ZD ZIFF-DAVIS

The Ultimate New Macintosh Buyer's Guide... page 84

http://www.macuser.com/

MacUser

The Return of Steve Jobs

EXTRA! Apple's bold new plans for your Mac's operating system

What's Next

PLUS

Top Products of the Year! The winners of our 12th Annual Editors' Choice Awards

Photoshop 4.0 Revealed An in-depth review of your most vital program

First Looks Hands-on previews of NetObjects Fusion and the SyQuest SyJet

$3.99 US & INTL / $4.99 CAN

03>

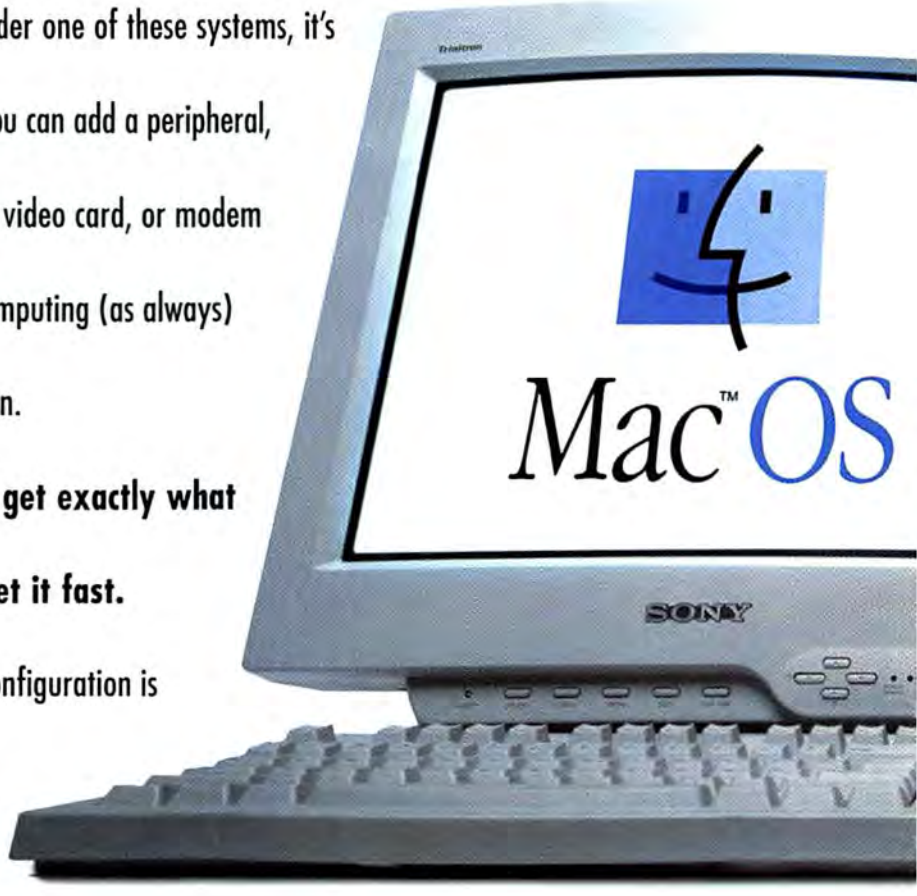
0 09281 02579 5

WE FIGURED OUT HOW
AND WE RADICALLY R

We figured out a few months back that the best thing we could do to improve our products was to simply make more of them and get them out faster.

Hey, it only makes sense. If you're in the market to buy the fastest computers on the planet, then you're probably not a person who likes to wait. So we switched our manufacturing and shipping departments into high gear.

Now when you order one of these systems, it's on its way quickly. Also, you can add a peripheral, memory upgrade, video card, or modem built-in because Power Computing (as always) offers custom-configuration.



It means you'll get exactly what you want and you'll get it fast.

The best part of custom-configuration is that you don't have to

TO SHIP THEM FASTER
REDUCED OUR PRICES.

go searching around through multiple vendors or waste your precious vacation time installing something like a video card or an internal Jaz drive. You simply take your new Power Computing system out of the box, plug it in and turn it on. We do all the work for you.

MW EDITORS' CHOICE

Not only has Power Computing made custom-configuration our trademark, but our machines represent the most upgradeable Mac OS™ systems on the market.

Because of our superior upgrade path, we're confident your new Power Computing machine will last for years to come.

If you've been waiting to move up to a new PowerBase™, PowerCenter™ or PowerTower Pro™, now is the time to buy from Power Computing. **The wait is over.**

♦♦♦♦♦ MacWeek

PowerComputing

CIRCLE **24** ON READER SERVICE CARD

THROUGH NEW ADVANCED STATE-OF-THE-ART MANUFACTURING TECHNIQUES, WE'VE RECENTLY BEEN ABLE TO IMPROVE THE ENTIRE LINE OF POWER COMPUTING SYSTEMS.

PowerComputing

POWERTOWER PRO: THE FASTEST, MOST EXPANDABLE MAC OS SYSTEM

PowerTower Pro 225e
225MHz PowerPC 604e Processor
- 32 MB RAM (1 GB Max)
- 2 GB 7200 RPM AV Capable Hard Drive
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- IMS Twin Turbo 128M graphics accelerator with 8MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Dual (Fast 10 MB/Sec) SCSI
- Connectix Speed Doubler
- Extended Keyboard and Mouse
- Add Sony 20" Trinitron 20sfII $1795

$4295 NEW LOW PRICE

PowerTower Pro 225e Core Config
225MHz PowerPC 604e Processor
- 16 MB RAM (1 GB Max)
- 2 GB 5400 RPM Hard Drive
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- 64-bit graphics accelerator w/ 2MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Dual (Fast 10 MB/Sec) SCSI
- Extended Keyboard and Mouse
- Add Power 17" Display (vis. 15.7) for $695
- Add MiroMotion JPEG Video I/O Card for $495

$3795 NEW LOW PRICE

PowerTower Pro 200e Core Config
200MHz PowerPC 604e Processor
- 16 MB RAM (1 GB Max)
- 2 GB 5400 RPM Hard Drive
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- 64-bit graphics accelerator w/ 2MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Dual (Fast 10 MB/Sec) SCSI
- Extended Keyboard and Mouse
- Add Power 17" Display (vis. 15.7) for $695
- Add MiroMotion JPEG Video I/O Card for $495

$3295 NEW LOW PRICE

POWERCENTER: THE MOST AFFORDABLE 604s YOU CAN BUY

PowerCenter 180 Starter
180 MHz PowerPC 604 Processor
- 16 MB RAM (512 MB Max)
- 2 GB 5400 Hard Drive
- 8x CD-ROM Drive
- 512K Level 2 Cache
- 1 MB VRAM On-Board (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Mini-tower Enclosure
- Add Iomega Zip 100MB Drive for $145
- Add Power 17" Display (vis. 15.7) for $695
- Add MiroMotion JPEG Video Card for $495

$2795

PowerCenter 166 Starter
166 MHz PowerPC 604 Processor
- 16 MB RAM (512 MB Max)
- 2 GB 5400 Hard Drive
- 8x CD-ROM Drive
- 512K Level 2 Cache
- 1 MB VRAM On-Board (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Mini-tower Enclosure
- Add Iomega Zip 100MB Drive for $145
- Add Power 17" Display (vis. 15.7) for $695
- Add MiroMotion JPEG Video Card for $495

$2395

PowerCenter 150 Starter
150 MHz PowerPC 604 Processor
- 16 MB RAM (512 MB Max)
- 1 GB Hard Drive
- 8x CD-ROM Drive
- 512K Level 2 Cache
- 1 MB VRAM On-Board (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Low-Profile Enclosure
- For Mini-tower Enclosure Add $100
- Add Labtec Speakers Starting At $29
- Add 28.8 Modem & Internet Kit $129

$2095

POWERBASE: THE ULTIMATE ENTRY LEVEL SYSTEM

PowerBase 240 Starter
240 MHz PowerPC 603e Processor
- 16 MB RAM (160 MB Max)
- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 256K Level 2 Cache
- 3D Graphics Acceleration
- 2 MB DRAM based video (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Low Profile Enclosure
- For mini-tower enclosure add $100
- Add Power 17" (vis. 15.7) Display for $695

$2195

PowerBase 200 Starter
200 MHz PowerPC 603e Processor
- 16 MB RAM (160 MB Max)
- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 256K Level 2 Cache
- 3D Graphics Acceleration
- 2 MB DRAM based video (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Low Profile Enclosure
- For mini-tower enclosure add $100
- Add 28.8 Modem & Internet Kit $129

$1795

PowerBase 180 Starter
180 MHz PowerPC 603e Processor
- 16 MB RAM (160 MB Max)
- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 256K Level 2 Cache
- 3D Graphics Acceleration
- 2 MB DRAM based video (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Low Profile Enclosure
- For mini-tower enclosure add $100
- Add Power 15" (vis. 13.7) Display for $379

$1495

CONFIGURE YOUR DREAM SYSTEM THE WAY YOU WANT IT WITH ANY OF THESE GREAT OPTIONS:
- IOMEGA 100MB ZIP JUST $145 MORE
- IOMEGA 1GB JAZ JUST $395 MORE
- ULTRA SCSI/RAID SOLUTIONS STARTING AT $1985
- GLOBAL VILLAGE 28.8 MODEM & INTERNET KIT $129
- MACROMEDIA BUNDLE $495
- MIROMOTION JPEG VIDEO I/O CARD FOR $495

GET $1,200 WORTH OF FREE SOFTWARE WITH EVERY POWER COMPUTING SYSTEM.

SERVICE & SUPPORT
- 30 day money back Guarantee
- Toll-free lifetime technical support
- 1, 2, or 3-year on-site service available, starting at $49.

Configure it any way you want it.

ORDER DIRECT
800-405-7693
http://www.powercc.com
2555 North IH 35, Round Rock, TX 78664-2015
Tel. 512/388-6868 Fax. 512/388-6799
Internet: info@powercc.com

Apple, Macintosh and Mac are registered trademarks, and the MacOS logo is a trademark of Apple Computer, Inc. PowerTower and PowerCenter are registered trademarks of Power Computing Corporation. All other brand and/or product names are the property of their respective holders. Prices and specifications are valid in the U.S. only and are subject to change without notice.

Stencil It! from Kaetron Software is packed with powerful tools and images (called stencils) that work together to automate the creation of flowcharts, network diagrams, web pages, floor plans, technical drawings, timelines and more. Instantly turn your creation into a hyperlinked web page.

Get the office suite that works hard for your small business. Now, with essential small business tools and the Bookshelf CD-ROM reference library, Microsoft Office 4.2.1 makes it easy to portray a professional image, work seamlessly with other organizations and increase productivity.

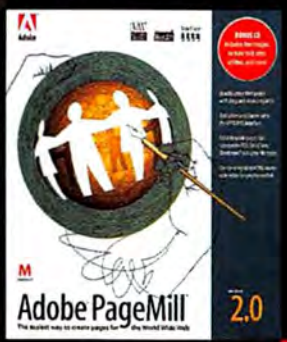
Now Software brings you the #1 best-selling schedule and contact manager for the Macintosh. It's perfect for individuals, workgroups and the web. Fast and easy: one-click access to your schedule and contacts, plus easy setup for group scheduling and sharing calendars and contacts.

Automate sales, focus marketing, control inventory and simplify accounting—run your whole company with just one program! Sound too good to be true? See for yourself. Get Big Business™ FREE! Just visit http://www.bigsoftware.com/applefree. From Big Software.

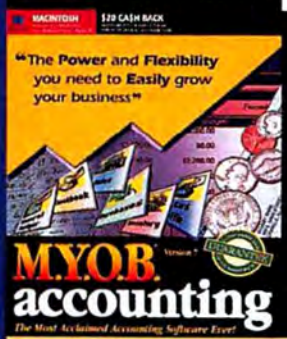
Over 30 new shortcuts and improvements make Quicken Deluxe for '97 the fastest, easiest Quicken ever. Improved registers, reports, graphs, free mutual fund quotes and a new, streamlined interface designed for Mac users speed up daily tasks. Get Clickin' with Quicken. From Intuit.

Get two computers in one! With SoftWindows™ 3.0 from Insignia Solutions you can run Windows and DOS applications on your Power Mac,™ right alongside your Mac OS programs. It's 35% faster than version 2.0 and offers Sound Blaster™ compatibility for Windows applications.

In the past, you practically had to be a programmer to create pages for the World Wide Web. But now, whether you're a small business or home user, manager or webmaster, with Adobe PageMill™ software for the Mac, you can create professional, dynamic and colorful pages—quickly and easily.



Increase your productivity and achieve greater personal and professional success with ASCEND™ 4.0 from Franklin Quest. Its unique features help you plan your entire day, week or month. Schedule repeating tasks and recurring appointments and print onto Franklin Day Planner™ pages.



M.Y.O.B. is designed to help you do exactly that—Mind Your Own Business. With 100 business templates, a powerful report customizer, comprehensive payroll, instant cash-flow analysis and more, it's the perfect solution to help manage your business effortlessly. From Best!Ware.

Spell Catcher™ will become your constant writing companion. It enhances your vocabulary, checks your spelling as you write, saves you time and keystrokes with a customizable shorthand glossary and saves your work automatically. Your masterpiece is in good hands now. From Casady & Greene.

For all you

MOTOROLA Computer Group
IBM
PowerComputing
Give your dreams a chance.
COMPUSA
BEST BUY
COMPUTERWARE

You'd swear that ruthless competitor is a 100,000 person operation blanketing the globe. Yet it could easily be someone just like you, a group of brave entrepreneurs making a go of it. Except, perhaps, for one very important fact. They have an edge. They're doing business on a Macintosh® computer—where the

© 1997 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Mac, Macintosh and the Mac OS logo are registered trademarks of Apple Computer, Inc. Power Mac and "Give your Microsoft Corporation and SoftWindows is a trademark used under license by Insignia from Microsoft Corporation. All other company and product names and logos are registered

know, that conglomerate you're up against is a five person operation using all Mac software.

difficult becomes easy, little becomes big, good becomes brilliant. And, as any businessperson knows, any edge you can get is an edge you need. So visit stores like CompUSA, Best Buy and ComputerWare and check out productivity software for the Mac.® Or browse through mail order catalogs like MacWarehouse and MacMall. One thing's for sure, once you get all this great software, the only thing left to do is, well, outmaneuver that conglomerate. To get started, visit www.macsoftware.apple.com. **Or call 800-500-4862, ext. 100.**

dreams a chance" are trademarks of Apple Computer, Inc. Adobe and PageMill are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions. Bookshelf and Microsoft are registered trademarks of Microsoft Corporation. Windows is a registered trademark of trademarks or trademarks of their respective companies. Mention of third-party products is neither an endorsement nor a sponsorship.

MacUser
MARCH 1997 / VOLUME 13 NUMBER 3

CONTENTS

NEWS

DVD Good-bye CD-ROM, hello DVD. / **Future Tech** Radio killed faster bus performance. / **First Looks** NetObjects Fusion delivers easy Web-page layout, Whistle InterJet 100 is a plug-and-play Web server, SyQuest SyJet makes Iomega's Jaz sing the blues. / 30

REVIEWS

Adobe Photoshop 4.0 Adobe touches up its market-leading image-editing program with subtle improvements and batch processing. / 38

FreeHand 7 Blatant borrowings and bold breakthroughs make this version the new drawing champion. / 44

Adobe Persuasion 4.0 Link your presentation to the World Wide Web. / 46

Epson Expression 636 Simply the best color flatbed scanner in its price range. / 48

QuickSite for Macintosh 1.0.3 Web-site builder is weighted down with Windows-style interface. /49

Cubase 3.0 VST All-purpose professional music package sets new standards. / 50

The Palace Putting a face on online chats. / 51

QX-Tools 2.0 Five useful new Quark XTensions make this multipurpose collection even better. / 53

CTX Opto PanoView 600 This lightweight, active-matrix LCD monitor is an expensive but portable alternative to a CRT. / 54

Claris Organizer 2.0 For those who can live without group-scheduling features, Organizer 2.0 is a plummy PIM. / 56

WatchIT! This big-brother program lets you monitor your employees' computer activities. / 69

Tailor Visual PostScript Editor 1.1 Edit any PostScript-based file to fix or enhance text or objects. / 69

Plus . . . Everyday Animals, Pyst, ZipZAPP Pro, Extraordinary Cartographic Motifs, Muppet Treasure Island, and Elroy's Costume Closet. / 70

COLUMNS

Letters The Great OS Debate. / 13

Pamela Pfiffner Boy Story — Billy vs. Gil and Steve. / 17

Henry Bortman The PowerBook conundrum. / 21

Andy Ihnatko Apple's bold new venture. / 198

How to Reach Us / 8

Product Index / 160

Advertiser Index / 164

Marketplace / 168

On the cover / Apple's OS Savior: How Steve Jobs and his amazing technicolor Nextstep could save the Mac OS.

MACUSER EXTRA!

He's Baaack! Steve Jobs' return to Apple, as part of the NeXT Software acquisition, seems a fitting way to mark the company's 20th anniversary. But is Jobs' revolutionary Nextstep technology really the operating-system panacea Mac users are demanding? / 24

SPECIAL REPORT

Which Mac?

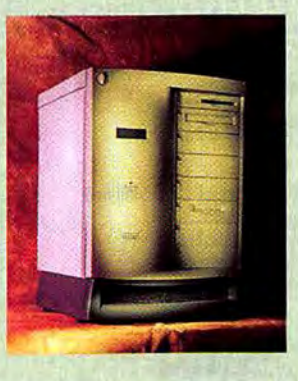
The choice is more complicated than ever. But we give you the data to help you decide.

MacUser LABS

Choosing among many configurations of Mac has never been easy. Now, with various vendors of Mac OS clones offering a plethora of packages and options, the choice is downright gnarly. How will you decide? Start with this MacUser Labs report. **By Christopher Breen / 84**

FEATURES

The Best of '96



MacUser LABS

You've read the reviews. You've waded through the roundups. Now get ready for the final referendum. [*drum roll*] *MacUser* is pleased to announce the 12th Annual *MacUser* Editors' Choice Awards, highlighting the best and brightest Macintosh products of the year.
By Rik Myslewski and the editors of *MacUser* / 99

Monochrome Laser Printers

MacUser LABS

Which printer is best suited to the kind of files you print most often? MacUser Labs rounds up 11 of these black-ink babies and puts them through their paces. **By Tony Bojorquez / 72**

DEPARTMENTS

DESKTOP MEDIA

Virtual Vistas Create your own panoramic world with version 2.0 of Apple's ultracool QuickTime Virtual Reality. / 109

Graphics How-To A look at color matching on a professional scale. / 114

Expert Tips To create files that print anywhere, anytime, follow these rules of PostScript. / 116

NETWORKING

Keeping an Eye on Your Network Network-monitoring software can alert you to potential problems — before disaster strikes. / 119

Net.cetera Plug in to plug-ins. / 125

HANDS ON

Talking Back to Your Mac Make your Mac sit up, roll over, and open your favorite applications. / 127

Help Folder Bob and Chris answer all your questions. / 129

Seeing Double Two monitors are better than one — and setting them up is easier than you think. / 135

PERSONAL MAC

Gone Fishin' Reel in the facts about fish. / 193

The Game Room Pinball wizards and Scrabble champions. / 196

MacUser (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016. Editorial Offices: 50 Beale Street, 12th Floor, San Francisco, CA 94105. Telephone: 415-547-8600. U.S. subscription rates are $27 for 12 issues, $45 for 24 issues, and $62 for 36 issues. Additional postage for orders outside the U.S.: Add US$16 per year for surface mail. Single-copy price is $3.99 (Canada, $4.99). Canadian GST registration #14049 6720 RT. Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 278521. POSTMASTER: Send address changes to *MacUser*, P.O. Box 56986, Boulder, CO 80328-6986. Periodicals Mail postage paid at New York, NY 10016, and at other mailing offices. Printed in the USA.

DRAW *like no other CAD*

"This drawing—5hours—from start to finish."
—Allan Ommerli, Interior Designer

You want drawings that look like the ones you've always done by hand—or better. Exquisitely detailed. Perfect arrows. Crisp lines. Or maybe a squiggly sketch. You don't want it to look like it was done on a computer.

PowerCADD lets you draw like that, and it doesn't get in your way. Draw floor plans. Machinery. Charts. Sketch a bush. Doodle a cloud. A flower.

You can draw anything with PowerCADD. And it's easy.

PowerCADD

Turn your genius loose. Put some fun back into your life. Order PowerCADD.

Call 910-299-4843 In Canada: 204-453-8111
ENGINEERED SOFTWARE
http:// www.engsw.com Fax: 910-852-2067

CIRCLE **73** ON READER SERVICE CARD

MacUser

Group Publisher
John Blake

Editor in Chief
Pamela Pfiffner

Editorial
Editor **Andrew Gore**
Managing Editor **Nancy Groth**
Technical Director **Henry Bortman**
Executive Editors **Susan Janus, Rik Myslewski**
Senior Editors **Karen J. Ohlson, Nancy Peterson, Jim Shatz-Akin**
Senior Associate Managing Editor **Claire H. Breen**
Chief Copy Editor **Eva Langfeldt**
Associate Technical Editor **Rhoda Simmons**
Associate Editors **Shelly Brisbin, Roman Loyola**
Copy Editor **Jon Zobenica**
Assistant Editors **LaMont Ridgell, Scholle Sawyer, Brooke C. Wheeler**
Contributing Editors **Sharon Zardetto Aker, David Biedny, Christopher Breen, Don Crabb, Shelley Cryan, Bruce Fraser, Andy Ihnatko, Ted Landau, Bob LeVitus, John Rizzo, Bob Schaffel, Michael Swaine, Gregory Wasson, Chuck Weger, Kelli Wiseth**
Executive Assistant to Editor in Chief
Teresa Bojorquez

MacUser Labs
Group Labs Director **Jeffrey S. Pittelkau**
Associate Labs Director **Nathan Garcia**
Senior Project Leaders **Kristina De Nike, Jeffrey K. Milstead**
Project Leader **Rick Oldano**
Associate Project Leaders **James Galbraith, Martin Wong**
Lab Administrator **Chris Moreno**

ZD Labs
Director **Mark Hall**

MacUser Online
Editor, Online **James S. Bradbury**
Senior Editor, Online **Jason Snell**
Associate Editors, Online **Philip W. Dyer, Jodi Naas**

Design
Art & Design Director **Lisa Orsini**
Senior Art Director **Diane Dempsey**
Desktop Publishing Manager **Jan McKenzie Rogers**
Associate Art Director **Stephani Finks**
Art Production Assistant **David G. Simoni**

Advertising/Sales
Advertising Coordinators **Rick Sandoval, Jennifer Weiss**

Production
Production Director **Carlos Lugo**
Production Manager **Jill Foxe**
Production Coordinator **Corina Youdelman**

Marketing
Group Marketing Director **Laurel Clark Skillman**
Marketing Manager **Renee Bula**
Sales Development Manager **Debra Cains**
Marketing Coordinator **Stephanie Walter**
Sales and Marketing Assistant **Jasmin Araneta**

Operations
Group Business Manager **Mary E. Colbert**
Group Business Analyst **Christine Finn**
Assistant to Group Publisher **Beth Ina**
Assistant to Group Associate Publisher **Annie Purinton**
Assistant to Group National Advertising Manager
Gina L. Michelucci-Mathers

The Audit Bureau BPA

ZIFF-DAVIS PUBLISHING
Chairman and CEO **Eric Hippeau**
President, U.S. Publications **Ronni Sonnenberg**
President, Interactive Media and Development Group
Jeffrey Ballowe
President, International Media Group **J. B. Holston III**
President, Computer Intelligence/InfoCorp **Bob Brown**
President, Training and Support Publishing Group
William Rosenthal
Vice President, Chief Financial Officer **Timothy C. O'Brien**
Senior Vice President, Marketing **Terri Holbrooke**
Vice President, General Counsel, and Secretary
J. Malcolm Morris
Vice President, Human Resources **Rayna Brown**
Vice President, Planning **Daryl R. Otte**
Vice President, Production **Roger Herrmann**
Vice President, Controller **Mark Moyer**
Vice President, Information Systems **Steve Gladyszewski**
Treasurer **Thomas L. Wright**

U.S. Publications Group
President, U.S. Publications **Ronni Sonnenberg**
President, Business Media Group **Claude P. Sheer**
President, Consumer Media Group **J. Scott Briggs**
Senior Vice President, Consumer Advertising
Lawrence C. Burstein
Senior Vice President, Circulation **Baird Davis**
Executive Vice President, Business Media Group **Don Byrnes**
Vice President, Business Manager **Tom McGrade**
Vice President, Marketing Services **Jim Manning**
Vice President, Central Advertising Sales **Bob Bader**
Vice President, Product Testing **Mark Van Name**
Vice President, Circulation Services **James F. Ramaley**
Vice Presidents **Al DiGuido, Michael Miller, Paul Somerson**
Executive Director, Licensing **Gertrud Borchardt**
Director, ZD Labs **Mark Hall**
Director, Benchmark Operation **Bill Catchings**
Senior Vice President, Ziff-Davis Media Network
Joe Gillespie
Executive Director, Ziff-Davis Media Network
Jeff Bruce
Executive Director, Marketing, Ziff-Davis Media Network
Michael Perkowski
Managing Director, Ziff-Davis Media Network **Rita Burke**
Directors, Ziff-Davis Media Network **Ken Beach, Michael Bird, Melinda Maginn, Scott Murphy, Sue Pasieka**
Associate Directors, Ziff-Davis Media Network **Debbie Moss, Julie Tuttle**

Interactive Media and Development Group
President, Interactive Media and Development Group
Jeffrey Ballowe
Executive Vice President **David Shnaider**
Executive Vice President, Internet Publishing Group
Daniel Rosensweig
Vice President, Editor in Chief, ZD Net **Daniel Farber**
Vice President, General Manager, ZD Net **James Savage**
Vice President, ZDTV **Richard Fisher**
Vice President, Creative Services **Herbert Stern**
Vice President, Research **Elda Vale**
Editorial Director, New Products **Bill Machrone**
Group Business Manager **Jocelyn Grayson**
Director, Public Relations **Gregory Jarboe**

Ziff-Davis Publishing Company, A Softbank Company

In memory of **John J. Anderson** 1956 – 1989
and **Derek Van Alstyne** 1967 – 1989

Entire contents © 1997 Ziff-Davis Publishing Company. All rights reserved; reproduction in whole or in part without permission is prohibited. *MacUser* is a registered trademark of Ziff-Davis Publishing Company. *MacUser* is an independent journal, not affiliated in any way with Apple Computer, Inc.

3 reasons why we chose Splash™ over Fiery...

the only one you'll need to know is superior color quality.

Visit the Splash website at http://www.SplashTech.com for the whole story.

More Accurate Color

"We have designers who use our SPLASH prints for sales and marketing, as well as proofs before going to film. Some printers have been so impressed with the quality of the SPLASH proofs that they will run their presses to it."

CMYK and RGB Color Matching — Only Splash Servers give you accurate screen-to-print color matching and the ability to simulate the output of a printing press with standard ones inks (SWOP, Euroscale, Toyo, SNAP). Splash is the first server to enable the color copier to be utilized in discerning proofing and short-run environments. Splash AccuColor RGB color correction provides the answer to the oldest desktop printing problem - monitor blues printing as purple, regardless of file type or rendering choice.

More Consistent Color

"Color calibration is an area that is extremely important to us. We check our calibration twice a day. SPLASH holds its calibration curve very well, and when it does slip, it's easy to bring it back in line."

With a Splash Server, calibrating the printer is so quick and easy it can be done several times a day, and without any specialized training. The entire process can be done in a few minutes, on-line and without the need for an expensive densitometer.

More Usable Color

"It's easy to manage and even easier to operate. The SPLASH uses the Macintosh operating system, which we like, and is very familiar to us."

With the Mac-based Splash Server you're free to expand your system with a wide variety of Macintosh software, hardware peripherals and system memory at street prices.

©1996 Splash Technology. Splash and the Splash logo are trademarks of Splash Technology, Inc. XEROX and the stylized X are trademarks of Xerox Corporation. Other product names used herein are trademarks of their respective owners.

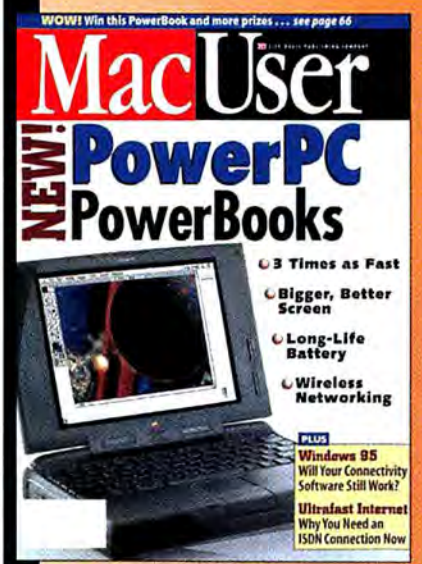
Look for this symbol at your Service Provider.

Splash Color Servers

WHEN YOU'RE SERIOUS ABOUT COLOR.

Splash products support the Xerox color systems and Fuji Xerox Acolor copiers. Splash products are sold by Xerox Worldwide, Fuji Xerox, and select Xerox resellers.

For more information
circle **54** on the reader service card.

MacUser
You're already reading it.


Now start saving on it.
Special Subscription Price – call today!
Get POWERFUL SAVINGS and a FREE GIFT too,
from the world's #1 resource for Macintosh users.
To reserve BIG SAVINGS
call 1-800-627-2247 right away.
FREE GIFT WHEN YOU SUBSCRIBE
FREE GIFT WHEN YOU SUBSCRIBE
FREE GIFT WHEN YOU SUBSCRIBE
FREE GIFT WHEN YOU SUBSCRIBE

MacUser

How to Reach Us

THE EDITORS of *MacUser* want to hear from you. Send your questions, tips, kudos, comments, or complaints to *MacUser,* 50 Beale Street, 12th Floor, San Francisco, CA 94105; 415-547-8600. Send e-mail to letters@macuser.com (Internet). We are, unfortunately, unable to look up stories from past issues, recommend products, or diagnose your Macintosh problems by telephone. Contact Apple toll-free at 800-538-9696, ext. 500, for information on user groups in your area.

IF YOU SUBMIT A TIP to *MacUser* (and we hope you do), please be advised that you agree that Ziff-Davis Publishing Company and its affiliates and licensees can reproduce, publish, display, and distribute your tip worldwide in all print and electronic media and in all other forms, manner, and media now known or hereinafter devised.

Subscription Inquiries/Change of Address

FOR SUBSCRIPTION-SERVICE questions, address changes, or ordering information, please write to *MacUser,* P.O. Box 56986, Boulder, CO 80322-6986. New subscriptions and address changes can take six to eight weeks. For back issues (subject to availability), send $7 per issue, $8 outside the U.S., to Back Issues Dept., Ziff-Davis Publishing Company, P.O. Box 53131, Boulder, CO 80322-3131. We periodically make lists of our customers available to carefully screened mailers of quality goods and services. If you do not wish to receive such mailings, please let us know by writing to us at *MacUser,* P.O. Box 56986, Boulder, CO 80322-6986. *MacUser* (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016. Editorial Offices: 50 Beale Street, 12th Floor, San Francisco, CA 94105. Telephone: 415-547-8600. U.S. subscription rates are $27 for 12 issues, $45 for 24 issues, and $62 for 36 issues. Additional postage for orders outside the U.S.: Add US$16 per year for surface mail. Single-copy price is $3.99 (Canada, $4.99). Canadian GST registration #14049 6720 RT. Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 278521.

POSTMASTER: Send address changes to *MacUser,* P.O. Box 56986, Boulder, CO 80328-6986. Periodicals Mail postage paid at New York, NY 10016, and at other mailing offices.

ZD Net/Mac: MacUser Online

ZD NET/MAC is a commercial online service that provides selected articles, reviews, and electronic supplements to *MacUser.* In addition, you will find thousands of reviewed shareware files and have a chance to interact with editors. To order a free starter kit to access ZD Net/Mac, hosted on CompuServe, call 800-848-8199. On **CompuServe,** simply type GO ZMC :MACUSER. On **America Online,** use keyword MACUSER. Or check out *MacUser*'s home on the **World Wide Web,** at http://www.macuser.com/.

MacUser on CD-ROM

FIND *MACUSER* ON Computer Select, a CD-ROM from Computer Library. To subscribe, call 800-827-7889, ext. 708. If you're calling from Canada, 212-503-4400; from Europe, 44-344-710091; or from anywhere else, 212-503-4425.

Complaints About Advertisers

MACUSER EDITORS are not responsible for the contents of the advertisements in the magazine. However, if you bought a product advertised in *MacUser,* are dissatisfied, and can't resolve the problem, write to Ad Department, *MacUser,* 50 Beale Street, 12th Floor, San Francisco, CA 94105.

Permissions and Reprints

MATERIAL IN THIS PUBLICATION may not be reproduced in any form without permission. Written requests for permission should be addressed to Chantal Tucker, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016, or faxed to 212-503-5475.

MacUser Reprints For Reprint Price Quotes, Call 800-825-4237

Product Announcements and Updates

SEND PRODUCT INFORMATION to News Editor and send new products to Reviews Editor at *MacUser,* 50 Beale Street, 12th Floor, San Francisco, CA 94105.

SELECTING THE BEST GRAPHICS PROGRAM JUST BECAME A NO-BRAINER

A mixture of tools so powerful...

we should put asbestos gloves in every box!

CANVAS™ 5
Complete Illustration, Photo Editing and Page Design

If you already own a graphics application, trade up to Canvas 5 for just $149.95. See your favorite reseller, or visit us at **www.deneba.com** for complete product information and secure online ordering. For a Canvas 5 dealer near you, or to order by phone, call **1-800-6 CANVAS** or **305-596-5644**.

Stop toying with feeble graphics programs that sap your creative energy. Canvas 5 puts everything you need to realize your artistic vision into one integrated program that's ready to rock the second inspiration hits. • Say goodbye to concentration-zapping "launch and quit" cycles. With Canvas 5, absolutely stunning illustration, photo editing, and page design tools are always right at your fingertips. • In addition, Canvas 5 works with any file (from Photoshop™ to CorelDraw™ to GIF, TIFF, and JPEG) and any Photoshop-compatible plug-in. You also get over 20,000 clip art images and 2,000 premium URW™ fonts. • Simple, flexible, and relentlessly versatile, Canvas 5 is an industrial-strength graphics tool. So what are you waiting for? Put the awesome power of Canvas 5 under your creative control today.

©1997 Deneba Software. Canvas is a trademark of Deneba Software. All other company names, product names, trademarks and registered trademarks are the property of their respective holders. Limited time offer subject to change without notice.

800.6.CANVAS
CIRCLE **125** ON READER SERVICE CARD

BYTE Best of Comment Awards Winner Best Application Software
MacUser Awards Editors' Choice 1996 Finalist
Windows Wwww
PC Computing ★★★★
DENEBA

Sony Picture Quality

Super Fine Pitch™ Trinitron Tube

Multiscan® Technology

Accurate Focus Corner to Corner

Sony Engineering

Vertically Flat Screen

Higher Resolutions & Refresh Rates

Digital On-Screen Controls

Sony Advantages

Broad Family of Displays

National Service and Support

Windows® 95 Plug and Play

1-800-352-7669

©1996 Sony Electronics Inc. All rights reserved. Reproduction in whole or part without written permission is prohibited. Sony, the Sony logo, Multiscan, Super Fine Pitch and Trinitron are trademarks of Sony. Windows is a trademark of Microsoft Corporation. Screen images are simulated.

Display your inspiration

Displays by Sony. A cleaner, crisper picture.
Vivid, accurate color. Trinitron® technology.
Inspiration comes and goes in an instant.
Bring yours home on a Sony.

www.sony.com/technology

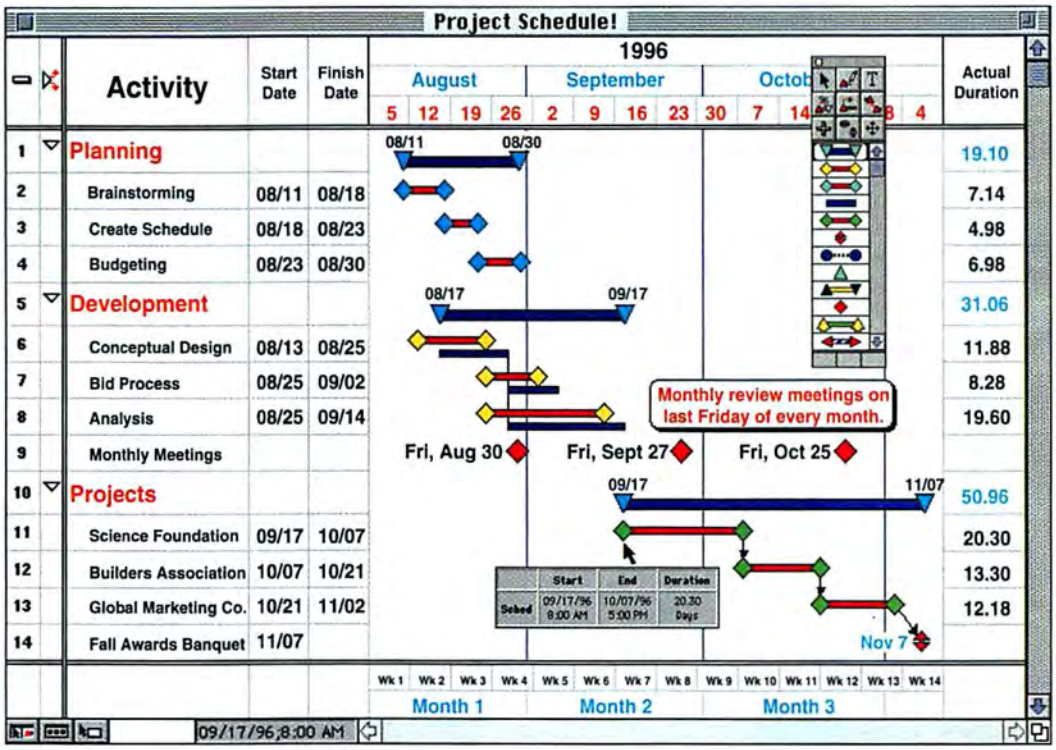
SONY

New Version 4.0

Project Scheduling Made Easy.

Mac™ OS

Accelerated for Power Macintosh



FastTrack Schedule™ 4.0

You can't stay on schedule if you don't have one!

FastTrack Schedule 4.0 lets you create and update presentation-quality schedules quickly and easily. Whether you need a quick scheduler or a full tracking system, FastTrack Schedule 4.0 offers the combination of flexibility, ease of use and power all in one program! Take a quick look at some of the features found in FastTrack Schedule 4.0. Simple scheduling and impressive power are as easy as...1,2,3.

1 Flexibility

- Timescales from Hours to Fiscal Years
- Link Options • Find & Replace
- Paste in Graphics & Add Textblocks
- Custom Bar and Milestone Styles
- Page Breaks • Shift Items in Work Units
- Capture Schedule Defaults • Hide Graph
- Layout Options for Multi-columnar Reports
- Durations in Work Hours & Work Days

2 Ease of Use

- On Line Help Systems • Tool Tips
- Balloon Help • Action Columns
- Control Palette • Auto Scrolling
- Bar Tracking Window • Select All
- Interactive Page Preview Layer
- Cursor Tracking Window • Quick Corner
- Templates • Floating Toolbox
- Autofit Schedule • Auto Resize Row Height

3 Power

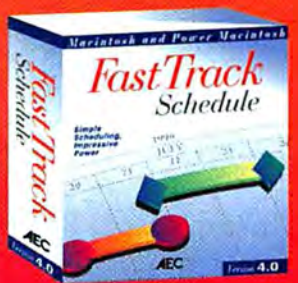
- Scheduled, Revised & Actual Dates
- Custom Work Calendar
- Filters & Sorts • Task Dependencies
- Outline tasks to show sublevels
- Import & Export Data as ASCII text
- Network Versions - File Locking, Passwording
- Available for Macintosh, Power Macintosh, Windows 3.1, NT 3.51, NT 4.0 and 95

"If you're looking for a quick and easy way to create Gantt charts, this program might be just the one for you."

MacUser

"...An excellent choice for anyone whose primary need is to create precise, presentation-quality Gantt charts."

MacWEEK



Call to order, for more information or download a free demo today!

(800) 450-1983

http://www.aecsoft.com

CIRCLE **15** ON READER SERVICE CARD

30 DAY MONEY BACK GUARANTEE

AEC Software, Inc., 22611-113 Markey Ct., Sterling, VA 20166 USA • Phone (703) 450-1980 • FAX (703) 450-9786 • http://www.aecsoft.com

©1996 AEC Software, Inc. All rights reserved.
Windows, Windows 95 and Windows NT are registered trademarks of Microsoft Corporation. Macintosh is a registered trademark, and Power Macintosh is a trademark of Apple Computer, Inc.

LETTERS

Would That It Were Be

AS BOTH A NEXTSTEP and Mac OS programmer and enthusiast, I'm excited that Apple is finally investigating a UNIX-based alternative to the Mac OS ("Plan Be," January '97, page 64). However, I do have some reservations.

My primary concern centers around the fate of the Mac OS GUI. Anyone who has used any other OS will concur that no other GUI is quite as refined, simple, and elegant as the Mac's. X Windows and other UNIX GUIs (Nextstep excluded, of course) are among the worst out there. They're ugly, obfuscated, and generally primitive in comparison to the Finder. I've looked at screen shots of the BeOS GUI, and from what I've seen, it doesn't look much better than any X Windows manager — in fact, in some ways, it looks a lot like the worst user interface of all: Windows 3.11.

I support Apple's decision to move to a more powerful, elegant basis for its OS, but if Apple implements OS 8 with Be's front end, the company will upset a lot of users. The Mac will lose its inherent elegance and simplicity — the things that endear the machine to so many users.

Nik Spilka
knspilka@undergrad.math.uwaterloo.ca

I WAS UNDENIABLY GRATEFUL to finally see a comprehensive story on the BeOS. Having followed Be for about a year now, I was heartened and frustrated to see all its promises coming true while the Mac OS continued to flounder. Now the solution is obvious. Even though clones are adding some punch to the Mac market, the lethargic Mac OS is pulling the Mac community down. It's time for Apple to make the biggest gamble in its history, bigger even than the transition to the PowerPC.

Kenik Hassel
n9440539@cc.wwu.edu

WINTEL USERS will look at the power available to them with a Power Mac running the BeOS and consider it irrelevant, just as they have done with every Macintosh advantage before. In three years, when Windows NT 5.0 ships with the structural strength of the current release of the BeOS, the PC world will still fail to see what it could have had in 1997.

George Bethel
GeBethel@Walrus.com

WHAT'S THE DEAL with the BeOS? I work as a graphic designer and have a ton of little applications and extensions on my machine. If even a single one of these things does not work with the BeOS running on a Mac OS system, then forget about putting it on my Mac. Yes, I would love to have more speed. Yes, I would love to have better stability. But if even one part of the current Mac system software is missing from the new OS, why have it?

I thought the whole idea of updating the OS was to *add* features and functionality, not take them away. Apple needs to look to the core of its user base before making a giant leap to Be. That base is in publishing.

Kevin Barré
BARRE@rhodes.edu

YOUR COVER HEADLINE "Watch Out, Windows" (January '97) could not be more out of touch. Come on guys, the desktop war is over. Ultimately, the only operating system that matters is the Internet browser. Haven't you noticed the little development called Microsoft Internet Explorer and all the flak it's giving Netscape? In the end, what matters is how you integrate the world of the Internet with the desktop. The browser *is* the operating system.

Kevin Fletcher Tweedy
kft@who.net

WRITE TO LETTERS

c/o *MacUser*
50 Beale Street, 12th Floor
San Francisco, CA 94105
letters@macuser.com

All letters become the property of *MacUser*, and we reserve the right to edit any letters we print. Include a return address and a daytime phone number. If you write to us via e-mail, please specify whether you want your electronic address printed.

ILLUSTRATION / MARGARET MCMULLIN

Open Folder

What a month. Godish@aol.com assailed us as "SPOILED MAMBY PAMBY WHINING JERKS." CMBUELL@aol.com derided us as dim-witted whiners. And Tom Trinko characterized us as liberals, whose "only acquaintance with logic is that [the two words] share the same first letter." What brought this on? Think Hormel canned meat product. Think *spam* (the unsolicited junk mail that taxes your time, finances, and computer resources by filling up your e-mail in-box).

