 64MB SDRAM (up to 512MB)
- 20GB¹ Ultra ATA/100 HD
- 17" (16.0" vis) E770 Monitor
- Intel® 3D® AGP Graphics ■ 48X Max CD-ROM
- SoundBlaster 64V PCI Sound Card
- PC Speakers
- 3Com® PCI 10/100 NIC
- MS® Windows® Me & MS® Works Suite 2001
- & Norton® AntiVirus™
- 3-Yr Ltd Warranty² ■ 1-Yr NBD On-Site Service³

\$899  **E-VALUE CODE**
03832-590108

BUSINESS LEASE: \$25/MO., 48 MOS.¹¹
■ 3-Yr NBD On-Site Service³; add \$99

DELL™ OPTIPLEX™ GX150

NEW—Latest and Greatest Managed PC

- Intel® Pentium® III Processor at 866MHz
- 64MB PC133 SDRAM (up to 512MB)
- 10GB¹ (7200 RPM) ATA/100 HD (up to 40GB¹)
- 15" (13.8" vis) E551 Monitor (up to Flat Panel)
- Integrated 3Com® 10/100 NIC
- Intel® 3D® AGP Graphics
- 48X Max CD-ROM ■ Integrated AC97 Audio
- MS® Windows® 2000 Professional
- NEW OptiFrame™ Small Desktop
- Tool-less Chassis in Midnight Gray
- 3-Yr NBD On-Site Service³

\$999  **E-VALUE CODE**
03832-390109

BUSINESS LEASE: \$28/MO., 48 MOS.¹¹

DELL™ BUSINESS NOTEBOOKS:

DELL™ INSPIRON™ 3800

Design and Affordability Notebook

- Intel® Celeron™ Processor at 600MHz
- 12.1" SVGA Active Matrix Display
- 32MB SDRAM ■ 5GB¹ Ultra ATA HD
- Modular 24X Max Variable CD-ROM
- 8MB ATI Rage Mobility™ 3D® Video, 2X AGP
- Internal 56K Capable® Modem
- MS® Works Suite 2001 ■ MS® Windows® Me
- 1-Yr NBD On-Site Service³

\$1099  **E-VALUE CODE**
03832-890110

BUSINESS LEASE: \$31/MO., 48 MOS.¹¹
■ 3-Yr NBD On-Site Service³; add \$149
■ Upgrade to CompleteCare™ Service²⁰ from
3-Yr NBD On-Site Service³; add \$169

DELL™ INSPIRON™ 4000

NEW—Style, Freedom, Simplicity Notebook

- Intel® Celeron™ Processor at 600MHz
- 14.1" XGA Display
- 64MB SDRAM ■ 5GB¹ Ultra ATA HD
- Modular 24X Max Variable CD-ROM
- 8MB ATI Rage Mobility™ 128 3D® Video, 2X AGP
- Smart Li-Ion Battery
- MS® Office 2000 Small Business
- MS® Windows® Me
- 1-Yr NBD On-Site Service³

\$1499  **E-VALUE CODE**
03832-890114

BUSINESS LEASE: \$41/MO., 48 MOS.¹¹
■ Upgrade to 128MB Memory, only \$99
■ 3-Yr NBD On-Site Service³; add \$149

DELL™ LATITUDE™ Cpt

Network-Optimized Notebook

- Intel® Celeron™ Processor at 600MHz
- 12.1" SVGA Active Matrix Display
- 64MB SDRAM ■ 6GB¹ Ultra ATA HD
- Modular 24X Max CD-ROM/Floppy Drive
- MS® Windows® 98, Second Edition
- Li-Ion Battery w/ExpressCharge™ Technology
- Dual Pointing – Touchpad and Pointing Stick
- Internal 56K Capable® SoftModem
- 1-Yr NBD On-Site Service³

\$1399  **E-VALUE CODE**
03832-790113

BUSINESS LEASE: \$39/MO., 48 MOS.¹¹
■ Upgrade to 14.1" Active Matrix Display,
add \$250