In our January issue, we touched off a firestorm by audaciously suggesting that advertisers not be allowed to use such intrusive means of peddling their wares. The populist in Godish rebuked us "rich folk" for concerning ourselves with this triviality when problems such as homelessness, unemployment, and evil multinational corporations prevail. The barbed-tongued elitist in Godish yearned for the day we "get downsized and have to work at Burger King." The Constitutionalist in Godish closed by suggesting that we "develop a little respect for the freedoms our forefathers fought and died for."

With less vitriol, CMBUELL pointed out that spam should have no financial impact because anyone who didn't already have an unlimited-access online account was simply stupid.

Soothing words for Tom Trinko, who dislikes spam for the very reason that he *does* have to pay for the deluge of junk. Tom chided us for not giving the fight against online pornography as high a priority as the fight against spam. Said Tom, "You're going to tell me the Founders intended the First Amendment to protect pornography but not advertising, even though pornography was illegal back then and advertising wasn't." No, Tom. Those logical, liberal Founders ensured that we were free to do and say certain things *and* that we were free from having the things others like to do and say crammed down our throats at *any* expense to ourselves. Pornography may be an unsavory temptation to your young loved ones, and we hope you can convince them not to go and seek it out. But attempting to draw parallels between a temptation and a costly intrusion is, well, highly illogical.

The Rainbow Connection

COMPARING THE OUTPUT quality of dye-sublimation printers is tricky, and we appreciate the complexity of putting together "The Burden of Proof" (December '96, page 96). We are concerned that the testing methods used by MacUser Labs may have misled your readers about digital proofing systems, particularly with respect to the Imation Rainbow Model 2730.

For the review, Imation provided a Rainbow 2730 proofing system to MacUser Labs. The Rainbow 2730 proofer is a highly sophisticated proofing device, designed for graphic-arts, printing, and prepress professionals who require critical color accuracy; a high degree of flexibility; and excellent calibration between hardware, software, and printing media, to simulate actual printing processes.

Because the Rainbow 2730 proofer includes a broad range of options to help users accurately preview printing processes, all customers who purchase the system receive an on-site technical-service visit. We wouldn't sell the product any other way. On-site technical support helps ensure that busy professionals do not experience the potential frustrations involved in setting up a new system. Further, this support ensures proper optimization of, for example, color tables and base materials, to accommodate customer-specific workflows. Unfortunately, MacUser Labs declined this service. We believe the image and color problems described in the test results obtained by MacUser Labs could have been avoided with this up-front assistance.

We believe that the "Features of Dye-Sub Printers" table was also misleading. It indicates that Imation offers a 90-day warranty for the Rainbow 2730. That oversimplifies our comprehensive customer-support program. Imation provides initial on-site technical support for the first 90 days of use. We also provide 24-hour phone support to all Rainbow customers for the life of the product. After 90 days, customers have the option of purchasing an extended on-site service agreement.

As we introduce new products, we look forward to supplying *MacUser* with the products for testing. It is our desire that the entire Imation product and service package offered to our customers will be included as part of the testing procedure.

Chuck Oesterlein
Imation

/ At no time in the course of our researching products and preparing testing did Imation offer on-site setup. The printer we received included all manuals and instructions necessary to set up and test the printer, and given our real-world testing environment — which mimics the experience of ordinary users — we proceeded to do so. We encourage Imation to better alert purchasers to its setup options and to any additional costs such options entail. Furthermore, we report on service contracts and warranties as included in the purchase price of a product. We do not report on extended warranties that may be purchased separately, as many are not directly under the manufacturer's control. / JP

Clones Aren't Clones

YOUR COMPARISONS of UMAX clones with Power Computing clones (see review, January '97, page 33) is essentially flawed. Two cases in point:

You fail to mention that the Power clones ship with Speed Doubler. Comparisons between a clone plus Speed Doubler and one without are essentially worthless. Disable Speed Doubler on the Power machines and report that benchmark for a change.

The UMAX SuperMac S900 with a 225-MHz chip is shipping, so why is the report on a prototype? Does this indicate the article was rushed to publication without the intent of being thorough and accurate? In particular, your review claims low benchmarks for graphics on the UMAX machine compared to Power machines. Why were the tests done with a 4-MB IMS TwinTurbo card instead of the 8-MB card with which the system ships?

If these benchmark tests are to be informative and worthwhile for a particular subsystem, extraneous variables need to be isolated and equalized.

Paul Cheng
pccheng@nwu.edu

/ We test Mac OS systems as they ship from the manufacturer. If Speed Doubler (or any other performance enhancer) comes installed on a system, then its presence is reflected in our test results, as it would be in any user's out-of-the-box experience. We do not mouse-rate prototypes. UMAX certified the SuperMac S900/225 we tested as a production unit, but as mentioned in the review, the company changed the shipping configuration when it was too late for us to retest it (or drop the product from the review). For a full report on the final shipping system, see this month's "Which Mac?" story. / JSA

Quicken Miscalculation?

YOUR GLOWING REVIEW of Quicken 7.0 (see review, January '97, page 38) was apparently based on inadequate testing of the program's features, judging from the problems Intuit has already fessed up to in its AOL support forum so soon after the product release.

Quicken inaccurately records stock splits. Users have experienced errors when updating files from version 6 and have also been unable to connect properly for electronic registration. When updating stock prices, the program loses track of currently selected stock. And when you're entering checks on the check form, if QuickFill fills in an amount for the first match and further typing then changes the payee, the amount remains the same instead of changing to the correct amount. There are also inaccuracies in the manual — including the omission from the back cover of the keyboard commands, repeatedly referred to in various places within the manual. These are hardly obscure or exotic features, and your reviewer should have tested them!

What's particularly galling is that the exact same thing happened a year ago with the release of Quicken 6. The support forums were overflowing with the anguished wails of users swamped with problems that Intuit reps cheerfully admitted. Not least was the vaporous "online banking" feature on which so much of Intuit's advertising depended.

Philip Brandes
PhilipB023@aol.com

/ It's true that Intuit has acknowledged several bugs in Quicken 7.0 and Quicken Deluxe 7.0, but many occur only sporadically or only on certain machines; if they had occurred during our extensive testing, we certainly would have mentioned them. The most grievous problem — mishandling of stock splits — was unfortunately not an issue in the real-world test portfolios we used for our review. / JSA

No Sacrificial Spam

I DUNNO ABOUT Andy's column on spamming ("Junk-Mail Jihad," January '97, page 212). I'd rather live with the junk mail than get the government involved. The cure might be far worse than the problem. No, I think it's better to work this out by using market forces and civil courts. As far as I'm concerned, using the government to fix this problem is akin to swatting a fly with a Buick. Call me idealistic or whatever you like, but I say we avoid that kind of power — the Dark Side.

Griff Miller
miller@positron.com

Corrections

The correct author of the MovieStar review in our February '97 issue (page 49) was Jim Shatz-Akin.

If our amazingly fast and accurate scan doesn't impress you, maybe you should consider a re-shoot.

INTRODUCING THE EPSON® EXPRESSION™ 636 COLOR SCANNER

Everything the camera sees, it sees. And we mean everything. Because Epson TrueScan™ technology with 36-bit scanning gives you the power to accurately recognize 68.7 billion colors and 4,096 levels of gray—more than you'll ever need. 600 dpi optical resolution (4,800 dpi max) lets you capture the most minute detail with incredible clarity—like the soft edge of a raging storm cloud. And you'll get your perfect image in a lot less time than from other high-end graphics scanners. For a lot less money.

But the Expression 636 isn't only about great images. Text Enhancement Technology and Auto Area Segmentation let you accurately scan both text and graphic images from the same page—even from colored backgrounds. SCSI and bidirectional parallel ports allow easy, simultaneous hook-up to both Mac and PC systems. And our TWAIN driver is full of features like PhotoQuick,™ which lets you turn negatives into high-quality positives. So you'll have images that will blow you away. And if by chance they don't, what you need is a better photograph. For more info, call 1-800-GO-EPSON. Ask for operator 3020.

In as little as 6 seconds, you can preview images before you scan them. Even tornadoes don't move that fast.

Our professional Mac bundle comes with full versions of Live Picture,™ Claris HomePage,™ e. Paper,™ Kai's Power Tools,™ SCSI cable, and a transparency unit. Because a scan this intense is bound to inspire.

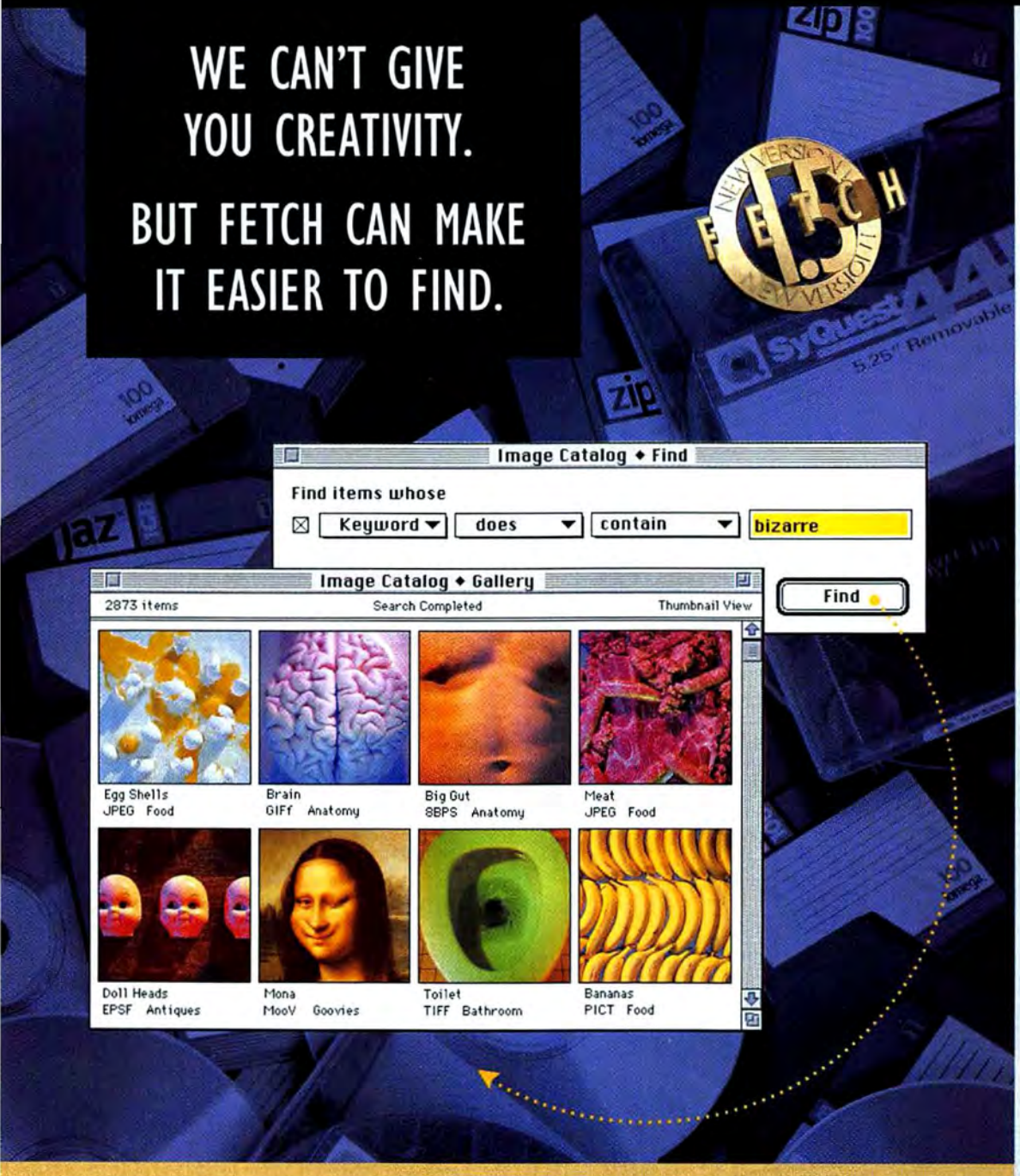
YOU'VE GOT TO SEE IT IN EPSON COLOR.™

CIRCLE **122** ON READER SERVICE CARD

Professional PC bundle also available with full-version Adobe Photoshop™ Xerox TextBridge Pro™ '96, NewSoft™ Presto! PageManager™ LE, Claris HomePage, Kai's Power Tools, SCSI interface and cable, and a transparency unit. Other scanner configurations available. Awards given to the ES-1200C, one in the line of Epson award-winning scanners. Do not scan published material without permission of the copyright holder. EPSON is a registered trademark of Seiko Epson Corp. Expression and TrueScan are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. ©1996 Epson America, Inc. **www.epson.com**

WE CAN'T GIVE YOU CREATIVITY.

BUT FETCH CAN MAKE IT EASIER TO FIND.



Your talent is creativity, not organization. And in a world of CD's, Zip drives, servers, hard drives and Syquests, searching all over tarnation for graphic files slows down the creative process.

Extensis Fetch 1.5 will save you time and improve your productivity by organizing all your images and multimedia files in a browsable, accessible catalog, regardless of file format or location. Since your time is precious, we more than doubled the performance of Fetch by making it PowerMac native and added drag-and-drop capabilities, which let you drag images from Fetch into QuarkXPress or PageMaker 6.5. But you have to find your image first. Whether you work alone or share catalogs with others over a network, Fetch will find your files with just a keyword, file type or combination of search parameters, and show it to you as a thumbnail image or in full resolution.

Don't waste your time looking for files. Call 1-800-796-9798 to order your copy of Fetch 1.5–it's only $99.95 with a 60-day money back guarantee (current users can upgrade for $29.95). Or download a free trial from http://www.extensis.com. And spend your time doing what you do best...creating.

Accelerated for Power Macintosh

Extensis

Extensis Corporation, 55 SW Yamhill St., 4th Floor, Portland, OR 97204 • 503-274-2020 • Fax: 503-274-0530

QX-Tools' award-winning XTensions for QuarkXPress let you create effects, control layers, resize objects, apply styles and more. Mac.

PhotoTools' award-winning collection of plug-ins for Photoshop offers complete text control, drop shadows, bevels, glows, and image enhancements! Mac & Win.

CyberPress converts QuarkXPress documents into HTML format for the WWW. Includes the award-winning Adobe PageMill 2.0. Mac.

PageTools' award-winning fifteen plug-ins give you PageMaker's most-requested features, like character styles and scaling multiple objects. Mac & Win.

VectorTools' plug-ins for Illustrator and Xtras for FreeHand are an indispensable collection of tools that feature color control, object styles, libraries and more. Mac.

Intellihance for Photoshop and PageMaker automatically and intelligently enhances the quality of single or multiple images. Mac & Win.

http://www.extensis.com

ORDER FETCH (MAC)
ONLY $99.95
1-800-796-9798

© 1996 Extensis Corporation. All rights reserved. The Extensis logo, VectorTools, PageTools, CyberPress, Fetch, PhotoTools and QX-Tools are trademarks of Extensis Corporation. Intellihance is a trademark of DPA Software. Third-party trademarks are property of their respective holders.

CIRCLE 153 ON READER SERVICE CARD

Source: 1206

PAMELA PFIFFNER

Who's NeXT?

EVERYONE KNOWS STEVE JOBS. Cofounder and former CEO of Apple, he's the man who coined the phrase *insanely great,* the man who created the very culture in which the original Macintosh grew. But, who's NeXT? Besides being that thing Steve Jobs did after he left Apple, NeXT Software has never risen much above the din of a marketplace obsessed with more-mainstream operating systems.

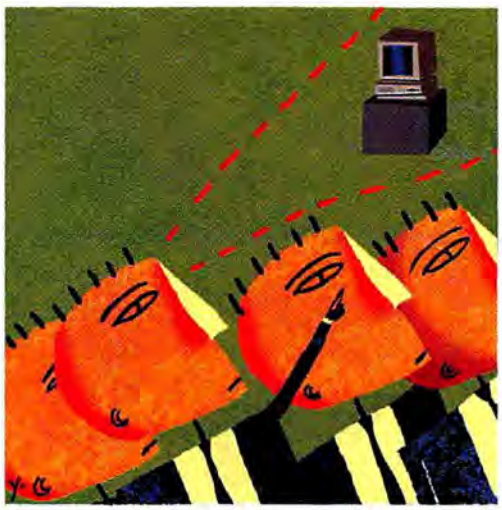
Steve Jobs' return to Apple is a stroke of marketing genius. How better to reassure the hoards of loyal Mac users than to embrace one of the men responsible for it all? Jobs has proven himself an articulate defender of the Macintosh. I'm especially thinking of his Oscar-worthy performance in the PBS special *Triumph of the Nerds,* in which he waxed poetic and wistful about the Apple that existed before he hired his personal Judas, the man known for his prowess in marketing colored soda water. Jobs is a man who embodies the passion that the Mac has always stirred in the hearts of its users. A passion that has been missing at Apple — for way too long.

The sheer charisma and marketing savvy Jobs brings back home is worthy of celebration, but there's more to it than that. Jobs is a visionary. He has always been ahead of the curve, sometimes too far out. He created a market for the Macintosh where one did not exist, although arguably his refusal to license the Mac OS ultimately led us to today's state of affairs. More than that, he saw that giving the powerful but arcane UNIX environment a graphical interface held potential, even if he had difficulty marketing his Nextstep operating system. Now it's emulated by Sun, Hewlett-Packard, Digital, and Silicon Graphics. Jobs has an excess of vision, if not business acumen.

Boy Story

But let's face it, Jobs is back at Apple only part-time — and only as an advisor. Not that I'd underestimate the potential impact of even a part-time Jobs. However, the real question before Mac users is, What is this NeXT thing anyway, and why should I care?

Taking a cue from Jobs' latest success, the computer-animated movie *Toy Story,* think of it this way: The Mac OS is level-headed Woody, and Nextstep is slickly futuristic Buzz Lightyear. Both must band together to fight off Bill Gates, er, Sid, the nasty kid next door who



crafts mutant toys, er, operating systems, out of salvaged parts.

Although Nextstep may not be well known among the rank and file of computer users, the digital elite — in search of a powerful workstation OS that still retains the ease of use and joie de vivre of the Macintosh — have embraced it. Among the computer industry's cognoscenti, Nextstep has long been respected as the premier platform for building object-based applications. Those entrusted with building Corporate America's next-generation data infrastructures get misty-eyed at the mention of WebObjects, NeXT's Swiss-army knife of intranet development. And then there's Nextstep's legendary stability — it almost never crashes — a condition Mac OS users can only dream about.

It is the combination of these two proven operating systems that could win the day for Apple and NeXT — the Mac OS for its broad market appeal and Nextstep for delivering modern extras that might just catapult the combined platform ahead in the race to be best on the Internet.

Nextstep is the reason Mac users should be excited about Jobs' return.

There are also plenty of risks associated with Jobs' homecoming. It's 11 years later. The world has changed. The Mac has changed. We have changed. And Jobs' return to Apple could appear a sign of desperation, another sad attempt to regain faded glory. Amelio risks presenting the computing pioneer as an aging rock star trying to go back out on tour one more time — much like the Who regrouping to perform *Quadrophenia,* complete with microphone tosses, windmill guitars, and high hopes for boffo box-office sales.

But it all comes down to this: Can Steve Jobs deliver the modern platform Mac users have been waiting for? Although NeXT offers a lot of exciting possibilities (as has always been the case with Apple), the destination is not the problem, the journey is. That's where the rubber meets the road, and therein lies Apple's most formidable challenge.

Elsewhere in This Issue . . .

This month we also introduce two new columnists to the pages of *MacUser.* Long known to our readers as our lead technical writer on issues such as the Mac OS and clones, Henry Bortman is also our resident curmudgeon. His new column will serve as a forum for voicing concerns about Apple, the industry, and Mac products — from the user's perspective.

Those of you who cruise the *MacUser* Web site (http://www.macuser.com/) and read our Internet coverage in the pages of the magazine will be familiar with Jason Snell. His new column, Net.cetera, will focus on the tools, techniques, and trends that will continue to make the Mac one of the leading Internet and intranet platforms.

ILLUSTRATION / JAMES YANG

Multiply and conquer.

[QuarkImmedia.]

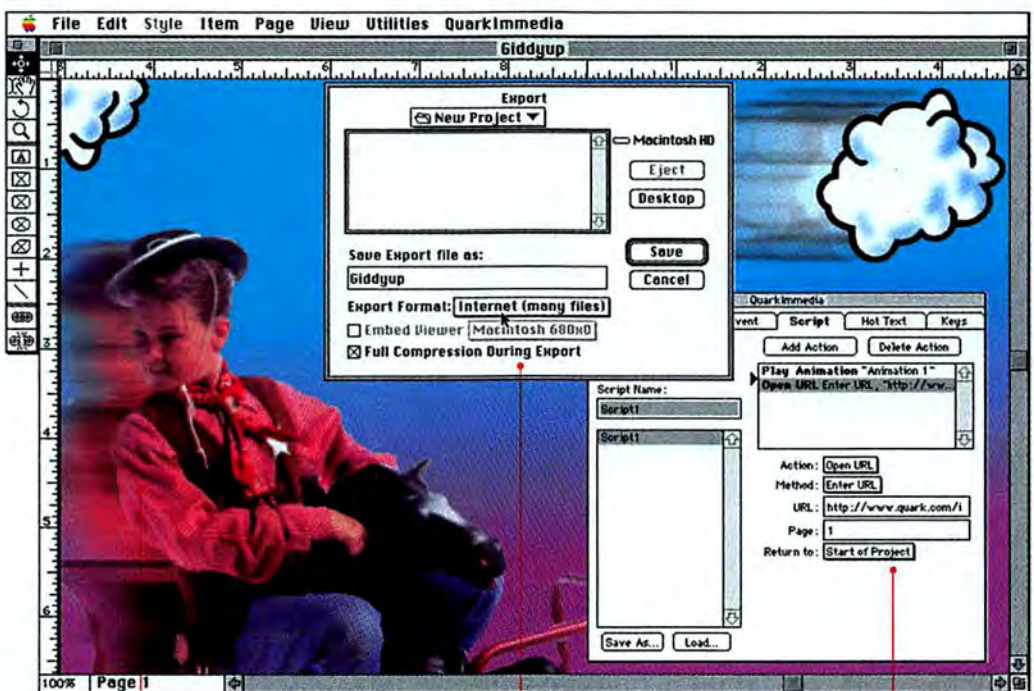
Add multimedia to the equation. QuarkImmedia makes it easy.

To make an impression on the Web, an intranet, a CD-ROM, or anywhere else multimedia is the medium, you need precise control over a wide array of variables. Like sound, video, and animation. Special effects transitions, complex interactions, and hot links to cool spots online. QuarkImmedia™ gives you control over each of these dynamic elements in a single point-and-click authoring environment. No separate servers, plug-ins, or programming required.

With QuarkImmedia you get frame-by-frame animation, custom compression settings, and automatic calculation and simulation of Internet download times. Your audience gets streaming audio and real-time interactivity on the Web with the royalty-free QuarkImmedia Viewer.

And because it works with QuarkXPress,™ QuarkImmedia lets you (and your clients) capitalize on investments already made in content, software, and skilled personnel. So you can adapt existing print assets for the screen without going back to square one — and without forfeiting one iota of the design control you have on paper. *Multiply your opportunities without dividing your creative energies.*

Look for special bundle pricing on QuarkImmedia and QuarkXPress.



Incorporate sophisticated animation into Web content without having to deal with programming, plug-ins, or applets.

Caching, compression, and multiple-file architecture optimize performance at any bandwidth.

Any object can be used as a link to another QuarkImmedia or HTML site.

QuarkImmedia. For the interactive imagination.

For a free demo package, call 1·800·788·7835 Ext. 3027
Visit our Web site at http://www.quark.com/immedia.htm

QUARK

Quark and QuarkXPress are trademarks of Quark, Inc., Reg. U.S. Pat. & Tm. Off. QuarkImmedia and the Quark logo are trademarks of the Quark companies. All other trademarks are the properties of their respective owners.

CIRCLE **5** ON READER SERVICE CARD

It's Baaaaack...

The QMS 2060 HAMMERHEAD.®

Free Duplexer* until March 31, 1997

$5,999—Eating the competition alive.

Standard Features	QMS 2060 EX HammerHead	Xante® Accel-a-Writer 8200	NewGen® DesignXpress 12	LaserMaster® Unity 1800S-Plus
1200 x 1200 dpi	yes	yes	yes	yes
Duplexing	yes*	no	no	no
Ethernet	yes	no	no	yes
Edge-to-edge	yes 13" x 19"	no	no	no
Internal Hard Drive	yes	no	no	yes
Printing Speed	20 ppm	16 ppm	16 ppm	8 ppm
Standard RAM	48 MB	40 MB	40 MB	20 MB
Price	$5,999	$5,695	$6,495	$6,995

Finally, high-res monochrome laser output that duplexes tabloid pages! And at 20 pages a mir you'll be in a printing frenzy.

Standard Ethernet satisfies your hunger for connectivity. Get all of these features—without devouring the budget.

1-800-523-2696 Ext. 52

http://www.qms.com/

QMS

©1996 QMS, Inc. QMS, the QMS logo, and Hammerhead are registered trademarks of QMS, Inc. All other products are trademarks of their respective companies.

*Free duplexer offer good on QMS 2060 EX Hammerhead model only.

CIRCLE 140 ON READER SERVICE CARD

HENRY BORTMAN

PowerBook Monopoly

SOMETHING'S MISSING. Today there are over 40 different Macs and Mac-compatibles on the market. Now, you could survey this scene and say, Hey, Mac OS licensing is really beginning to work. Look at all the choices we have. Look at all the ways clone vendors have found to innovate. Look at the range of performance, the variety of bundled hardware and software, the price options available.

Or you could say, Where the hell are the laptops?

Let's survey the stirring selections available to us from Apple: There's the PowerBook 190 series, the only remaining Macintosh products that don't use PowerPC chips. I'm sure lots of folks are chomping at the bit to ride that wave into the future. There's the 5300 series. These are particularly popular in chemistry labs, where they double as Bunsen burners — but don't get me started.

And there's the new 1400 series, which everyone (*MacUser* included) seems to be falling all over themselves to sing the praises of, due mostly to the fact that it's not awful. I know, it's got a built-in CD-ROM drive, which PC portables have had for over a year. It's got a nice screen. Well, duh. It's easy to take apart. My kid will like that. And it lets you make personal fashion statements by sliding a tacky BookCover into the lid. There's a sell.

But for charity's sake, let's call these pluses. Then you turn it on — and realize you've just spent $3,500 on the slowest Mac system you can buy — by a long shot. It's barely faster than a Power Mac 6100/60. For those of you with short memories, the 6100/60 was the slowest of the original Power Mac models. Apple discontinued it two years ago. Sycophants will tell you that it's OK for portables to be slow. After all, they're just, well — *portables.* Customers who use their portables to run their businesses will use more-colorful language.

This is a situation crying out for clone competition. Do you think Motorola, maker of cell phones so cool that Paramount nearly sued it for stealing Captain Kirk's flip-phone "technology," might be interested in making Mac portables? Or Power Computing, whose busy little engineers have been seen disassembling Mac and PC portables alike, searching for the magic formula, as far back as a year ago? Would UMAX jump at the chance to jump into this market? You betcha.

So where are they? Well, it works like this. A clone vendor that wants to produce a Mac-compatible system goes to Apple and says, We'd like to license such-and-such design. Apple goes, Think, think, think. Engineers talk. Lawyers talk. Bean counters talk. Then Apple comes back to the clone maker and says yes — or no. In the case of portables, it's always been no.

Wait, you protest, rushing to Apple's defense. Maybe the clone vendors *haven't* asked if they could license portable designs. Trust me, they've asked. Maybe Apple just doesn't have the engineering staff to support a clone license for portables, you suggest. I haven't heard that there's a hiring freeze at Apple recently. How many engineers would it take? Two? Three? That doesn't seem an unreasonable cost for Apple to bear to enable the growth of the Mac-portable market.

Or maybe, just maybe, Apple *likes* having a monopoly on Mac portables. Maybe the notion of some third party offering an alternative to the disaster known as the PowerBook 5300 was just a bit too much for Apple execs to swallow. Maybe they'd rather see customers who need advanced portable-computer technology switch to Windows machines. At least there are choices on the Wintel side.

I'd like to tell you a clone laptop is just around the corner. But I'd be lying. At this point, it looks like we're going to have to wait for the PowerPC Platform before we see third-party portables. And there isn't even a spec for PPCP-based portables yet. My prediction: Check in around Q1 1998.

In the meantime, I'm holding onto my 540c. The little hook that keeps the lid shut: It broke off. I have to hold the lid closed with a bungee cord. The little piece of plastic in the back that's supposed to protect the ports: It broke off too. The retractable feet: They collapse at random intervals while I'm typing. And I seem able to charge my batteries properly only when the full moon falls on a Thursday. But it's got built-in Ethernet and a 28.8-kbps modem. And I've upgraded it with a Newer Technology 117-MHz NUpowr PowerPC processor daughtercard, which puts it neck and neck speedwise with a 1400 — not bad for a system built nearly three years ago.

Yup. That 540c is a darn solid little computer, perhaps the best portable Apple ever made. I bet some clone vendor would just love to bring the next 540c to market.

ILLUSTRATION / SACHA ECKES

StarMax 3000/200
MOTOROLA
PowerPC

For a Mac lover, it's a wish come true.

Introducing StarMax.™ *Go ahead, pinch yourself. Motorola has launched an entire line of Mac® OS-based desktops and minitowers running on PowerPC™ technology. Everything from 180 MHz to 240 MHz, 1.2GB to 2.5GB hard drives and starting at about $1,595.* So now, you have a Mac OS alternative with an industry-low price. And with the assurance of the Motorola brand, you're getting the quality you'd expect from a global company. In fact, we're so sure of it, we gave all of our StarMax systems a five-year limited system warranty—the only one like it in the industry. And* PowerPC™ *with our new board design, Motorola systems running on the PowerPC 603e™/200 MHz microprocessor outperformed other Mac OS compatibles running the same chip (even one running at 240 MHz).† Call us if you still think you're dreaming. You can consider it a wake-up call.*

1-800-759-1107 ext. MCU
http://www.mot.com/computer/

MOTOROLA
Computer Group

CIRCLE **85** ON READER SERVICE CARD

What you never thought possible.™

©1996 Motorola, Inc. All rights reserved. Motorola and Ⓜ are registered trademarks and StarMax is a trademark of Motorola, Inc. PowerPC, PowerPC 603e and the PowerPC logo are trademarks of and are used under license from International Business Machines Corporation. Mac OS is a registered trademark of Apple Computer, Inc. All other brand and product names are the trademarks or registered trademarks of their respective holders. *Contact your local reseller for current prices on specific configurations. †MacWorld, November, 1996.

Apple's Next Step

The next Mac OS will be the NeXT Mac OS.

BY HENRY BORTMAN

APPLE HAS MADE ITS DECISION. The next step in Apple's Mac OS strategy is to use Nextstep, the UNIX-based operating system from NeXT Software — a company that's now lock, stock, and Steve Jobs a part of Apple Computer, after a $400 million announcement late last year.

Nextstep beat out several contenders — the BeOS, from Be; Sun's Solaris version of UNIX (spiked heavily with Java); Windows NT (which didn't even make it to the semifinal round); and a homegrown OS developed entirely within Apple — for the right to serve as the foundation of the Mac's future OS. Given that hardly anyone in the Mac community has even heard from NeXT in the last few years, Apple's choice might seem a curious one. So why did it do it? What's so great about what NeXT brings to the table?

First of all, although Nextstep isn't what would likely spring to mind if someone asked you to name a popular operating system, the NeXT OS has been around for over ten years — it's had time to mature and is now stable and reliable enough to be used by several large corporations for critical business applications.

In addition, it already contains many of the features that Mac users would expect from an Apple operating system. It supports the Mac HFS file system. It implements plug-and-play for PCI add-on cards. It enables applications to be localized easily for the international market. It has AppleTalk client software for connecting to servers and printing (although it doesn't currently support AppleShare-based file sharing). Nextstep also currently supports power management on Intel-based notebook computers, so that aspect of getting it to run on PowerBooks should be a relatively easy task.

A FIRM FOUNDATION

But although these are bonuses that will simplify the task of integrating Nextstep with the Mac OS, System 7 already does all these things too. So why switch? What are the advantages that the Nextstep OS's *foundation* provides? In our January story on the BeOS (see "Plan Be," January '97, page 64), we laid out several fundamental technical criteria by which Apple's new-OS strategy should be evaluated: The new OS would need to be object-oriented, to provide full memory protection for applications and modern virtual memory, and would need to support preemptive multitasking, multithreading, and symmetric multiprocessing. Our initial research into Nextstep indicates that it can meet all these criteria when ported to PowerPC-based systems.

Yet it appears that Apple's acquisition of NeXT is motivated as much by the company's interest in becoming a key player in the enterprise/intranet market as it is by concern for the future of the Mac OS. It may well be that in choosing NeXT's offering over Be's, Apple was wowed by NeXT's WebObjects technology as much as by Nextstep and its cross-platform implementation, Openstep. After all, conventional wisdom these days is that the advent of the Internet may soon make users' choice of OS irrelevant.

THE CONTENDERS / Nextstep has all the virtues of a modern operating system

	MEMORY PROTECTION	PREEMPTIVE MULTITASKING	SYMMETRIC MULTIPROCESSING	OBJECT-ORIENTED OPERATING SYSTEM	MULTITHREADING	MODERN VIRTUAL-MEMORY SYSTEM
Nextstep 3.3	●	●	●*	●	●	●
SYSTEM 7.5						
WINDOWS NT 4.0	●	●	●		●	●
BEOS DR8.2	●	●	●	●	●	●

*Currently running on Openstep-based systems.

[1]Currently running only on Intel-based notebook computers.

[5]Printing is supported; AFP client software is provided.

WebObjects is indeed a cool piece of technology. It greatly simplifies a corporate customer's task of integrating its existing databases (the lifeblood of many businesses) with the World Wide Web (the hot new thing). For businesses trying to reach customers on the Web or to move their internal communications to a corporate intranet, WebObjects has much to offer (see the "More Than a New OS" sidebar).

QUESTIONS REMAIN

But that doesn't mean that merging all Nextstep has to offer with the best of the Mac OS (both System 7 and the ill-fated Copland) will be easy. Short of a miracle, it's unlikely that Apple can deliver such a super-OS before 1999. The list of technical issues to be addressed for such a merger to succeed is formidable. Chief among them is that Nextstep doesn't currently run on Mac hardware. Coming in a close second on the issues list is Nextstep's imaging model: It is based entirely on Display PostScript, whereas the Mac OS is based on QuickDraw.

These are just the tip of the iceberg. Most of Apple's technologies — the QuickTime Media Layer (which includes QuickTime, QuickTime VR, QuickTime Conferencing, and QuickDraw 3D), ColorSync, Speech Recognition and PlainTalk, QuickDraw GX, OpenDoc, Game Sprockets, Apple Guide, and the Mac OS 8 Macintosh User Experience (the Copland customizable desktop) — need to be made reentrant and need to be ported to run on top of a Nextstep foundation. And although Apple has said that the first iteration of the new Nextstep-based OS won't run current Mac apps, users will certainly clamor for a future version that adds System 7 compatibility for running their existing Mac apps. That's a lot of work.

Apple appears as interested in the enterprise/intranet market as in the future of the Mac OS.

And remember: We're talking about the same Apple that took months just to deliver Mac OS 7.6, which required only that the company collect a bunch of already shipping OS bits and pieces and run it through QA — an "accomplishment" eerily reminiscent of The Old Apple, which worked on Copland for three years and never even coughed up a beta release.

WHAT TO DO NEXT

In fact, Apple has no intention of delivering the ultimate new OS in 1997. Quite the contrary: What Apple is likely to give you in 1997 is Nextstep ported to run on Power Mac hardware. Period. Apple has already admitted that System 7 compatibility will come later. How much later? And what will it look like? At press time, the company wasn't prepared to say.

A largely unmodified Nextstep that doesn't run System 7 applications may be of questionable value to developers. Why would they want to write applications for Nextstep in its current form when much of it — the fundamental graphics model and the basic user interface, for example — might well change in the final merged OS? And as for users, Nextstep running on Mac hardware will be little more than a curiosity until enough compelling applications are available.

Instead of rushing to market with this System 7-hostile release, Apple could have chosen to delay delivery of the first implementation of the new OS until it had time to do more integration of Nextstep and Mac OS technologies. It could have chosen to resolve the graphics-model issue; or to implement the Mac OS 8 desktop look and feel in place of the Nextstep interface; or to port the QuickTime Media Layer to run on top of Nextstep; or to begin the task of making Mac OS APIs reentrant, so they could take full advantage of Nextstep's preemptive multitasking; or to integrate OpenDoc and Cyberdog with Nextstep's object model; and certainly to provide

POWER MANAGEMENT FOR NOTEBOOKS	MACINTOSH FILE-SYSTEM SUPPORT	APPLETALK PRINTING AND FILE SHARING
●†	●	♮
●	●	●
		●

HOW DOES NEXTSTEP STACK UP against System 7.5 — and the operating systems it beat out in the contest to be System 7.5's successor?

The BeOS represented a remarkable improvement over System 7.5 and the original Mac OS 8 as planned — but it's still under development. So, although it meets all the requirements of a modern OS — Nextstep does as well — it would have taken Be or Apple some time to deliver a stable OS and for commercial applications to follow. Nextstep, on the other hand, has been shipping for years and has a stable technology base. Applications? Well....

Nextstep already has important components that are either missing or not yet delivered in the BeOS. These components will ease the transition to Apple's OS future: AppleTalk printing and file access and Macintosh file-system support already appear in the current, shipping version of Nextstep. Also supported is notebook-computer power management, albeit only for Intel-based notebooks. These are items Be wouldn't have delivered for some time, making the transition to an out-of-house foundation for its next OS more difficult for Apple. With Nextstep, Apple already has a head start. / *JEFF PITTELKAU*

System 7 compatibility — all these would be welcome steps toward a final hybrid operating system.

If Apple were to pick the right set of items to integrate before delivering a new OS, it could provide developers with a solid new API that their applications could take advantage of. That, in turn, would speed users' desires to make the transition to the new OS. But don't expect any of this in the 1997 release.

Having shelled out $400 million to NeXT in part to acquire a modern OS that Apple could get out the door quickly, the Cupertino brain trust has convinced itself this is the best course — regardless of whether or not it's the best idea. Oh, well. *Plus ça change, plus c'est la même chose* — which, as Jean-Louis Gassée could tell you, means the more things change, the more they stay the same.

Like it or not, Apple's new path is set: The future of the Mac has NeXT written all over it. All that remains to be seen is what Apple will be able to deliver beyond the Nextstep of today, when it'll be able to deliver it, and whether enough Mac customers will be willing to wait for it.

For those of you who aren't ready to take the next step, take heart. Apple has a fallback position. The company plans to continue its semiannual releases of Mac OS 7.x for years to come.

More Than a New OS

Powerful Web and development tools sweeten Apple/NeXT deal.

FORGET NEXTSTEP — at least for a moment. Put aside your concern over the challenges that Apple will face in transforming Nextstep from the NeXT OS into the next Mac OS. Take a look, instead, at two other NeXT technologies Apple acquired when it made $400 million worth of nicey-nice with its ex-founder: WebObjects, which offers a powerful way to share live information from multiple sources over the World Wide Web, and Openstep, a cross-platform, object-oriented development environment.

Instead of viewing your Mac as a desktop computational island where the OS is king, think of its role in a multi-OS community, sharing information, sharing application-development efforts. Sure, this is a new way of looking at computing and it entails a bit of a paradigm shift, but as they say, "shifts happen."

This particular shift gives Apple the opportunity to be more than merely the manufacturer of a great desktop system that dominates important — albeit niche — markets. If Apple succeeds in fully exploiting *all* of NeXT's technology, instead of merely cannibalizing what it needs to cobble together a replacement for the ill-fated Copland, it could take the lead in a new OS-agnostic world of shared information distribution and application development. If Apple fails....

WEBOBJECTS

WebObjects is a server-based technology that can package practically anything — data from a corporate database, Java and ActiveX applets, Shockwave and RealAudio files, data-acquisition forms — and insert it into HTML pages that it builds on the fly, in response to a client's request over the Web. It can also take any information provided by a user on a client computer and distribute it, as appropriate, to any database or other information-storage entity to which it is connected.

All this happens transparently to users. Since WebObjects is browser-independent, a WebObjects application can be accessed from Netscape Navigator, Microsoft Internet Explorer, versions of Mosaic from NCSA or Spyglass, or any other HTML browser. WebObjects supports Java applets, HTML 3.0, Netscape extensions to HTML, and SSL-secured links to a Netscape Commerce Server. WebObjects applications can hook up to an HTTP server through the standard CGI HTTP interface, NSAPI (Netscape), or ISAPI (Microsoft). WebObjects is designed as a

BETWEEN THE LINES / BY ANDREW GORE

Apple's Iron Lady of R&D

NO-NONSENSE is a term often heard to describe Ellen Hancock, who joined Apple in July 1996 as chief technology officer. Some of her employees have even honored her with a nickname — The Iron Lady — which, considering the indecisiveness of her predecessors, is a considerable compliment. I talked with Hancock just days before Apple's announced acquisition of NeXT; here are some excerpts from that conversation — *along with our interpretation of her comments.*

Ellen Hancock

AG. Where is the excitement about the Mac platform going to come from over the next few years?

EH. Well, first of all, I believe we are working toward a strategy that will provide us with an OS that responds to our customers' needs. Second, we have a fair amount of work going on relating to the Internet that will be very positive. Third, the combination of Java and OpenDoc will be an important part of our future.

Apple is betting big on Java to help the Mac regain its edge and help make it an equal, if not superior, citizen on the all-important Internet.

AG. What, specifically, are the things you will be doing on the Internet?

EH. We're very focused on the integration of the Internet with the operating system and what the user experience will be like relating to getting access to data. We are absolutely committed to providing offerings that allow people to get access to the Internet, helping people come up with a Web page, helping people install a Web server.

As Hancock will tell you herself, the Mac is doing quite well on the Web, with 64 percent of content creation, a healthy chunk of Web servers, and 20 percent of all surfing. The company's problem is to get the market to notice Apple's success.

AG. Is Copland dead, and if Copland is dead, why did you decide to kill that project?

EH. We planned to deliver at the end of next year an operating system that attempted to solve two problems: compatibility and providing new functionality. The plan also said that we would not add new OS functionality to System 7 until Copland shipped and that when Copland shipped, we would convert users to the new OS.

I believe those were flawed proposals. The world has never known an overnight conversion to a new OS, and I didn't think Apple would be able to be the first to make such a thing happen. And a year

complement to, and not a replacement for, Java, since Java services concentrate on the client side and WebObjects services focus on the server side.

The advantages that WebObjects has over a standard HTML-on-an-HTTP-server Web site are many and varied. The first and most obvious one is that since HTML is created on the fly by a WebObjects application, pages can be customized for each user. For example, if you fire up your Mac, launch Microsoft Internet Explorer, and access a product-catalog site, you might find not only a page personalized with your name, address, and order number but also a catalog that offers selections tailored either to your purchasing history or your prestated tastes.

More important from the catalog-publisher's point of view, the information appearing on that page can come from any number of sources — whether or not those sources use the same data-storage architecture. For example, one page could contain data from Oracle, Sybase, Informix, DB2, flat-file, and ODBC-compliant databases plus data from any number of image-file sources. A WebObjects application can even yank data out of an Excel spreadsheet running on a Windows NT server.

In addition to having access to sources of data running on various hardware, WebObjects applications (written in C, C++, WebScript, and Objective C, with Java, JavaScript, and Visual Basic Script support under development) can run on multiple server platforms, including Windows NT-, Solaris-, OpenStep-, and Nextstep-based ones. And if your site starts to get too popular, you can spread the load by adding more WebObjects servers, bypassing the DNS-registration hassles of adding more HTTP servers — since WebObjects information management can take place on a different hardware platform from the HTTP server, the processing load can be more effectively balanced.

Currently, NeXT offers three WebObjects products: WebObjects, the entry-level version, is available free from NeXT's Web site (http://www.next.com/) — but don't bother downloading it if you're not running Windows NT, Solaris, or Nextstep 3.3. The free version of WebObjects will allow you to build simple interactive components, using an interpreted language. The midrange product, WebObjects Pro, lets you distribute your WebObjects applications across multiple servers and integrate them with Microsoft OLE. It adds the ability to compile in C, C++, and Objective C and includes a drag-and-drop development tool. The top-of-the-line WebObjects Enterprise is required for linking up to industrial-strength databases.

OPENSTEP

A major strength of WebObjects is that it's object-oriented — that is, a WebObjects application is built out of components either supplied in the development environment or created by the developer and then reused in other applications, as needed. The savings in application-development time — and money — can be substantial.

This object orientation is the core of Openstep, the other Toy Surprise inside the NeXT acquisition. (In fact, object-oriented development is the core of NeXT's entire product line.) Openstep is an object-oriented application-development environment based on the popular and highly acclaimed application-development features of Nextstep.

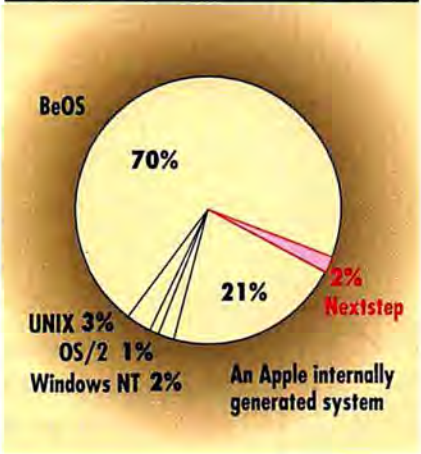
Openstep's claim to fame is that it makes applications easy to develop and easy to customize and that it makes it easy to create applications that run on different platforms. Once you start developing Openstep-based applications, you can reuse the objects that comprise them in future applications. The more you develop applications by using Openstep, the more component objects you develop and the easier and faster it is to develop your next application.

Currently, Openstep includes a drag-and-drop development environment equipped with reusable interface objects that provide the look and feel of our old friend, Windows 95. These applications will currently run under Windows NT, Solaris, and MACH (the UNIX kernel that is at the heart of Nextstep). The make-or-break question, of course, is if and when Openstep will be modified to create Mac-like applications that can run on Mac OS whatever on a PowerPC.

In any case, the dynamic duo of WebObjects and Openstep — and the future they represent — may be why Apple chose to bet on NeXT. Despite the attractiveness of the competing Be deal, the BeOS is merely an OS. / RIK MYSLEWSKI

ONLINE POLL

Q. What should be the foundation for Apple's next major system-software release?



and a half was a long time to go without new functionality. So we changed the plan to take some of Copland and move it into System 7. When we went back and looked at what was left in Copland, we found that it no longer satisfied our customers' needs.

It is decisions such as these that have earned Hancock her reputation. Killing Copland was critical if Apple hoped to move the Mac OS forward, but few Apple managers would have had the guts to make such a tough decision just weeks after joining the company.

AG. Will Apple continue to support and update System 7 as well as offer a fully modern OS?

EH. I think System 7 will continue for several years. I do understand that developers think a single OS might be easier, but you have to pay attention to customers.

This is likely to be one of the most controversial parts of Apple's new OS strategy. It remains to be seen if software developers will, in fact, support two OSs or focus their efforts on just one.

AG. What are your goals for the modern Mac OS?

EH. The goals are to provide support for critical customer requirements such as multitasking, memory protection at the application level, multithreading, and SMP (symmetrical multiprocessing). It should also look like a Macintosh. Users should work exactly the same way they do now.

NeXT technology will provide multitasking, memory protection, multithreading, and SMP — but maintaining a Mac "look and feel" won't be easy.

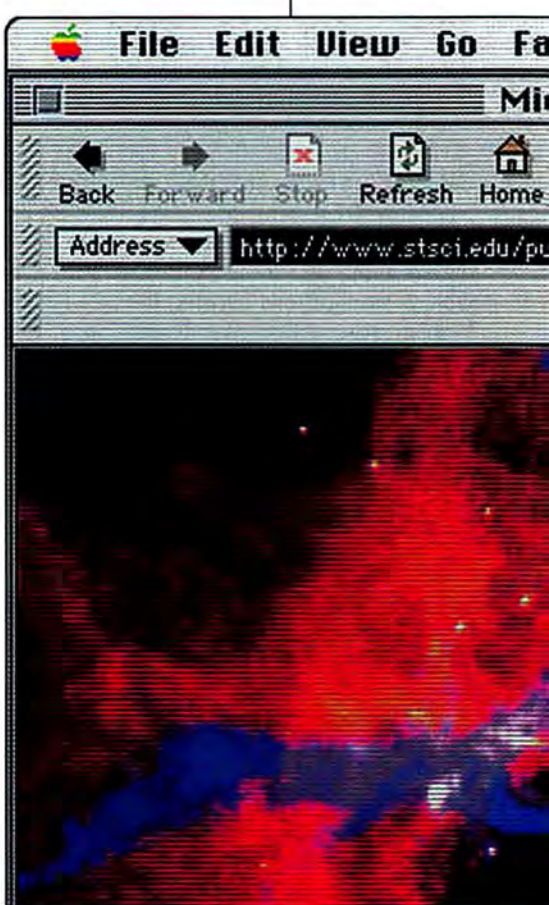
AG. Do you plan to go outside Apple to acquire technology for this modern OS?

EH. The operating system will, over time, be using Java APIs. And I am very open to going outside for pieces of the OS.

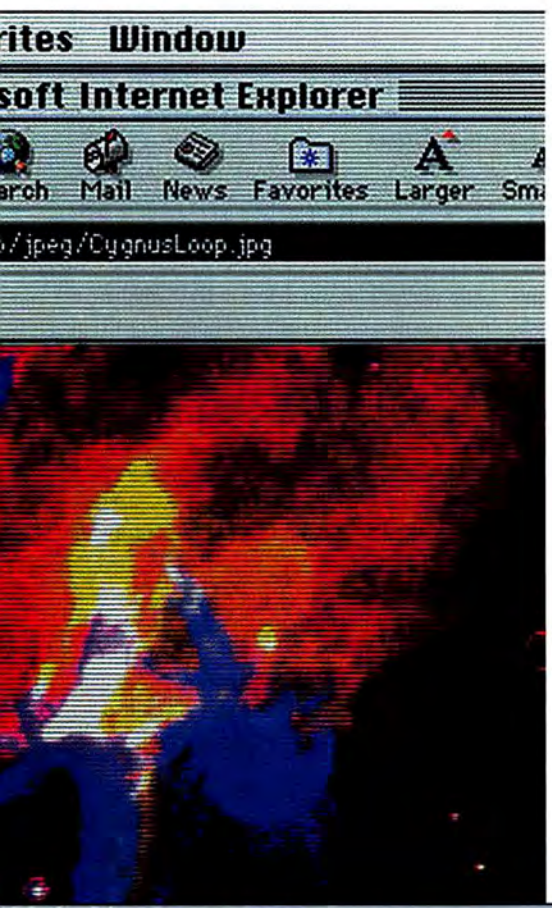
The NeXT acquisition — including the company's Java-savvy WebObjects — proved that Hancock was adventurous enough to go outside of Apple for help. But will Apple be able to implement NeXT's technology in time? That's the $9 billion question.

Microsoft Internet Explorer 3.0 for Macintosh. Does Netscape come with an uninstall program?

Let's look at the facts. Microsoft® Internet Explorer 3.0 was designed for the Mac by our Mac developers to be faster and easier to use. It requires no upgrade since it runs on existing Macs like 680x0 and Power Macs, and it only needs a 4MB RAM partition. (Netscape eats an 8MB partition.) Internet Explorer 3.0 supports Stylesheets, ActiveX,™ Java™ and native Mac technologies like QuickTime, QuickTime VR and AppleScript. It gives you lots of killer ways to customize your Web experience, as well as convenient access to e-mail and newsgroups. Microsoft Internet Explorer 3.0 is quicker and smarter and smaller and, incredibly enough, it's free.* You can do a quick download from the Microsoft Web site, or call AT&T for a WorldNet connection and a free disk at 1-800-967-5363 ext. IE3. You may even want to keep Netscape for nostalgic reasons.



*Connect time charges may apply. ©1997 Microsoft Corporation. All rights reserved. Microsoft and Where do you want to go today? are registered trademarks and ActiveX and the Microsoft Internet Explorer logo are trademarks of Microsoft Corporation. Java is a trademark of Sun Microsystems, Inc. Other product and company names mentioned herein may be trademarks of their respective owners. Image courtesy of AURA/STScI and NASA.



Where do you want to go today?®

www.microsoft.com/ie/

Microsoft®

NEWS

Apple, Power to Take DVD Lead

Mac OS-system vendors outline plans for adopting new ultrahigh-capacity digital media.

IT TAKES CHUTZPAH to be the first company to embrace a new technology. Sure, many of us early-adopter types will support an aggressive vendor by plunking down our hard-earned equipment-buying dollars for the latest and greatest in Mac peripherals, but more-cautious Mac users often have a wait-and-see attitude. The rewards for being first can be substantial — but so is the risk.

Take a good look: You may be seeing a lot of this interface in the future, if Apple and Power Computing solidify their plans to use E4's CoolDVD technology. Notice the buttons at the bottom, which enable you to control the subtitle selection, camera angle, and aspect ratio of DVD videos that support these features.

DVD, the new digital-media standard that's set to explode onto the scene in 1997, offers just this challenge to Mac OS-system vendors — including Apple. And as the day gets closer when you can pop a DVD disc into your Mac or video player and watch two hours of full-motion, full-screen video, complete with Dolby surround-sound and multiple subtitle tracks, Mac OS-system vendors have begun to release details about whether they'll be leaders or followers in the DVD revolution. At this point, it appears it'll be Apple and Power Computing that first take the DVD plunge, with APS, DayStar Digital, Motorola, and UMAX waiting in the wings.

The time is right for DVD — finally. First announced in late 1994, the DVD initiative quickly became bogged down in a competition between two rival standards. This dispute was finally settled in late 1995, only to be replaced by another argument, this time about encryption technology. This last hurdle was overcome in late 1996, followed quickly by DVD-drive announcements from Hitachi, Panasonic, Pioneer, and Toshiba.

Although every last wrinkle has yet to be ironed out, one measure of unanimity among DVD-drive manufacturers is that they have finally agreed on what the acronym DVD stands for. Originally it was *digital video disc,* but as nonvideo uses became apparent, Toshiba suggested *digital versatile disc.* The new consensus? *DVD* doesn't stand for anything: *DVD = DVD.*

No matter how you define it, DVD will have a major impact on the delivery of digital media of all types, be it video, audio, still images, or multimedia. The simple reason for DVD's versatility is its ultrahigh disc capacity: A single-sided, single-layer DVD disc can hold a full 4.7 GB. Add another layer to the same side — a feature enabled by a new dual-focus hologram laser-lens technology — and the capacity jumps to 8.5 GB. But wait, there's

---

FUTURE TECH

The Perils of Radio Activity

THE MICROPROCESSOR AGE DAWNED a mere 25 years ago, when the Intel 4004 climbed up out of the analog ocean onto digital terra firma. This pathetic 4-bit weakling, comprising a mere 2,300 transistors and stumbling along at a soporific 750 kHz, nevertheless had a unique evolutionary advantage over its analog ancestors: It could be taught new tricks; it could learn.

Because of its intelligence and versatility, the microprocessor quickly rose to the top of the electronic food chain. Today its evolution has led to such 64-bit monsters as the DEC Alpha 21164, which drives its 9.3 million transistors at 500 MHz.

But microprocessors dine on data, and as they've grown bigger and more powerful, their appetites have become more and more voracious. And although their evolution has been swift and sure, the development of their data-serving subsystems has lagged far behind. As a result, microprocessors are beginning to starve. Their metabolisms now process data faster than their surrounding ecosystem (a.k.a. the logic board, ports, and pipes) can supply it. Your Mac OS system's PowerPC microprocessor, for example, whirs along three, four, five, or even six times as fast as the data path that connects it to RAM. It's trapped in that old army snafu: Hurry up and wait.

The solution should be simple — or so you'd think: Just match the speed of the data path to the speed of the microprocessor, and all should be well, right? Wrong.

If you're sitting in your office as you read this, the bus that just passed by your window gave you a clue as to why the solution to data starvation is not that simple. Did you catch that garish ad on its side? The one for "Live 105: The Randy Rocker's Radio Refuge?" Meditate on its Day-Glo message for a moment.

I knew you'd figure it out. "Live 105" gets its euphonious name because it transmits its smarmy modern-rock love ballads at 105 MHz. If you run a motherboard at a clock speed of that magnitude, it becomes, in effect, a tiny but powerful FM radio

more: The DVD specification allows data to be pressed into both sides of the disc, for an astounding 9.4-GB single-layer capacity and a 17-GB dual-layer capacity — all on a disc the size of a standard CD-ROM.

THE FUTURE OF DIGITAL VIDEO

Using this level of capacity for text-based content makes "overkill" an understatement. DVD's real target is digital video. To that end, the DVD specification mandates MPEG-2 as the video-compression technology of choice. With MPEG-2, a single-sided, single-layer DVD disc can accommodate an average-length Hollywood feature film.

At this point in the Mac's evolution, however, playing an MPEG-2-encoded DVD disc requires special hardware — namely, an MPEG-2 PCI card. Thus, both Apple and Power Computing are in negotiations with E4, a small but aggressive startup company, to bundle E4's CoolDVD MPEG-2 card and software interface with their systems. Although no one from E4, Apple, or Power Computing was willing to comment on when actual products will be available or how much we'll pay for them, John Chan, E4's director of product marketing, is clear about his company's goal: "We want to own the market — and we will." Given what we've seen of the CoolDVD's elegant interface and impressive performance, he may get his wish.

In addition to MPEG-2 for video, the DVD standard mandates Dolby AC-3 audio for the U.S. and Asian markets; Europe is lumbered with MPEG audio. The Dolby scheme provides 5.1-channel theater-quality surround-sound audio. (That extra tenth of a channel, by the way, is for a subwoofer.) E4's CoolDVD card will mix this complex audio stream down into a simple stereo signal, or if you're fortunate enough to have an audio system that will accommodate it, you can plug it into the CoolDVD's SPDIF optical-fiber audio connector, for surround-sound output.

Software-only MPEG-2 should be possible on the Mac when Apple ships systems equipped with the TriMedia digital signal processor, as it has announced it will do in mid-1997. CompCore Multimedia, a Wintel developer that plans to provide a software-only MPEG-2 product for Windows systems when Intel releases its multimedia-enhanced MMX microprocessors, says it's talking with Apple about porting its SoftDVD technology to TriMedia-equipped Macs.

WHO'S ON THE BANDWAGON

So, Apple and Power Computing are in negotiations with E4 and Apple is talking with CompCore Multimedia about future TriMedia-based DVD software. John Cook, Apple's group manager of Global Strategic Alliances, is heading up the new DVD Program Office, which will coordinate all DVD planning companywide. Bill Goins, Power Computing's director of product marketing, is calling DVD "a critically important technology" and promising that Power Computing "absolutely plans on pushing the technology envelope."

So, where does this leave UMAX, Motorola, APS, and DayStar? Simply put, they're waiting to see what happens. Bruce Berkoff, UMAX's director of product marketing, promises, "We won't be the first, but we will be the best" in DVD implementation. Company spokesperson Terri Thorson says that Motorola will get into the DVD business "as soon as Motorola sees enough titles on the market." DayStar's David Methven, product manager, says that his high-end, content-creating customers are more interested in creating multimedia content than merely watching it; he predicts that DayStar will focus on CD-R and CD-RW drives until DVD-R and DVD-RAM drives become available in late 1997 or early 1998.

Among the more cautious Mac OS-system vendors, however, it was APS President Paul Mandel who best explained the reasoning behind a wait-and-see approach: "Pioneers get the arrows. Settlers get the land." / *RIK MYSLEWSKI*

IN BRIEF

Copland Wasn't a Total Bust

DEMOS FOR "APPLE CAFE" cyberbased theme restaurants, scheduled to appear in L.A. later this year, feature a high-tech Internet interface recycled from that ill-fated OS.

Saving the Forest

IF PRINTED SINGLE-SPACED, in a 12-point typeface, a text file that filled a single 4.7-GB DVD disc would require a stack of paper taller than Seattle's Space Needle. Laid end to end, the pages would reach from San Francisco to the outskirts of Los Angeles.

Be on the Web

WHO SAYS there are no compelling applications for the BeOS? Purity Software (http://www.purity.com/) recently announced full-featured Web-server software for that increasingly interesting operating system.

Gil's Got Guts

WHEN APPLE COMPUTER CEO Gil Amelio reviewed the July '97 Mac OS release, which includes such Copland refugees as Internet integration and a multithreaded, feature-enhanced Finder, he confided, "I want 100-percent market share, and I grudgingly compromise from there."

Very Portable Computing

SCIENTISTS AT THE IBM Research Division's Zurich-based laboratory recently constructed an abacus using single-molecule beads, each with a diameter of less than one millionth of a millimeter.

station, with each embedded copper trace acting as a broadcast antenna. Can you say "massive electromagnetic-interference problems?" How about "FCC?" I knew you could.

Speeding up a data path is not simply a matter of cranking up the clock speed — there are a host of engineering problems that must first be solved, most of them involving internal signal interference. Don't expect these problems to be solved in the near future — at least not by using technology that's cheap enough for personal-computer use. For the foreseeable future, the only FM radio on your desktop will be the one tuned to NPR's nightly business report.

Can you say 'massive electromagnetic-interference problems?' How about 'FCC?' I knew you could.

A myriad of other bandwidth bottlenecks also keep your Mac OS system's microprocessor from achieving its full potential — in fact, the situation gets worse the farther you step back from the microprocessor itself. Your system's connection to storage lumbers along at a mere 5 to 10 megabytes per second, its network connection is a meager 10 mega*bits* per second, and even a 28-kbps modem connection to the World Wide Wait can cause sheer teeth-grinding agony.

But help is on the way in an avalanche of acronyms. High-speed-storage-channel schemes such as SSA, FC-AL, and FC-EL — coupled with network topologies such as ATM and 1000BASE-T — will blur the distinctions between storage and networking. Telecommunication protocols such as ADSL, VDSL, and HDSL will speed data over existing phone lines hundreds of times as fast as today's best modems. Although embryonic, most of these bandwidth breakthroughs are up and running — if not in the Real World, at least under the watchful eyes of ponytailed techies.

The Microprocessor Age is drawing to a close. Oh, those tiny silicon powerhouses will indeed continue to reach ever more dizzying peaks of performance, but their continuing improvement will no longer be the measure of desktop evolution. No, if you want to remain on the cutting MacEdge, keep your eyes on the systems that keep the microprocessor well fed. / *RIK MYSLEWSKI*

NEW & NOTABLE

Tektronix Phaser 600. Touted to be twice as fast as its liquid-ink competitors, this new solid-ink, large-format printer creates output of up to 34 x 44 inches on any paper stock. $11,995. Tektronix: 800-835-6100 or 503-682-7377; http://www.tek.com/.

Panasonic KXL-783M. Built-in speakers enhanced by Spatializer 3-D circuitry pump up this new portable 8x CD-ROM drive to give your PowerBook surround-sound reproduction. $499. Panasonic: 800-742-8086 or 201-348-7000; http://www.panasonic.com/.

miro miroVIDEO DV 100. High-speed FireWire technology distinguishes this new card, which has easy-to-use editing software included and which captures digital video from FireWire-equipped Sony camcorders directly to your hard disk. $999. miro: 800-474-6476 or 415-855-0955; http://www.miro.com/.

SuperCard 3.0. Allegiant's Roadster Web plug-in, support for embedded links, and new scripting controls make version 3.0 ready for Web authoring — at half the price of 2.5. $329; upgrade, $99.95. Allegiant Technologies: 619-587-0500; http://www.allegiant.com/.

Presenter 3D. This upgrade to Presenter Professional 3.1, the 3-D modeling, rendering, animation, and directional-sound software, adds tools for creating QuickTime VR movies and supports Apple QuickDraw 3D. $1,995. Visual Information Development: 818-462-1905; http://erehwon.caltech.edu/vidi/.

3D Landscape 2.0. Create walk-through landscapes with a 2,200-plant database and use Shadow Caster, Seasonal Change, and Growth Over Time to predict their evolution. $60. Books That Work: 800-242-4546 or 415-326-4280; http://www.btw.com/.

PictureTalk. This cross-platform client/server conferencing software captures, compresses, and sends screen images to a server for real-time transcontinental or local work sharing. $100 per concurrent user. PictureTalk: 510-467-5300; http://www.picturetalk.com/.

In The Mood. Original brush and ink illustrations of 1940s-style print ads have been digitized for this CD-ROM of cool black-and-white genre clip art. $229. Havana Street: 800-460-7624 or 512-892-5609; http://www.eden.com/~havana/.

NUpowr 1400/200. Boost the hard drive speed and graphics performance of your Apple PowerBook 1400 with this 200-MHz 603ev CPU upgrade, which includes 128K of Level 2 RAM cache. $675. Newer Technology: 800-678-3726 or 316-943-0222; http://www.newertech.com/. / *BROOKE C. WHEELER*

FIRST LOOKS

NetObjects Fusion

New Web-page-design app on its way.

EVOLUTION ISN'T GRADUAL — current theory holds that it proceeds through sudden leaps. Internet evolution proves this. Web-page design, for example, first emerged as an arcane process that required detailed knowledge of HTML codes. Then products such as Adobe PageMill appeared, making it possible to create Web pages without learning HTML codes and by using an interface reminiscent of a word processor's instead.

The next evolutionary leap is at least as great as the jump from text editors to graphical Web authoring tools. The pioneering product of the next evolutionary leap is Fusion, a Web-page-design and site-management utility from Redwood City, California-based NetObjects. Where PageMill and its competitors made it easier to deal with the limitations of HTML, Fusion lets Web-page creators design pages as freely as if they were using Adobe PageMaker or QuarkXPress.

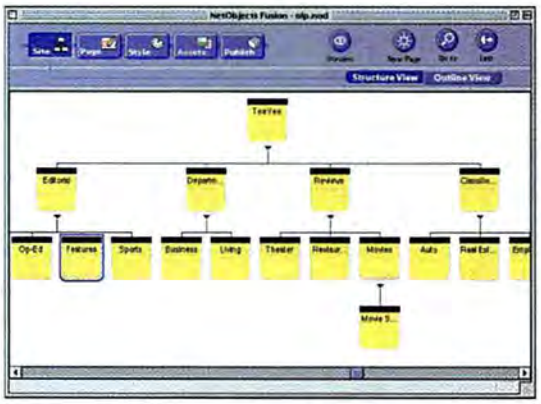
AFTER-THE-FACT HTML

The way PageMill and similar products work is by creating HTML code behind the scenes *while* you're entering text and importing images. You are, however, still hamstrung by HTML's limitations: If you want to create a complex page design, for example, you must embed text and graphics within tables — a counterintuitive process made only somewhat easier by PageMill and company.

Fusion ($695) offers a more intuitive approach: You place text on Web pages in text blocks that you can resize at will. Images, likewise, can be placed anywhere on a page and then dragged to whatever locations suit you. Only *after* you're done designing the page does Fusion take over, calculating the exact HTML code necessary to make your page render correctly in a Web browser.

At a glance, Fusion looks a lot like a page-layout program: You're presented with a pasteboard, complete with layout grid, and a tool palette. The palette includes tools for the placement and manipulation of text and pictures and the addition of sound, Java applets, Netscape plug-ins, and interactive form elements. All of these items, once placed onto a Fusion page, can be dragged just about anywhere — the only exception being that objects can't overlap, a limitation of HTML that even Fusion can't get around.

Being able to place text and graphics anywhere on a page makes Fusion feel unlike any other HTML editor. However, the beta version of Fusion we tested still bears some scars that may relate to its transition from Windows 95 to the Mac OS. Buttons on the tool palette became unselected without warning, attempts to move an entire text block inexplicably placed us in text-editing mode, and closing a site window automatically quit the entire application. In addition, Fusion doesn't support standard Mac conventions for editing text: We could make text bold or italic or adjust text alignment only by clicking on a floating palette — no keyboard commands worked. We hope NetObjects fixes these shortcomings before its final release.

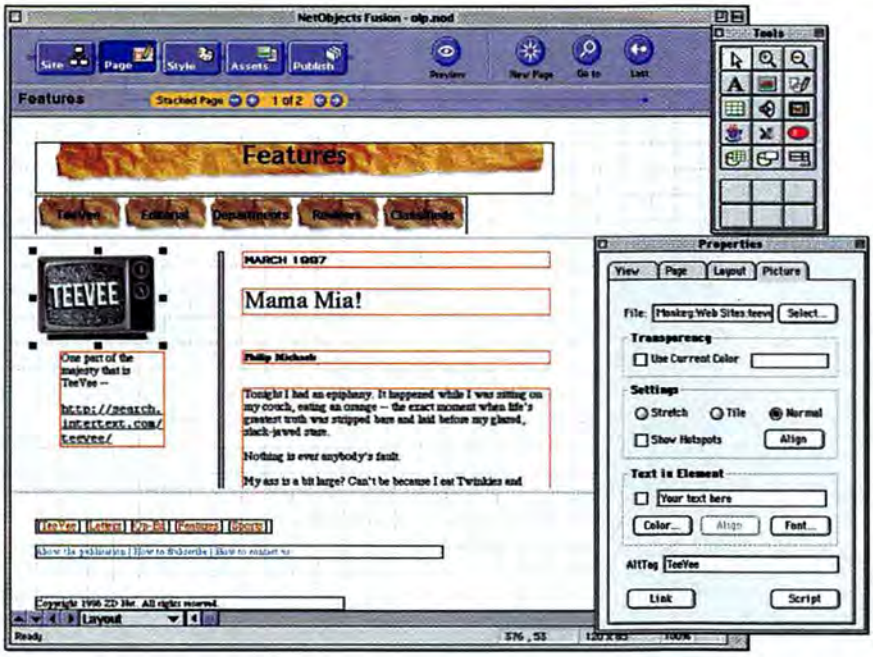


In addition to offering page-design features, Fusion also helps manage your entire Web site by letting you make page-link changes on an easily modifiable site map.

PROS: Gives designers page-layout design freedom. Excellent site-management and navigation features.
CONS: Interface quirks hinder usability. Lack of keyboard shortcuts. Fails to anti-alias button text.
INFO: $695. NetObjects: 888-482-3200 or 415-943-4048; http://www.netobjects.com/.

SITE UNSEEN

Fusion not only offers a much improved way to design Web pages but it's also a powerful tool for



NetObjects Fusion provides new Web-page design freedom by allowing free movement of text blocks and images on a gridded pasteboard. Fusion also automatically generates navigational buttons and the HTML code they require.

creating entire Web sites. A tool bar at the top of Fusion's window (it has only one window — another vestige of its Windows 95 roots . . .) lets you step through all the stages of site management, from organizing your site to editing individual pages to, in the end, uploading your site to a Web server.

Fusion's site view lets you organize your Web site's component pages via a tree metaphor. You can drag and drop pages from place to place on the tree. The program also can automatically generate running navigational headers and footers for every page of your site by using built-in site styles. (Although Fusion's implementation of style sheets is internal to Fusion and is not compatible with the new Cascading Style Sheets HTML feature, the HTML code generated is compatible with all common Web browsers.)

Each site style can include a banner graphic, a navigational-button style, a default background pattern, and even default text colors. Fusion will ship with 50 already designed site styles.

Once you've selected a site style (or created one of your own), Fusion can automatically generate navigational text and place it on the site's banner graphic and navigational buttons. The program automatically overlays text and generates custom GIFs for every button and banner — creating a site that looks custom-built but saving the Webmaster hours of text and GIF editing in Photoshop. However, we were disappointed that Fusion didn't anti-alias the text it generates, in order to reduce jagginess on navigation buttons.

Once your site has been created (or updated), Fusion can automatically upload all the files in your site to your Web server via FTP. After setting up your server name, log-in name, and password, uploading a site to a temporary staging area for testing or to your final production server requires only a single button click.

NetObjects Fusion has the potential to change the way Web pages are designed and Web sites built — but it's not without its limitations. Any designer with experience in PageMaker or QuarkXPress will be both delighted by Fusion's improvements on PageMill and appalled at some of Fusion's interface clunkiness. Fusion may indeed deserve to be called the Next Big Thing in online publishing — but it's also truly a version 1.0 product. It'll have to shake out quite a few glitches before it can fulfill its potential. / *JASON SNELL*

Whistle InterJet 100

One-stop Web-server shopping.

HALF THE BATTLE of getting your office onto the Internet is assembling the hardware, software, and service you'll need. You've got to find and configure each piece and make sure it works with the others you've acquired. Whistle Communications' first product, the InterJet 100, comes as close as anything we've seen to making one-stop Internet shopping a reality.

The InterJet 100 is a compact, well-designed all-in-one hardware/software package that takes the pain — and the risk — out of setting up your own Internet server. Although the beta unit we tested was incomplete, the concept and Whistle's implementation are promising.

The InterJet 100 is about the size of a bread box and contains a UNIX-based computer and hard drive. There's also an IP router, a 33.6-kbps modem, and a four-port Ethernet hub — all stuffed into the same bread box. Once you've purchased an account from one of the service providers that Whistle has signed up, the InterJet can dial your provider and configure itself automatically for your network.

From your Web browser, you can create user accounts, establish public and private Web sites, and keep an eye on the server's status. The interface is smooth and easy to work with, although the little guy you'll find on Whistle's configuration pages is a bit, well, too cute.

Speed and flexibility are the InterJet's two current limiting factors: The first release will ship with a built-in 33.6-kbps modem; Whistle says ISDN will come later in 1997. Since its internal operating system is pretty well masked from even the system administrator, the InterJet is not the best choice for would-be Webmasters who want to run Mac CGI applications (that serve databases for example). You're limited to serving HTML and graphics files.

At $1,995, the Whistle InterJet 100 should be an attractive choice for small businesses with limited experience or interest in configuring Internet access and servers and whose access needs are basic. / *SHELLY BRISBIN*

PROS: Well-integrated hardware. Attractive, easy-to-use Web interface.
CONS: Available only from select ISPs. No ISDN support. No SCSI support.
INFO: $1,995. Whistle Communications: 415-577-7000; http://www.whistle.com/.

The creative process has always been a mystery to some. To others, it's a way of life. For them, we offer the S900. A computer designed specifically to meet the needs of the creative professional. The S900's advanced architecture combines high performance and expandability with the familiarity of the MacOS . With worry-free service *(standard 3 day on-site warranty)* and at a price that can't be beat, the S900 is setting new standards for an old pursuit: **Art**.

SUPERmac®

Computers that Work the Way You Do.

S900 KEY FEATURES

1. **Standard Interleaved Memory**
Every S900 comes standard with interleaved memory for workstation-quality 128-bit access memory and best system performance. Others only provide 64-bit access memory.

2. **Advanced Scalable Processor Design (A.S.P.D.)** This modular configuration allows easy upgradeability to add or change CPUs as desired. Costs less and is more flexible, allowing your system to grow as you do.

3. **UMAX PCI-to-PCI Bridge**
The S900 allows burst communication between all PCI slots, no matter where devices are inserted, for greater expandability and easy set up.

- **Ultimate Expandability**
- **Totally Upgradeable**
- **Advanced Design**

SuperMac J700

SuperMac S900

SuperMac C600

MacWeek

CALL 888-236-UMAX or visit our web site @ http//www.supermac.com

© 1996 All rights reserved. SuperMac is licensed exclusively to UMAX Computer Corporation. ▸ 47470 Seabridge Dr. Fremont CA 94538. Tel: (800) 232-8629. Fax: (510) 623-7350

CIRCLE **141** ON READER SERVICE CARD

FIRST LOOKS

SyQuest SyJet

New removable drive jets past Jaz.

MacUser LABS

SATCHELL PAIGE ONCE WARNED, "Don't look back. Something might be gaining on you." Iomega, maker of the de facto 1-GB removable-cartridge standard, the Jaz drive, would do well to heed his advice and to move full-speed-ahead with whatever follow-on product it may have waiting in the wings: The Jaz drive's current dominance is about to be challenged, big-time, by SyQuest's long-awaited SyJet removable-cartridge drive.

Although the SyJet ($499) and the Jaz are priced essentially the same — as are their cartridges — the SyJet's cartridges hold up to 1.4 GB (depending on the formatting method), compared to the Jaz cartridges' 1 GB. Unlike the Jaz drive, the SyJet has a door that closes behind the cartridge, protecting it, according to SyQuest engineers, from dust and other contaminants. Although this may be a good idea in theory, the door mechanism in our preproduction model didn't open fully, an annoyance that a SyQuest spokesperson promised would be fixed in final versions.

But speed is the heart of the battle, and even a preproduction SyJet has an impressive performance edge over a shipping Jaz. For example, the MacBench 4.0 Publishing Disk test, which mimics the exact drive-access operations used by Photoshop and QuarkXPress in real-world operations, shows the SyJet to have a significant speed advantage over the Jaz: It was nearly half-again as fast.

On the MacBench Disk test, which mimics the combined operations of Microsoft Word and Excel and nine other popular productivity applications, the SyJet runs neck and neck with the Jaz. In fact, the only tests in which the Jaz has a significant edge over the SyJet are those that mimic reading — but not writing — small blocks of data, the types of blocks that comprise Word files. Clearly, the SyJet is being groomed not for the small-file world of the office but for the large-file environment of desktop-publishing professionals, graphic artists, and video editors.

Overall, the SyJet drive put in an impressive performance. What's more, our test unit had an onboard cache of only 256K — half the 512K cache planned for the shipping version. SyQuest engineers plan to continue refining the SyJet's cache algorithms after the SyJet ships and to make upgrades available for downloading from the SyQuest Web site. Since the SyJet is equipped with flash ROM, upgrading its cache algorithms should be easy. If SyQuest engineers make good on their promise, the SyJet may actually get faster, the longer you use it. / *RIK MYSLEWSKI*

PROS: Faster in publishing tasks than its main competition, the Iomega Jaz.
CONS: Mediocre performance when reading small-block files.
INFO: $499. SyQuest: 800-245-2278 or 510-226-4000; http://www.syquest.com/.

PHOTOGRAPHY / LON CLARK

Adobe Type Manager

"SUITCASE KILLER" is the first phrase that comes to mind when you see Adobe Type Manager Deluxe 4.0 and its companion utility, Adobe Type Reunion 2.0, at work. Our first look at beta versions of these font utilities showed them to be more than just major upgrades to the familiar Adobe type-management applications — their powerful font-handling and menu-customizing capabilities may well prove to be a two-fisted knockout punch to such popular utilities as Symantec's Suitcase 3.0 and Alsoft's MasterJuggler Pro 2.0.

Adobe Type Manager Deluxe ($49.95) upgrades the old ATM's font-rasterizing and -substitution features and then adds the font-set-creation capabilities of Suitcase and the diagnostic features of MasterJuggler Pro. Like those utilities, ATM Deluxe lets you remove Type 1 and TrueType fonts from your beleaguered System Folder and organize them, by name or by project, into sets that you can open or close with ease. But ATM Deluxe goes further, by automatically activating fonts when you open a document that requires them. (You can keep the fonts open or make them close when the application does.) Also new is the power to edit multiple-master typefaces from within the ATM Deluxe control panel.

Creating sets isn't completely intuitive — we ended up with two sets of everything when we tried to automate the process with the Add All command. Another wrinkle was that we couldn't get our beta version to automatically convert Suitcase sets — although Adobe promises that the final version will.

ATM Deluxe can also diagnose and work around many font failings. When you "verify" your fonts, those with serious problems are marked in red and ATM Deluxe will not let you use them. ATM Deluxe will also notify you of minor problems and try to work around them until they're fixed — for example, by creating a substitute for a missing PostScript file.

Another font foible that utilities have addressed is long, unwieldy, and cryptic font menus. Adobe Type Reunion ($60; bundled with ATM Deluxe, $69.95) comes to the rescue with unprecedented control over what those menus will look like. You can open and close ATM Deluxe sets from your font menu; you can choose which, if any, fonts will display WYSIWYG in the menu; you can customize the menu to show only the fonts you're using in a project; and you can use the menu to aid in design decisions — for example, by creating a tidy folder to hold display faces.

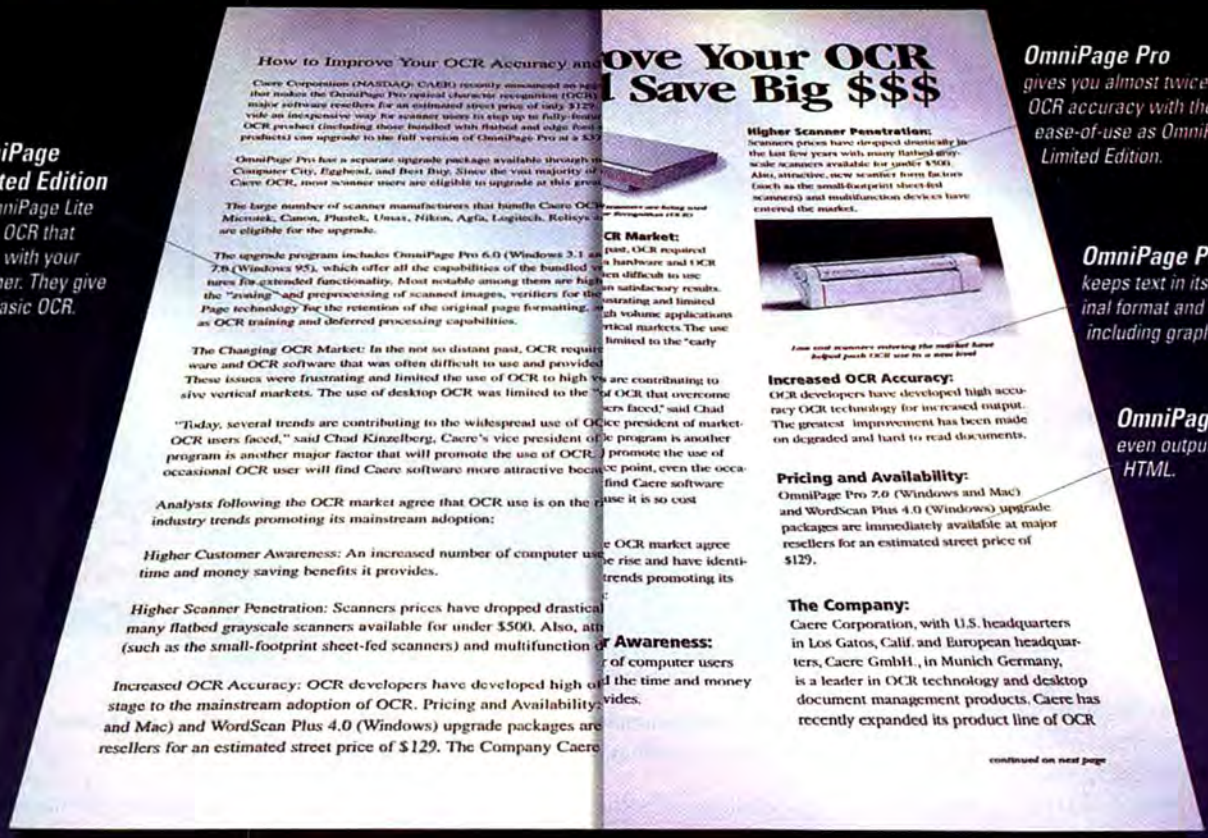
What you won't find in the Manager/Reunion bundle are some extras that come with other utilities. For example, neither ATM Deluxe nor ATR supports AppleScript; Suitcase not only supports it but also tells you how AppleScript can automate font tasks such as creating sets from font folders on project disks. ATM can't compress fonts; both Suitcase and MasterJuggler Pro can compress TrueType and screen fonts to minimize the hard-disk space they use. And ATM Deluxe can't gather up project font files for service bureaus, as MasterJuggler Pro can.

Although they lack some niceties, Adobe Type Manager Deluxe 4.0 and Adobe Type Reunion 2.0 may finally take the pain out of type management. / *SCHOLLE SAWYER*

PROS: Powerful control over font sets.
CONS: No font-compression features or font-gathering capabilities.
INFO: $49.95, ATM 4.0. $60, ATR 2.0 ($69.95 bundle). Adobe Systems: 800-445-8787 or 403-262-8008; http://www.adobe.com/.

New OmniPage Pro 7.0 gives you the recognition you deserve.

OmniPage Limited Edition *or OmniPage Lite is the OCR that came with your scanner. They give you basic OCR.*



OmniPage Pro *gives you almost twice the OCR accuracy with the same ease-of-use as OmniPage Limited Edition.*

OmniPage Pro *keeps text in its original format and layout, including graphics.*

OmniPage Pro *even outputs to HTML.*

OmniPage Limited Edition **OmniPage Pro**

Upgrade now to faster, more accurate OCR.

Sure, the OmniPage Limited Edition OCR that came with your scanner is good. In fact, that's why scanner makers like HP, Microtek and Agfa chose it above all others.

But if you want greater accuracy, full-throttle speed and a ton of new time-saving features, then it's time you moved up to OmniPage Pro®.

OmniPage Pro employs a new, more powerful OCR engine to recognize poor copies and degraded faxes. It integrates seamlessly with your favorite applications like Word, ClarisWorks and more. It even guides you through the OCR process using its AutoOCR Toolbar. All with the simple push of a button.

What's more, you get the advantages of the world's most popular OCR software without learning an entirely new program. So make sure you're getting all the OCR power and accuracy you deserve. Call now to upgrade, or visit a local reseller.

caere®

www.caere.com

Key Feature Comparison	OmniPage Pro	OmniPage Limited Edition
Caere's fastest and most accurate OCR engine	✔	
AutoOCR Toolbar™ for easy, one-button OCR processing	✔	
Apple Guide gives you on-screen interactive help	✔	
Preserves graphics in output text	✔	
OCR from within your favorite applications	✔	✔
Retains original layout	✔	

SPECIAL UPGRADE

$129* CALL TODAY TO ORDER! **800-736-5735** extension 90

Optimized for Power Macintosh · Mac OS · MacUser · MacWEEK AUGUST 1994

*Suggested price US $—subject to change. Valid in US & Canada only. Caere, the Caere logo and OmniPage Pro are registered trademarks and AutoOCR Toolbar is a trademark of Caere Corporation. © 1996. All other names are the property of their respective holders.

CIRCLE **99** ON READER SERVICE CARD

REVIEWS

Adobe Photoshop 4.0

Image-editing stalwart gets subtle overhaul.

MICROSOFT MAY RULE the business world, with its combination of programs and operating systems, but the computer-graphics world is dominated by a single application. Whether for photography, illustration, fine art, animation, or online development, Adobe Photoshop has long been the program of choice, thanks to its power and its masterful interface.

With this latest release, Adobe has refined the program even more, adding such niceties as batch processing and nondestructive adjustment layers. At first glance, Photoshop 4.0 does not appear to be overflowing with new features or radical changes, but as you use it, you'll find many well-designed, tightly integrated improvements.

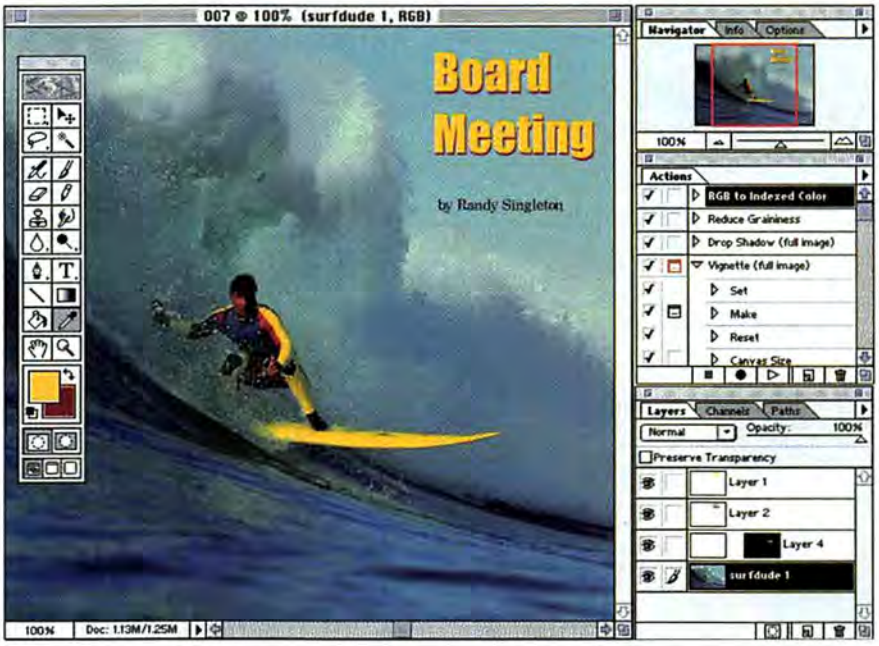


PHOTO BY DIGITAL STOCK

Photoshop 4.0's complement of tools includes the new Actions and Navigator palettes, a revamped main toolbox, and an enhanced Layers palette.