DELL™ SERVERS AND WORKSTATIONS:

DELL™ POWEREDGE™ 300

NEW—Basic Box at Our Lowest Price

- Intel® Pentium® III Processor at 800MHz (up to 850MHz)
- Dual Processor Capable
- 64MB 100MHz ECC SDRAM (up to 1GB)
- 10GB¹ (7200 RPM) IDE HD (up to 40GB¹)
- Up to 120GB Internal Storage Capacity
- Intel® Pro/100+ PCI Ethernet Adapter
- 48X Max IDE CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 1-Yr NBD On-Site Service³; Years 2 & 3 Parts & Labor
- 7x24 Phone Tech Support

\$999  **E-VALUE CODE**
03832-290109

BUSINESS LEASE: \$28/MO., 48 MOS.¹¹
■ 2nd 10GB¹ (7200 RPM) IDE HD, add \$109
■ 2nd Intel® Pentium® III Processor at 800MHz,
add \$499

DELL™ POWEREDGE™ 1400

NEW—Small Business Value Solution

- Intel® Pentium® III Processor at 800MHz (up to 1GHz)
- Dual Processor/RAID Capable
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 9GB¹ (7200 RPM) Ultra3 (Ultra 160) SCSI HD (up to 36GB¹ 10K RPM)
- Up to 144GB Internal Storage Capacity
- Integrated NIC/SCSI Controllers
- 48X Max IDE CD-ROM
- Dell™ OpenManage™ Server Management Solutions
- 3-Yr NBD On-Site Service³
- 7x24 Phone Tech Support

\$1349  **E-VALUE CODE**
03832-290113

BUSINESS LEASE: \$37/MO., 48 MOS.¹¹
■ 2nd 9GB¹ (7200 RPM) Ultra3 SCSI HD, add \$219
■ Small Business Bundle Upgrade, add \$1879

DELL™ PRECISION™ 220

Advanced Performance Workstation

- Intel® Pentium® III Processor at 866MHz (up to 1GHz)
- Dual Processor/RAID Capable
- 64MB RDRAM (up to 512MB)
- 10GB¹ (7200 RPM) EIDE HD (up to 73.4GB¹ 10K RPM SCSI)
- NEW NVIDIA TNT2 Pro 16MB 4X AGP Graphics Card
- Integrated NIC & Sound ■ 48X Max CD-ROM
- MS® Windows® 2000 Professional
- 3-Yr NBD On-Site Service³
- 7x24 Dedicated Workstation Phone Tech Support

\$1299  **E-VALUE CODE**
03832-490112

BUSINESS LEASE: \$36/MO., 48 MOS.¹¹
■ Monitor Sold as an Upgrade

DELL™ HOME DESKTOPS:

DELL™ DIMENSION™ L Series

Affordable Desktop Solution

- Intel® Pentium® III Processor at 866MHz
- 64MB SDRAM ■ 10GB* Ultra ATA HD
- 15" (13.8" vis) E551 Monitor
- Intel® 3D* AGP Graphics
- 48X Max CD-ROM Drive
- SoundBlaster 64 V PCI LC Sound Card
- PC Speakers
- V.90 56K Capable* PCI Telephony Modem for Windows*
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Ltd Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access™ Included

\$849  **E-VALUE CODE**
03832-500108

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

DELL™ DIMENSION™ 4100 Series

Advanced Performance, Smart Value

- Intel® Pentium® III Processor at 933MHz
- 128MB SDRAM at 133MHz
- 20GB* Ultra ATA/100 HD
- 17" (16.0" vis, .26dp) E770 Monitor
- 32MB NVIDIA™ TNT2 M64 4X AGP Graphics
- 12X Max DVD-ROM Drive
- SB Live! Value Digital
- Altec Lansing* ACS-340™ Speakers with Subwoofer
- V.90 56K Capable* PCI Telephony Modem for Windows*
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Ltd Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access™ Included

\$1299  **E-VALUE CODE**
03832-500112

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

DELL™ DIMENSION™ 4100 Series

Advanced Performance, Smart Value

- Intel® Pentium® III Processor at 1GHz
- 128MB SDRAM at 133MHz
- 40GB* Ultra ATA/100 HD (7200 RPM)
- 17" (16.0" vis) P780 FD Trinitron* Monitor
- 32MB NVIDIA™ TNT2 M64 4X AGP Graphics
- 48X Max CD-ROM Drive ■ SB Live! Value Digital
- 8X/4X/32X Max CD-RW Drive
- Harman Kardon HK-695 Surround Sound Speakers with Subwoofer
- U.S. Robotics* V.90 56K Capable* PCI Telephony Modem
- MS* Works Suite 2001 ■ MS* Windows* Me
- 3-Yr Ltd Warranty* ■ 1-Yr At-Home Service*
- 1 Year of DellNet™ by MSN* Internet Access™ Included

\$1799  **E-VALUE CODE**
03832-500117

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

DELL™ HOME NOTEBOOKS:

DELL™ INSPIRON™ 3800

Design and Affordability

- Intel® Celeron™ Processor at 600MHz
- 12.1" SVGA TFT Display ■ 32MB 100MHz SDRAM
- 5GB* Ultra ATA HD
- Modular 24X Max CD-ROM Drive
- 2X AGP 8MB ATI Rage Mobility™ 3D* Video
- Internal V.90 56K Capable* FaxModem
- Li-Ion Battery with ExpressCharge™ Technology
- MS* Works Suite 2001 ■ MS* Windows* Me
- 1-Yr Ltd Warranty* ■ 1-Yr NBD On-Site Service*
- 1 Year of DellNet™ by MSN* Internet Access™ Included

\$1199  **E-VALUE CODE**
03832-800111

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

- Digital Audio To Go Bundle (External CD-RW, KOSS* Headphones, 10 CD-Rs), add \$249
- Upgrade to 64MB SDRAM, add \$99

DELL™ INSPIRON™ 4000

NEW—Thin and Light

- Intel® Pentium® III Processor at 600MHz
- Featuring Intel® SpeedStep™ Technology
- 14.1" XGA TFT Display ■ 96MB 100MHz SDRAM
- 10GB* Ultra ATA HD
- Modular Removable 8X Max DVD-ROM Drive
- 2X AGP 8MB ATI Rage Mobility™ 128 3D* Video
- Internal V.90 56K Capable* FaxModem
- Li-Ion Battery with ExpressCharge™ Technology
- MS* Works Suite 2001 ■ MS* Windows* Me
- 1-Yr Ltd Warranty*
- 1-Yr NBD On-Site Service*
- 1 Year of DellNet™ by MSN* Internet Access™ Included

\$1799  **E-VALUE CODE**
03832-800117a

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

- Upgrade from DVD to Modular 8X Max CD-RW, add \$199

DELL™ INSPIRON™ 8000

NEW—Multimedia Mobile Desktop

- Intel® Pentium® III Processor at 700MHz
- 15" Super XGA+ TFT Display
- 128MB 100MHz SDRAM
- 10GB* Ultra ATA HD ■ 8X Max DVD-ROM Drive
- Modular 8X Max CD-RW
- NEW 4X AGP 32MB ATI Rage Mobility™-M4 3D* Video
- Internal V.90 56K Capable* FaxModem
- 59Whr Li-Ion Battery with ExpressCharge™ Technology
- harman/kardon Audio ■ MS* Works Suite 2001
- MS* Windows* Me ■ 3-Yr Ltd Warranty*
- 3-Yr NBD On-Site Service*
- 1 Year of DellNet™ by MSN* Internet Access™ Included

\$2649  **E-VALUE CODE**
03832-800127

ASK US ABOUT NO PAYMENTS FOR 90 DAYS.

- Upgrade to 20GB* Ultra ATA HD, add \$149



Includes Windows Millennium Edition — the home version of the world's favorite software.

Dell recommends Windows 2000 Professional for business.