Select Features

Photoshop's system requirements have hardly changed. This version demands a megabyte more of hard-disk space than version 3 (or about 10 MB) and a minimum of 10 MB of RAM. Interface changes, on the other hand, are apparent from the moment you launch the program: Palettes, dialog boxes, and buttons have been recrafted, with a slight three-dimensional appearance; menus have been reworked; and the primary toolbox has been reorganized (see the "Familiar, Yet Different" figure).

Although we believe that the changes Adobe has made to the Photoshop interface are all useful improvements, we nevertheless found them somewhat disorienting at first. The crop tool, for instance, has been relocated from its spot in the toolbox's top tier to the marquee tool's new pop-up menu. That repositioning has made room in the toolbox for the indispensable Bézier-path tools, which were relegated to the Paths palette in version 3 of Photoshop.

You Gotta Move

Also new to the toolbox is a revamped move tool. The move tool is the *only* tool you can use to move the contents of a selection in Photoshop 4.0. This differs from earlier versions of Photoshop, in which you used selection tools (the marquee, lasso, magic wand, and pen) both to define portions of an image and to move them. In Photoshop 4.0, clicking within a selection moves the selection boundary rather than the selected pixels. (You can invoke the tool at any time simply by pressing Command-Option.)

Although this will seem strange to experienced users at first, the move tool makes it possible to control selection paths independently of their content. Selection outlines can be moved between layers of a document or even dragged and dropped from one file onto another, which is great for making selections of identical shapes in different images.

Photoshop 4.0 provides more-powerful collage and compositing features than previous versions. As in version 3, you can use the move tool to reposition a selected layer within your canvas. But in version 4.0, you can hold down the Control key to see a pop-up menu of all layers currently below the move tool. Within that menu, you can quickly choose which layer you want to move. To further aid compositing, Photoshop no longer crops pixels that fall outside the canvas.

Layers of Improvement

Although the program's layer support was nothing to complain about in version 3, Photoshop 4.0 generally uses layers more intelligently. For example, when you drag and drop or paste selections into a document, the program automatically creates a new layer rather than a floating

REVIEWS RATING KEY	
★★★★★	OUTSTANDING
★★★★	VERY GOOD
★★★	ACCEPTABLE
★★	POOR
★	SERIOUSLY FLAWED
💣	DANGEROUS

selection, which unobtrusively keeps your document organized. And although this method can lead to layer pile-ups, improved merge tools make consolidation easy.

Other layer refinements include the versatile Free Transform command, which places handles around the boundary of a layer so you can scale, rotate, or shear it, either by dragging the handles or by entering numerical values in a dialog box. And, at last, individual layers can be flipped and transformed. These features are organized in the changed Layers palette, which makes it much easier for you to tell which functions affect layers and which affect the whole document.

In a helpful improvement to the powerful layer-mask feature, you can now specify whether a mask should initially hide or reveal its associated layer. You can also create a layer mask from the current selection.

Painting Your Changes

One of Photoshop's most powerful new features is the addition of adjustment layers, which let you perform nondestructive, modifiable edits. Using them, you can perform tonal adjustments and some special effects on entire layers or selectively, using brush tools, without altering your original image data. This way, you can quickly and easily try many different edits without sacrificing your original image.

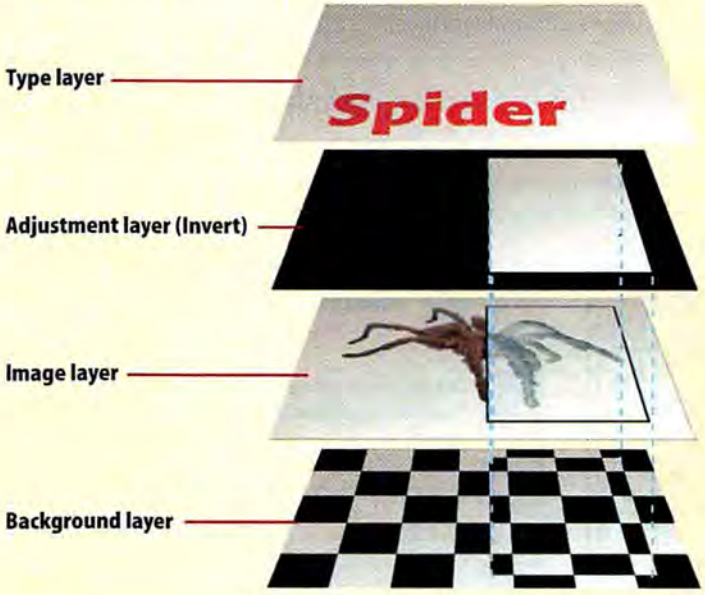
Nine types of adjustment layers are available, including Curves, Levels, Hue Adjustment, and Posterize. After you've selected a layer type, the standard dialog box for the chosen effect appears. Effects applied via an adjustment layer affect only layers below that layer — unless you confine its effect to a single layer. Like any other type of layer, an adjustment layer can be hidden or deleted at any time, restoring all affected layers to their original state.

By default, an adjustment-layer effect is applied uniformly over the whole image. However, by painting in an adjustment layer with brush tools, you can apply the chosen effect in varying amounts to any part of your image. So, for example, by painting in a color-correction adjustment layer, you can apply varying amounts of correction to different portions of your image. This approach is a vast improvement over that of Photoshop 3, which required you to create a separate mask for each color adjustment.

For the operations they support, adjustment layers provide a form of nonlinear, unlimited undo. Because you can always remove an adjustment layer, you don't have to worry about saving multiple versions of a document. We're still waiting for a *real* undo tool, but this is a step in the right direction. We'd also like to see adjustment layers capable of more operations, most notably Gaussian Blur and Unsharp Mask.

ADJUSTMENT LAYERS ADD PRECISE CONTROLS

THIS COMPOSITE IMAGE DEMONSTRATES how an adjustment layer is used in Photoshop 4.0 to selectively apply an effect to certain layers without affecting the others. As reflected in the Layers palette (top right), the Invert filter has been applied to a rectangular area in the second layer of the image. The filter affects only those layers beneath it — the spider image and the checkerboard background. The type layer above the adjustment layer is unaffected, as shown in the final image (top left).



Taking Action

Like version 3's Commands palette, Photoshop 4.0's Actions palette allows you to specify functions that can be triggered by a mouse click or a press of a function key. But actions go far beyond version 3's one-step commands. The Actions palette enables you to create scripts of multiple actions that can be played back on any image at any time. A set of simple VCR-like controls at the bottom of the palette allows you to record and play back action sequences.

To provide variable control, you can set a breakpoint next to any item within an action. This tells Photoshop to pause and wait for user input, affording you the opportunity, for example, to adjust the settings for a particular operation.

The Actions palette contains the simple yet powerful Batch command, which you can use for applying an action script to a batch of images.

Photoshop has needed action features for

a long time, but although version 4.0's implementation is good, it still has a few problems. Not every feature is scriptable. Most notably absent is the ability to script the change of a layer's transfer mode.

Also, batch processing of scripts that create or delete layers is impractical, because, like version 3, version 4.0 requires you to enter a filename when you save any document to which layers have been added or from which they've been removed. A final frustration: Photoshop 4.0 cannot read Photoshop 3's Commands settings, so you'll have to rebuild them if you want to use them in the new version.

AppleScript support, albeit limited, is another boon for automated processing in Photoshop 4.0. In addition to the required suite (Open, Print, Quit, and Run), this version of Photoshop provides just one scriptable command, Do Script, which lets an external application trigger a Photoshop action.

Snappy Grids

New in version 4.0 are a few utilitarian features that aid workflow. As in a drawing or CAD program, you can display nonprintable grids and guides in your Photoshop image. With snapping turned on, layers and selections automatically snap to the nearest grid line, greatly simplifying the alignment of multiple layers (although we'd still like to see an Illustrator-like Align command).

In a welcome change, the program no longer limits zooms to factors of 2: You can randomly zoom by typing any zoom percentage (to two decimal places) into the zoom box in the lower left corner of a document window. To further aid zooming, the View menu includes new automatic zoom-level commands such as Fit on Screen, Actual Pixels, and Print Size.

Zooming can also be controlled from the new Navigator palette. Displaying a small thumbnail of your document, this palette includes a slider for variable-zoom control as well as a draggable selection marquee for interactively panning about in your document. At first glance, the Navigator palette may seem little better than scroll bars. But having zooming and panning so elegantly integrated into a single, simple control is a luxury — especially for high-resolution images displayed at high magnification.

Photoshop's gradient tool has been completely redesigned and functions much more like the full-featured gradient controls that are available in high-end drawing packages. Where Photoshop 3 simply created a linear or radial gradient between the foreground and background colors, Photoshop 4.0 allows you to create and store multicolored gradients with varying levels of opacity. For example, you can have a gradient that fades from completely opaque blue to 50 percent opaque red.

World Wide What?

Like nearly everyone else in the Western Hemisphere, Adobe has been thinking about the World Wide Web. In addition to the button at the top of the tool palette that automatically takes you to Adobe's Web site, Photoshop 4.0 has several features to ease the development of graphics for the Web.

Photoshop now ships with the GIF89a export filter, which lets you save indexed-color images as GIF or interlaced-GIF files. In addition, the filter enables you to view an image's color palette and specify which colors are transparent. The Indexed Color Mode Change dialog box allows you to select Web as a palette option for remapping an image to the 216 colors common to Mac OS and Windows Web browsers.

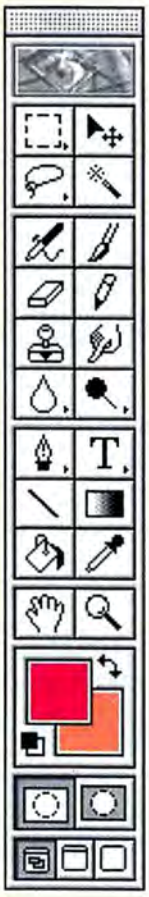
Version 4.0 also supports Macintosh Drag and Drop from Photoshop to PageMill 2, Adobe's WYSIWYG Web-page-creation tool. Despite these useful features, Photoshop could be a little more Web-aware. In particular, we would like to see the ability to attach URLs to individual layers (à la Fractal Painter 4), to facilitate automatic image-map generation.

Generally Faster, but Not Always

Although most of the changes in Photoshop 4.0 aim to make design and production easier for users, Adobe also spent some time attempting to boost Photoshop's speed. On the whole, Photoshop 4.0 is not dramatically faster than version 3, but it definitely feels a little bit peppier at a variety of routine tasks. Files don't open any faster, but we noticed a

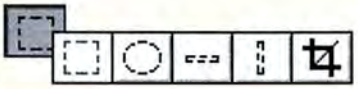
FAMILIAR, YET DIFFERENT / Photoshop's new toolbox

ASIDE FROM THE 3-D LOOK, the helpful changes to the Photoshop toolbox in version 4.0 are hard to spot at first glance. At left is the new toolbox, which now includes pop-up tool menus; at right are the changed tools, with a brief description of what's new.



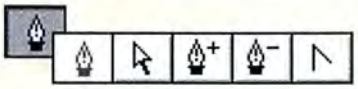
Web Link: If you're connected to the Internet, clicking here opens your browser to the Photoshop 4.0 home page.

Move: Now the only Photoshop tool for repositioning pixels in an image.

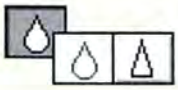


Marquee: Options, which now include the crop tool, are displayed via a pop-up menu.

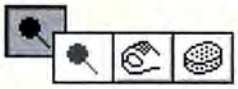
Lasso: A new pop-up polygon tool constrains selection segments to straight lines.



Pen: A toolbox addition furnishes Bézier-selection tools formerly consigned to the Options palette.

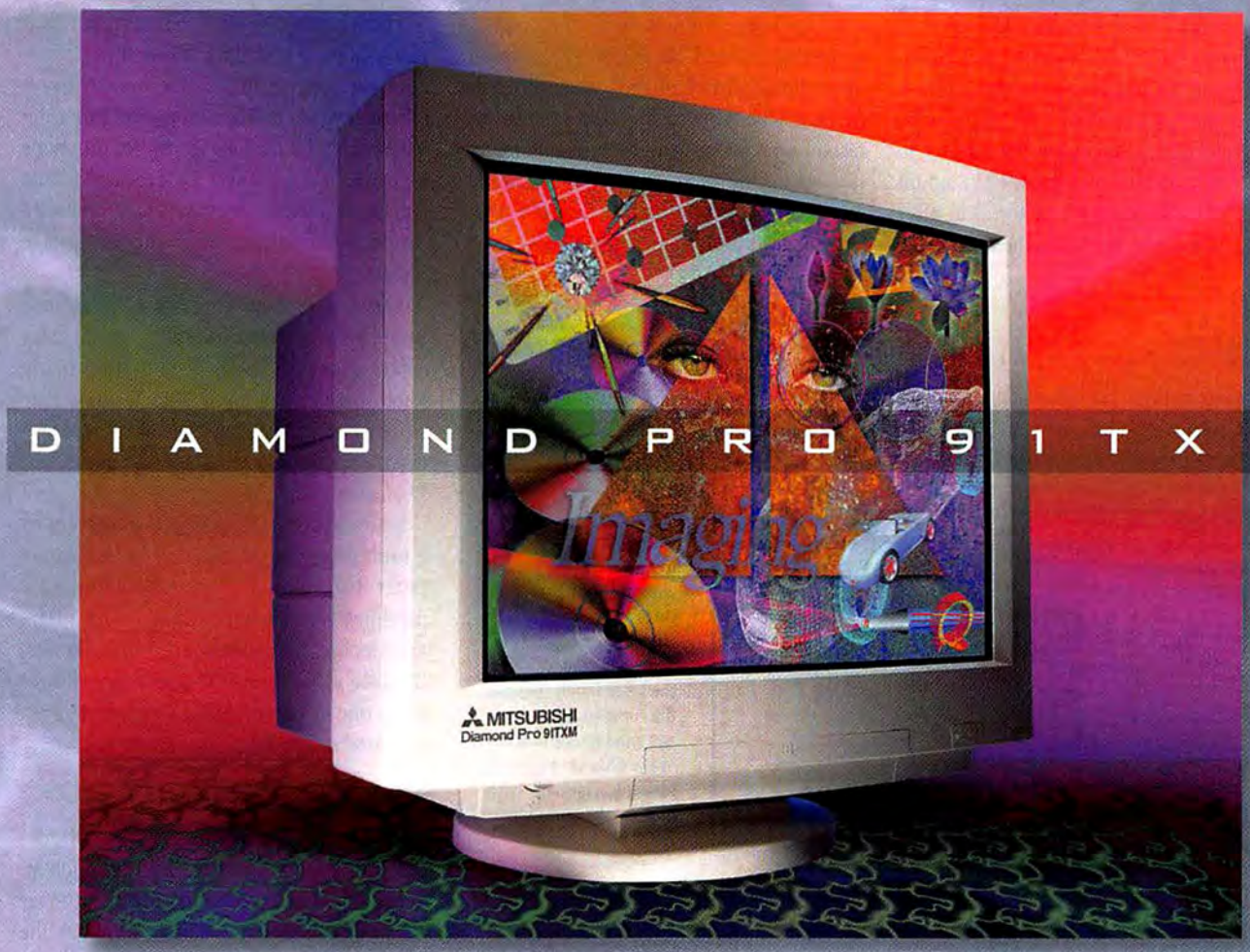


Blur: Now furnishes the sharpen tool as a pop-up option.



Dodge: Burn and sponge tools are now available via a pop-up menu.

Type: Now places filled bitmap type on a new layer; the pop-up type-mask tool creates type-outline selections.



The DIAMONDTRON advantage is now even bigger, sharper and clearer.

Introducing the world's first .28mm, 21-inch (19.7" DVI*) aperture grille monitor.

The new Diamond Pro 91TXM (21" CRT/19.7" diagonal viewable image) from Mitsubishi Electronics represents an unprecedented improvement in the way you'll look at monitors from this moment on.

MITSUBISHI DIAMONDTRON™ CRT TECHNOLOGY

Bright, vivid colors with superb contrast. Razor-sharp focus due to Mitsubishi's enhanced electron gun. High refresh rate for flicker-free imagery. On-Screen Display system with intuitive front-panel controls. All in an ergonomic, compact enclosure that fits easily into any workspace.

Best of all, the Diamond Pro 91TXM is available at the estimated selling price of $1,699, including a comprehensive 3-year warranty and support program to keep it working at peak efficiency. The new Diamond Pro 87TXM (17" CRT/16.0" diagonal viewable image) is also available, with an estimated selling price of $849.

Get all the details today–both on-screen and off–by calling Mitsubishi Electronics at **1-800-843-2515** in the U.S. and Mexico. In Canada call **1-800-387-9630**. *For immediate product specifications call Mitsubishi Qwikfax at **1-800-937-2094**.* World Wide Web http://www.mitsubishi-display.com

Designed for Microsoft Windows 95 | Mac OS | Award-Winning DIAMONDTRON Technology | Diamond Pro 91TXM

MITSUBISHI DISPLAY PRODUCTS

©1997 Mitsubishi Electronics America, Inc. DIAMONDTRON is a trademark of Mitsubishi Electronics America, Inc.
Microsoft, Windows and the Windows logo are registered trademarks of Microsoft corporation. Mac and the Mac OS logo are trademarks of Apple Computer, Inc.
* DVI: Diagonal viewable image

CIRCLE **86** ON READER SERVICE CARD

speed improvement of 20 to 30 percent on mode changes (from RGB to CMYK) and when applying the Gaussian Blur and Unsharp Mask filters.

Another routine operation that's faster in Photoshop 4.0 is screen redraw. The amount of time it takes for an image to fill in after you've closed a dialog box or when you bring a hidden image window to the foreground is noticeably lessened. The reason for this speed-up is a new under-the-hood feature called the Image Cache. This cache, which stores low-resolution versions of high-res images for use in updating the screen, is user-adjustable: You can set its level from 1 to 8; at the default setting of 4, redraw is appreciably speedier.

There is one operation, however, in which Photoshop 4.0 is actually *slower* than its predecessor: rotating objects. There are two ways in which you can rotate things in Photoshop 4.0: You can use the new Transform functions to rotate a layer, or you can use the new Rotate Canvas command (which replaces the Rotate commands found on Photoshop 3's Image menu).

Surprisingly, however, both of Photoshop's rotate features are noticeably slower than rotating in Photoshop 3. (Rotating using Photoshop 4.0's numeric Transform, in particular, is glacially slow.) This is a concern if you do a lot of collaging and layout work in Photoshop.

As with version 3, running the program on a multiprocessing machine is significantly faster than running it on a single-processor machine. We tested Photoshop 4.0 on a DayStar Genesis 720 (with four 180-MHz PowerPC 604e chips) and discovered that almost every one of Photoshop's operations was accelerated markedly.

Documentation and Support

As usual, Adobe's documentation is well written and organized and beautiful to look at. Version 4.0's, however, seems a little skimpier than that of previous versions. Although the single 400-page user guide contains some tutorial information, Adobe no longer ships a printed tutorial. Rather, it provides a hybrid Mac/Windows CD-ROM that contains a few QuickTime movies and a lot of Acrobat files of tutorial information.

Conspiracy theorists in our midst suspect that this is an Adobe ploy either to make you use a PostScript printer for printing the PDF files or to get you to spring for an expensive Adobe Classroom in a Book.

The Bottom Line

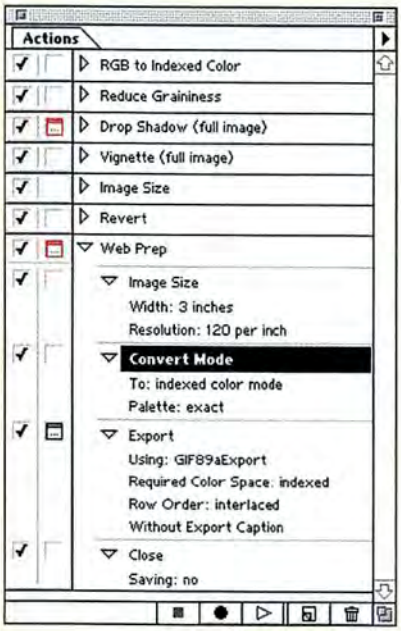
The latest version of Photoshop delivers a few significant new features, such as adjustment layers, which let you "paint" certain effects onto select areas of an image, and batch processing. But most changes in version 4.0 are subtle, extremely thoughtful refinements that make the program more useful and responsive. Except for an annoying reduction in rotation speed, Photoshop 4.0 is a great upgrade. / Ben Long

Adobe Photoshop 4.0, $899; upgrade from earlier versions, $149 (list). **Company:** Adobe Systems, San Jose, CA; 800-685-3505 or 408-536-6000; http://www.adobe.com/. **Reader Service:** Circle #401.

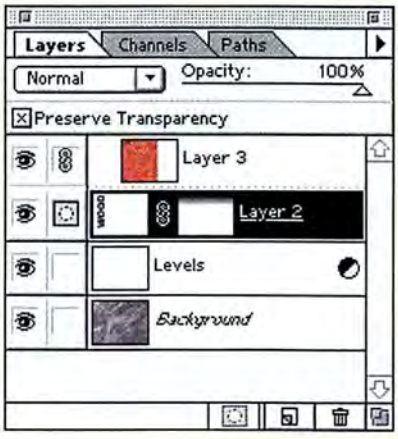
ADJUSTING YOUR PALETTE / navigating new controls

USERS OF EARLIER VERSIONS of Photoshop will find a couple of helpful new tool palettes in version 4.0 and significant enhancements to the Layers palette, which debuted with version 3.0. Here's the lowdown on the new stuff:

The Navigator palette provides a zoom slider and a thumbnail of your image with an inset that indicates the portion you're currently working on. Zooming or repositioning the inset frame changes the contents of your image window correspondingly. This saves much scrolling, especially with high-resolution images.



The Actions palette provides Photoshop with some long overdue automation. It lets you record command sequences for reuse and can even be used for batch-processing the contents of a folder. You can skip steps in a sequence by unchecking the boxes at left; the dialog-box icons in the second column denote commands that prompt you for input (of pixel dimensions, for example).



The Layers palette now provides a button for creating layer masks (bottom left) and better visual feedback on layers that are linked or are part of a clipping group.

It's art. It's your image. Trust it to Tektronix color printers.

More design professionals choose a color printer from Tektronix, the leader in workgroup color printing, than from anyone. It is because they want the richest, most vibrant, and controllable color in the world. The fastest. The brightest. And the most versatile. All these color printers are cross-platform and connect to networks in a snap. They're economical and reliable. And they'll make all your comps and pre-film proofs worthy of a standing ovation. Which one is best for you? Get your free *Power of Color* interactive CD with print samples and find out!

The Power of Color
Call for your free CD.

Poster-sized prints
On any paper
NEW Phaser 600

Fastest color
Pennies a page
NEW Phaser 350

Photographic print quality
Letter bleed
NEW Phaser 450

Photographic print quality
Tabloid bleed
Phaser 480X

Brilliant color
Any paper both sides
Phaser 300X

1200 dpi color laser
Office workhorse
Phaser 550

Call 1-800/835-6100, Ext. 1368. http://www.tek.com/CPad?1368

Tektronix

© 1997 Tektronix, Inc. All rights reserved.

CIRCLE **124** ON READER SERVICE CARD

FreeHand 7

4½

A new champion emerges among Mac drawing programs.

FREEHAND 7, the latest version of Macromedia's venerable drawing program, combines a handful of groundbreaking innovations with improvements derived from cherry-picking the best features of competing programs. By combining these with a thoughtful interface overhaul, Macromedia has made FreeHand the reigning champion of the crowded drawing-package field.

Chief among FreeHand 7's breakthroughs is its innovative feature for finding and replacing graphics. This stunningly versatile tool lets you instantly change colors, stroke widths, scale, rotation, fonts, and path shapes. You can, for example, instantly double the stroke weight of every 1.5-point path, so your technical drawing will reproduce better on an old copy machine. You can even replace instances of one object with another.

Another all-new feature in FreeHand 7 includes support for Shockwave, Macromedia's technology for displaying zoomable graphics with scalable, anti-aliased type on the World Wide Web. FreeHand files can be converted to Shockwave objects via an Xtra plug-in module, although this process is given only passing mention in the FreeHand manual.

Web publishers will also appreciate new Xtras that allow you to attach URLs to images (or portions of images) and that let you import and export files in the Web-standard GIF and JPEG formats and even in Adobe Systems' Web-ready PDF (Portable Document Format).

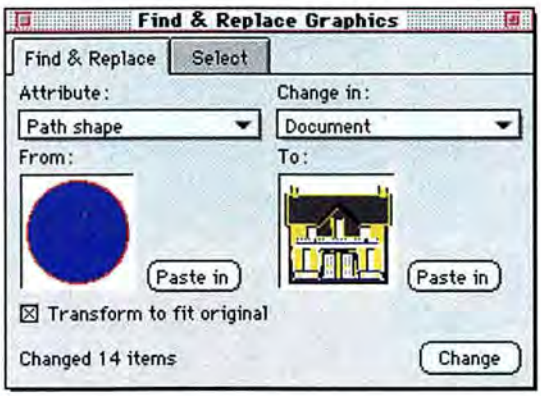
Interface Improvements

FreeHand 7 has a new interface convention designed to unify the look and feel of Macromedia's content-creation programs. But even if you don't use Director, Extreme 3D, or xRes, you'll appreciate useful improvements such as the addition of a text tool bar, with standard type-size and -spacing controls, to FreeHand's main work window. We particularly liked the new tabbed, tear-off tool palettes: It's great to be able to tear off sections of the Inspector — the palette that reports on certain attributes of objects in your document — so you can, for example, view an object's stroke and fill types simultaneously.

Something Borrowed

Veterans of other drawing packages may get a sense of déjà vu upon seeing several FreeHand 7 improvements. There are shades of Adobe Illustrator in an expanded set of special effects and a tighter integration with Adobe Photoshop, of Deneba's Canvas in FreeHand's improved blends, of CorelDraw in the revamped color autotracer, and of all three rivals in a fuller complement of export formats.

FreeHand's overhauled autotrace tool transforms bitmaps — photos, technical schematics, artwork — into editable vector-based art, now in up to 256 colors. Customization options include outline, centerline, and outer-edge tracing, as well as a setting for low, normal, and high levels of accuracy. (The Outer Edge tracing option, incidentally, provides a sorely needed workaround for FreeHand's continuing inability to automatically create clipping paths around rasterized objects.)



FreeHand 7's powerful Find & Replace Graphics feature automatically substitutes one graphic for another throughout your document.

Using the highest level of accuracy to trace a digitized color photo, we achieved excellent results. Such top-quality results are only for the RAM-rich, though. Even with an allocation of 20 MB of physical RAM, FreeHand was able to trace an 825-x-800-pixel color photo only at the lowest quality level. (Virtual memory was no help; it made the Mac crawl unbearably.)

Designers of on-screen and print graphics alike will like FreeHand's tighter integration with other applications. You can now drag and drop objects between FreeHand and any application that supports Apple's Drag Manager, such as Photoshop. Photoshop artwork retains its original resolution when you drag it into FreeHand, but irregularly shaped Photoshop objects expand to rectangles. This latter behavior is annoying, but FreeHand still handles Photoshop objects better than Adobe's own drawing program: Images dragged into Illustrator keep their shape but convert to a disappointing 72 dpi.

To further aid bitmap editing, FreeHand 7 lets you designate Photoshop or another program to be your bitmap editor of choice, so when you double-click on a TIFF within FreeHand, that editor will launch.

Less Bland Blends

Substantially improved, FreeHand's blending tool — which transforms one shape into another over a series of interpolated steps — is nonetheless not quite state-of-the-art. You can now blend shapes and colors among multiple objects, rather than just between two, as before. And FreeHand now matches its competitors' ability to bind a blend to a path and to blend spot colors and gradients. But unlike Canvas 5, FreeHand won't let you alter any of the interpolated shapes within a blend.

Effective Effects

FreeHand 7 offers some nifty new special effects that increase your design options. You can now wrap an envelope around an object and then pull on the envelope handles to distort the object. You can apply the Roughen effect to your artwork to give it a hand-drawn look. And you can drag the new bend tool over a polygon, to make it appear bloated or pinched.

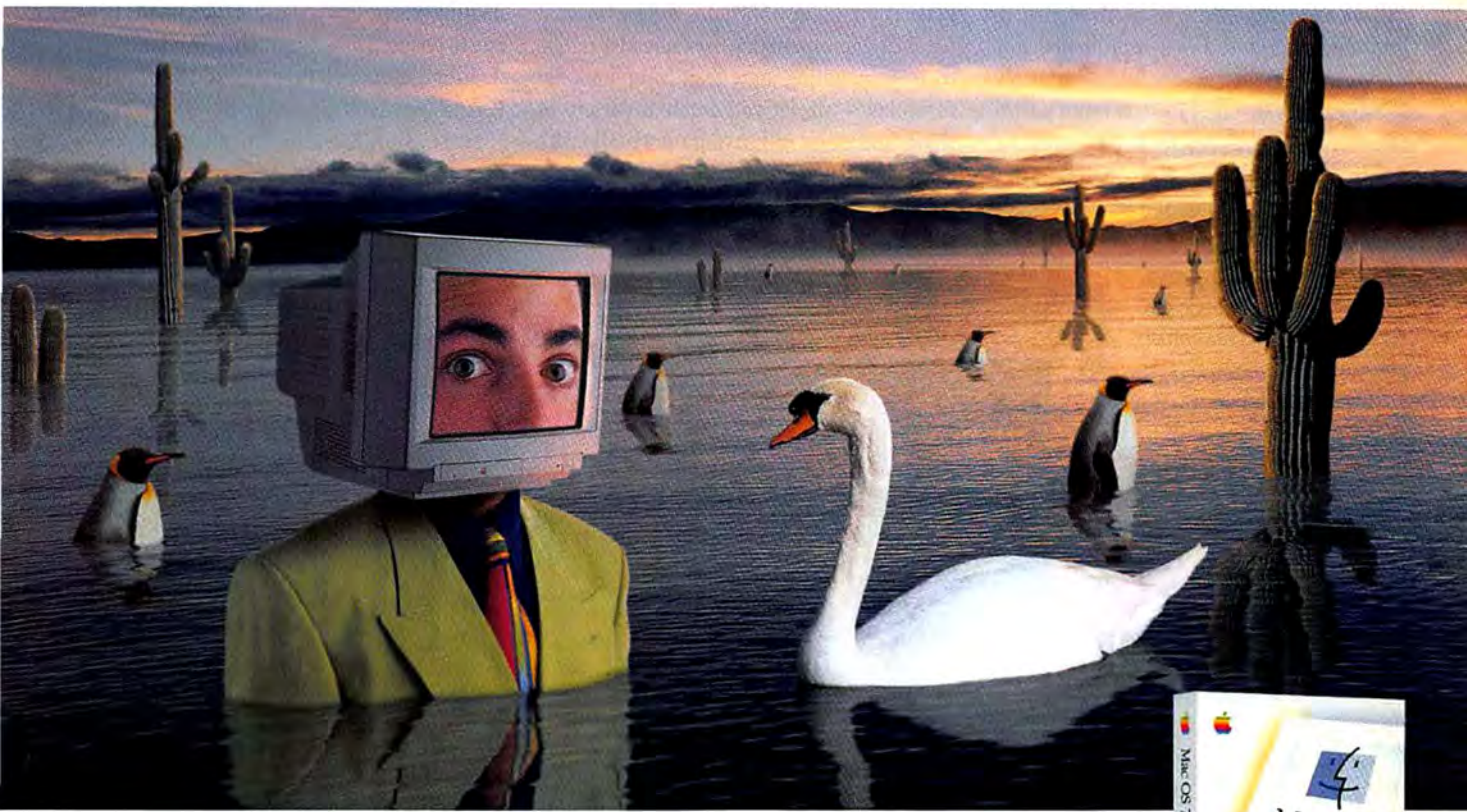
FreeHand's feature set is quite comprehensive, but there are still some items on our wish list. The ability to see PostScript-language fills and paths on-screen. A full-featured path pattern editor. An eyedropper tool that samples *any* on-screen color, in any open application or on the desktop. Still, compared to the competition's, FreeHand's shortcomings are few.

The Bottom Line

FreeHand offers the best collection of drawing features on the market today; spring for an extra $50, and get the FreeHand Graphics Studio 7, a truly terrific value that includes Extreme 3D, Fontographer, and xRes along with FreeHand 7. / Shelley Cryan

FreeHand 7, $400; upgrade, $150; FreeHand Graphics Studio 7, $450; upgrade, $200 (estimated street). **Company:** Macromedia, San Francisco, CA; 800-326-2128 or 415-252-2000; http://www.macromedia.com/. **Reader Service:** Circle #402.

The new Mac OS 7.6. Now, wherever your mind goes your computer will follow even faster.



Enhance your performance on your Mac OS computer.

The job of a great operating system is to get out of the way. To let you fashion ideas, unencumbered by process. Nothing does that job better than Mac® OS 7.6. It not only raises 'intuitive' to new and exciting heights, it's also a major advance in the ease with which powerful new functions can be deployed on your desktop.

Now you can bring live web pages into your OpenDoc compatible documents and have them automatically updated. New virtual memory management allows you to launch your applications up to 40% faster, and your "Print" commands will execute up to 35% faster.* And you can open PC files (including Windows 95 files) without the applications in which they were created. Mac OS 7.6 also makes the installation of an operating system simpler than it has ever been: in just a few steps you'll have access to QuickTime® applications, Apple® Open Transport, the OpenDoc® program, Cyberdog™ software*. . . all the latest advances from Apple.

Enrich your ideas by enhancing your computer. Buy the pleasingly affordable Mac OS 7.6 at your local Apple software reseller or call 1-800-482-6376 ext. 1421. For more information, visit us on the web at www.apple.com.

In Canada please call 1-800-361-6075 ext. 260. *Speeds compared to System 7.5. LaserWriter 8.4 printing software, Cyberdog & OpenDoc for Power PC only. © 1996 Claris Corporation. All Rights Reserved. Apple, the Apple logo, Mac, Macintosh, OpenDoc and QuickTime are registered trademarks and Cyberdog is a trademark of Apple Computer, Inc.

Adobe Persuasion 4.0

4 4 4 4

Impressive upgrade links presentations to the Web.

ADOBE SYSTEMS' MASTER PLAN to meld its line of products into a well-coordinated, unified team is right on schedule with Adobe Persuasion 4.0. The latest version of the company's popular presentation program coordinates especially well with Adobe's graphics programs, Illustrator and Photoshop, and it links just as seamlessly to the World Wide Web.

Like most other presentation programs, Persuasion organizes a presentation as a series of slides. Persuasion slides consist of one or more layers that contain text and/or graphics, including movies and animation, as well as still images. You can set up any number of master slides in order to create a consistent look for text and graphics, and you can specify spiffy transitions between slides (or between layers within a single slide).

Creating a basic slide sequence in Persuasion is straightforward: Choose a template (one of many supplied with the program or one you've built yourself). Enter text by typing directly on a slide or by using Persuasion's outliner, which turns your outline points into slide titles, subtitles, and body text automatically. To add graphics to your presentation, you can use the basic drawing tools built into Persuasion or import multimedia files in a variety of formats simply by dragging and dropping them onto a slide. (A CD-ROM's worth of images is included.)

With this version, for the first time, Persuasion imports native Photoshop and Illustrator files. Photoshop image layers translate automatically into Persuasion slide layers, so you can use Photoshop to create a graphic that "builds" as you add successive layers and then quickly incorporate the graphic into your presentation. This is a great feature, but its implementation has room for improvement: Persuasion doesn't support transparency, so transparent areas of your Photoshop images import as white space. And Persuasion's Import dialog box, which gives you a choice between OK and Cancel for flattening imported Photoshop images, can be confusing.

Charting a New Course

Persuasion 4.0 also includes Adobe Chart, a new helper program that uses spreadsheetlike tools — including some basic computational formulas — to let you create a variety of charts and tables within your presentation. It's especially handy for updating your presentation with new data without rebuilding your slide.

Adobe Persuasion 4.0 lets you add links to your presentation that enable viewers to connect to up-to-date information on the World Wide Web. Also new is the floating Nudge palette (left), which makes it easier to position graphics on a slide, and the Photoshop-like Layers palette, which simplifies the navigation of layers.

Persuasion's ability to tie into the Web lets you be even more up-to-date in your presentations. And it's wonderfully easy. If you're connected to the Internet, you can select a URL from within your browser and drop it into an image or text in your presentation in order to create a live link to information on the Internet or within your intranet. You can also embed links to other slides within your presentation, much as you might link Web pages. And the included Adobe Acrobat Distiller lets you export presentations as PDF (Portable Document Format) files for placement on the Web. Anyone who has the Adobe Acrobat browser plug-in can view those PDF files, although most multimedia elements are lost.

The Persuasion manual suggests that you can create an entire Web site within Persuasion, but although the program's linking capabilities are impressive, its files are far too large to be practical for online publishing.

Several new tools make Persuasion remarkably easy to use. Menu bars and key commands are more similar to those of other Adobe products. A new cropping tool lets you mask images to show only the portion you want for your presentation. The new Nudge floating palette lets you use arrows on the palette to position or scale graphics. And the new floating Layers palette helps you work with Persuasion's layers individually.

Persuasion 4.0 also introduces an eyedropper tool that lets you select a color from an imported image and put it into your active color palette. The eyedropper is great when you want to match your text or drawings to elements of an imported picture; we only wish it were easier to get at. To use it, you must access the Edit Color Scheme command, in the color-palette menu; select the eyedropper tool; pick the color; and drop it into your palette.

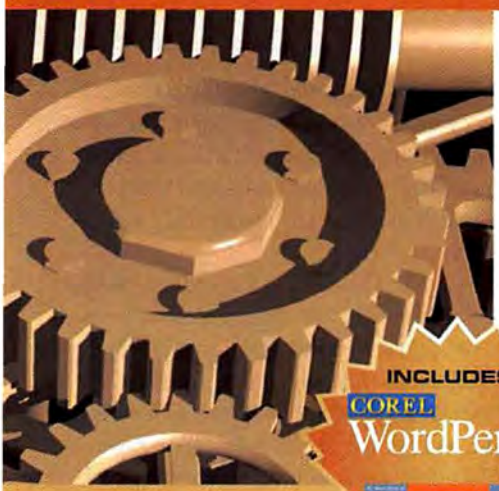
Other (minor) complaints: We found that a new utility for translating Microsoft PowerPoint 4 presentations to Persuasion format gave results that were mediocre at best. And although Persuasion was perfectly speedy on a PowerPC system, it was annoyingly slow on a 68040 Macintosh.

Persuasion 4.0 includes fully working versions for both the Mac OS and Windows, and the manual manages to cover both versions gracefully. And in a further cross-platform nod, you can save your Persuasion presentations in an interchange format that can be viewed with the Persuasion viewer on either platform.

The Bottom Line

Useful, unique features, such as the ability to import Photoshop layers and drag and drop live URL links into presentations, make Persuasion the best program for creating business presentations. / Carolyn Bickford

Adobe Persuasion 4.0, $395 (list). **Company:** Adobe Systems, San Jose, CA; 800-685-3505 or 408-536-6000; http://www.adobe.com/. **Reader Service:** Circle #403.



Corel DRAW™ Suite 6

INCLUDES COREL WordPerfect

COMPETITIVE UPGRADE OFFER

The First Graphics and Word-Processing Suite for Power Macintosh®

CorelDRAW™ 6 Suite for Power Macintosh®—the first complete graphics and word-processing package for Macintosh® users. The marriage of world-famous Corel® WordPerfect® with award-winning CorelDRAW 6— bundled together for the very first time—is a powerful union. This incredibly comprehensive suite combines innovative illustration, image editing, photo editing and 3D rendering with the efficiency of intuitive document creation. CorelDRAW 6 Suite for Power Macintosh—marking the dawn of a new era in graphics software for Macintosh users.

INCLUDES:

CorelDRAW™6 for Power Macintosh®
Illustration and Page Layout

Corel® WordPerfect® 3.5
Powerful Word Processing

CorelDREAM 3D 6
3D Modeling and Rendering

Corel TEXTURE™ 6
Realistic Texture Creation

Corel ARTISAN™ 6
Photo Editing and Bitmap Creation

Netscape Navigator™

INCREDIBLE VALUE!

9 powerful applications and utilities
Over 25,000 clipart images
Over 1,000 high-resolution photos
Over 1,000 Type 1 fonts
Over 700 TrueType® fonts
Over 750 3D models

Accelerated for Power Macintosh

COREL WTA TOUR
Corel, Official World Title Sponsor of the COREL WTA TOUR

NETSCAPE NAVIGATOR

http://www.corel.com
Call now for faxed literature!
1-613-728-0826 ext. 3080
Document # 1008

The Mac Zone™ Your Catalog SuperStore
1-800-248-0800

$148.98* Competitive upgrade CD-ROM version

$398.98* Full CD-ROM Version

KUR-0306-US

US$ plus applicable taxes and shipping

Corel, WordPerfect, CorelDRAW, Corel TEXTURE and Corel ARTISAN are either trademarks or registered trademarks of Corel Corporation or Corel Corporation Limited. Macintosh and Power Macintosh are registered trademarks of Apple Computer, Inc. All other product and company names are either trademarks or registered trademarks of their respective corporations.

CIRCLE **77** ON READER SERVICE CARD

Epson Expression 636

★★★★½

Outstanding color quality is new scanner's hallmark.

"GRAND COLOR FOR ABOUT a grand" could be the slogan of Epson's new Expression 636 desktop scanner. The new flatbed scanner, with an 8.5-x-11.7-inch image area, delivers impressive speed, minimal distortion, and outstanding color fidelity.

In terms of image quality — the ultimate determinant of scanner worth — the 636 is the best scanner we've seen in its price range ($800 to $1,800, depending on which of four software bundles you choose). In particular, its color fidelity — a traditional stumbling block for scanners in the 636's class — is exceptionally good. When we used its default scan mode, without any corrections or adjustments, the 636 surprised us with very good color that preserved most of the nuances of our tricky test images. The 636's color was so impressive, in fact, that its image quality topped that of all 16 desktop color scanners we tested in a recent article on sub-$1,000 scanners ("Low-Cost Color Scanners: Quality for Less," February '97, page 88). The 636 is also one of the fastest scanners in its class. Our tests showed that only one scanner in our recent roundup — the Nikon ScanTouch 110 ($500 estimated street) — matches the 636's speed.

The 636's scans also exhibited remarkably low signal noise, and the 636 was far more successful than most scanners in its class at capturing the full range of red, green, and blue color data. Like most other low-cost flatbed scanners, it did exhibit some "level dropping" (gaps in the range of captured data), particularly in the blue channel, but this was far less pronounced than we've seen with the 636's competitors.

No doubt, this is due in part to the Expression 636's 36-bit color sampling. The 636 assigns 12 data bits each to the red, green, and blue color channels, dividing each color into 2^{12}, or 4,096, levels. Most scanners in its price range sample color at 24 bits (2^8, or 256 levels per channel) or 30 bits (2^{10}, or 1,024 levels per channel). The greater number of levels appears to pay off in greater precision and subtlety in the Expression 636's colors.

The 636 *does* have some room for improvement, however. Most notably, scanned images tended to be "softer" than the originals, which necessitated application of a sharpening filter in Photoshop. This was a problem even after we applied prescan sharpening corrections in the 636's scanning software. This program, a Photoshop-compatible plug-in, is the Expression 636's chief weakness.

The Acquire module is easy to use and toggles between Simple and Advanced modes. In Simple mode, you answer a few questions about your original (whether it's photo or line art, color or black-and-white, print or transparency, and so on) and the program performs a scan automatically. As we've said, the results are impressive but not perfect.

In theory, you should be able to improve on that in Advanced mode, which performs a low-resolution prescan and lets you apply sharpness and color corrections to the image before the final scan. In practice, we found these controls ineffectual. The color controls had little effect; the sharpness tools had practically none at all.