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT • In Canada, call 800-232-6978 • In Mexico, call 001-877-269-3379 • GSA Contract #GS-35F-4076D

*Telephone access (call your phone co. for details) and other surcharges for access may apply. Must register within 30 days of receiving computer and accept DellNet/MSN Terms of Service. You agree to be billed monthly from after the initial service period. You also cannot service at any time. Offer valid for new customers only in U.S. households and must be over 18 years old with major credit card. Limiting time offer.

Prices, specifications, and availability may change without notice. Taxes and shipping charges extra, and vary. Cannot be combined with other offers or discounts U.S. only. For a copy of our Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, Texas 78682. *At-Home or On-Site service provided via third-party contract with customer. Technician will be dispatched, if necessary, following phone-based troubleshooting. To receive Next Business-Day service, Dell must notify the service provider before 5 pm (customer's time). Availability varies. Other conditions apply. For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. Download speeds limited to 53Kbps. Upload speeds are less (about 30Kbps) and vary by modem manufacturer and line conditions. Analog phone line and compatible server required. Business leasing arranged by Dell Financial Services L.P., an independent entity, to qualified customers. Lease payments based on a 48-month FMV purchase option lease and do not include taxes, fees and shipping charges. Subject to credit approval and availability. Lease terms and pricing subject to change without notice. Dell, the stylized E logo, Dell E-Value are trademarks of Dell Computer Corporation. Intel, the Intel Inside logo, and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. MS, Microsoft, MSN, BackOffice, Windows NT, and Windows are registered trademarks of Microsoft Corporation. 3Com is a registered trademark, and Fast Ethernet is a trademark of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. ©2001 Dell Computer Corporation. All rights reserved.



USE THE POWER OF THE E-VALUE CODE. Match our latest technology with our latest prices. Enter the E-VALUE code online or give it to your sales rep over the phone. www.dell.com/evalue





INTRODUCING THE NEW DELL DIMENSION DESKTOP.

[PREMIUM FEATURES WITHOUT A PREMIUM PRICE.]



Readers' Choice Service &
Reliability Award, Dell™ Desktops
— PC Magazine, July 2000

Our New Dell™ Dimension™ 4100 Series desktop flaunts a system so attractive, it's almost unbelievable. Blaze through your work on this system, built with Intel® Pentium® III processors at up to 1GHz. Experience the Web in a whole new way with the latest 4X AGP graphics card technology. Multi-task without complaint with up to 512MB of 133MHz SDRAM. And store it all on your massive hard drive – up to 80GB⁵ available. And yes, the price printed in bold is correct.

DELL™ DIMENSION™ 4100 Series

Advanced Business Desktop

- Intel® Pentium® III Processor at 933MHz
- 128MB SDRAM (up to 512MB)
- 20GB⁵ (7200 RPM) Ultra ATA/100 HD (up to 80GB⁵)
- 17" (16.0" vis) M781 Monitor
- 32MB NVIDIA TNT2 M64 4X AGP Graphics
- 48X Max CD-ROM
- SB Live! Value Digital Sound Card
- harman/kardon® Speakers
- 56K® PCI Telephony Modem for Windows®
- MS® Windows® Me & MS® Office 2000 & Norton® AntiVirus™
- 3-Yr Ltd Warranty¹ ■ 1-Yr NBD On-Site Service⁴

\$1399



E-VALUE CODE
03831-590113a

BUSINESS LEASE: \$39/MO., 48 MOS.²

- 3-Yr NBD On-Site Service⁴, add \$99
- Flat Panel Monitor Sold as an Upgrade



VALUE

USE THE POWER OF
THE E-VALUE CODE.
Match our latest technology with our latest prices.
Enter the E-VALUE code
online or give it to your
sales rep over the phone.
www.dell.com/evale



GET EXACTLY WHAT YOU'RE LOOKING FOR

888.894.8697

WWW.DELL.COM

Dell recommends Windows 2000 Professional for business.

Call: M-F 7a-9p | Sat 10a-6p | Sun 12p-5p CT | Canada: 800-232-6978 | Mexico: 001-877-269-3379 | GSA Contract #GS-35F-4076D