Sprucing up scans from the Expression 636 in Photoshop isn't terribly difficult. Still, it's always best to make as many adjustments as possible before you scan, because Photoshop can never restore data that isn't captured to begin with. If you're a graphics pro, the Expression 636's prescan options may not meet your needs.

Aesthetically, the 636 is boxy and less than elegant. When you add the optional transparency unit, it gets downright ugly. The unit, which is used for scanning slides, negatives, presentation transparencies, and other see-through media, nearly doubles the height of the entire scanner.

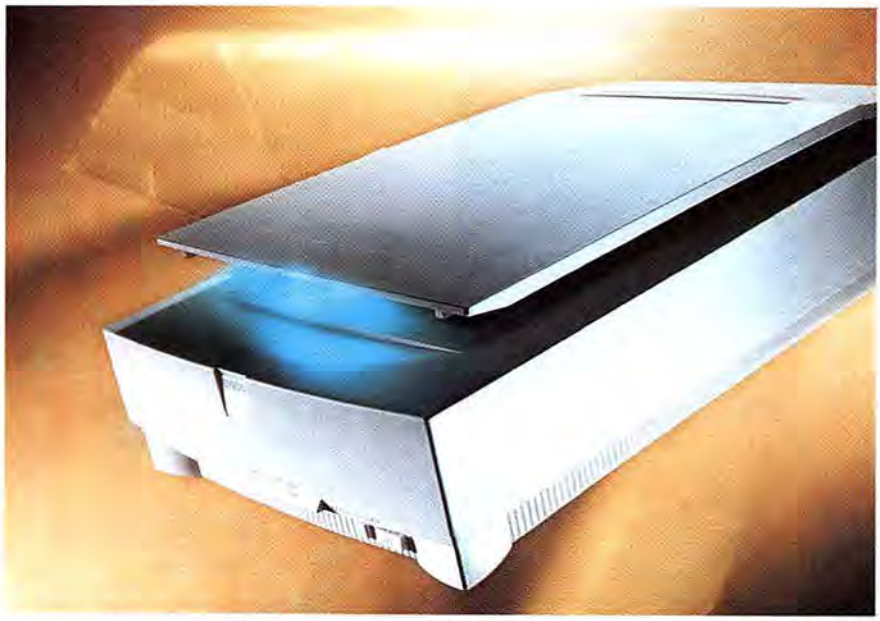
The 636 is available in four configurations, geared for users with different requirements. The Upgrade version ($799) includes only the scanner and the plug-in. The Executive version ($899) also comes with Adobe Photoshop LE and Second Glance Software's e-Paper, a document-management and -archiving package that includes Xerox's TextBridge optical-character-recognition software and business-card-scanning software. This option is meant for offices and light-graphics environments. The Artist version ($1,299) includes a full version of Adobe Photoshop; Kai's Power Tools, from MetaTools; Claris Home Page; and e-Paper.

The Pro version ($1,799) comes with Live Picture, Kai's Power Tools, Claris Home Page, e-Paper, and the transparency cover.

The Bottom Line

This scanner is exceptionally good for office use; graphics pros may want to consider using it with more-versatile third-party scanning software. / Rick Oldano

Epson Expression 636, Upgrade version, $799; Executive version, $899; Artist version, $1,299; Pro version, $1,799 (list). **Company:** Epson America, Torrance, CA; 800-463-7766; http://www.epson.com/. **Reader Service:** Circle #404.



The Epson Expression 636 is an easy-to-use color scanner for small businesses, but graphics professionals may find its software wanting.

PHOTOGRAPHY / JIM KARAGEORGE

QuickSite for Macintosh 1.0.3

Web-site builder bogs down in weak Windows-style interface.

POWERFUL WEB-PAGE-CREATION tools for the Mac seem to be cropping up almost as quickly as Web pages themselves: Adobe PageMill, Claris Home Page, Microsoft Front Page .... But when it comes to creating and managing entire Web sites, there are precious few tools available. Adobe SiteMill and a few other tools can check links and help you administer a site, but DeltaPoint's QuickSite is the first Mac product ambitious enough to attempt to simplify creation and modification of entire Web sites. It's a great goal, but unfortunately, the product's poor interface and primitive Web authoring capabilities severely limit its appeal.

Windows Legacy

From the moment you launch QuickSite, the program shows its roots as a Windows application. DeltaPoint has obviously spent little effort making QuickSite behave as a Mac application should, and the result is an inconsistent interface that makes QuickSite frustratingly difficult to use.

In order to get you started, QuickSite provides the New Project Wizard, a built-in utility that walks you through a series of steps to create a home page and site structure. The home-page-creation steps make sense: It's easy, for example, to select a background image from among the samples that QuickSite supplies (in a folder that you can add to yourself). Then, as you view a thumbnail of your page, you choose styles for bullets and horizontal rules and enter header and footer information.

The Wizard proves less helpful when it's time for you to set up your Web site. You're given three options, for a Beginner, Intermediate, or Advanced site, and the structures for each are oddly arbitrary: What, we wondered, makes "a home page branching into two text pages and four menu pages" an Intermediate site? And what makes "a home page with two text pages, two menu pages, form, file, and URL menus" an Advanced site? A series of questions about what you *want* in your site would be much more helpful.

QuickSite organizes sites through projects — each Web site is a project, contained within a proprietary QuickSite database file. You can create a project either from scratch or via QuickSite's Project Wizard, which provides you with a site skeleton you can then fill out quickly. When you're finished creating or updating a site, QuickSite exports HTML and graphics files from the database and can upload them to an external Web server via Internet FTP.

The Project window, the space where you organize your site and where you do most of your work in QuickSite, bears a striking resemblance to a spreadsheet. Within this window, you can see all the pages, images, downloadable files, and other items that make up your Web site. Items are listed hierarchically, but not using the Finder-style expand/collapse triangles and indentations Mac users have come to expect. Instead, QuickSite uses nonindented, Windows-standard plus and minus symbols to designate pages and enclosed items. This arrangement makes it very hard to tell where a file is located in the site hierarchy.

Unconventional Annoyances

QuickSite's interface problems go well beyond violation of Mac conventions. In fact, some of the program's behaviors are bafflingly bizarre. For instance, in order to change a page's title in the Project window, you have to carefully select the entire title and then delete it. What's more, QuickSite cells containing editable text look no different from "cells" that are actually option buttons you can toggle with a double-click. Single-click in one of these uneditable cells, however, and you get an I-beam insertion point, even though you can't enter any text.

QuickSite also ignores Mac OS technology that could bring vast improvement in ease of use. Most notably, you can't click and drag pages to rearrange them within the Project window. Instead, you must move them by using unwieldy menu commands. The net result is that users will find the Project window confusing and difficult to use, even after prolonged exposure to it.

Primitive Tools

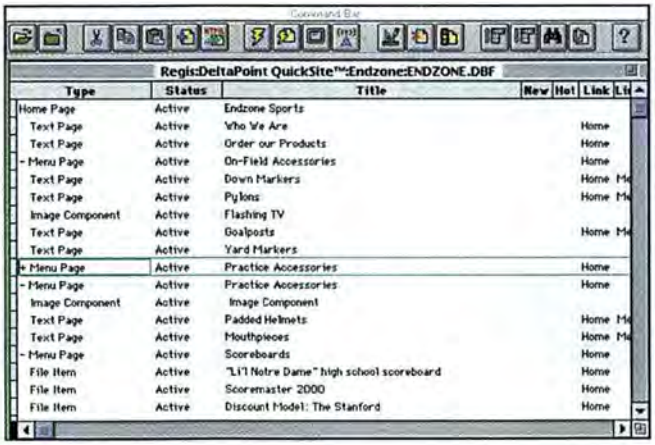
QuickSite's HTML editing tools are rudimentary at best. You can insert HTML tags but can view them only as raw HTML code — there's no graphical HTML editing mode, unlike in PageMill and programs of its ilk. You can, however, add URLs to your project and then insert the hyperlinks throughout your document via a wildcard system — a sort of hypertext find-and-replace tool: For example, every instance of *Apple* in your HTML document can be replaced with the words *Apple Computer,* hyperlinked to http://www.apple.com/.

Experienced HTML jockeys and people who are used to working with PageMill will appreciate QuickSite's provisions for entering HTML code directly into a page. However, if you take advantage of this, you'll forfeit QuickSite's strongest feature — the ability to automatically generate links to the other pages in your project.

The Bottom Line

For a truly useful site-building tool, wait for NetObjects' Fusion, which is due out by the time you read this. / Jason Snell

QuickSite for Macintosh 1.0.3, $99.95; $79.95 to register trial download version (list). **Company:** DeltaPoint, Monterey, CA; 800-446-6955 or 408-648-4000; http://www.deltapoint.com/. **Reader Service:** Circle #405.



A spreadsheetlike interface, lacking Mac-standard expand/collapse triangles to denote hierarchical relationships, makes QuickSite for Macintosh hard to navigate.

Cubase 3.0 VST

★★★★

All-purpose pro music package works to great *effect.*

PAGEMAKER VERSUS QUARK? Illustrator versus FreeHand? This is kid stuff. To experience real cutthroat competition among Mac OS-software vendors, you need look no further than the professional MIDI-software market. With each revision, the MIDI heavyweights — Opcode, Mark of the Unicorn, Emagic, and Steinberg — pile feature after feature into their sequencer/digital-audio programs, hoping to leapfrog the competition. Although Steinberg's latest sequencer/digital-audio application, Cubase 3.0 VST, may not lap the pack, its outstanding real-time audio effects and equalization tools manage to set new standards.

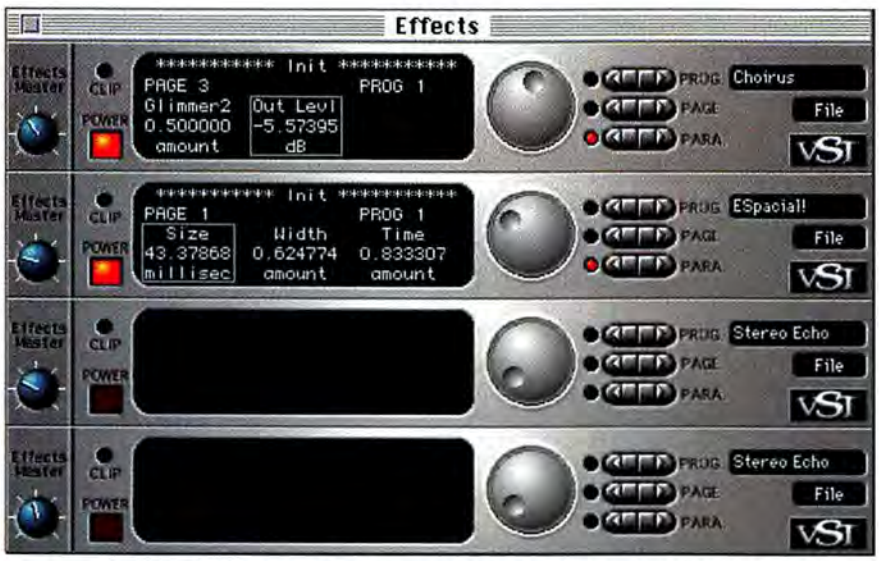
Cubase contains the features expected in a professional sequencer/digital-audio application — real-time MIDI editing in list, graphical, and notation views; waveform editing; a multitude of synchronization options (SMPTE, MIDI time code, MIDI machine control); an arrangements window with MIDI and audio data arrayed in movable blocks; graphical editing of controller data; QuickTime-movie support; and an on-screen virtual mixing board.

In addition, Cubase allows you to employ the PowerPC processor for recording digital-audio tracks rather than requiring an add-on digital-audio card as does Mark of the Unicorn's Digital Performer. Depending on your Power Macintosh model, you can expect to be able to record from 8 to 32 audio tracks. (Cubase requires at least a Power Macintosh 6100/66.)

VST: Very Snazzy Tracks

Although all these features work in harmony on even first-generation Power Macs, the features that set Cubase 3.0 VST apart from its rivals are the digital-audio effects represented by the trio of trailing consonants in its name. VST stands for *Virtual Studio Technology,* which provides four quality digital-effects units *and* four bands of parametric EQ (equalization) for each of your digital-audio channels. Even better, these effects can all be adjusted and played back in real time. (The effects and EQ affect only digital audio, not MIDI data.)

The included effects are Choirus, a chorus/flanger combination with adjustable delay time, feedback, width, and LFO frequency; ESpacial!, a flexible reverb that allows you to simulate large as well as small rooms; Auto Panner, an effect that moves sound across the stereo field; and Stereo Echo, an effect that allows echo effects as simple as slapback or as complex as multitap delays. Because these effects are based on a plug-in architecture, expect additional effects to be available from third-party vendors. You can use the effects in conjunction with one another, and you're welcome to duplicate effects. For example, you can apply three discrete reverb effects as well as Auto Pan to a single audio track.



Impressive audio-effects and equalization modules in Cubase VST look just like their hardware equivalents.

We made extensive use of Cubase's VST features in our test projects and were quite satisfied with the quality of the effects and EQ. In particular, we were tickled to be able to change effect and EQ settings and hear the changes in real time. Although you can apply changes in audio track EQ in such programs as Opcode's StudioVision Pro, you must apply the EQ change and then save it — there's no way to preview that change. Certainly VST isn't going to replace high-end Lexicon boxes in recording studios across the globe, but it's more than adequate for quality demos and multimedia projects.

We were also pleased with the overall performance of the program. Although the manual recommends that you use a fast hard-disk drive and a powerful Power Macintosh (with a Level 2 cache), we were able to reliably play MIDI tracks plus eight channels of audio (with effects and EQ on most channels) from an Iomega Jaz drive running on a system — a Power Macintosh 6100/66 accelerated to 78.5 MHz with an add-on clock chip — that only slightly exceeded Cubase's minimum requirements. Note: Your Power Macintosh must have a Level 2 cache card in order to record audio.

Our only complaints about Cubase 3.0 VST are largely based on the cosmetics of the application. The VST Effects interface looks exactly like a hardware effects unit — complete with a jog wheel and a tiny alphanumeric display and multiple "pages" of effect settings. We admit, it's cute and accessible to audio pros, but those of us who are also familiar with computers would appreciate a single dialog box in which we were able to enter parameter values.

We also wish Cubase would take a cue from Opcode's Studio Vision program and provide an integrated mixing board where you can view audio as well as MIDI tracks in a single window. Cubase requires separate consoles for MIDI and audio.

The Bottom Line

Cubase 3.0 VST is a solid sequencer and a well-integrated digital-audio editor. But its standout feature is its suite of real-time digital-audio effects and equalization tools. Overlook the minor interface shortcomings, and you'll be pleased with this sequencer/digitizer.

/ Christopher Breen

Cubase 3.0 VST, $799 (list). **Company:** Steinberg North America, Chatsworth, CA; 818-993-4091; http://www.steinberg-na.com/. **Reader Service:** Circle #406.

The Palace

$$$

Meet, greet, and maybe get lost at a cyberspace costume party.

VIRTUAL COCKTAIL PARTIES are the new spin for Internet chats. The Palace — software that gives you access to an array of virtual places to mingle and meet — is a cartoon masked ball. For all its kinetic kicks, however, The Palace still has some kinks.

The Palace's appeal lies in its opportunity for self-expression. As you wander from room to room in a Palace site, you are represented by a visual stand-in, called an avatar, that you've created. You can outfit your avatar with props and even animate it.

You chat with other avatars via little word balloons. If you find someone intriguing, you can adjourn to a one-on-one chat. You can also jump to other Palace sites, including numerous commercial sites sponsored by the likes of Fox TV, or create and host your own Palace.

For all its fun, The Palace suffers from the awkwardness of infancy. It's easy to get trapped, lost, and frustrated. Basic concepts (such as how to return to a previous Palace site) are unexplained. Site maps are nonexistent or skeletal, and hot spots are hard to find.

Buy the boxed version for $49.95, or download the software free from the Palace Web site (a $25 registration fee gives you access to all the special features).

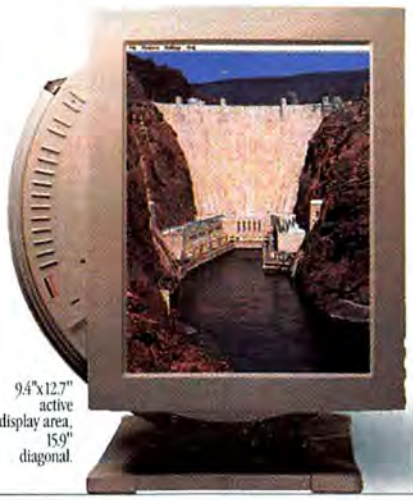
The Bottom Line

The Palace is a great idea with lots of cool potential, but we're still waiting for it to outgrow its awkward adolescence. / Brooke C. Wheeler

The Palace, $49.95 (list); $25 (registration after free download). **Company:** The Palace, Beaverton, OR; 503-626-7575; http://www.thepalace.com/. **Reader Service:** Circle #407.

The Palace adds visuals to online chat.

The Monitor that Shows You the Whole Dam Thing.



9.4"x12.7" active display area, 15.9" diagonal.

Portrait Display Labs

The Pivot 1700™ has other 17" color monitors beat from top to bottom. It pivots from horizontal to vertical mode to give you the tallest, sharpest display you can get. Taller, even, than a 21" monitor! And much more affordable. So now you can read a full 8.5"x 11" page *without scrolling*.

Call us today or, if you prefer, e-mail us at pdlcalif@aol.com for the whole story.

800-858-7744 Ext. 25

http://www.portrait.com

MacUser

COMING SOON

MAY '97

DON'T MISS IT!

CD-ROM DRIVES

If you haven't yet ponied up for a CD-ROM drive, or if you're looking to upgrade your existing one, then you won't want to miss the May issue of MacUser. In the Labs Report, MacUser tests and reviews 8x and higher external CD-ROM drives. Find out whether there is a gain in speed and performance when upgrading to an 8x drive. There will also be helpful shopping tips including what types of ports and software to look for when buying a CD-ROM drive.

THE FUTURE OF STORAGE

There is a revolution on our Macintosh horizon. Look for high-speed storage connections to merge with networks to create vastly faster and more versatile connection schemes. MacUser Labs tests fiber-channel, serial storage architecture, firewire, Ultra SCSI and other high-speed connections. No where else will you find trusted coverage on this developing storage technology.

DTP TOOLKIT

In the May issue, MacUser takes a comprehensive look at must-have tools for professional desktop publishers who specialize in design and production. With feedback from real-world desktop publishers, MacUser rounds-up products essential for doing their jobs effectively. If you're a desktop publisher, find out from the experts what you'll need to enhance your own toolkit.

MAY AD CLOSE:

TUESDAY, FEBRUARY 18, 1997

4:45 PM Sending my 48 meg file to be printed.
Color calibrating? Three clicks, all done.
Traps and overprints? They all showed up.
Revisions? OK, so I'm a little obsessive.
The comp? It actually matches the screen.

5:00 PM What's next? I'm out of here.

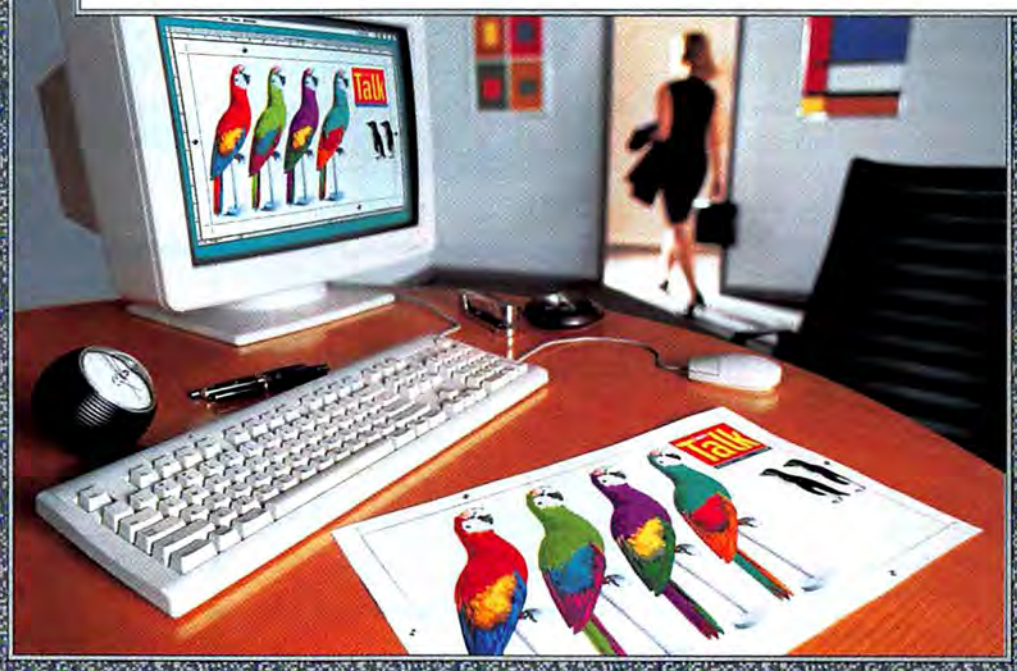
THE DOCUMENT COMPANY XEROX

XEROX® The Document Company® the stylized X and the identifying Xerox product names and numbers herein are trademarks of XEROX CORPORATION. DocuColor 40 is shown with optional sorter. Scitex, EFI Fiery, Colorbus Cyclone and Splash are trademarks of their respective owners. 36 USC 380.

6 ppm: The Xerox MajestiK 5765 Digital Color Copier/Printer

9 ppm: The Xerox Regal 5790 Digital Color Copier/Printer

40 ppm: The new Xerox DocuColor 40 Digital Color Production System



fiery
CYCLONE
scitex

You demand color that's sharp, fast, and consistent. Now Xerox has more ways to meet those demands. The Regal Color Copier/Printer handles transparencies, duplex copies as well as heavyweight coated stock. You can colorize originals and print Pantone-licensed colors. Configured with EFI Fiery, Colorbus Cyclone or Splash color servers, you can print from a PC or a MAC network. In fact, no one has more certified front ends to fit your needs. Our workhorse MajestiK Series also adds to your color choices. But if speed, quality, and volume are your needs, as a color copier/printer, the new Xerox DocuColor 40 has no peer. At 40 ppm, its one-pass technology delivers benchmark speed and superior quality. See how the Xerox color family meets your needs; visit our Web site at http://www.xerox.com. Or give us a call at **1-800-ASK-XEROX, ext. 487.**

DocuColor 40

Regal and MajestiK

Xerox Color. The Color Of Business.

THE DOCUMENT COMPANY
XEROX

CIRCLE **68** ON READER SERVICE CARD

QX-Tools 2.0

★★★★½

Great QuarkXPress add-on set gets even better in upgrade.

SURPASSING A SUCCESS like QX-Tools 1.0 is no easy task: The debut version of the Quark XTension collection offered ten very useful design tools for about $100. But with QX-Tools 2.0, developer Extensis has managed to top itself handily: QX-Tools updates the original tools and adds five extremely useful new XTensions to the set — without any increase in price.

Whereas QX-Tools' main competition, the XPert Tools collections, from a lowly apprentice production, looks to streamline nuts-and-bolts QuarkXPress production work, QX-Tools is clearly aimed at QuarkXPress designers. And, frankly, we can't imagine designing without it.

The coolest addition is QX-Effects, a versatile tool for creating shadow, bevel, emboss, and glow effects directly within QuarkXPress. It offers a tremendous array of effects and easy-to-understand controls. QX-Effects nicely complements the QX-Filters XTension introduced in version 1.0, which lets you apply Photoshop filters to images from within QuarkXPress itself. These two XTensions in tandem let you create gorgeous continuous-tone effects — without ever launching Photoshop.

Even if you hate palettes, you'll love QX-FineTune, a "palette of palettes" that lets you tweak most of Quark's formatting options without using dialog boxes or typing in point sizes. You can adjust a host of parameters such as paragraph indents, leading, character spacing, drop-cap size, and rule weight interactively: Click on the size-up or size-down arrow next to the attribute you're changing, and watch your page update accordingly. Terrific.

You can use another new XTension, QX-CopyStyles, to extract formatting information from a selected box or text block and reapply it elsewhere. It's not as cool as having style sheets for objects, but it can save a lot of time when you need to make one page element look like another.

When you want just *one* attribute on all your pages to change, you can use the new QX-FindChange XTension. It's the mother of all search-and-replace tools: You can base searches on no fewer than *nine* tabbed pages of attributes, from colors to styles to tracking settings — just about any QuarkXPress attribute.

QX-DocStyles lets you define, name, and quickly call up document settings. There's even a handy menu for selecting portrait or landscape.

As to the legacy XTensions from version 1.0, the most notable refinement is in QX-Bars, the tool-palette-creation XTension. It now has a SmartBar, which creates buttons for various actions as you perform them. QX-Filters and the other remaining QX-Tools XTensions remain much the same as in 1.0 — which is to say very good indeed: QX-Dingbats still displays all the special characters in a designated font set; QX-Layers aids page-layer navigation; QX-Viewer generates navigable thumbnails of your layouts; QX-Scaler automates scaling of groups of text and objects; QX-Tips & Tricks displays, well, tips and tricks on using QuarkXPress; QX-Print lets you control a variety of output characteristics; QX-Styles lets you apply multiple styles within the same paragraph; and QX-Manager lets you determine which XTensions load with your copy of QuarkXPress.

Despite our overall enthusiasm for QX-Tools, we did run into a few snags: We noticed, for instance, that QX-Print disables many page-setup options with System 7.5.5 and LaserWriter 8.4.1. We also found that QX-Viewer sometimes slightly slows QuarkXPress' overall speed.

The Bottom Line

If you design pages in QuarkXPress and don't already own QX-Tools, get it; if you do own version 1.0, spring for the $49.95 upgrade.
/ Eric S. Taub

QX-Tools 2.0, $99.95 (list). **Company:** Extensis, Portland, OR; 800-796-9798 or 503-274-2020; http://www.extensis.com/. **Reader Service:** Circle #408.

Shadow (shown here), Glow, and Emboss are among the effects you can create by using QX-Tools' QX-Effects XTension within QuarkXPress.

PCWEEK Windows PCComputing MacUser MacWEEK

"We need to show numbers that substantiate our recommendations. As always, yours are the benchmarks that people listen to."

Don Kemper Jr.
Distribution Platform Manager
US Bank
Gresham, OR

Winstone
WinBench
NetBench
ServerBench
MacBench

ZD Ziff-Davis Benchmarks: The Whole World Watches

FREE! Download our benchmarks from ZD Net/CompuServe (GO ZDBOP) or from our home page at http://www.zdnet.com/zdbop. Or, for a CD-ROM ($5 each for shipping and handling) fax your credit card information to 919-380-2879 or send a check to ZDBOp. Allow 4 to 6 weeks for regular delivery or enclose your FedEx number.

Ziff-Davis Benchmark Operation, 1001 Aviation Parkway, Suite 400, Morrisville, NC 27560

CTX Opto PanoView 600

3½

LCD monitor is a costly but portable alternative to a CRT.

AT FIRST BLUSH, spending $3,000 on a 12.1-inch monitor sounds like a bad move. But the PanoView 600, from CTX Opto, is no ordinary monitor: It's a lightweight, active-matrix LCD monitor less than 2 inches deep, with built-in speakers — and it folds to a compact size. It's not for everyone, but if you routinely lug CRT monitors to meetings or if your desk space is at an extreme premium, the hefty price just might be worth it to you. But you'll have to get past the monitor's clumsy Mac setup and its lo-fi speakers.

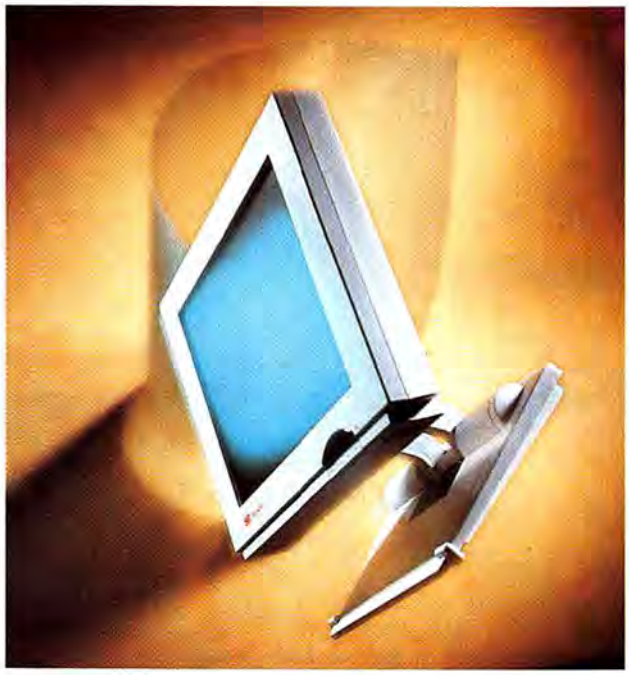
The design of the PanoView is spare and functional: It offers most of the features of a desktop monitor plus the ability to fold up easily so that it's small enough to fit comfortably in an airliner's overhead bin. (Try *that* with a conventional monitor.) The screen sits atop a small stand, which tilts so that you can adjust the LCD's viewing angle for optimum image quality. Power is supplied via a small transformer box that includes an AC cord. CTX Opto supplies a VGA video cable, a Mac adapter, and cables for the PanoView's built-in speakers.

You adjust the PanoView with four small buttons located on the screen bezel, just below the LCD. They invoke easy-to-use on-screen menus with an impressive range of controls no PowerBook screen has ever offered: In addition to standard brightness and contrast controls, you get vertical and horizontal image positioning; tracking; and even individual red, green, and blue color-level adjustments. You also use an on-screen menu to control speaker volume, balance, and tone and to choose among four audio modes: Simulated 3-D surround sound; standard stereo; pseudostereo, which approximates stereo sound from a monaural source; and mono, which merges two stereo channels into a monaural signal.

There is a power switch on the back of the PanoView, but we didn't use it, since the PanoView sleeps when it doesn't detect an incoming video signal.

Adapting to Adapters

We ran into a few glitches while setting up our PanoView. The supplied Mac-to-VGA monitor adapter supported only 640-x-480-pixel resolution, which the PanoView centered inside its larger 800-x-600-pixel LCD. We tried the monitor's Oversize feature, which expands any image to full-screen size, but found that the PanoView accomplished this by occasionally repeating rows and columns of pixels, which created noticeable distortion on the screen. We then found a monitor adapter that supported 800-x-600-pixel VGA resolution (compatible with newer PowerPC systems and PCI-based graphics cards) — and the results were much better. After we tweaked the Sync and Fine Tune controls, our PanoView displayed a rock-steady 800-x-600-pixel image that filled the entire screen. (At press time, CTX Opto was working to bundle a new Mac adapter that supports 800-x-600-pixel resolution with the PanoView. Until then, the additional adapter to support 800-x-600-pixel resolution will set you back about $20.)



The PanoView 600, from CTX Opto, is a high-quality 12.1-inch LCD display system with built-in stereo speakers that's much easier to tote from presentation to presentation than a conventional CRT monitor.

PHOTOGRAPHY / JIM KARAGEORGE

Great Color Quality

Image quality on the PanoView is quite good, easily comparable to that of the best notebook LCD screens we've seen. That's no big surprise, since the PanoView uses an active-matrix LCD, much like the PowerBook 1400ce's and 5300ce's before it. Sharpness, contrast, and screen response were excellent, and colors were rich and saturated.

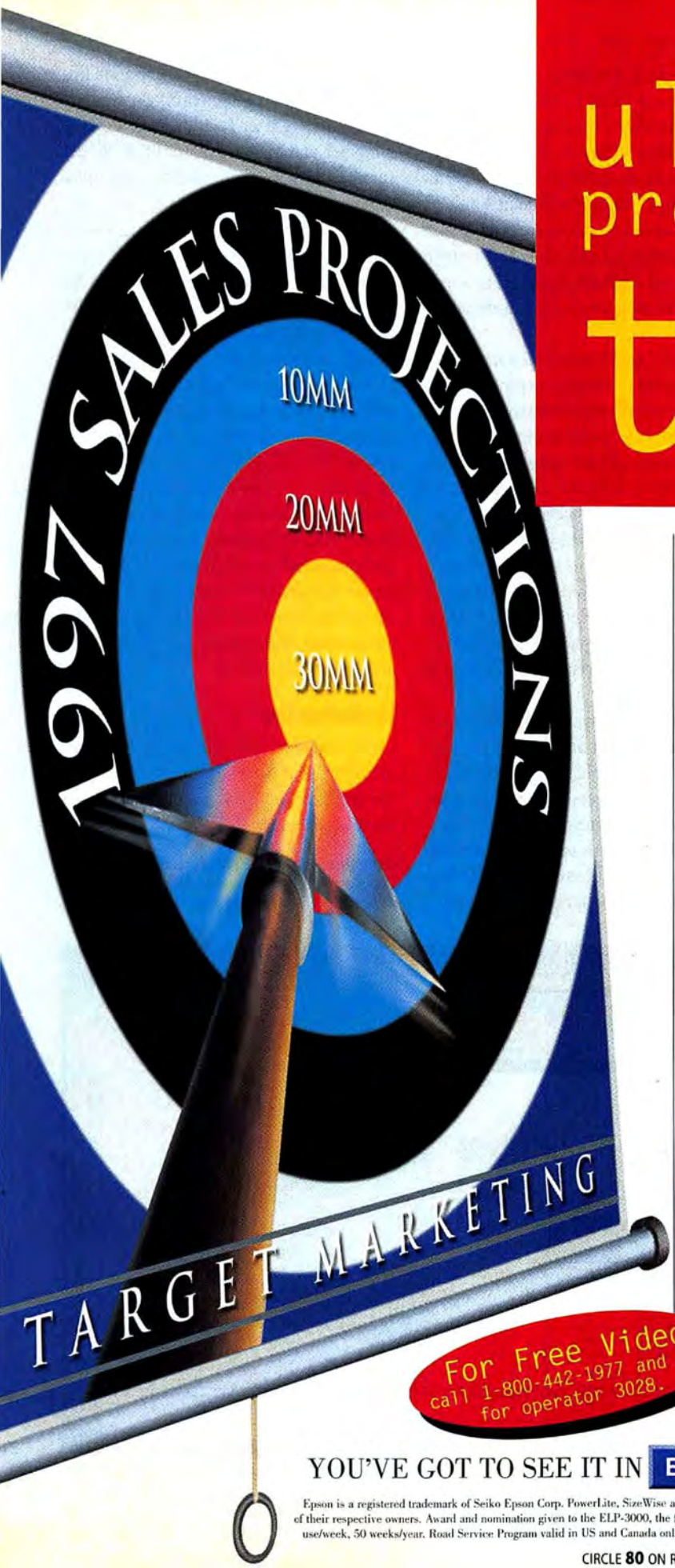
Color professionals who need to match screen image to printed output will have to stick with CRT-based displays, because there's no way to color-calibrate the PanoView (or any LCD screen, for that matter). What's more, the screen contrast varies considerably as you change your viewing angle. Within these constraints (which are familiar to many PowerBook users), photographic images we displayed on the PanoView looked realistic and were fine for business-communications purposes.

We didn't expect much of the PanoView's stereo speakers, given their location. Since they're embedded in the display's shallow (less than one-inch-deep) bezel, their resonance capacity is inherently limited. Even so, we were surprised at how poor their tone was — worse than that of a Mac's built-in mono speaker. You can get away with using the PanoView speakers for spoken-voice narration, but if you want music or sound effects to have any impact, plan on using external speakers with the PanoView.

The Bottom Line

Once you get it set up with the right adapter, the CTX Opto PanoView 600 delivers excellent image quality. Its built-in speakers are so-so, but the PanoView is far more portable than a CRT monitor. For many, this alone will be enough to justify its steep price. / Jeff Pittelkau

CTX Opto PanoView 600, $2,995 (list). **Company:** CTX Opto, Sunnyvale, CA; 888-289-6786 or 408-541-6060; http://www.ctxopto.com/. **Reader Service:** Circle #409.



The ultimate presentation power tool.

You've got powerful ideas. And finally, there's a tool that can bring them to life. Introducing the Epson® PowerLite™ 5000 SVGA projector. With the perfect combination of portability, brightness and versatility, you can now deliver dazzling presentations anytime, anywhere.

The world leader in high-performance, portable projectors. With 450 ANSI lumens, it's the brightest portable SVGA projector in its class, so you can make brilliant presentations *without* turning off the lights. All of this comes in a compact package that weighs about 14 lbs., so it is easy to take on the road. Plus, Epson's revolutionary SizeWise™ Resizing Technology even reproduces high-resolution XGA images with astonishing clarity.

MACUSER AWARD 1995 FINALIST

PRESENTER'S CHOICE Presentations Magazine

*The **Power**Lite 5000 is the newest member of our award-winning line of 3-LCD high-performance projectors.*

Greater versatility and ease-of-use. In just seconds, you can connect to two computers (PC/Mac) *plus* a VCR, simultaneously. The Epson PowerLite 5000 supports full-motion video, colorful text, animated graphics and 3-D stereo sound to add more impact to your multimedia presentations. And with our new Chronos™ lamp, you can get about five years of lamp life, without the hassle or expense of constant lamp changes. For added confidence on the road, Epson's Road Service Program can offer a replacement projector, usually overnight.

So, whether you're going around the corner or around the world, the Epson PowerLite 5000 gives you the power to make the ultimate presentation...every time. For more information, call our toll-free number or visit us at www.epson.com.

Weighs 14.1 pounds

For Free Video call 1-800-442-1977 and ask for operator 3028.

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

Epson is a registered trademark of Seiko Epson Corp. PowerLite, SizeWise and Chronos are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. Award and nomination given to the ELP-3000, the first in Epson's line of projectors with 3 LCD technology. Chronos lamp life based on 8 hrs. use/week, 50 weeks/year. Road Service Program valid in US and Canada only and is free while under Epson's one-year limited warranty. ©1996 Epson America, Inc.

CIRCLE **80** ON READER SERVICE CARD

Claris Organizer 2.0

4 4 4 4

Easy-to-use PIM gets even easier with upgrade.

THE CHILI-PEPPER WALLPAPER may be the first thing that catches your eye in Claris Organizer 2.0, but even without the Decors option, you'd be able to tell easily that the program has received a major upgrade. Organizer retains the same basic organization as the original version, with four integrated modules (Contact, Task, Calendar, and Notes), but it's got a new look resembling that of a loose-leaf daily planner — and several helpful new features are under the hood. Organizer continues to be appealingly easy to use, but it still has some shortcomings in the handling of multiple simultaneous events.

The least-important addition to Claris Organizer, the Decors feature, is the one you'll notice first: It allows you to customize the way Claris Organizer looks, by filling windows, calendar borders, and other interface features with 1 of 14 custom patterns.

One of Organizer 2.0's handiest new features is the InstantOrganizer, which adds an Organizer pull-down menu to your menu bar. The menu allows you to search for or add new contacts to the Organizer database without launching Organizer itself. (Search results take a few seconds to appear, but they take less time than is needed to launch Organizer.) It also lists each day's appointments and times and stores your list of often needed phone numbers. It's convenient — and one of the only features Organizer 1.0 lacked in comparison to more-expensive "professional" PIMs.

Other minor deficiencies Organizer 2.0 corrects are version 1.0's lack of calendar banners for multiday events and the absence of a reminder alarm for upcoming events. (Organizer 2.0 even includes a special checkbox in each contact entry for an automatic birthday reminder.)

Information Exchange

Organizer 2.0 expands the flexibility with which you can share info among its calendar, address-book, and notes features. You can attach any calendar entry — be it a banner for a multiday event, a meeting, or a to-do — to any other event, contact, or note or even to a non-Organizer file — such as a letter created in your word processor — by dragging and dropping or by using the grabber tool to create links. Type "Meeting with John Smith" as the title for an event, and you're greeted with a window displaying a pick list of all the John Smiths in your database. You select one or all of the listed contacts to automatically attach them to an event.

Organizer 2.0 adds several refinements to the contact card — the page in which you enter and view information about your contacts. In the main view, you're shown only those fields that contain data; if someone has no fax number, there's no blank marked Fax, for example. This provides a clean, orderly view and reduces the cluttered look that plagues other PIMs. (In order to add new information to a contact card, you double-click on the appropriate area, and you're shown fields to fill in.) You now get 11 customizable fields, a great improvement over the 4 furnished in version 1.0.

Instant Links is a mail-merge-like feature that uses AppleScript and a series of Organizer templates to build custom form letters and other word-processing documents. You get scripts and templates only for ClarisWorks 4.0 and MacWrite Pro and scripts for Netscape Navigator and Claris eMailer, but Claris plans to post other scripts on its Web site.

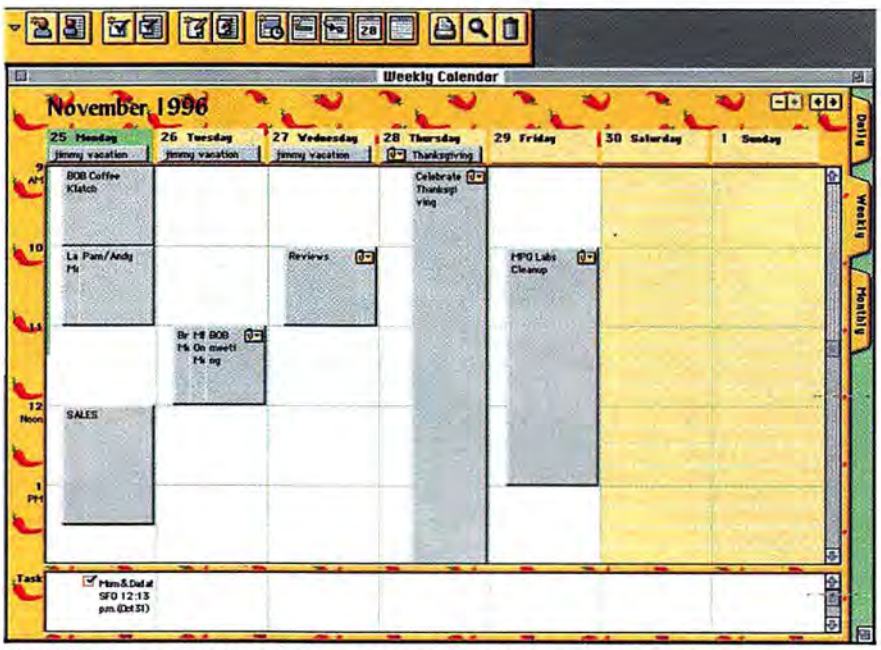
We liked the new file-synchronization feature, which lets you maintain two separate copies of Organizer (one on your desktop computer and one on a PowerBook, for example) and have them update each other automatically.

The chief drawback of the Organizer 2.0 package is the lack of group-calendar capabilities. The program's inability to share file and schedule information over a network makes it unsuitable for office use. That's fair enough, because Organizer doesn't pretend to be a workgroup tool, but the Organizer calendar's poor handling of simultaneous events makes it hard to use even for a busy family. The calendar stacks simultaneous event entries, so only the topmost one is fully visible. That prevents you from seeing at a glance that, for example, your club meeting and your child's baseball practice fall at the same time. We'd love to see Claris adopt Now-Up-to-Date's method of handling simultaneous events: NUD scales event entries so they are all visible at a glance.

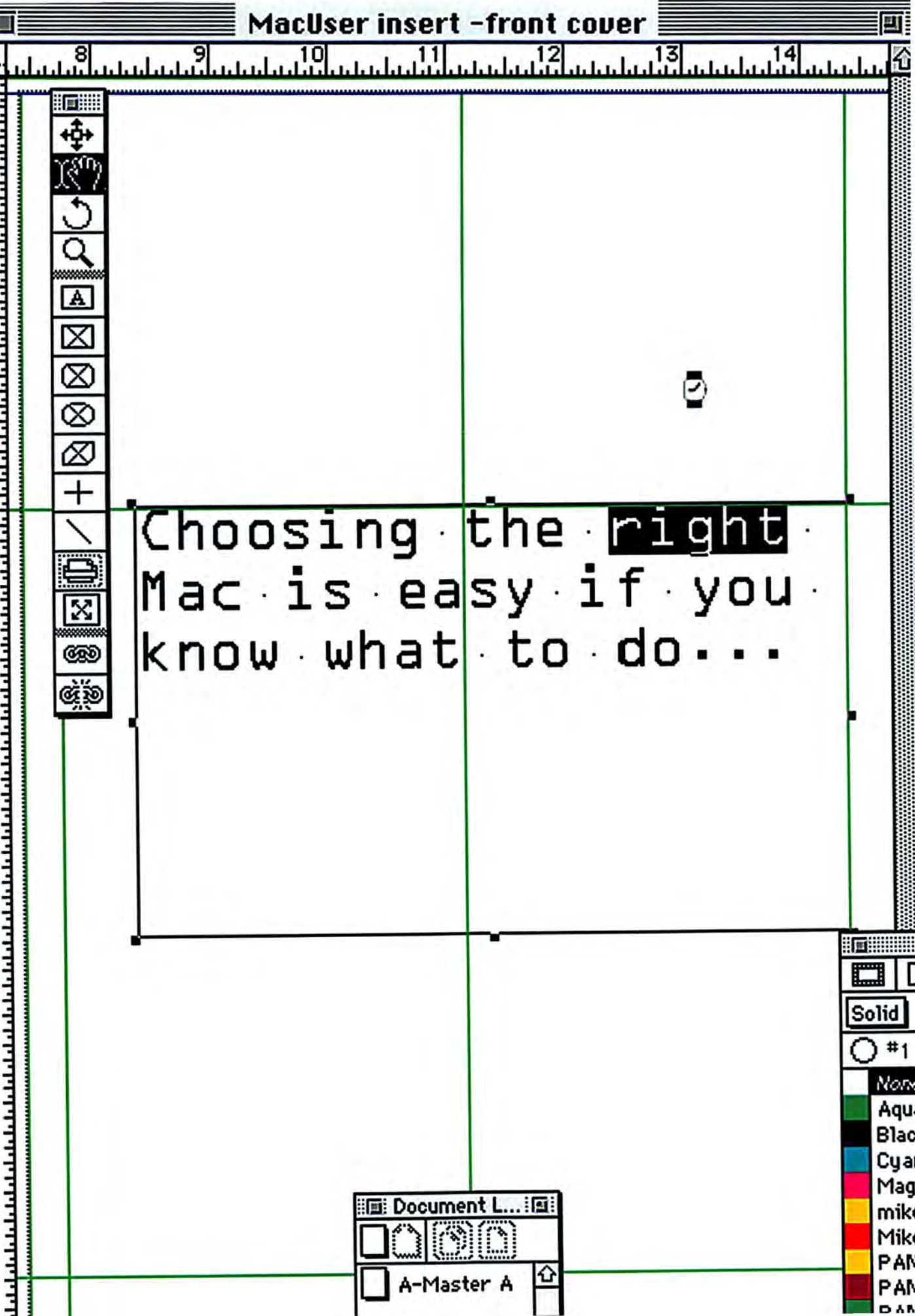
The Bottom Line

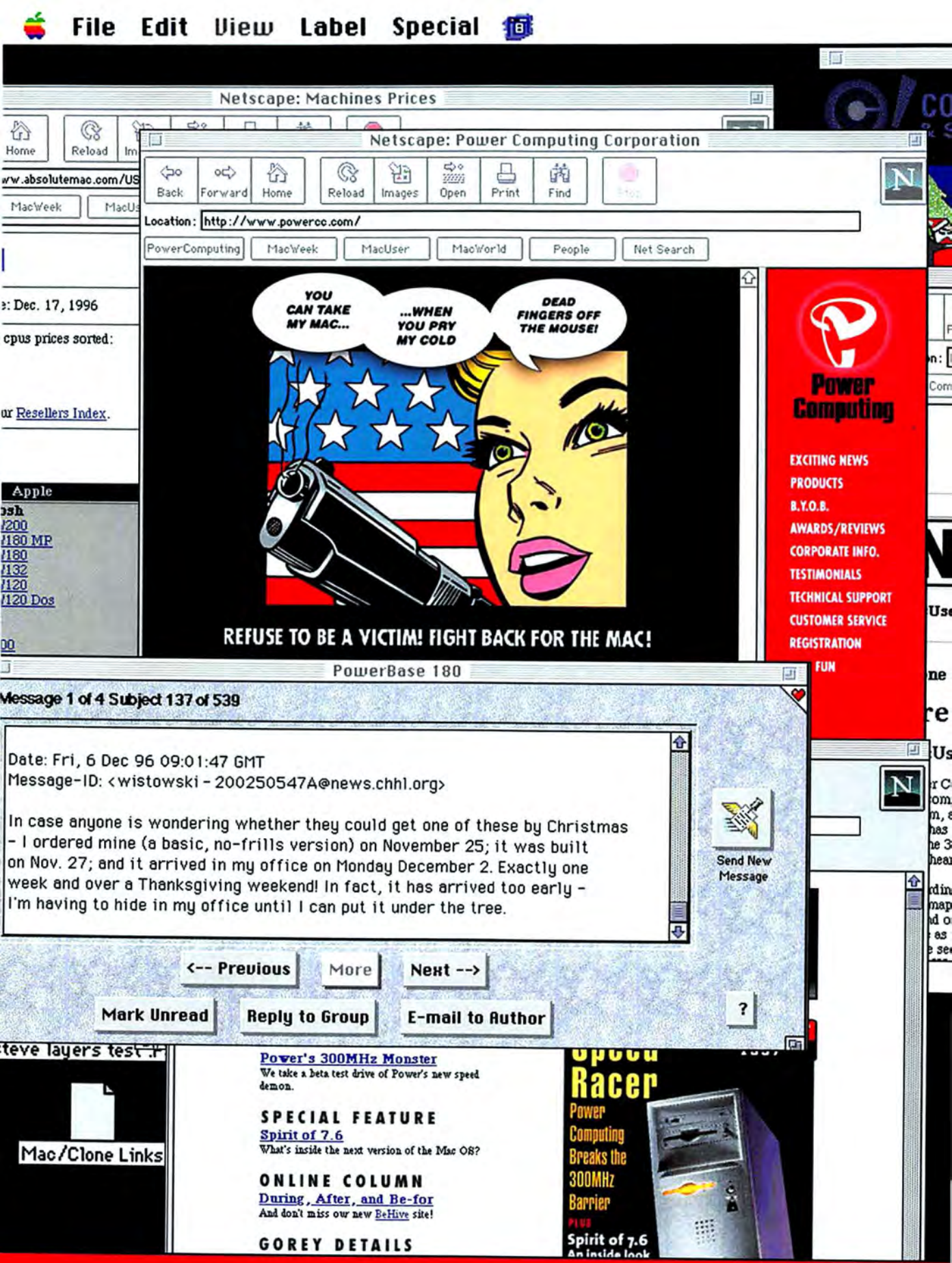
Claris Organizer 2.0 is a great program for managing your personal schedule, as long as you don't need to track lots of simultaneous events. / Jeff Battersby

Claris Organizer 2.0, $69 (list). **Company:** Claris, Santa Clara, CA; 800-544-8554 or 408-987-7000; http://www.claris.com/. **Reader Service:** Circle #410.



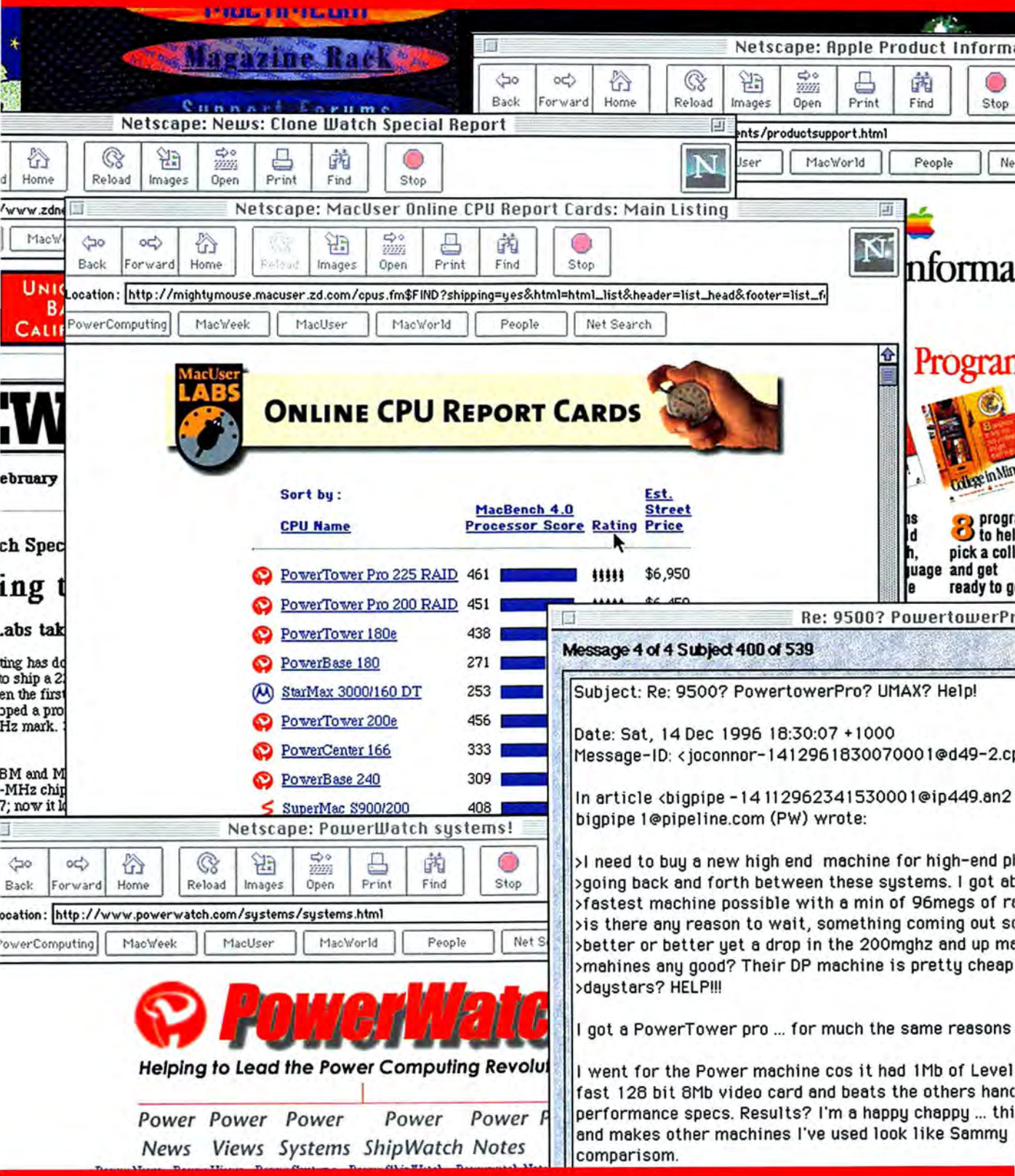
The folder icon in each Claris Organizer 2.0 calendar entry is used to link events to contacts, other events, or any document; the Decors feature adds 1 of 14 custom looks (such as these chili peppers) to the program.


MacUser insert -front cover
Choosing the right Mac is easy if you know what to do...
Document L...
A-Master A
Solid



When you're looking for a new system, the internet is a great place to start your search. With the aid of search engines, chat groups and the usenet you can find what you're looking for fast. Whether you're checking out MacUser.com, Ziff.net, PowerWatch, comp.sys.mac.hardware, or any AOL chat group—you'll find that

Research Online



every Mac OS system Power Computing has introduced to date has been followed by a trail of praise. And despite the human truth, that people will have a disparity of opinions, you'll find overwhelming endorsements of Power Computer machines just about anywhere you look on the internet.

MACWORLD

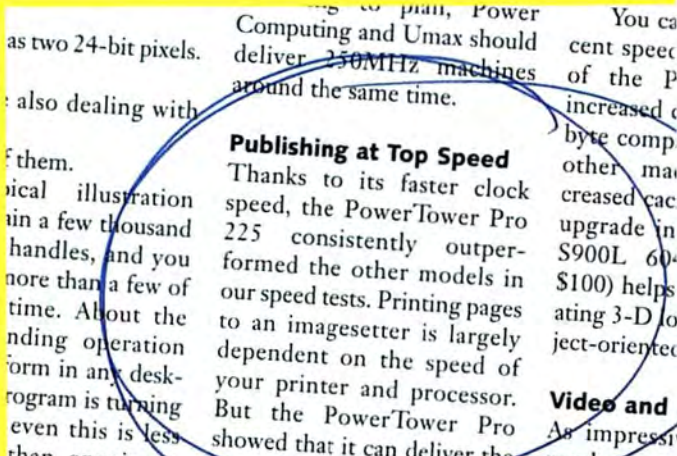
MW

EDITORS' CHOICE

PowerTowerPro - Best Publishing and Design System
PowerCenter - Best Office System
PowerBase - Best Small Office/Home Office System
PowerBase - Best Education System

"THE POWERTOWER PRO SERIES SOARS ABOVE ALL MAC RIVALS...MAC POWERUSERS WILL SOON BECOME POWERUSERS IN DROVES."

-MACWEEK 7.22.96



as two 24-bit pixels.

also dealing with

them.

ical illustration
in a few thousand
handles, and you
nore than a few of
time. About the
nding operation
form in any desk-
rogram is turning
even this is less
than opening a
n Photoshop.
lt, programs like
and Adobe
n't obvious can-

Computing and Umax should deliver 250MHz machines around the same time.

Publishing at Top Speed

Thanks to its faster clock speed, the PowerTower Pro 225 consistently outperformed the other models in our speed tests. Printing pages to an imagesetter is largely dependent on the speed of your printer and processor. But the PowerTower Pro showed that it can deliver the pages the quickest. The Power Computing machine took 5 minutes, 21 seconds to rasterize a complex PostScript doc-

You ca
cent speed
of the P
increased
byte comp
other ma
creased cac
upgrade in
S900L 60
$100) helps
ating 3-D lo
ject-oriented

Video and

As impressi
results may
mendations
Tower 225 s
than the clock
ing professio

MW EDITORS' CHOICE

MACINTOSH SYSTEMS

Business System

★★★★/7.3 **PowerCenter 150** Even with all the new Mac models available, none yet matches the Power Computing desktop's balance of price, performance, and features. **Company:** Power Computing (512/388-6868, *http://www.powercc.com*). **Direct price:** $2095.

"POWER COMPUTING HAS THE CLEAR AND UNDISPUTED EDGE OVER APPLE IN BOTH PRICE AND PERFORMANCE."

-MACUSER SEPT. '96

Recently, Macworld nominated just two machines for Best Mac System of the Year. Both from Power Computing (PowerTower Pro and PowerBase), nothing from Apple, Motorola or Umax. Sorry. Plus, all three of our lines (PowerTower Pro, PowerCenter and PowerBase) have received the editor's choice award from Macworld.

Whether you're looking for the best desktop publishing/graphics machine, best small office/home-office machine or best education machine, the first place Macworld will tell you to look is to Power Computing. If that's not reason enough, listen to what MacUser has to say. MacUser awarded both the PowerTower Pro and PowerBase their

See what the experts have to say.

Publishing and Design System

★★★★/7.9 **PowerTower Pro 225** The fastest single-CPU Mac offers the top performance needed for publishing professionals at a great price. **Company:** Power Computing (512/388-6868, *http://www.powercc.com*).

"POWER COMPUTING HAS FIELDED SOME KILLER MACHINES. APPLE WILL BE HARD PRESSED TO CATCH-UP."

-MACUSER MAGAZINE, JULY, 1996

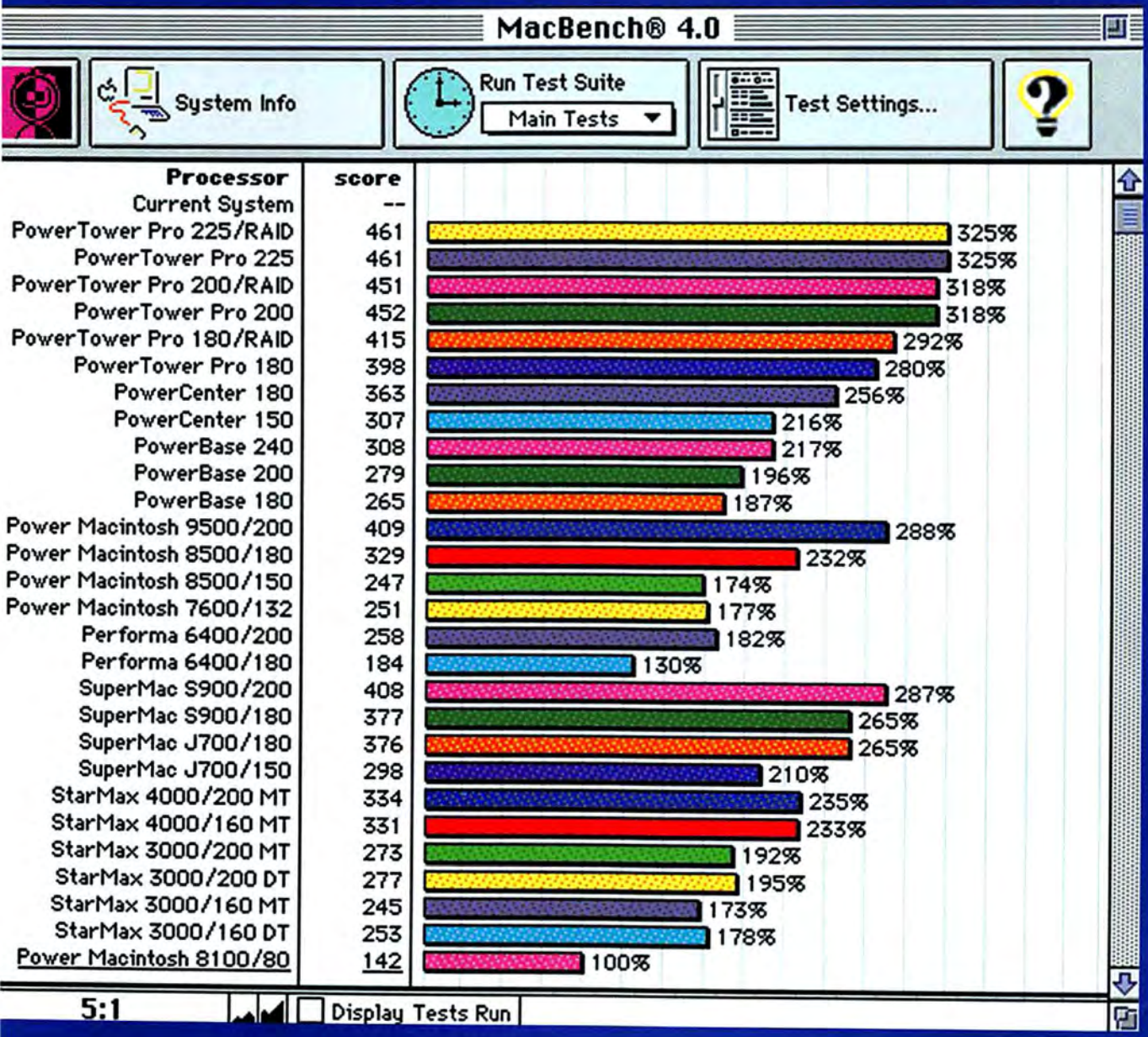
Apple Power Mac 7600/132	🐭🐭🐭
ENTRY-LEVEL SYSTEMS	
Power Computing PowerBase 240	🐭🐭🐭🐭🐭
Power Computing PowerBase 180	🐭🐭🐭🐭🐭
Power Computing PowerBase 200	🐭🐭🐭🐭½
Apple Performa 6400/200	🐭🐭🐭½
Apple Performa 6400/180	🐭🐭🐭½
MULTIPROCESSOR SYSTEMS	

MacUser ZD LABS

five mice rating. The PowerTower Pro was the first Mac OS machine in nearly a decade to achieve this kind of recognition. PowerBase was the second. MacWeek agrees. In fact, their highest rating of five diamonds has lately been attached a lot lately to the name, Power Computing.

All this tells us is that we're just doing the job we set out to do in the first place. And that's to make the best Mac OS machines on the planet, at prices well below what Macintosh users have been used to paying in the past.

Awards are nice, but it's what they represent that counts. And that is to satisfy all those who own Power Computing systems.



Based on system design and features, there's no question the PowerBase is still the best SOHO Mac. Despite their aggressive pricing, you simply don't get as much with a Motorola StarMax or UMAX

Your journey for a new computer is getting more focused. You've heard a lot of opinions, now you want the head-to-head comparisons.

MacBench™ provides the numbers that tell all including overall speed and performance. Time is money, remember? You figure out longer bars

Comparison Shop

POWER COMPUTING POWERCENTER™ 150

POWERPC™ 604 PROCESSOR
150MHZ
512K LEVEL 2 CACHE
2 MB VRAM ONBOARD VIDEO
2 GB HARD DRIVE
8X CD-ROM DRIVE
24 MB RAM
15" POWER DISPLAY
GLOBAL VILLAGE 28.8 PLATINUM MODEM
MICROSOFT OFFICE 4.2.1
APPLE INTERNET CONNECTION KIT
EXTENDED KEYBOARD & MOUSE
$1200 IN ADDITIONAL BUNDLED SOFTWARE
30 DAY MONEY BACK GUARANTEE

$2995

APPLE POWERMAC™ 8500/150

POWERPC 604 PROCESSOR
150MHZ
256K LEVEL 2 CACHE
2 MB PCI VIDEO CARD
1.2 GB HARD DRIVE
8X CD-ROM DRIVE
16 MB RAM

$2999

Don't forget
PowerTower Pro
Comes with
Macromedia Director 5.0
Free with every Pro.
(SAVES $1,400!)

PowerComputing
* Upgradeable CPU
- 30 day $ back
- System of the year
<$2000 (In budget)
* bigger cache
can get Zip/Jaz installed
This is what Mike Curtis said I should get!
3D video

Apple
- trust, but get killed in specs, price, features

Motorola & APS
Can't use 7.5.5!
Not CPU Upgradeable
What good is 5yr warranty if system is obsolete in a few months!

UMAX
- Is PCI to PCI Bridge stable?
- Not made in US.
- Who fixes this?
Do I ship to Taiwan?

are better and it's PowerComputing's machines that have the longer bars. You dig deeper and you find that Power Computing's direct buying model, custom-configuration, superior upgrade paths and aggressive pricing also help make PowerComputing's systems stand higher than the rest.

	PRICE	Upgradeable CPU	CPU TYPE 604e	604	603e	CPU MHz	Cache (upgradeable)	BUS Speed
PowerTower Pro 225	**$4295**	•	•			225	1MB	45
PowerTower Pro 225 CORE SYS.	**$3795**	•	•			225	1MB	45
PowerTower Pro 200	**$3795**	•	•			200	1MB	50
PowerTower Pro 200 CORE SYS.	**$3295**	•	•			200	1MB	50
PowerCenter 180	**$2795**	•		•		180	512k	45
PowerCenter 166	**$2395**	•		•		166	512k	41.5
PowerCenter 150	**$2095**	•		•		150	512k	50
PowerBase 240	**$2195**	•			•	240	286k	40
PowerBase 200	**$1795**	•			•	200	286k	40
PowerBase 180	**$1495**	•			•	180	286k	40

PowerTower Pro

Powe

Okay, you're getting closer to choosing your new, wickedly fast Mac OS system. You've read what people have had to say on the web. You've seen the reviews. You even checked all the ratings and realized Power Computing machines outperformed everything on MacBench tests. But you have a brain for yourself,

check the specs

	VIDEO		STORAGE						EXPANSION					COMMUNI-CATIONS	
	RAM Slots	VRAM (std/max)	On Board Circuitry	Free Bays	1.2GB	2.0GB	RPM	8x CD-ROM	Case	PCI Slots	SCSI-2	SCSI-1	EIDE	Modem	Ethernet
	8	8/8		9		•	7400	•	Twr	6	•				•
•	8	8/8		9		•	5400	•	Twr	6	•				•
	8	8/8		9		•	7400	•	Twr	6	•				•
	8	8/8		9		•	5400	•	Twr	6	•				•
•	4	1/4	•	3		•	5400	•	Dsk/MTwr	3		•			•
•	4	1/4	•	3		•	5400	•	Dsk/MTwr	3		•			•
•	4	1/4	•	3	•		5400	•	Dsk/MTwr	3		•			•
•	3	2/4	•	3	•		5400	•	Dsk/MTwr	3		•	•		
•	3	2/4	•	3	•		5400	•	Dsk/MTwr	3		•	•		
•	3	2/4	•	3	•		5400	•	Dsk/MTwr	3		•	•		

Center

PowerBase

so you called each Mac maker and got their respective specs sheets. Next, you look at the cold, hard numbers and guess what? Power Computing wins again. You notice a bigger cache, a more upgradeable CPU and a larger bus size just to name a few advantages. Wow, your decision is getting easier and easier.

When you've reached this point in the computer shopping process, it's time to talk turkey. As you glance at the back of the pubs, you'll be inundated with the supposed 'lowest price' from every small retailer and cataloger in the country. Keep in mind, Power Computing sells direct - from our factory straight to you and that saves you money. Our trademark, custom configuration, is like having fifty catalogs right at your fingertips. The benefit here is you don't have to waste your time buying a zip drive someplace else and a modem in another place. That would be time-

Go Directly to the Manufacturer.

Pick up the phone. Call us direct!

Configure the memory you need with amount you need...

Custom Configure your machine with an internal Zip...

Get additional disks straight from us.

Add an additional internal hard drive...

Get the Macromedia Bundle for just $495.00

CONFIGURE IT. THE WAY YOU WANT IT.

consuming, not to mention, potentially annoying.

With Power Computing, you save money by buying direct; we cut out the middlemen. And it's easier for us to do it all in one fell swoop. One call and it's all done. You can also sleep easy thanks to our no questions asked money back guarantee and lifetime, toll-free tech support. Power Computing is a company you can count on for everything.

Now that you've made the best decision, pick up the phone.

PowerTower Pro 225e

225MHz PowerPC 604e Processor
- 32 MB RAM (1 GB Max)
- 2 GB 7200 RPM AV Capable HD
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- IMS Twin Turbo 128M Graphics Accelerator with 8MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Dual (Fast 10 MB/Sec) SCSI
- Extended Keyboard and Mouse

$4295

150 MHz PowerPC 604 Processor
- 16 MB RAM (512 MB Max)
- 1 GB Hard Drive
- 8x CD-ROM Drive
- 512K Level 2 Cache
- 1 MB VRAM On-Board (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- $1,200 in Bundled Software
- Low-Profile Enclosure
- Add $100 for Mini-Tower Enclosure

$2095

PowerCenter 150 Starter

PowerBase 200 Starter

200 MHz PowerPC 603e Processor
- 16 MB RAM (160 MB Max)
- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 28.8 Modem & Internet Kit
- Power 15" Multimedia Monitor (vis: 13.7)
- 256K Level 2 Cache
- 3D Graphics Acceleration
- 2 MB DRAM based video (4 MB Max)
- 3 PCI Expansion Slots
- Extended Keyboard and Mouse
- Low Profile Enclosure
- Add $100 for Mini-Tower Enclosure

$1999

PowerComputing

TO ORDER JUST CALL 1-888-769-5893 TOLL-FREE

WatchIT!

★★½

Time-tracking utility proves cumbersome to use.

HOW DO YOU SPEND YOUR TIME at the Mac? If you bill clients on an hourly basis, the question is more than academic. WatchIT! can furnish the answer in vivid detail — if you have the patience to configure it and use it properly. And that's a big if.

To set up WatchIT!, you tell it which applications (or specific file windows) you want to track. When you're working in a given file or window, you assign it a Job and Task category. At the end of any interval you choose, WatchIT! generates a report that shows the total time you spent working in a given window, application, job, or task.

You can even configure WatchIT! to collect info from multiple systems on a network and generate an officewide time log. (In a rather Orwellian twist, the WatchIT! extension can be installed invisibly and used to track activity on an application-by-application basis.)

WatchIT! enters Paused mode after a period of keyboard or mouse-button inactivity you specify. When you resume work, you can assign the paused time to a given Job or Task. That's fine, as long as you spent the entire interval on one thing, but there's no provision for phone calls to multiple clients, for example.

The WatchIT! system extension proved remarkably stable. But WatchIT! installs no fewer than five additional miniprograms along with the extension.

In addition to all that clutter, you have to put up with extreme tedium to track windows. You must remember to assign a Job and Task designation each time you use the New command, for instance. Nevertheless, it's the only way to log time accurately if you use a given application for work on multiple projects.

WatchIT!'s reports are output as FileMaker Runtime documents that constrain you to sorting by window, application, day, machine, user, or job. You can subsort by one additional criterion, but there's no way for you to see all your information simultaneously — unless you export it to a spreadsheet. Fortunately, free tech support is available via e-mail.

You have a variety of ways to sort the time data WatchIT! collects, but no single view lets you see all your information.

The Bottom Line

Great for monitoring others' application use, but only marginally useful for personal time tracking. / Mark Binder and Jim Shatz-Akin

WatchIT!, $99; 5-pack, $445; 10-pack, $799; 25-pack, $1,850 (list). **Company:** Hi Resolution, Foxboro, MA; 800-455-0888 or 508-543-6955; http://www.hi-resolution.com/. **Reader Service:** Circle #411.

Tailor Visual PostScript Editor 1.1

★★★½

View, troubleshoot, revise, or repair PostScript documents.

A SWISS-ARMY KNIFE FOR working with PostScript, Tailor, from EnFocus Software, can open nearly any PostScript print-to-disk (PS, for short) or encapsulated PostScript (EPS) file — even EPS files nested within other EPS or PS files. And no matter what application created the file, you'll be able to view and edit its PostScript content on-screen. You can adjust Bézier curves and lines, assign (or change) colors, edit text and change its style, and control other details that are normally inaccessible once a file has been separated from its original application.

Tailor provides several helpful warnings. It alerts you to any defects in the PostScript code as it imports a file — if it doesn't find any problems, the file should output correctly to a PostScript device. It also warns you of missing fonts and allows you to choose whether to view a substitute font on-screen or to have Tailor try to convert the type characters to paths, using embedded font information.

When you have finished with a file, Tailor exports it as an EPS file, a downloadable PostScript file, or an Adobe Illustrator 3 document. Tailor allows you to extract an EPS graphic from an open file, creating a new EPS file, complete with screen preview. And it allows you to export text — formatted, as plain ASCII, or with Rich Text Format (RTF) tags.

Tailor supports AppleScript; a script called Tailor Converter, designed to automate repetitive operations, is included. A printed manual ships with Tailor, and there is also online documentation (in HTML format — a viewer is included).

For all its strengths, Tailor has flaws. Its tools look familiar, but they don't all work as you'd expect. You need to be careful about where you place the cursor when you attempt to move an object, for example, or the object is likely to be resized, rotated, or otherwise transformed instead. And although Tailor does a good job of preserving PostScript subtleties, it strips documents of device-specific settings, such as print-screen angles and frequencies. It discards OPI comments as well, and it has several font-related limitations, including lack of support for multiple-master and composite fonts.

Unlike Tailor 1.0, which required QuickDraw GX, Tailor 1.1 runs on any Mac with a 68020 or more powerful CPU, System 7.5 or later, and at least 8 MB of RAM (12 to 16 MB is recommended). It needs a great deal of RAM for the files, which are held completely in memory as you work on them, so its RAM requirements should be taken seriously.

The Bottom Line

Despite the program's weaknesses, Tailor will probably pay for itself quickly if you frequently deal with PostScript files from myriad sources — something service bureaus often need to do. / Kathleen Tinkel

Tailor Visual PostScript Editor 1.1, $495 commercial/ $295 educational (list). **Company:** EnFocus Software, Denver, CO; 888-363-6287 or 303-297-9096; http://www.enfocus.com/. **Reader Service:** Circle #412.

Everyday Animals, The Object Series, Number 18 ★★★★½

FROM YAWNING MUTTS to lop-eared goats, this disc has a barnload of personality. You'll find the Object Series' trademark high quality and quirky composition in all 120 drum-scanned RGB images, which come in three resolutions. Built-in clipping paths and helpful instructions save Photoshop fuss. / Scholle Sawyer

Everyday Animals, The Object Series, Number 18, $149 (list). **Company:** PhotoDisc, Seattle, WA; 800-528-3472 or 206-441-4961; http://www.photodisc.com/. **Reader Service:** Circle #413.

Pyst ★★

BIG SUCCESSES make the best targets for parody, and Myst, the most popular CD-ROM game yet, is certainly fair game. And that's without considering the spoof potential of its brother-versus-brother plot or its setting — an uninhabited island crammed with arcane books and improbable gadgetry. How sad, then, that Pyst, from Parroty Interactive, offers such misguided satire.

The joke: The Myst island has been trashed by visitors and you get to witness the chaotic aftermath. Fair enough, but we doubt that the same audience that delighted to the subtle puzzles of Myst will guffaw at such lame slapstick as kamikaze seagulls, demented rats, or *Roseanne*'s John Goodman belching in a hot tub as the island's King Mattruss.

A good parody takes rapier wit, comedic timing, and a sense of its subject. Pyst misses more than hits. / LaMont Ridgell

Pyst, $15 (estimated street). **Company:** Parroty Interactive, Larkspur, CA; 415-464-5500; http://www.palladiumnet.com/. **Reader Service:** Circle #415.

ZipZAPP Pro ★★★½

NO PIECE OF MAIL needs to go unsent for want of a ZIP code, thanks to ZipZAPP Pro, a CD-ROM database from True BASIC. It quickly produces the right ZIP code for any municipality. Search by city or town, ZIP code, or area code, and the corresponding information scrolls instantly into view. For large cities, ZipZAPP even provides exact ZIP codes for each street and address range.

No one-trick pony, ZipZAPP Pro's database can also furnish other useful information, such as any locale's time zone, travel distances between cities, or even the average income and growth rate of a given county.

ZipZAPP Pro is updated twice yearly. True BASIC has promised that the next revision, due in the spring of 1997, will correct a minor bug that skews column headers to the right. Registered users pay $29 for each upgrade — a savings of 25 percent. Subscriptions are offered at extra cost. / Brooke C. Wheeler

ZipZAPP Pro, $39 (direct); upgrade, $29. **Company:** True BASIC, West Lebanon, NH; 800-436-2111 or 603-298-8517; http://www.truebasic.com/. **Reader Service:** Circle #417.

Extraordinary Cartographic Motifs, Visual Language Library, Vol. IV ★★½

SAILING SHIPS, compass rosettes, dragons, and globes are just a few of the mapmaker's flourishes you'll find on this CD-ROM. Unfortunately, although these 65 drum-scanned images have been separated from the maps where they originated, none are isolated from their backgrounds. That means lots of tweaking in Photoshop before you can use them as decorations. As long as you have to go to all that trouble, you might as well purchase one of Visual Language's truly superb CD-ROM map collections and see the motifs as their creators intended. / Scholle Sawyer

Extraordinary Cartographic Motifs, Visual Language Library, Vol. IV, $169.95 (list). **Company:** Visual Language, Las Vegas, NV (distributed by Image Club); 800-661-9410 or 403-262-8008; http://www.imageclub.com/. **Reader Service:** Circle #416.

Muppet Treasure Island ★★★½

MUPPET TREASURE ISLAND crams into three CDs everything *including* the kitchen sink (watch for the explosion).

You're Hawkins, the pirate-hero, and you must go on three connected journeys to find buried treasure on Treasure Island. Along the way, you need to unearth clues to obtain a map, ship, and crew — if you can call the likes of Rizzo the Rat crew members — but you're never alone, as your faithful, wisecracking parrot Stevenson helps you along the way. You must also select the right eye patch, earn money for new clothes by splatting pirates with pies, and complete a series of chores while on the ship *The Hispaniola*.

The game is fun, but it lacks a few features that would make for smooth sailing. For example, figuring out how to navigate the game's crowded environment is not always obvious. Make sure to read the accompanying booklet for important insights.

Still, as one would expect from Jim Henson Productions, the graphics are gorgeous and the character interaction makes you feel like you're in their world. / LaMont Ridgell

Muppet Treasure Island, $39.95 (list). **Company:** Activision, Los Angeles, CA; 800-477-3650 or 310-473-9200; http://www.activision.com/. **Reader Service:** Circle #418.

Elroy's Costume Closet ★★★★

AFTER HITTING THE BRICKS in their last title, Elroy and Syd are back together for a fun-filled romp through Elroy's Costume Closet. In this story, Elroy and Syd are on their way home after discovering that the places they wanted to go to (such as the cherry bomb factory) are closed. They end up in a theater as the stars of . . . well, anything the costumes you choose suggest. You can dress Elroy and Syd in any of the more than 100 costume variations. And if you choose the right clothing combination, you kick off one of more than 75 animated skits. You can shimmy online to download more from Costume Headquarters (http://www.headbone.com/). The program encourages you to print your creations, color them, and make stick puppets or even paper dolls.

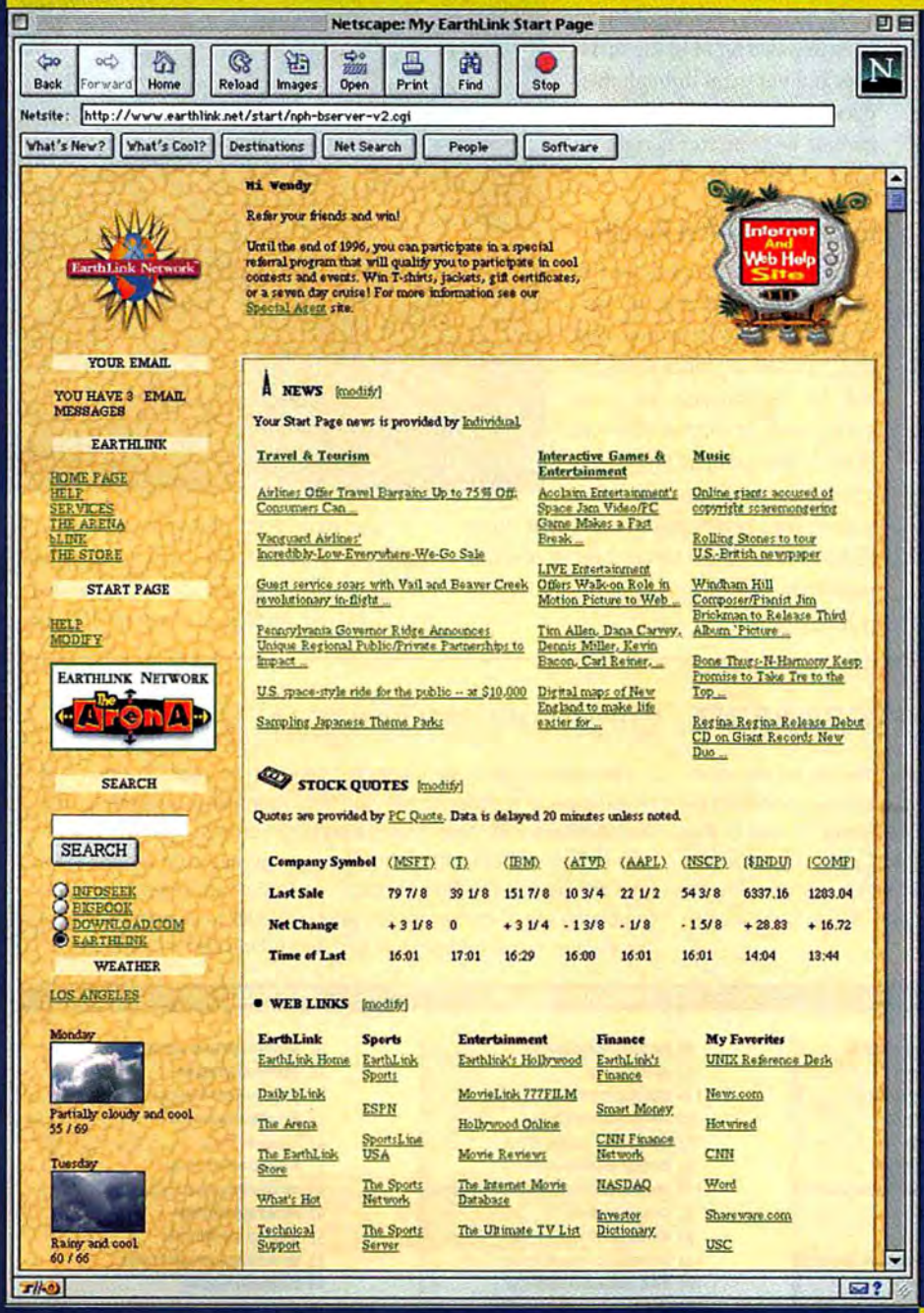
Wait 'til you hear what Elroy has to say when it's his turn to be the mermaid and walk the plank. / LaMont Ridgell

Elroy's Costume Closet, $19.95 (list). **Company:** Headbone Interactive, Seattle, WA; 800-267-4709 or 206-323-0073; http://www.headbone.com/. **Reader Service:** Circle #419.

Are you the kind of person who always wants everything your own way?

Cool!

EarthLink's Internet access now includes your Personal Start Page.



1 **STYLIZE** Choose how your page looks and what goes on it.

2 **GOT E-MAIL?** We'll tell you as soon as it comes in.

3 **NEWS** Select from 25 categories you're interested in and we'll gather it for you from over 700 sources.

4 **STOCK QUOTES** Watch your wallet fatten with your choice of stock quotes updated by PC Quote.

5 **PREMIUM CONTENT** Enjoy discounted rates and direct links to services from Quote.com, CompuServe® and others.

6 **WEATHER** Find out if you need shades or a scarf, with a 4-day local forecast.

7 **WEB LINKS** Select personal links to your favorite Web sites so they're only one click away.

8 **WEB SEARCH** If it's not on your Start Page, use a keyword to search the Internet to find exactly what you're looking for.

Unlimited Internet
$19.95 a month

1 800-395-8425

EarthLink Network

It's *your* Internet™

Free software package for Windows™, Windows95™ and Macintosh®

www.earthlink.net Info e-mail:info@earthlink.net

All the goodies you expect... and more!

Personal Start Page Netscape Navigator™ Multiplayer Gaming Over 500 Dial-up numbers 24/7 Help 800# Free Website Chat ISDN Business Solutions National Frame Relay The Net "A"-Rated Pournelle's Choice Yahoo Best

©1997 EarthLink Network, Inc. Trademarks are property of their respective owners. All rights reserved.
EarthLink Network, Inc. 3100 New York Drive, Pasadena, CA 91107

CIRCLE **90** ON READER SERVICE CARD

Best Monochrome-Laser-

THE MAC MARKET was ignited with the introduction of the monochrome laser printer almost a decade ago. Using a page-description language from Adobe, the first monochrome laser printers produced smooth-looking fonts at any point size, printed grayscale art and photographs, and challenged traditional printing techniques. The DTP revolution had begun, and the admission price would be over $8,000 — and that didn't include the price of a Mac.

Today's monochrome laser printers have evolved to feature higher resolutions, higher engine speeds, better paper handling, full network connectivity, and impressively low prices. And instead of be-all, end-all laser printers that print every kind of document — 50-page text files, highly detailed and illustrated documents, simple spreadsheets with pie charts — monochrome laser printers in the current crop are marketed to unique, separate segments. If you're printing 50-page text files, you want a fast printer; if you're printing highly detailed and illustrated documents, you want the best output quality; if you're printing a spreadsheet, you want a good combination of speed and output quality.

Which printer is best suited for the type of files you print most often? To find out, MacUser Labs rounded up 11 of the survivors and put them through their paces to find out which monochrome laser printer is right for you and your files.

Understanding Test Results

If you looked at our printer test results and picked the top performer in every test, then you could choose a printer that may not be appropriate for your pocketbook or for the files you print. When comparing test results, take into account what your normal printing needs are and go from there. Here are some tips on how to view our individual test files in light of the type of printing you do.

PHOTOGRAPHY / MICHAEL FALCONER

If your daily print jobs consist mostly of text documents for reports and memos, then the best performer in our 20-page-text-document test, the Xerox DocuPrint 4517mp,

NUMBERS THAT ARE FIT TO PRINT / *how fast can each printer go?*

TO MEASURE THE SPEED of each printer for this review, we ran three tests. The Word-document test measures how long it takes a printer to print a simple text document that uses a ROM-resident font in the printer. The Excel test gauges the printer's speed while it processes a mixture of text and simple grayscale graphics. The PowerPoint test uses a 5-page document that contains different types of graphic elements, from clip art to grayscale ramps.

The vendor's ppm rating does not take into account the amount of time it takes to transfer information from your Mac to your printer, nor does it allow for the time it takes a printer to process a job. Our test results indicate the amount of time it takes a printer to do an entire job, from the click on the Print button to when the last page of the job is completely out of the printer. The printers are listed in alphabetical order, and the fastest performer in each test is indicated by a red bar.

Printer Values

might be an ideal choice for your office. But if you want to print on tabloid-sized media, then the Hewlett-Packard LaserJet 4MV would be our choice, for two reasons: the 4MV supports tabloid media, and the text quality is among the best of the bunch, due to HP's proprietary Resolution Enhancement technology, which smoothes lines and fonts.

The HP LaserJet 6MP and the Xanté Accel-a-Writer 8300 finished well behind the pack in the text-document speed test, because they each have an engine rated at 8 pages per minute — the other printers we tested have 12-, 16-, or 17-ppm ratings. But the 6MP and the 8300 are very different printers — the 6MP is suited for small workgroups and personal use and has an estimated street price of less than $1,000 (the most economical of the printers we tested), whereas the 8300 is geared to DTP/graphic-arts use, with features such as optional 1,200-x-1,200-dpi resolution, full-bleed 12-x-25-inch output, and calibration abilities. The 8300 has good speed for an 8-ppm printer (see the "Numbers That Are Fit to Print" charts), but its real claim to fame is its output quality — it was rated the best by our jury — and its DTP-specific features, including gatefold printing, gamma adjustments, and calibration.

If your files are a mixture of text and simple graphics, take a look at the 17-ppm Digital LN17ps. If you want good speed and output quality but don't want to spend $2,550, we suggest you take a look at the 12-ppm HP LaserJet 5M.

Spec Check

When shopping for a laser printer, you will no doubt encounter a slew of buzzwords and features that might be unfamiliar. In this section, we explain what key features to look for and what they mean.

Engine Speed. This is one of the most confusing aspects of purchasing a printer. The vendor's *ppm* (page per minute) rating is based on the engine manufacturer's printing-rate claim. The ppm rating indicates how long it takes the printer engine to pick up a piece of paper and roll it through the marking engine and into the output tray. The problem with this rating method is that it doesn't account for the time it takes for a print job to travel from your Mac to your printer and it doesn't consider the processing of the job in the printer.

When we run our real-world battery of printer tests, we measure how long it takes from clicking on the Print button in the Print dialog box to when the last page falls into the output tray. In our simple 20-page-text-document test, none of the printers matched the vendors' ppm ratings. For example, the supposedly 16-ppm GCC Elite XL 616 performed more like a 9-ppm printer. As we went to press, GCC announced a processor upgrade (the unit we tested had a 25-MHz AMD RISC processor; the new processor will be a 40-MHz AMD RISC processor) and new NetWare support for the Elite printer series.

Resolution. Not long ago, the standard printer resolution was 300 x 300 dpi. Now, the resolution standard has increased to 600 x 600 dpi. The increase provides an obvious quality difference, for both text and graphics.

If you increase the amount of RAM installed in the printer, the Digital LN17ps, Lexmark Optra Lx+, Xanté Accel-a-Writer 8300, and Xerox DocuPrint 4517mp are all capable of resolutions as high as 1,200 dpi. A printer can also use one of many enhancement technologies to achieve the appearance of higher-quality output. Apple's FinePrint, HP's REt, Lexmark's PQET, and Xerox/Digital's TrueRes manipulate the dots on the paper to make lines and fonts smooth and crisp.

But these resolution-enhancement technologies don't change the appearance of grayscale graphics. Instead, some of the printers use a separate grayscale enhancement to give graphics more levels of gray without sacrificing detail. There are various techniques for enhancing grayscale output, but Apple's PhotoGrade, with the LaserWriter 12/640 PS, and Xanté's XTScreen, with the Accel-a-Writer 8300, produced grayscale quality that impressed our jury.

smart shopper

5 questions to ask when you're shopping for a printer:

1. Does the printer use standard SIMMs, or do I have to use SIMMs supplied by the vendor?
2. What is the minimum amount of RAM sufficient to get the maximum resolution from the printer?
3. On average, how many pages will I be able to print before the toner cartridge runs out?
4. Does the printer come with downloadable fonts in addition to the fonts in the printer's ROM?
5. Does the printer have a power-saving mode for when it's not in use?

THE MAC-TO-PC CONNECTION / *PowerPrint*

NO MAC IS AN ISLAND, but sometimes it sure feels like it. For instance, when you're on the road with your PowerBook, finding a Mac-configured printer to use can be difficult — some people resort to sending their documents to a fax machine. If you work in the art department of a business, your department may be the only one that is Mac-centric. And some special-purpose printers simply don't come in configurations for the Mac.

Fortunately, GDT Softworks has a solution. PowerPrint ($149) lets users connect a Mac to a PC-configured printer by using a serial-to-parallel printer cable and special software drivers. PowerPrint supports over 1,200 laser, inkjet, and dot-matrix printers. PowerPrint Pro, a network version, is available for $299.

GDT Softworks is also working on a PowerPC Platform version of PowerPrint. This version will allow users who use the Mac OS on a PowerPC Platform to print to PC-compatible printers. Since the PowerPC Platform will have a parallel connector, this version will come with a parallel cable. It should be available in February 1997.

GDT Softworks, Burnaby, BC, Canada; 800-663-6222 or 604-473-3600; http://www.gdt.com/. / *ROMAN LOYOLA*

DESKTOP DRIVER / *revamped LaserWriter 8*

APPLE AND ADOBE SYSTEMS have recently revamped their PostScript-printer driver. LaserWriter 8.4.1 PostScript Driver (the latest version at press time) is the long-awaited release; it offers a speed boost as well as many new features.

Interface. Among the new features in the upgrade are the ability to select a printer in the Print dialog box instead of in the Chooser; Page Setup options in the Print dialog box; and the option to use ColorSync profiles.

Printer icons can now be stored in folders instead of having to remain on the Mac desktop, which cuts down on desktop clutter. And a new Printer menu, for viewing and selecting any available printer, is located in the menu bar.

Background Printing. If you printed a 5-MB file with an earlier LaserWriter driver, it would spool a large, compressed file to your hard disk before sending it to the printer. Not only did that waste time but it also required lots of hard-disk space. LaserWriter 8.4.1 solves the problem with a one-pass printing solution: It sends the PostScript code to the printer as it is being processed by the driver. This saves time for monochrome printing, but the real speed difference can be seen with color printing, in which the file sizes often drift into the 100-MB range.

Background printing is more flexible with the new driver too. You can still set printing to occur in the foreground or background, but now you can also set the print time as well (see figure below). You can set a print job for urgent processing, normal processing, or a specific time and date, or you can place the document on hold.

Speed. Because the new driver is mostly written in PowerPC-native code, your system will probably receive a speed increase of 10 to 15 percent for processing. This won't make the printer itself any faster, but it will reduce your overall printing times.

Before you upgrade to LaserWriter 8.4.1, you should make sure that your applications are compatible with it. You can check this on the Web at http://www.support.apple.com/ and at http://www.info.apple.com/.

Paper Handling. Often overlooked features in a printer are its paper-handling capabilities. If the printer gets a lot of use, then it should have a large paper capacity to reduce the need for user intervention. The Digital LN17ps and the Xerox DocuPrint 4517mp have ample paper-handling features, including an optional ten-bin mailbox/collator, a duplexing unit, two universal-paper-tray units that can hold a total of 1,000 sheets, and an envelope feeder. These features are important assets in a busy workgroup environment. Be sure to also check whether the printer supports the paper sizes you need.

Printing on thick paper or on adhesive media can pose a problem for printers that have intricate paper paths. If the paper is thick, it will jam in the printer. Labels peeling off inside a printer can cause damage that would be costly to repair. Straight paper paths, like that of HP's LaserJet 6MP, are the easiest for printing on thick stock and labels.

Printable Area. Printers that output letter-sized (8.5-x-11-inch) and tabloid-sized (11-x-17-inch) documents actually print on an area that's smaller than the physical piece of paper. This is common and should not pose a problem for most business documents. In electronic publishing, there is a need to see the entire letter- or tabloid-sized document to check crop marks and *bleeds*, where printing actually extends beyond the edges of the paper. The four tabloid printers in this review can print letter-sized documents on tabloid paper, and the Xanté printers are capable of printing gatefold prints with an imageable area measuring 11.89 x 24.9 inches.

RAM. Today's PostScript laser printers can operate with a minimal amount of RAM, which means their prices are lower. Printers can compress the information that needs to be processed or can send the information in bands.

We tested the printers with their standard

	Apple LaserWriter 12/640 PS	✓ Digital LN17ps	GCC Elite XL 616	Genicom PowerPro 12	Hewlett-Packard LaserJet 4MV
Rating	★★★½	★★★★	★★★	★★★	★★★½
List price	NA	$2,879	$2,799	$1,599	$3,550
Estimated street price	$1,689	$2,550	$2,699	$1,440	$2,920
Vendor's speed rating	12 ppm	17 ppm	16 ppm	12 ppm	16 ppm
RAM (standard, maximum)	4 MB, 64 MB	6 MB, 64 MB	8 MB, 64 MB	3 MB, 19 MB	12 MB, 44 MB
Ports	LocalTalk, parallel, Ethernet	LocalTalk, parallel, Ethernet	LocalTalk, parallel, Ethernet	LocalTalk, parallel, serial*	LocalTalk, parallel, serial, Ethernet
Hard drive	optional external	optional internal	optional external	optional external	internal
Fonts	64	35	45	23	35
PostScript	Adobe Level 2	Adobe Level 2	Phoenix Level 2	Adobe Level 2	Adobe Level 2
Other emulations	HP PCL 5	HP PCL 5	HP PCL 5	HP PCL 5	HP PCL 5
Resolutions	600 x 600 dpi	600 x 600 dpi, 600 x 1,200 dpi	300 x 300 dpi, 600 x 600 dpi	600 x 600 dpi	600 x 600 dpi
Resolution enhancement	FinePrint	TrueRes	none	none	REt
Grayscale enhancement	PhotoGrade	none	AccuGray	none	proprietary
Maximum paper size	letter	letter	tabloid	letter	tabloid
Paper capacity	250 sheets	250 sheets	250 sheets	500 sheets	350 sheets
Warranty	1 year	1 year	1 year	1 year	1 year

✓ MacUser BEST BUY

*Ethernet card available at additional cost.

memory configurations, which were as low as 3 MB on the HP LaserJet 6MP and the Genicom PowerPro 12 and as high as 12 MB on the HP LaserJet 4MV and the Xanté Accel-a-Writer 8200. Generally, the standard amount of RAM suffices, but we recommend upgrading to the printer's next-higher RAM increment — you should notice improvements in processing speed and have more room to temporarily store fonts in the printer instead of downloading them from your Mac. However, be aware that there is a point of diminishing returns when adding RAM to a printer — we would be hard-pressed to think of a situation in which you would need the maximum amount of RAM in order to output a print job.

Output Quality

For our graphics- and text-quality ratings, we assembled a group of desktop-publishing professionals and novices to participate in our jury. We looked at text quality, graphics quality, and overall print quality. Our results showed that all the printers had respectable output.

Regarding text quality, the HP LaserJet 5M received the highest marks, for having crisp, solid text. Even small, 6-point type looked very clean and not too heavy. It was a neck-and-neck race for just about all the other printers, but we found that HP's Resolution Enhancement technology made for superior output. The Genicom PowerPro 12 produced acceptable-quality text, but it was heavier than the output of the other printers.

Graphics quality was also a close race. While evaluating grayscale images, we looked for even, smooth gradations that had no mars or streaks. The Xanté Accel-a-Writer 8300 proved to be a strong contender in this area, capable of handling subtle shadow and highlight detail. The HP printers produced average graphics quality — we noticed more of a dither pattern with the HP printers than with the others. The Digital LN17ps, the Lexmark Optra Lx+, and the Xerox DocuPrint 4517mp turned out solid output and got above-average grayscale scores from our jury. Output from the GCC Elite XL 616 showed some banding and looked too light overall, with some of the highlight detail blown out.

The Bottom Line

When this crop of laser printers is broken into segments — for personal and small workgroups, small to medium workgroups, and publishing and the graphic arts — the results of our evaluations spell out good news for each group.

The HP LaserJet 6MP is not only inexpensive but is also able to output sharp text and decent grayscale graphics. We highly recommend this printer for personal or small-workgroup use. In the small-to-medium-workgroup segment, we chose the Digital LN17ps. Although it is very similar to the Xerox DocuPrint 4517mp, we found that the extra 2 MB of RAM that comes with the Digital printer made a difference in our speed tests, and the LN17ps proved to be a strong output-quality contender. And for those who want the best output quality for serious DTP work, we recommend the Xanté Accel-a-Writer 8300.

Tony Bojorquez is a freelance Mac consultant. MacUser Labs Project Leader Rick Oldano managed the testing for this report.

DIRECTORY

Apple Computer
Cupertino, CA
800-538-9696
408-996-1010
800-462-4396 (fax)
http://www.apple.com/

Digital Equipment
Maynard, MA
800-344-4825
508-493-5111
800-676-7517 (fax)
http://www.digital.com/

GCC Technologies
Bedford, MA
617-275-5800
617-275-2188 (fax)
http://www.gcctech.com/

Genicom
Chantilly, VA
800-436-4266
703-802-9200
703-802-9039 (fax)
http://www.genicom.com/

Hewlett-Packard
Santa Clara, CA
800-752-0800
408-246-4300
408-246-7293 (fax)
http://www.hp.com/

Lexmark International
Greenwich, CT
800-891-0331
606-232-2000
606-232-2380 (fax)
http://www.lexmark.com/

Xanté
Mobile, AL
800-926-8393
334-342-4840
334-342-3345 (fax)
http://www.xante.com/

Xerox
Rochester, NY
800-832-6979
716-423-5090
716-427-5400 (fax)
http://www.xerox.com/

Hewlett-Packard LaserJet 5M	✓ Hewlett-Packard LaserJet 6MP	Lexmark Optra Lx+	Xanté Accel-a-Writer 8200	✓ Xanté Accel-a-Writer 8300	Xerox DocuPrint 4517mp
★★★½	★★★★	★★★½	★★★½	★★★★	★★★½
$2,229	$1,149	$2,299	$3,495	$2,495	$2,515
$1,799	$950	$2,100	NA	NA	$2,500
12 ppm	8 ppm	16 ppm	16 ppm	8 ppm	17 ppm
6 MB, 52 MB	3 MB, 35 MB	4 MB, 64 MB	12 MB, 40 MB	8 MB, 64 MB	4 MB, 64 MB
LocalTalk, parallel, Ethernet, infrared	LocalTalk, parallel, serial	LocalTalk, parallel, serial*	LocalTalk, parallel, serial*	LocalTalk, parallel, serial*	LocalTalk, parallel, Ethernet
none	none	optional external	optional external	optional external	internal
35	35	39	35	35	35
Adobe Level 2	Adobe Level 2	Lexmark Level 2	Adobe Level 2	Adobe Level 2	Adobe Level 2
HP PCL 5	HP PCL 6	HP PCL 5	HP PCL 5	HP PCL 5	HP PCL 5
600 x 600 dpi	600 x 600 dpi	300 x 300 dpi, 600 x 600 dpi, 1,200 x 1,200 dpi	600 x 600 dpi	600 x 600 dpi, 1,200 x 1,200 dpi	600 x 600 dpi, 600 x 1,200 dpi
REt	REt	PQET	none	none	TrueRes
proprietary	proprietary	PictureGray (at 1,200 dpi)	Halftone Calibration Technology	XTScreen, XTGamma	none
letter	letter	letter	tabloid	tabloid	letter
250 sheets	250 sheets	500 sheets	250 sheets	250 sheets	250 sheets
1 year	1 year	1 year	1 year	1 year	1 year

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

Apple® Computer Corporation
Authorized Catalog Reseller

UMAX Computer Corporation Authorized Dealer

MOTOROLA StarMax Authorized Dealer

PowerComputing Authorized Dealer

SuperMac S900L

Multi-Processor Upgradeable!

UMAX Computer Corporation

The SuperMac S900L system was specifically designed with high end functionality to meet the needs of creative design and production professionals.

- 225MHz PowerPC 604e
- 2.1 GB Hard Drive
- 6 PCI Slots
- 512k Level 2 cache
- 32MB on board RAM
- 8X CD-ROM drive
- 8MB VRAM IMS Graphics card
- Extended keyboard and mouse

PART NUMBER U0121012

$4295

Or Lease For $105/mo

S900L 180MHz w/4MB IMS card **$3595**
Order Item # U0121006

S900L 200MHz w/4MB IMS card **$3795**
Order Item # U0121007

S900L 180MHz DP w/4MB IMS card **$4595**
Order Item # U0121010

Monitor sold separately

SuperMac C600L

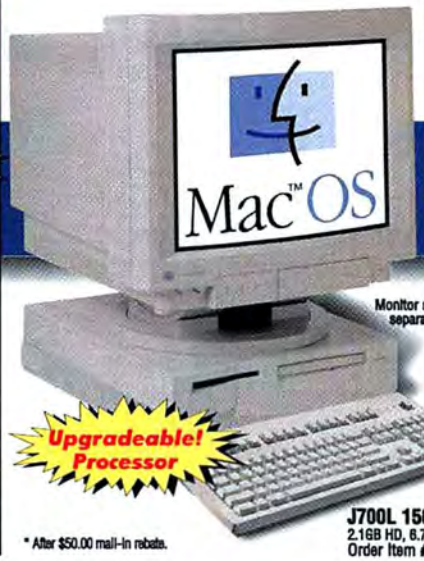
Mini-tower power and expandability at a desktop price.

- 2.1GB Hard Drive (1.2GB in 180MHz)
- 16MB on board RAM (24MB in 240MHz)
- 8X CD-ROM drive
- 4 PCI Slots
- 256k Level 2 cache
- 1MB Built-in VRAM
- Extended keyboard and mouse
- 28.8Kbps fax/modem

C600L 180MHz PowerPC 603e 1.2GB HD - Order Item # U0121015 **$1695**

C600L 200MHz PowerPC 603e 2.1GB HD - Order Item # U0121016 **$1995**

C600L 240MHz PowerPC 603e 2.1GB HD - Order Item # U0121010 **$2295**



Monitor sold separately

SuperMac C500L

The NEW SuperMac C500L slimline desktop is designed for work and play, with great features, great software, and a unique space-saving design. Listen to music, play games, get organized, and work quickly and efficiently.

PART NUMBER U0121014

$1299*

Or Lease For $48/mo

- 160MHz PowerPC 603e
- 1.2 GB Hard Drive
- 2 PCI Slots
- 256k Level 2 cache
- 16MB on board RAM
- 8X CD-ROM drive
- 1MB Built-in VRAM
- Extended keyboard and mouse

* After $50.00 mail-in rebate.

J700L 150MHz 604e, 16MB RAM, 2.1GB HD, 6.7X CD-ROM, w/2MB IMS card **$2795**
Order Item # U0121011

J700L 180MHz 604e, 24MB RAM, 2.1GB HD, 8X CD-ROM, w/2MB IMS card **$3095**
Order Item # U0121017

MOTOROLA StarMax™ 4000

* Monitor sold separately.

$2279* M432 1005 — Lease for: $84/month

StarMax™ 4000 Configurations

M432 1005	4000/160	160MHz 604e, 16MB, 1.2GB HD, 8X CD	$2279*
M432 1007	4000/160	160MHz 604e, 32MB, 2.5GB HD, 8X CD	$2398*
M432 1006	4000/200	200MHz 604e, 16MB, 1.2GB HD, 8X CD	$2599*
M432 1008	4000/200	200MHz 604e, 32MB, 2.5GB HD, 8X CD	$2799*

- 160MHZ or 200MHz 604e Processor
- 32MB or 16MB of RAM
- 2.5GB or 1.2GB Hard Drive
- 512K Level 2 Cache
- 2MB Video RAM
- 100% Mac-compatibility
- Extended Keyboard and Mouse
- 8x CD-ROM

5 Year Manufacturer's Warranty

StarMax™ 3000

$1679* M432 1001 — Lease for: $75/month

StarMax™ 3000 Configurations

M432 1001	3000/160	160MHz 603e, 16MB, 1.2GB HD, 8X CD	$1679*
M432 1002	3000/200	200MHz 603e, 16MB, 1.2GB HD, 8X CD	$1979*
M432 1003	3000/160	160MHz 603e, 32MB, 2.5GB HD, 8X CD	$1999*
M432 1004	3000/200	200MHz 603e, 32MB, 2.5GB HD, 8X CD	$2159*
M432 1009	3000/240	240MHz 603e, 32MB, 2.5GB HD, 8X CD	$2749*

- 160MHZ, 200MHz or 240MHz 603e Processor
- 32MB or 16MB of RAM
- 2.5GB or 1.2GB Hard Drive
- 256K Level 2 Cache
- 1MB Video RAM
- 100% Mac-compatibility
- Keyboard and Mouse
- 8x CD-ROM
- 28.8 Data/Fax Modem

STARMAX 3000 SERIES INCLUDES

Mac OS 7.5.3	FWB DiskTools	PrintMaster	Now Contact
Claris Works	Diskfit Direct	Grolier's Encyclopedia	Now Up-to-Date
SAM	Internet Connection	Mayo Family Health	Intuit's Quicken SE

ORDER TODAY!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ http://www.club-mac.com

ClubMac®

Source Code 680397

UMAX®

The Magic of Color™

Vista-S12 Mac Deluxe

$499* U010 1055

MacUser ★★★★ July 1996

High-Resolution, High Power at an Affordable Price

The new S12 offers breakthrough technology made easy. With Umax's new autoscan driver, all you do is place your image on the scanner and in one step it's in your computer and ready to go! With **33-bit equivalent analog gamma correction** you get the smoothest tonal curve of any scanner in its class. A single-pass scanner with 600x1200dpi resolution, the S12 uses a parallel circuit to process colors simultaneously, resulting in sharper, faster scans.

U010 1070	Vista-S12 Mac Deluxe w/ Adobe PhotoDeluxe	$499*
U010 1055	Vista-S12 LE Photoshop 3.0 LE and PageManager	$599*
U010 1054	Vista-S12 Pro Photoshop 3.0 full version and PageManager	$699*

* Price after $50 manufacturer mail-in rebate.

$1750¥ U010 1069

PowerLook II Pro

MORE POWER TO YOU!

If you demand high performance you need the all new PowerLook II flatbed scanner from Umax. This fast new powerhouse offers incredible 3.3 Dynamic Range. And with **36-bit color capture for over 16.7 billion colors and 4096 shades of gray**, you'll capture the brightest highlight, darkest shadow and everything in between. Plus, a cold cathode lamp and enclosed optics will ensure a long maintenance free life. With the PowerLook II, Umax sets a new standard.

U010 1069	PowerLook II LE 36-bit with Transparency Adapter, Adobe Photoshop LE	$1750¥
U010 1052	PowerLook II Pro 36-bit with Transparency Adapter Full Adobe Photoshop, Kai's PowerTools SE, PhotoPerfect Advanced	$1955¥

¥ Price after $100 manufacturer mail-in rebate.

Vista S6E Color Scanner

SPEED, QUALITY, ACCURACY

$279† U010 1061

- Single Pass Scanner
- 24-bit color flatbed scanner
- SCSI-II interface
- 256k bus caching
- Micro-stepping optical transmission

Bundled with Adobe PhotoDeluxe

U010 1061	UMAX S6E w/ PhotoDeluxe	$279†
U010 1076	UMAX S6E w/ PhotoDeluxe & Trans Adapter	$399†

† Price after $20 manufacturer mail-in rebate.

ClubMac®

The Best Source for Mac/OS Systems, Peripherals, and Software.

The Best Service

Our knowledgeable and experienced Sales Reps are available 24 hours a day, 7 days a week.

The Best Selection

We have over 5000 products in stock and ready to ship.

The Best Price

Our huge buying power lets us pass the savings on to you.

Authorized Catalog Reseller

Sales & Customer Service	24 Hours a Day, 7 Days a Week	(800) 258-2622
Inquiries & International Sales	24 Hours, 7 Days a Week	(714) 768-8130
Corporate, Educational, & Government Sales	M - F 5am - 5pm PST	(800) 258-2621
Technical Support	M - F 7am - 5pm PST	(800) 854-6227
24-Hour Fax		(714) 768-9354
E-mail: ClubMac Sales		cmsales@club-mac.com
Customer Service		custsvc@club-mac.com
Technical Support		techsup@club-mac.com

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

Call for your free ClubMac Catalog Subscription

http://www.club-mac.com

DISCOVER NOVUS · VISA · MasterCard · American Express Cards

NO SURCHARGE!

ORDER TODAY!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ http://www.club-mac.com

ClubMac®

Source Code 680397

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

SOUTHLAND MICRO SYSTEMS...

We're Strong Enough To Support All Your Memory Needs.

Since our inception, Southland Micro Systems has maintained an impeccable record of delivering only the highest quality memory solutions to a sophisticated, memory-hungry marketplace. Our product line includes all capacities of SIMMs, DIMMs, VRAM and Cache for both Macintosh and DOS platforms.

Complete in-house manufacturing allows us to monitor and produce reliable, quality products, bring new products to market quickly, and develop innovative memory solutions to meet the demands of today's ever changing market.

Because of this, we're able to offer our customers competitive pricing, fast delivery, and value added service.

DIMM

M101 1081	8MB	$55
M101 1082	16MB	$99
M101 1083	32MB	$199
M101 1084	64MB	$425

Prices subject to change, call for current pricing.

SOUTHLAND MICRO SYSTEMS

Quality • Strength • Speed

Internet:http://www.southlandmicro.com

SIMM (72PIN)

M101 1031	4MB	$25
M101 1054	8MB	$45
M101 1072	16MB	$99
M101 1070	32MB	$199

ClubMac®

Source Code 680397

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ http://www.club-mac.com

ORDER TODAY!

Unleash Your Creativity

Limited time offer from Fractal Design one hundred dollar $100.00 Rebate! Painter 4

FRACTAL DESIGN PAINTER® 4.0

Painter 4 is the world's leading paint program. With more than 150 unique brushes that simulate traditional painting materials, Painter's rich set of painting tools and special effects empowers your creativity.

NEW FEATURES:

- SHAPES—With shapes you can mix bitmap painting and vector illustration. Import artwork created in illustration programs like Adobe Illustrator,™ Macromedia FreeHand® and CorelDRAW.®
- MOSAICS—Paint with mosaic tiles for unique eye popping graphics.
- WEB—Painter supports GIF, JPEG and will even create Image Maps and repeating backgrounds.
- NET PAINTER—Collaborative networking with Painter.

© Copyright 1996 Fractal Design Corporation. All rights reserved. Fractal Design Painter and Natural-Media are registered trademarks and Image Hose and Shapes are trademarks of Fractal Design Corporation.

PAINTER® 4.0

$244.95*

F039 1003

*Price after $100 manufacturers mail-in rebate.

More New Cool Stuff from Fractal Design

NEW!

Fractal Design DETAILER

Fractal Design Detailer is the amazing graphics program that lets you paint directly onto the surface of 3-D models. It's the closest thing to actually holding an object in your hand and painting on it! Perfect for 3D artists,web page designers and graphic artists who want to get started in 3-D without the complex learning curve! * Also includes Ray Dream Designer ($99 value)

Detailer
$295
F039 1053

Detailer (Sidegrade)
$149*
F039 1057 (Sidegrade)

NEW!

Fractal Design Expression

Expression redefines the way you work with vector art! For the first time you can paint with Natural-Media brush strokes with the speed, editability and resolution independence of vector art. Expression's revolutionary Skeletal Strokes drawing technology lets you manipulate sophisticated, multi-element strokes or even complete illustrations with a single path.

Expression
$295
F039 1052

Expression (Sidegrade)
$149*
F039 1055 (Sidegrade)

NEW!

Fractal Design Poser 2

With Poser 2 you can create stunning human animations for use in 2-D or 3-D software in just a few minutes. Poser 2 adds new features like Animation, Loose Fitting Clothes, More Realistic Joint Control and Swappable Geometry.

Human figures can then be incorporated in your favorite 2-D or 3-D applications!

Poser 2
$124.95
F039 1059

FRACTAL DESIGN CORPORATION

* Must own Painter, Poser, Studio or Designer.

ORDER TODAY!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ http://www.club-mac.com

ClubMac®

Source Code 680397

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

Nothing comes closer to reality.

"SuperScan took top honors in every important performance category"

Macworld

Check out the monitor Macworld editors voted their "runaway favorite for focus, brightness, contrast, and color." The SuperScan Mc 21 gives you the sharpest image money can buy (0.22 mm horizontal dot pitch. 0.16 mm vertical). It also displays 40% more pixels than competing aperture grill monitors for crisper graphics and improved readability of small text. Plus it's flatter than other displays so you get a more accurate image with consistent brightness and precise focus even in the corners.

	NEW SuperScan Mc 801HR	SuperScan Mc 801	SuperScan Mc 20	SuperScan Mc 611	SuperScan Mc17s
CRT size	21 inch	21 inch	20 inch	17 inch	17inch
Viewable Image	20.0"	20.0"	18.7"	15.9"	15.7"
Dot Pitch	.22 mm horizontal .16 mm vertical		.28 mm	.26 mm	.28 mm
Max. resolution	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200	1280 x 1024
Scan frequency	31-96 Khz 50-160 Hz	31-85 Khz 50-160 Hz	30-82 Khz 50-120 Hz	24.8-82 Khz 50-120 Hz	30-64 Khz 47-104 Hz
ClubMac price	$2,059	$1,899	$1,395	$899	$745
Part Number	R053 1034	R053 1043	R053 1031	R053 1042	R053 1035

MW EDITORS' CHOICE

MacUser RATED SEPTEMBER 1995

MW ★★★★

MPR II 3-year warranty Colorific

SuperScan
An advantage you can clearly see

NSA 100 Lowder Brook Drive, Westwood, MA 02090 http://www.nsa-hatachi.com
The ENERGYSTAR™ emblem does not represent EPA endorsement of any product or service.

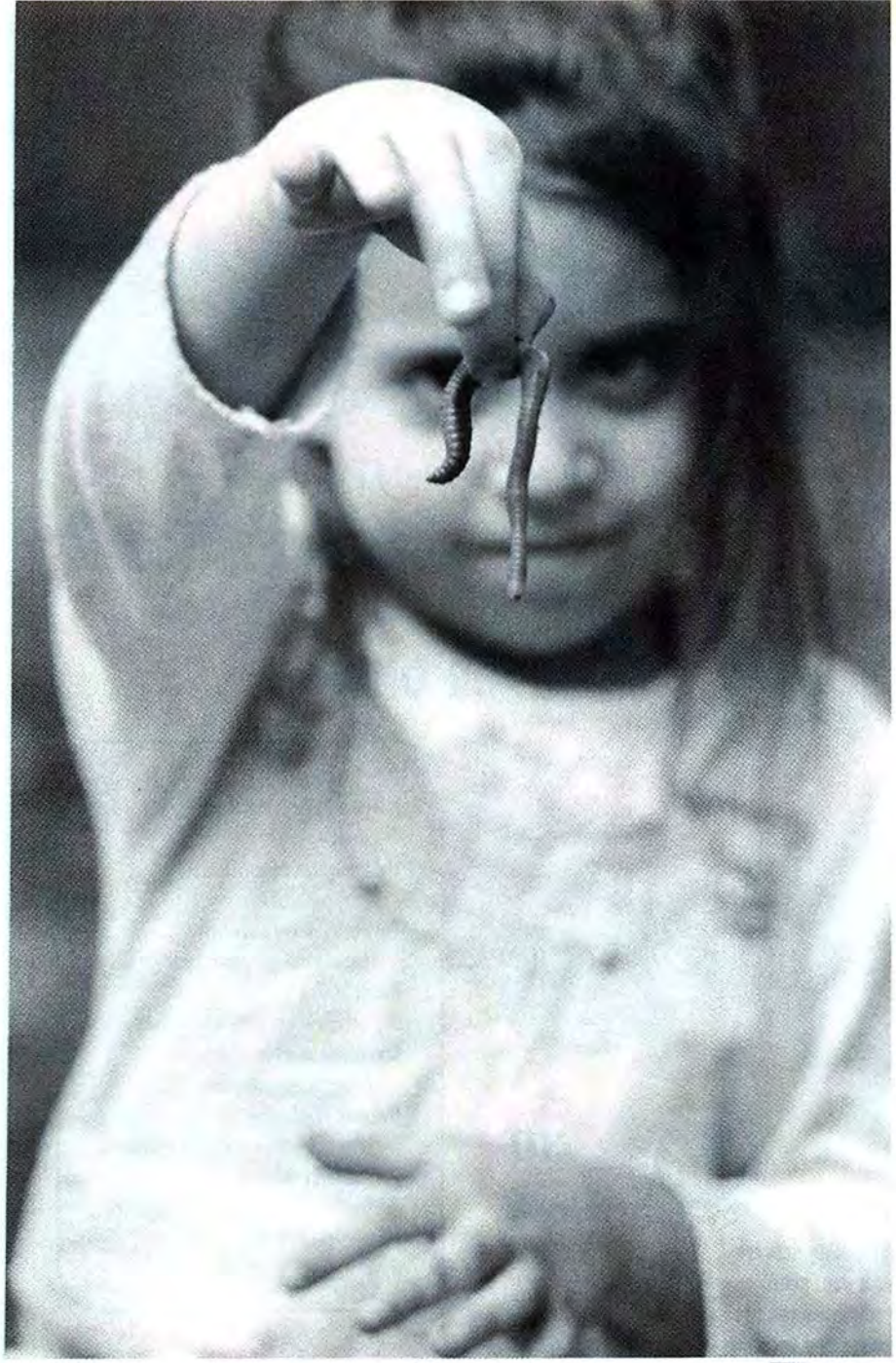
RASTEROPS

HITACHI

ClubMac®
Source Code 680397

ORDER 24 HOURS A DAY • 7 DAYS A WEEK
1-800-258-2622
Order On-Line @ http://www.club-mac.com

ORDER TODAY!



EVEN BLACK
AND WHITE CAN
BE COLORFUL.

WHEN IT'S GCC.

Photo: Jim Krantz

PUT THE POWER OF GCC BLACK AND WHITE PRINTING RIGHT AT YOUR FINGERTIPS. 1200 DPI. ACCUGRAY FOR SUPERIOR HALFTONES. UP TO 11.69" x 20" FULL BLEED OUTPUT WITH REGISTRATION AND CROP MARKS. THE GCC ELITE XL PRINTER SERIES.

www.gcctech.com

GCC TECHNOLOGIES

ORDER TODAY!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

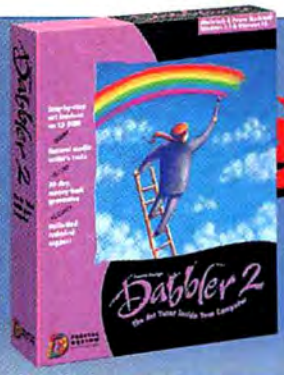
Order On-Line @ http://www.club-mac.com

ClubMac®

Source Code 680397

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622



4" x 5" DrawingSlate™ II now bundle with Dabbler 2

UNBELIEVABLE DEAL!

DrawingSlate™ II handles every drawing or painting style you work in full color or complex line art, shading, stippling.

4" x 5" DrawingSlate™ II

with Dabbler 2

FOR ONLY $99.95

Programmable Macros

Manufacturer's LIFE TIME Warranty

MANUFACTURER'S 30 DAY MONEY BACK GUARANTEE

FEATURES

Advanced Pen Technology
Simulates drawing or painting

Lightweight, Compact Tablet
Convenient sizes

Custom Pressure Sensitivity
User-selectable of maximum and minimum

Detail Scaling
For working on a magnified or reduced view

Recordable Macros
Programmable commands

Dynamic Windowing
For switching between software applicctions

Rotatable Drawing Area
For working in portrait or landscape position

Fumble-Free Erasing
Convenient, pen-point precision

CalComp has developed a graphics tablet that makes producing artwork on your computer as comfortable and familiar as using a pen, pencil or brush, DrawingSlate II combines the simple, intuitive techniques you use to draw or paint, with the computer's sophisticated storage and revision abilities.

6" x 9" DrawingSlate™ II

$205

CALCOMP
A Lockheed Martin Company

C290 1010	DrawingSlate II 4"x5" w/Erasing Pen & Dabbler	$99.95			
C290 1002	DrawingSlate II 6"x9" w/Erasing Pen	$205	C290 1003	w/Painter 4.0	$435
C290 1001	DrawingSlate II 12"x12" w/Erasing Pen	$229	C290 1005	w/Painter 4.0	$459
C290 1004	DrawingSlate II 12"x18" w/Erasing Pen	$499	C290 1006	w/Painter 4.0	$729

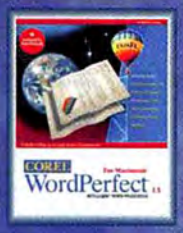
ClubMac®
Source Code 680397

ORDER 24 HOURS A DAY • 7 DAYS A WEEK
1-800-258-2622
Order On-Line @ http://www.club-mac.com

ORDER TODAY!

Great Macintosh® Products from Corel!

Look what's developed...



Corel® WordPerfect® 3.5 for Macintosh®

Corel® WordPerfect® 3.5 for Macintosh® is a fast, powerful and easy-to-use word processor that delivers comprehensive tools for writing, editing and communicating information.

$89.00*
Competitive upgrade
CD-ROM version only
$175.00*
Full CD-ROM version only

CorelDRAW™ 6 Suite for Power Macintosh®

CorelDRAW™ 6 Suite for Power Macintosh® is an incredibly robust graphics suite offering fully featured applications for illustration, photo editing, bitmap and texture creation, 3D rendering and word processing.

$149.00*
Competitive upgrade
CD-ROM version
$399.00*
Full CD-ROM version

Corel® WEB.GALLERY

Corel® WEB.GALLERY was designed to maximize your profile on the World Wide Web and includes more than 7,500 Internet-ready clipart images for fast and easy publishing!

$69.00*

Corel® Stock Photo Library 1, 2 & 3

Each Corel® Stock Photo Library contains 20,000 royalty-free images on 200 CD-ROMs. Choose from three libraries of photos—each one can be read by any Windows® or Macintosh CD-ROM drive.

$899.00*
Each

Corel GALLERY™ 2 for Macintosh®

Corel GALLERY™ 2 for Macintosh includes albums containing 15,000 clipart images, 500 fonts, 75 sound clips, 10 QuickTime™ movies, and a state-of-the-art visual multimedia file manager.

$39.95*

Corel® Super Ten Photo Pack Series

Each Corel® Professional Photos on CD-ROM Super Ten Pack includes ten exciting photo CD-ROM titles, encompassing 1,000 royalty-free, high-resolution images from the world's leading stock photography collection.

$39.99*
Each

COREL

KUR-0324-US

http://www.corel.com

*US$ plus applicable taxes.

Corel, CorelDRAW, WordPerfect and Corel GALLERY are either trademarks or registered trademarks of Corel Corporation or Corel Corporation Limited. Macintosh, Power Macintosh and QuickTime are either trademarks or registered trademarks of Apple Computer, Inc. All other product and company names are trademarks or registered trademarks of their respective companies.

ORDER TODAY!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ http://www.club-mac.com

ClubMac®

Source Code 680397

CIRCLE 119 ON READER SERVICE CARD

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

RTP 726
FUJI RTP
FUJI RTP
FUJI RTP

Which Mac?

MacUser went into the Labs to test 38 new Mac systems, to help you figure out which will best fit your needs.

First adopters of the Macintosh will remember the days when Which Mac? could be answered with one phrase: Whichever Mac Apple has released this year. A more recent generation would probably have answered: A color Mac — if you can afford it. And users in the early '90s, when Apple spewed forth new Mac models at an alarming rate, might have remarked: A Performa if it's for home or school; otherwise, get a Quadra.

Since the arrival of Mac clones, what used to be a simple decision has become as complex and nerve-racking as deciding which combination of deductions will slip by the IRS computer and which will be flagged for an audit.

Ask today's Mac cognoscenti which Macintosh you should buy, and you're likely to hear more questions than answers: Do you want an Apple machine or a clone? What kind of processor do you need — a PowerPC 601, 603e, 604, or 604e? And how about Level 2 cache? Or graphics RAM — 1, 2, or 4 megabytes? Or maybe you want to skip onboard graphics hardware altogether and go with a PCI accelerated-graphics card? Oh, and speaking of PCI . . . .

Sheesh.

After years of having the option of buying any Mac you wanted, as long as it was Apple's, an explosion of options has made the Mac buying experience significantly more confusing, and potentially more rewarding, than ever before. It's this overwhelming selection of vendors, models, and configurations that screamed out for a comprehensive guide to buying the right new Mac OS system for you — this is that guide.

In these next few pages, we'll supply you with all the information you need to make a good buying decision, including the results of the most extensive lab test of single-processor Mac OS systems ever attempted (for our most recent evaluation of multiprocessor systems, see "Muscle Macs, January '97, page 76). We took 38 currently shipping Macs into our labs and examined every aspect of their performance and functionality. For testing, we used the just-released version 4.0 of MacBench, our industry-standard benchmark test suite (see the "How We Tested" sidebar). The results of these tests and our recommendations are presented in this special report.

Our recommendations are based on two assumptions: You know how much money you want to spend, and you know the kinds of tasks you want your Mac to perform. To help narrow your choice, we've divided our discussion into three categories — those for budget systems, priced at under $2,000 each; those for midrange Macs, which run $2,000 to $3,500 each; and those for high-end machines, which cost over $3,500 each. Within these categories, we recommend the Mac OS system that our tests show is best suited to your needs — whether you're a home user, student, businessperson, publisher, or multimedia designer.

Hopefully, we've distilled all the information you need to decide which Mac you should buy. And even if our recommendations don't jibe with the Apple — or Motorola or Power or UMAX — system of your eye, you'll find comprehensive lab data to help make up your own mind.

What we found may even surprise you.

BY CHRISTOPHER BREEN

PHOTOGRAPHY / ADRIAN ORDENANA

The Budget Macs

IT'S REMARKABLE HOW MUCH computer muscle you can purchase for under $2,000 today. With the release of new generations of PowerPC processors, the "cheap" Mac of today outpaces top-of-the-line models of just a year or two ago. Macs in this price category exhibit surprisingly high speeds — and don't overburden your pocketbook.

The budget Macs ship with at least 16 MB of RAM and a 1.2-GB hard drive. Except for the Apple Power Mac 7200/120, each sports an IDE rather than a SCSI drive and each comes standard with an 8x CD-ROM drive. Most also have at least two PCI slots, a 256K Level 2 cache, and a PowerPC 603e running at a speed between 160 and 200 MHz. Most systems supply 1 MB of RAM for graphics, with Power Computing being the generous exception — the PowerBase models come with 2 MB of graphics RAM.

The UMAX SuperMac C600/180 and C600/200 and the Power Computing PowerBase 180 and 200 are the only under-$2,000 Mac OS systems that come with upgradable CPU daughtercards. To date, however, no upgrades have been released for these machines, and because of limitations imposed by their logicboard architectures, it's unlikely these machines will ever accommodate anything but a 603e processor. Apple claims that the Performa 6400 models can be upgraded via a simple motherboard swap but so far has not announced any upgrade plans.

Monitors are sold separately, so be sure to budget $350 to $500 for a 15-inch multisync monitor or $700 to $1,000 for a 17-inch monitor. Apple Performas, the Motorola StarMax 3000 series, and the UMAX SuperMac C600 series come with 28.8-kbps modems. For an additional $159, you can add a Global Village 28.8-kbps Platinum modem to the Power Computing models.

Test Results

As for overall processor speed, we found that you get significantly more bang for your buck from products that don't have a rainbow-colored apple on the front. The three Apple machines that fell in the budget price range — the Performa 6360, the Performa 6400/180, and the Power Mac 7200/120 — scored worst in our MacBench 4.0 Processor test. The Performas' low scores can be attributed to their lack of a Level 2 cache — all the clones come with a 256K cache. And although the Power Mac 7200 comes with a cache, its 120-MHz PowerPC 601 simply isn't able to keep up with the faster 603e processors in the other budget-system boxes.

Turning to disk access, an area of interest to DTP and multimedia users, the UMAX SuperMac C600/200 was barely edged out by the Power Computing PowerBase 200 in the MacBench 4.0 Disk test yet flew past the PowerBase 200 in the Publishing Disk test. An otherwise lackluster performer, the Apple Performa 6360, turned in a Publishing Disk score within the top three.

Due to the ATI accelerated-graphics chip set in the PowerBase 180 and 200, Power's machines fared well in all the graphics tests. This chip set provides an additional benefit unmatched by that of any other Mac — built-in 3-D-graphics acceleration. Gamers choosing a PowerBase can jump into the third-dimension without needing to get a dedicated 3-D-graphics accelerator.

Although performance should be a major consideration for anyone contemplating the purchase of a new machine, it shouldn't be the sole deciding factor — particularly if this is your first Macintosh. First-time Mac buyers need a computer with a solid price/performance ratio as well as one with enough software to be useful the first time they boot up. Except for the Power Macintosh 7200/120, which comes with nothing more than the Mac OS, all the entry-level Macs we examined come with generous suites of software. Common to all are copies of ClarisWorks 4.0, Quicken SE, and the Grolier Encyclopedia. Depending on the vendor, you also receive such useful applications as Now Utilities, Norton Utilities, Symantec AntiVirus, Conflict Catcher 3, Descent, and the America Online sign-up kit.

MacUser LABS Bargain Macs for the Budget-Conscious

PRODUCT	RATING	EST. STREET PRICE AS TESTED	POWERPC/ CLOCK SPEED	MEMORY-BUS SPEED	RAM	L2 CACHE	HARD-DRIVE CAPACITY (TYPE)	GRAPHICS RAM	NUMBER OF PCI SLOTS
✓ Power Computing PowerBase 180	●●●●●	$1,495	603e/180 MHz	40 MHz	16 MB	256K	1.2 GB (IDE)	2 MB (built-in)	3
✓ Motorola StarMax 3000/160 DT	●●●●½	$1,495	603e/160 MHz	40 MHz	16 MB	256K	1.2 GB (IDE)	1 MB (built-in)	3
✓ Power Computing PowerBase 200	●●●●	$1,795	603e/200 MHz	40 MHz	16 MB	256K	1.2 GB (IDE)	2 MB (built-in)	3
✓ UMAX SuperMac C600/180	●●●●	$1,695	603e/180 MHz	40 MHz	16 MB	256K	1.2 GB (IDE)	1 MB (built-in)	3
Apple Performa 6360	●●●½	$1,499	603e/160 MHz	40 MHz	16 MB	none	1.2 GB (IDE)	1 MB (built-in)	1
Motorola StarMax 3000/160 MT	●●●½	$1,795	603e/160 MHz	40 MHz	32 MB	256K	2.5 GB (IDE)	1 MB (built-in)	5
Apple Power Mac 7200/120	●●●	$1,649	601/120 MHz	40 MHz	16 MB	256K	1.2 GB (SCSI)	1 MB (built-in)	3
Motorola StarMax 3000/200 DT	●●●	$1,995	603e/200 MHz	40 MHz	16 MB	256K	1.2 GB (IDE)	1 MB (built-in)	3
UMAX SuperMac C600/200	●●●	$1,995	603e/200 MHz	40 MHz	16 MB	256K	2.1 GB (IDE)	1 MB (built-in)	3
Apple Performa 6400/180	●●	$1,899	603e/180 MHz	40 MHz	16 MB	none	1.6 GB (IDE)	1 MB (built-in)	2

✓ MacUser BEST BUY

*Test would not run on this system. Best performer in each test. Listing is alphabetical within groups of equal mouse ratings.

We tested the base configurations of all Mac OS systems available for $2,000 or less to find out which offered the greatest value. Price was the most important factor in our mouse ratings. When considering performance, we weighted most heavily scores from MacBench 4.0 tests that reflect basic productivity tasks. In addition, we gave points for including a modem, extra RAM, extra RAM for graphics, built-in Ethernet, bundled software, and an extended warranty.

MacBench 4.0 scores are relative to those of an Apple Power Mac 6100/60 with a 30-MHz memory bus, a 250-MB hard drive, 2 MB of built-in graphics

At Home

Your home Mac will likely serve more than one family member and so must satisfy a variety of needs. Grown-ups who are occasionally compelled to bring work home will want their Mac for word processing and moderate number crunching. When not busy with the toil of the workplace, these same adults will find their computer a handy tool for dealing with family finances and marveling at multimedia CD-ROMs. Younger members of the household will use the Mac to create artistic masterworks destined for the *gallerie du réfrigérateur,* do homework, and play games. *Everyone* will use the modem.

Because gaming is so important to the home user, you need a computer fast enough to handle these processor-intensive diversions. You also want a Mac that's easy to set up and use and that includes most of the necessary software and hardware required, right out of the box.

With budget in mind, we expect that you'll buy a 15-inch color monitor. The systems with 1 MB of graphics RAM can display thousands of colors (at 16 bits) on these monitors — plenty for your purposes. With their 2 MB of graphics RAM, the Power Computing PowerBase models can display millions of colors (24 bits) on a 15-inch monitor.

Possessing all those colors won't be much fun unless you have something to print them on. No home Mac system is complete without a color inkjet printer. Color inkjet printers from such companies as Apple, Epson, and Hewlett-Packard start at around $300 each.

Because your home Mac will entertain as well as enlighten, you should factor a pair of external speakers into your budget. For $100 and less, you can add rich sound to your gaming and multimedia experiences. And speaking of gaming, if you or a member of your family is serious about games, purchase a joystick. Quality Mac 'sticks are available for under $80 each from Advanced Gravis, CH Products, Kernel Productions, and MacALLY. Game pads start at $29 each.

In School

Times have changed. Computers are now as necessary in the college dorm as calculators once were. The academic Mac is intended for scholarly purposes — writing term papers, doing Internet-enabled research, and accessing CD-ROM source material. But we suspect that your Mac-away-from-home will also be used for less cerebral pursuits — sending e-mail, generating flyers and newsletters, and playing games.

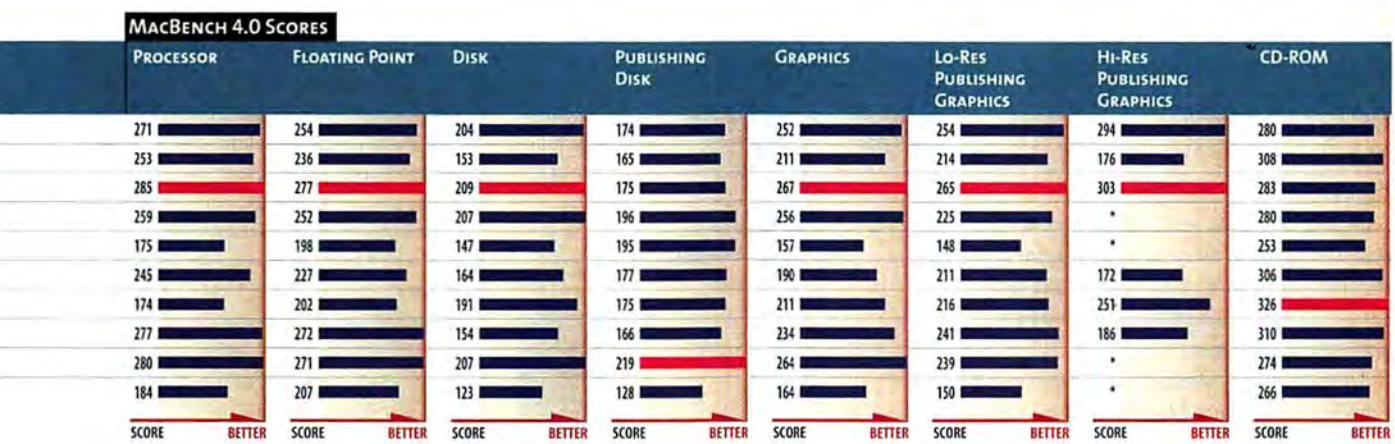
Just how robust your processor must be will depend a great deal on your studies — engineering and science students are likely to require a Macintosh at the top end of the performance scale. Another concern is

Best Budget Mac for Home

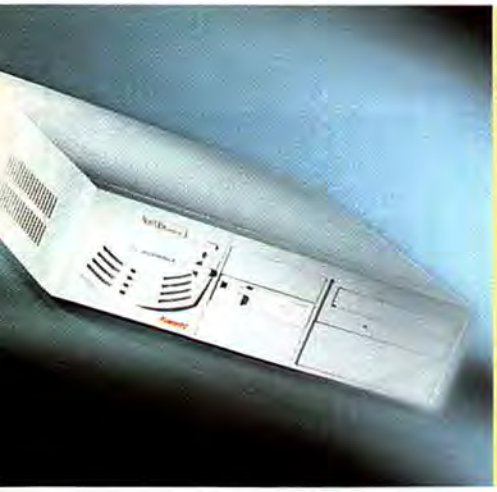
Power Computing PowerBase 180
(desktop configuration)

BEST BUY

The Power Computing PowerBase 180 isn't the fastest Mac OS system you can buy for under $2,000 — its MacBench 4.0 Processor score was fourth of the ten systems we examined in this category. But for home users, it offers the most bang for the buck. For just under $1,500, you get a 180-MHz PowerPC 603e (which can be upgraded to a faster processor), a solid software bundle, an extra megabyte of graphics RAM, and onboard 3-D-graphics acceleration. The one drawback to this system is that you have to pay extra for a modem.



RAM, and no L2 cache. This system is given a score of 100 for all tests. We tested all systems as configured by the vendors but with AppleTalk off and with virtual memory on (disk tests on the Performa 6360, PowerBase 180 and 200, and SuperMac C600/180 and C600/200 were performed with virtual memory off due to a bug in the Mac OS that conflicts with some IDE-equipped systems). We set the screen resolution to 640 x 480 pixels with a bit depth of 8 bits (256 colors) for all tests except the Hi-Res Publishing Graphics test, for which we set the resolution to 1,152 x 870 pixels with a bit depth of 8 bits (256 colors).



Best Budget Mac for Education

Motorola StarMax 3000/160 DT

BEST BUY

Along with the PowerBase 180, we were impressed with the value of the StarMax 3000/160 DT. In its desktop configuration, it costs just under $1,500, yet it outperformed the higher-priced Apple Performas in our tests. Unlike the PowerBase 180, the StarMax 3000/160 has a modem and a PS/2 port (for those who want to use the less expensive PC keyboards and mice) and a five-year warranty. Regrettably, the StarMax 3000/160 lacks onboard Ethernet. Students requiring Ethernet will need to buy a PCI Ethernet card.

connectivity. Wired institutions are becoming more commonplace, and you'll require Ethernet to make the connection. Students attending schools that don't provide networks in the dorms — or who live off campus — will want a modem.

Student budgets are likely to be the most restricted of any computer user, so the school Macintosh should be both inexpensive and free from repair costs. Because no one can guarantee reliability with any computer, an extended warranty is an important consideration for students. Motorola clones are the only Macs that come with a five-year warranty.

The school user who opts for a low-end Mac will require the same peripherals as those who keep a Mac at home — a 15-inch monitor; a color inkjet printer; and, perhaps, a joystick. Depending on your field of study, you may have to purchase additional, specialized software. Fortunately, college campuses generally offer their students significant discounts on Mac software.

Doing Business

The economical Mac fits nicely into a small-business or work-at-home venture. Not intended for running computer games and interactive multimedia, your Mac will play host to word-processing, spreadsheet, personal-information-management, and finance/accounting packages.

In the business world, time is money, and consequently your Mac should be swift enough to crunch lengthy columns of numbers and sort your contact database in short order — MacBench 4.0's Processor, Disk, and Graphics tests measure how quickly your Mac accomplishes these tasks. With the success of your business comes growth, and you'll want a Mac that can grow with you. Your computer should be upgradable as well as have enough room to accommodate additional hard drives. And, of course, the cost of your Mac shouldn't plunge your business into the red.

Although you can skip the Ethernet connection if you're not networked, you're likely to require a large monitor to accommodate fat spreadsheets and long client lists. A 15-inch monitor will suffice when you're starting out, but you should anticipate purchasing a 17-inch monitor when your budget allows.

Because the paperless office has yet to be realized, you'll need a printer. Although getting an inkjet printer is a reasonable short-term solution, your documents will have a more professional appearance when printed on a PostScript laser printer — 600-dpi grayscale PostScript printers start at around $900 each.

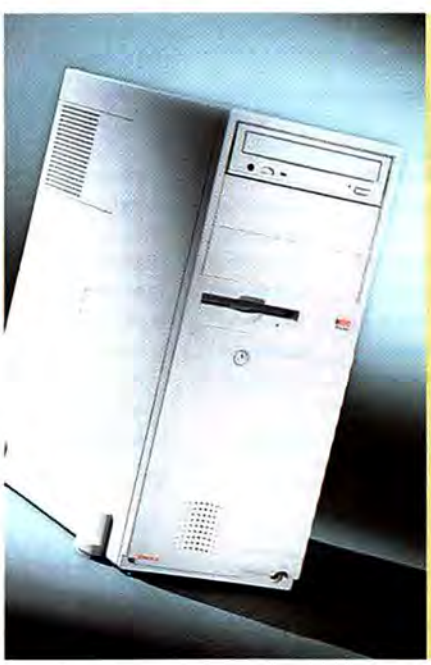
Your business may depend on the integrity of your data, so a reliable backup system is a must have. Budget buyers will find that a medium-capacity, removable hard drive such as the Iomega Zip serves them well for backup purposes. The mail-order price of a Zip drive hovers around $199. Power Computing also offers an internal Zip drive as a preinstalled option.

Pushing Pixels

You're a small publisher/graphic artist whose Mac must cope with page-layout, illustration, and imaging applications. With the world flocking to the Internet, it won't be long before Web Page Designer appears on your business card as well. You and your Mac must be Internet-ready.

A fully functional desktop-publishing system requires speed, storage, and lots of RAM — factors that do not bode well for the buyer on a budget. Unlike home, school, and business systems for which processing power is helpful but not vital, DTP and imaging demand the most powerful Mac you can afford. In addition to a fast machine, you'll need one with a high-capacity hard drive — graphics files can swallow several megabytes of disk space. Having extra hard-drive bays also benefits DTP users.

If you work in the visual arts, you'll want to be sure you're seeing the whole picture. For this reason, plan to buy at least 17 inches of



Best Budget Mac for Business

UMAX SuperMac C600/180

BEST BUY

The SuperMac C600/180 is a smart choice for an office. It's fast enough to tear through most jobs undertaken by business software, has a hard disk large enough to store the numerous files typical of small businesses, won't break your budget, and comes with a modem. But probably the biggest factor for business users is on-site service free of charge for the first year of ownership — a service for which you must pay Power Computing an additional $49 for one year. Add to this the comfort of being able to buy a SuperMac box from a local dealer instead of via mail order, as you must for a Power machine, and we think you'll agree that the security of knowing support is just around the corner makes the SuperMac C600/180 a best buy for business users.

monitor real estate. You should also add enough graphics RAM — or an accelerated-graphics card — so you'll be able to view your images in 24-bit color regardless of your monitor's resolution.

Graphics programs consume a lot of RAM. Plan to purchase as much RAM as you can reasonably afford. Once your Mac is chock-full, start shopping for an additional high-capacity, fast hard drive.

You'll also need a reliable removable-media drive for archiving huge graphics files. Check with representatives of your favorite service bureau to find out which media they prefer to use.

Best Budget Mac for DTP

Power Computing PowerBase 200 (minitower)

BEST BUY

DTP and imaging require a fast computer, and according to our tests, the fastest overall Mac under $2,000 is the PowerBase 200. Although we tested a desktop system, we recommend the minitower configuration (about $100 more) because of its greater expandability. The PowerBase 200 is priced right and carries one more megabyte of graphics RAM than nearly all other budget systems, thereby supplying DTP users with more colors at higher resolutions. An added bonus is the ATI 3-D-graphics chip set, which is useful for those wishing to break away from two dimensions.

Buyers will surely want to invest in more RAM and, perhaps, a higher-capacity hard drive than the 1.2-GB drive that comes with the starter configuration of the PowerBase 200. The nice thing about Power is that you can make changes when you order directly from the company and thus can avoid paying for a drive you'll be replacing anyway.

Visible Means of Support

You've carefully read our test results, figured out the kind of processor you want and how many PCI slots and drive bays you need, made a list of RAM and hard-drive configurations, and confirmed the costs. But one vitally important question isn't answered by our tests: What kind of tech support and customer service can you expect after you've made your purchase? Although a Mac OS machine is a fairly utilitarian tool, buying one isn't akin to purchasing a shovel — they don't all work flawlessly year after year. To get your Mac system back on its little rubber feet, companies take different approaches, and it's worth knowing what these approaches are before settling on a particular model. Here's how the various Mac-system vendors shake out:

Apple Computer. If you're shopping for a new computer, one factor in Apple's favor is support. Although many of us have spent far too long on 800-SOS-APPL (Apple's tech-support line), at least Apple has a track record. For better or worse, it's been supporting Macs since day 1, and for the most part, it has an efficient system in place. So far, the clone vendors' support systems are largely untested.

With a new Performa, you get a one-year, on-site service warranty, which means that if Apple determines you have a hardware problem that requires the attention of a technician, it will send a tech to your home or office. As with the clone vendors, this initial diagnosis is made via a call to technical support. Apple's response time has been reported to be three to five days — although months-long service delays, due to parts shortages, were not uncommon for certain Performa and PowerBook models during 1996.

Non-Performa Macs also have a one-year warranty, but all repairs on these machines must be performed at an Apple-authorized service center or dealer. Performa and non-Performa owners have the option to purchase AppleCare, an extended-warranty program for on-site or shop repair. The price of AppleCare depends on the computer model you buy and how it's configured.

Motorola. StarMax systems are covered by the most generous warranty in the business — five years. The first year is on-site, next-business-day service, Monday through Friday from 8 A.M. to 5 P.M. The second and third year, you must return the computer to one of Motorola's local service depots. During years 4 and 5, the StarMax must be shipped, at customer cost, to the factory for repair. Motorola offers free phone support for problems with the Mac OS only for the first 90 days. Customers can purchase warranty upgrades to same-day service or extend on-site service past the first year.

Power Computing. On-site service is available from the company only if you purchase it separately. This service is available for $49 for one year, $149 for two years, and $199 for three years. Response time for on-site service depends on part availability.

If a user-installable component — such as a keyboard or hard drive — is defective, and Power determines that you're capable of making the exchange, the company will often simply ship the part to you and have you swap it rather than send out a technician. If the problem is more serious and you haven't purchased the on-site warranty, you are required to return the computer to Power and pay one-way shipping costs. Power Computing agrees to return your computer to you via the same shipping method you used — for example, if you ship via Federal Express' second-day service, expect Power Computing to return your clone to you via second-day service from Federal Express.

UMAX Computer. The UMAX tech-support line operates seven days a week from 6 A.M. to midnight (central time), and the company claims that 85 percent of calls are answered in three minutes or less. UMAX includes a one-year, on-site warranty with all its computers and guarantees that a technician will arrive within three business days with the proper part in hand.

Apple Computer
Cupertino, CA
800-538-9696
408-996-1010
http://www.apple.com/

Motorola
Tempe, AZ
800-759-1107
512-434-1526
http://www.mot.com/computer/

Power Computing
Round Rock, TX
800-999-7279
512-388-6868
http://www.powercc.com/

UMAX Computer
Fremont, CA
800-232-8629
510-226-6886
http://www.supermac.com/

The Mac Midrange

WITH A BUDGET OF $2,000 TO $3,500, we enter the Macintosh sweet zone. These machines are fast and generally have more memory and graphics RAM and larger Level 2 caches than their sub-$2,000 counterparts.

Within these budgetary boundaries, you'll find systems sporting up to 32 MB of RAM and hard drives starting at 1 GB and swelling to 2.5 GB. In the Macs we examined, the drives are evenly split between the IDE and SCSI standards — with the Apple Performa 6400/200, Motorola models, Power Computing PowerBase 240, and UMAX SuperMac C 600/240 containing the less expensive IDE drives. The Apple Power Mac 7600/132 and 8500/150, the Power Computing PowerCenter models and PowerTower 180e, and the UMAX SuperMac J700 series have SCSI drives.

At the low end of the midrange-Macintosh price scale, we found 603e processors blazing away at 200 to 240 MHz. At $2,300 to $2,800, the PowerPC 604 makes a brief appearance in the Power Computing PowerCenter series as well as the UMAX SuperMac J700/150; PowerPC 604s also sneak into the lower-cost Power Mac 7600/132. At the $2,300 mark, the powerful 604e processor begins to appear, in Motorola models. All machines we examined that cost over $3,000 use a PowerPC 604e processor.

When it comes to Level 2 cache, Apple offers only 256K. Happily, most clone makers include a 512K cache once the base price exceeds $2,300. Power Computing offers a 512K cache even in the low-cost PowerCenter 150, and the high-performance PowerTower 180e has a generous 1-MB Level 2 cache.

Don't expect higher prices to equate with additional RAM. For example, Power Computing places only 16 MB of RAM in its base models, regardless of how expensive the machine is. Apple is equally shy about exceeding the 16-MB barrier with its computers. Motorola is more generous, including 32 MB of RAM in its minitower configurations, but it offers only 16 MB in the desktop boxes. UMAX includes 24 MB in its C600/240 and J700/180 clones but only 16 MB in its less powerful SuperMac J700/150.

Bundled modems are absent on most midrange Mac OS systems. However, onboard Ethernet and upgradable CPU daughtercards predominate in most lines, save the Motorola clones. Software bundles vary more widely in this category than with the budget Mac OS systems.

Test Results

Once again the scores of Apple's machines in our MacBench 4.0 Processor test were less than stellar. The Power Mac 8500/150, in particular, turned in poor results. Although we're impressed with the audiovisual features built into the 8500/150, we feel that its $3,000 price is a bit steep. Users interested in these AV features would be better served by looking instead to the less expensive — and slightly faster — Power Mac 7600/132, which, like the Power Mac 8500/150, includes 24-bit composite- and S-video input. Better yet, for a few hundred bucks, they can add a PCI digital-video card to a non-AV-equipped clone.

We were far more taken with three lower-cost systems that delivered high Processor and Disk scores. Base configurations of the Power Computing PowerBase 240 and PowerCenter 150 and the UMAX SuperMac C600/240 cost $2,200 to $2,300, yet they performed

MacUser LABS Middle-of-the-Road Macs

PRODUCT	RATING	EST. STREET PRICE AS TESTED	POWERPC/ CLOCK SPEED	MEMORY-BUS SPEED	RAM	L2 CACHE	HARD-DRIVE CAPACITY (TYPE)	GRAPHICS RAM	NUMBER OF PCI SLOTS
✓ Power Computing PowerTower 180e	●●●●●	$3,455	604e/180 MHz	60 MHz	32 MB	1 MB	2 GB (SCSI)	2 MB (built-in)	3
✓ Power Computing PowerBase 240	●●●●½	$2,195	603e/240 MHz	40 MHz	16 MB	256K	1.2 GB (IDE)	2 MB (built-in)	3
✓ Power Computing PowerCenter 166	●●●●½	$2,395	604/166 MHz	55.3 MHz	16 MB	512K	2 GB (SCSI)	1 MB (built-in)	3
Motorola StarMax 4000/160 DT	●●●●	$2,295	604e/160 MHz	40 MHz	16 MB	512K	1.2 GB (IDE)	2 MB (built-in)	3
Power Computing PowerCenter 150	●●●●	$2,195	604/150 MHz	50 MHz	16 MB	512K	1 GB (SCSI)	1 MB (built-in)	3
Power Computing PowerCenter 180	●●●●	$2,795	604/180 MHz	60 MHz	16 MB	512K	2 GB (SCSI)	1 MB (built-in)	3
✓ UMAX SuperMac C600/240	●●●●	$2,295	603e/240 MHz	40 MHz	24 MB	256K	2.1 GB (IDE)	1 MB (built-in)	3
UMAX SuperMac J700/180	●●●●	$3,095	604e/180 MHz	51.4 MHz	24 MB	512K	2.1 GB (SCSI)	2 MB (IMS TwinTurbo)	4
Motorola StarMax 3000/200 MT	●●●½	$2,195	603e/200 MHz	40 MHz	32 MB	256K	2.5 GB (IDE)	1 MB (built-in)	5
Motorola StarMax 4000/160 MT	●●●½	$2,895	604e/160 MHz	40 MHz	32 MB	512K	2.5 GB (IDE)	2 MB (built-in)	5
Motorola StarMax 4000/200 DT	●●●½	$2,995	604e/200 MHz	40 MHz	16 MB	512K	1.2 GB (IDE)	2 MB (built-in)	3
Motorola StarMax 4000/200 MT	●●●½	$3,195	604e/200 MHz	40 MHz	32 MB	512K	2.5 GB (IDE)	2 MB (built-in)	5
Apple Power Mac 7600/132	●●●	$2,299	604/132 MHz	44 MHz	16 MB	256K	1.2 GB (SCSI)	2 MB (built-in)	3
Apple Performa 6400/200	●●½	$2,199	603e/200 MHz	40 MHz	16 MB	256K	2.4 GB (IDE)	1 MB (built-in)	2
UMAX SuperMac J700/150	●●½	$2,795	604/150 MHz	50 MHz	16 MB	512K	2.1 GB (SCSI)	2 MB (IMS TwinTurbo)	4
Apple Power Mac 8500/150	●●	$2,999	604/150 MHz	50 MHz	16 MB	256K	1.2 GB (SCSI)	2 MB (built-in)	3

✓ MacUser BEST BUY

*Test would not run on this system. ■ Best performer in each test. Listing is alphabetical within groups of equal mouse ratings.

Nearly half the systems we tested fell into the midrange category: those with base configurations street priced at $2,000 to $3,500 each. We weighted price and performance nearly equally, giving slightly more importance to tests that reflected business tasks than publishing tasks. Systems got extra points for having a modem; offering more RAM, hard-disk capacity, and graphics RAM; providing built-in Ethernet; having greater expansion capacity, including built-in digital-video capability; and offering a longer-than-usual warranty.

MacBench 4.0 scores are relative to those of an Apple Power Mac 6100/60

as well as some systems priced at $2,800 — making them reasonable choices for cost- and performance-conscious home, student, and business users. A standout among these clones is the SuperMac C600/240, which includes 24 MB of RAM, a 2.1-GB hard drive, and a modem. The Power Computing systems include only 16 MB of RAM, a 1-GB drive, and no modem.

Despite their comparatively low RAM and graphics RAM, the 604-based PowerCenter 166 and 180 provide the best value for midpriced systems. Both machines edged out the Motorola StarMax 4000/160 MT in all tests except the Publishing Disk and Floating Point tests. The Power Computing products also offer a significant advantage over Motorola's — their processors can be upgraded, whereas the StarMax series' cannot. Shoppers whose budgets prevent them from exceeding the $3,000 limit should look carefully at the PowerCenter models.

Skipping to the high end of this category, we were impressed by the performance of the Power Computing PowerTower 180e. Its Processor score was 16 percent higher than that of its closest competitor, the UMAX SuperMac J700/180. Clearly demonstrating that processor speed isn't the only factor you should consider when judging a computer's performance, MacBench 4.0 showed the 180-MHz PowerTower's processor subsystem to be roughly 19 percent faster than that of the 200-MHz Motorola StarMax 4000/200s. The higher score can be attributed to both the larger Level 2 cache in the PowerTower 180e — 1 MB versus 512K — and the 180e's faster system bus. The PowerTower 180e also turned in admirable graphics scores — scores that will translate into better Photoshop performance, zippier text redraws in QuarkXPress and PageMaker, and better throughput for desktop audio and video applications.

At Home

Home users who spend over $2,000 for their Macs should have something more serious in mind than balancing their checkbooks. Home video productions, digital audio, 3-D dabbling, or hard-core gaming may all be good justifications for breaking the household budget. But because this *is* a home computer,

Best Midrange Mac for Home

Power Computing PowerBase 240
(desktop configuration)

BEST BUY

We said budget was a concern, and we weren't kidding. Although one of the least-expensive midrange Macs, the PowerBase 240 scored in the middle of the pack in terms of overall performance. As with the other PowerBase models, you get an upgradable processor, 2 MB of graphics RAM, built-in 3-D-graphics acceleration, and a solid software bundle. Downside? Midrange-Mac buyers will have to add a modem and more RAM to be truly happy.

MacBench 4.0 Scores

Processor	Floating Point	Disk	Publishing Disk	Graphics	Lo-Res Publishing Graphics	Hi-Res Publishing Graphics	CD-ROM
438	364	300	209	467	459	474	240
309	319	213	175	288	279	333	286
333	289	241	176	339	341	414	321
330	312	169	169	317	325	348	308
307	263	201	167	297	293	334	314
363	314	250	178	368	366	445	321
299	314	209	219	294	254	*	287
376	363	181	187	468	429	489	340
273	271	166	176	216	232	182	309
331	314	182	183	317	331	366	312
369	385	172	171	348	360	349	305
367	384	189	184	366	364	389	295
251	243	212	207	261	261	309	327
258	262	163	167	242	218	*	304
298	274	256	207	226	258	318	261
247	276	190	182	294	280	312	201
SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER

with a 30-MHz memory bus, a 250-MB hard drive, 2 MB of built-in graphics RAM, and no L2 cache. This system is given a score of 100 for all tests. We tested all systems as configured by the vendors but with AppleTalk off and virtual memory on (disk tests on the SuperMac C600/240 and the PowerBase 240 were done with virtual memory off due to a bug in the Mac OS that conflicts with some IDE-equipped systems). Screen resolution was 640 x 480 pixels with a bit depth of 8 bits (256 colors) for all tests except Hi-Res Publishing Graphics, for which resolution was 1,152 x 870 pixels with a bit depth of 8 bits (256 colors).

we assume that cost is still a concern.

If you're considering home multimedia production you'll need a fast processor; at least 32 MB of RAM; and a high-capacity, fast hard drive. Desktop-video enthusiasts will be tempted by the built-in video capabilities of the Power Mac 7600/132. If your aspirations move beyond the limits of the 7600, you'll need to look into getting a dedicated video card.

It's time to upgrade your monitor to 17 inches, and if you intend to work or play in the third dimension, you'll appreciate having a 3-D-graphics-acceleration card — provided your computer doesn't already offer 3-D acceleration.

If you're contemplating a midrange purchase because you want to squeeze just a few more frames out of Marathon Infinity and MechWarrior 2, you're a serious enough gamer to consider a top-end joystick from ThrustMaster or CH Products. Need to take pictures of the kids? Think about a digital camera. Prices start at around $400 and range up to $900 for consumer-model cameras. If that's too expensive, have the kids sit in front of your Mac and use a Connectix Color QuickCam (around $180).

Best Midrange Mac for Education

UMAX SuperMac C600/240

BEST BUY

The SuperMac C600/240 comes close to the perfect Mac for higher education — if it just contained an Ethernet connection and its graphics RAM could be expanded beyond 1 MB, we'd be completely sold. The base model ships with a modem, a high-capacity hard drive, and 8 MB more RAM than the slightly faster PowerBase 240. In addition, this upgradable clone's minitower case sports four drive bays. Although you could configure the PowerBase 240 with the same case and accoutrements as the UMAX machine, doing so would raise the price to hundreds of dollars more than the SuperMac C600/240.

In School

It would be more than just a little shortsighted of us to assume that everyone who attends college is an undergrad who uses a computer for such simple tasks as word processing and Internet access. Macs on campus perform the same kinds of chores as are carried out in the workplace and, therefore, must be just as vigorous. However, because these machines are being purchased by students — or their parents — cost counts.

Students investing in a midpriced Mac are likely to be involved in science, engineering, graphic arts, music/audio, video production, or multimedia design — disciplines that demand the most from a computer. Applications that address these fields generally consume large amounts of RAM and storage. You'll need a Mac with RAM and hard-disk space to spare. As with any college Mac, yours should have a modem and, if possible, Ethernet. Depending on the kind of applications you use, you may also require a monitor larger than 15 inches.

If you're starting from ground zero, you'll need the same peripherals as other students — a printer; external speakers; and, if you like, a joystick. Because your studies are likely to be a bit more focused, you'll add devices appropriate to your interests. These may include a digitizing tablet, MIDI interface and synthesizer, video card, digital camera, or scanner. Because it's unseemly for graduate students to claim that the Mac ate their homework, you should consider an inexpensive removable-media drive for backup.

Doing Business

With a midpriced Mac, you can conduct business in earnest. In your hands, you'll have the power to crunch mounds of numbers, design and execute multimedia business presentations, administer an office network, fax and e-mail thousands of clients, and catalog and cross-reference a large inventory. Fortunately, most of these jobs aren't processor intensive and a Mac capable of doing your work needn't break the bank.

Like your home- and school-based colleagues, you'll be happier with more RAM and a high-capacity hard drive. If your business is doing well enough to afford one of these computers, expansion may be in your future. You'll definitely want an upgradable processor. And if your Mac is joining others in a workgroup, get an Ethernet connection.

Best Midrange Mac for DTP and Multimedia

Power Computing PowerTower 180e

BEST BUY

You need the fastest Mac you can find, and in the under-$3,500 market, this is it. The PowerTower 180e scored among the leaders in seven of our eight MacBench 4.0 tests — taking first place in the Processor, Disk, and Lo-Res Publishing Graphics tests. These scores translate into solid overall speed, quick disk access, and fast screen redraws.

Multimedia producers will be pleased with the performance of the 2-GB AV drive; desktop publishers who don't currently need graphics acceleration should be pleased with the 2 MB of onboard graphics RAM. DTP and multimedia users will want to up the machine's wimpy RAM allotment. Although the unit we tested had 32 MB, Power's base configuration comes with 16 MB of RAM.

Finally, it's likely that your needs will have grown beyond the capabilities of the bundled software. Clone vendors are beginning to offer special bundles that include business-oriented packages such as Microsoft Office. Be sure to check out these bundles.

Of course you need a fax/modem, but what to do when you need to fax a hard-copy document? Right, you need a scanner. For those on a tight budget, Visioneer's PaperPort Vx (around $300) is an adequate solution for grayscale scanning of hard copy. Quality color, single-pass scanners can be had for $600 and up each.

Pushing Pixels and Moving Pictures

Unlike home, academic, and business users who find their midrange Macs blazingly fast, many graphic designers and multimedia producers will discover that these models do little more than make their work tolerable. No more overnight vigils while your Mac cogitates over large rendering jobs; an end to extended coffee breaks while an underpowered computer applies a processor-intensive Photoshop filter; and finally, digital-audio tracks to spare when you use DECK II.

For most of your work, priority 1 is to secure the fastest processor your pocketbook allows — a 604e is a must. You'll also want to give your Mac as much RAM as you can afford. And because graphics, audio, and video files can be very large, expect to increase the capacity of your hard drive. For those involved in the audio/media world, hard-drive capacity and speed are crucial. To stream large audio and video files seamlessly from your Mac, you'll require a fast AV hard drive.

Consider future expansion, and find a Mac with plenty of drive bays. If you're involved in video production, a RAID array is in your future and these extra bays will help. Not only will your desk be tidier with the array tucked away, because you can run it from the fast internal SCSI-2 bus, you also save the cost of the Fast-and-Wide SCSI-2 PCI card necessary to run an array externally.

Plan on a 17-inch multisync monitor with enough graphics RAM to provide 24-bit color at every screen resolution available to you. If you want these millions of colors as well as optimal graphics performance, investigate an accelerated-graphics card.

Both DTP and multimedia require a removable-media drive with room to spare. The $500 Iomega Jaz offers 1 GB of removable storage for around $100 per cartridge. More-expensive, optical drives can store 2.6 GB of data per cartridge.

Best Midrange Mac for Business

Power Computing PowerCenter 166

BEST BUY

If ever there were a modern-day counterpart to the venerable Mac IIci — the classic business Macintosh — this is it. There's nothing terribly fancy about the PowerCenter 166. No overabundance of RAM and no bundled modem. But it turned in a solid, midrange score in our MacBench 4.0 Processor test, exhibited more than adequate performance in our disk and graphics tests, has an upgradable processor, has Ethernet, and is not expensive.

How We Tested

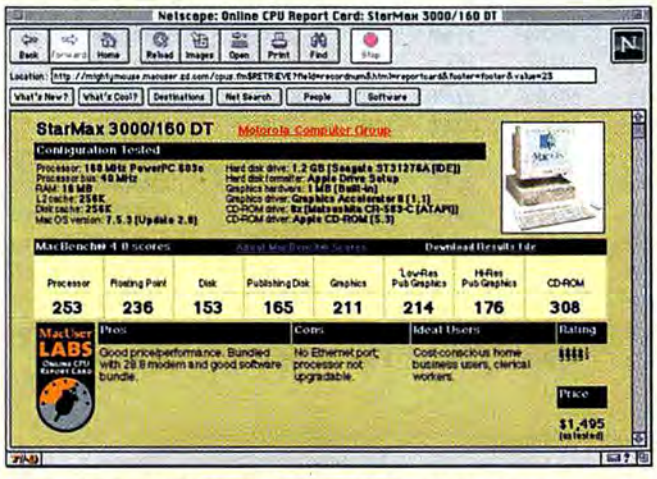
Evaluating the relative merits of Mac OS systems is a daunting task, now that more than 40 models are available for users to choose from. In pursuit of this goal, we logged hours of hands-on time with every single-processor model of Mac and Mac-compatible on the market in the U.S. To determine the new mouse ratings reported here, we conducted extensive system-performance testing and considered pricing, bundled hardware and software, and warranties and service.

Our ratings are based on the new 4.0 version of MacBench, the industry-standard benchmark for measuring Mac OS-system performance. We're particularly proud of the new graphics tests in MacBench 4.0, which replay verbatim the graphics calls made by 11 top-selling Mac applications that ZDBOp (Ziff-Davis Benchmark Operation) profiled during development of MacBench 4.0. These new tests make it look as though the profiled applications are actually running on your Mac.

In this system roundup, we have provided basic system-configuration information for each model we tested and a complete set of the key MacBench 4.0 scores. But we realize that with the fast-changing pace of today's Mac-clone market, you also need up-to-date information about the latest models, configurations, and pricing changes. That's why we have also instituted MacUser Online CPU Report Cards as a major feature of our Web site (see figure).

If you've seen our report cards before, you probably already know what a valuable resource they are when it comes time to purchase that new Mac you've been saving up for. If you haven't taken a look yet, you owe it to yourself to check them out. Even if you're an experienced report-card watcher, we encourage you to take another look: In response to your requests, we've enhanced the report cards to include more of the information you've asked us for about system features and configurations. And, of course, we've posted a complete set of new MacBench scores and mouse ratings, based on the evaluations we did for this report.

As in the past, we remain committed to maintaining our online report cards as the most comprehensive, up-to-date resource for comparative Mac OS-system shopping available anywhere. In essence, the MacUser Online CPU Report Card database is like an ongoing Which Mac? lab report that's always up-to-date and just a mouse click away. / *HENRY BORTMAN*



MacUser's Online CPU Report Cards are one of the most often-accessed features of our Web site. They provide instant access to performance, pricing, and hardware- and software-bundling information about all shipping single-processor Mac and Mac-clone systems. We routinely post information about new systems as soon after they ship as possible. Go to http://www.zdnet.com/macuser/cpu.html.

- To obtain a MacBench 4.0 CD-ROM (shipping and handling fee, $5 U.S., $6 Canada, or $7 international), fax credit-card information to 919-380-2879 or send a check to Ziff-Davis Benchmark Operation, 1001 Aviation Parkway, Suite 400, Morrisville, NC 27560.
- You can also download MacBench 4.0 from the Web at http://www.zdnet.com/zdbop/, but without the CD-ROM, you won't be able to run the graphics or CD-ROM tests.

The Ultra Macs

CONSIDERING THE BUCKS you'll be dishing out for these systems, you have every right to expect the kind of bang that rattles windows and causes cows' milk to sour. These high-octane machines *deliver*, and they do so with the PowerPC 604e exclusively. Speeds of these 604e processors begin at 180 MHz, with the Apple Power Mac 8500/180, Power Computing PowerTower Pro 180, and UMAX SuperMac S900/180, and peak at 225 MHz, with Power Computing's PowerTower Pro 225 and UMAX's SuperMac S900/225.

As is typical of all Power Computing base models, the PowerTower 200e and PowerTower Pros ship with 16 MB of RAM each, whereas the Apple Power Mac 8500/180 and 9500/200 and the UMAX S900 series each have 32 MB. What they lack in RAM, the Power Computing clones make up for with their 1-MB Level 2 cache. The UMAX SuperMac S900s and the Apple Power Mac 9500/200 have 512K caches, whereas the Power Mac 8500/180 has a paltry 256K cache.

The PowerTower Pro series sports 8 MB of graphics RAM on the bundled IMS TwinTurbo graphics card. The SuperMac S900 series ships with this same graphics card, although the card in the SuperMac S900/180 and S900/200 has only 4 MB of RAM. The Power Macintosh 9500/200 also comes with an accelerated-graphics card, a 2-MB version of the ATI Xclaim GA.

All hard drives in the base-model configurations in the high-end-Mac category have a capacity of about 2 GB each. For those who just can't get a fast enough storage system, the PowerTower Pro can be configured with RAID arrays of either 4 or 8 GB each.

Having enough PCI slots shouldn't be a problem with most of these models either. Except for the Power Mac 8500/180 and the PowerTower 200e (which contain three PCI slots), all these computers come with six slots. At this price point, all Macs have built-in Ethernet (10BASE-T and AAUI), a fast internal SCSI-2 bus, and upgradable processors (the UMAX SuperMac S900 series offers a multiprocessor upgrade option).

Test Results

Those who have expressed concern that Apple will be unable to compete with clone makers

Best High-End Mac for Business

Power Computing PowerTower 200e

BEST BUY

Like its sibling the PowerTower 180e, the PowerTower 200e turns in some mighty dazzling numbers. In our MacBench 4.0 Processor test, it was third overall — edging out the more-expensive-by-about-$750 PowerTower Pro 200 and coming almost to within a single percentage point of the $4,995 PowerTower Pro 225. It has an upgradable CPU daughtercard, should you later feel the need for additional speed, and has enough drive bays to accommodate another hard drive or two.

The base configuration of this clone needs some extra RAM, but you can easily add this.

MacUser LABS Top-of-the-Line Macs

PRODUCT	RATING	EST. STREET PRICE AS TESTED	POWERPC/ CLOCK SPEED	MEMORY-BUS SPEED	RAM	L2 CACHE	HARD-DRIVE CAPACITY (TYPE)	GRAPHICS RAM
Power Computing PowerTower Pro 200/RAID	●●●●●	$6,450	604e/200 MHz	50 MHz	32 MB	1 MB	8 GB (SCSI)	8 MB (IMS TwinTurbo)
✓ Power Computing PowerTower Pro 225/RAID	●●●●●	$6,950	604e/225 MHz	45 MHz	32 MB	1 MB	8 GB (SCSI)	8 MB (IMS TwinTurbo)
✓ Power Computing PowerTower 200e	●●●●½	$3,755	604e/200 MHz	50 MHz	32 MB	1 MB	2 GB (SCSI)	2 MB (built-in)
Power Computing PowerTower Pro 180/RAID	●●●●	$6,150	604e/180 MHz	51.4 MHz	32 MB	1 MB	8 GB (SCSI)	8 MB (IMS TwinTurbo)
Power Computing PowerTower Pro 225	●●●●	$4,995	604e/225 MHz	45 MHz	16 MB	1 MB	2 GB (SCSI)	8 MB (IMS TwinTurbo)
✓ UMAX SuperMac S900/200	●●●●	$3,795	604e/200 MHz	50 MHz	32 MB	512K	2.1 GB (SCSI)	4 MB (IMS TwinTurbo)
Power Computing PowerTower Pro 200	●●●½	$4,495	604e/200 MHz	50 MHz	16 MB	1 MB	2 GB (SCSI)	8 MB (IMS TwinTurbo)
Power Computing PowerTower Pro 180	●●●	$4,195	604e/180 MHz	51.4 MHz	16 MB	1 MB	2 GB (SCSI)	8 MB (IMS TwinTurbo)
UMAX SuperMac S900/180	●●●	$3,595	604e/180 MHz	51.4 MHz	32 MB	512K	2.1 GB (SCSI)	4 MB (IMS TwinTurbo)
Apple Power Mac 9500/200	●●½	$4,199	604e/200 MHz	50 MHz	32 MB	512K	2 GB (SCSI)	2 MB (ATI Xclaim GA)
UMAX SuperMac S900/225	●●½	$4,295	604e/225 MHz	45 MHz	32 MB	512K	2.1 GB (SCSI)	8 MB (IMS TwinTurbo)
Apple Power Mac 8500/180	●●	$3,699	604e/180 MHz	45 MHz	32 MB	256K	2 GB (SCSI)	2 MB (built-in)

✓ MacUser BEST BUY

Best performer(s) in each test.

Listing is alphabetical within groups of equal mouse ratings.

To find which systems best fit the needs of users at the high end, we tested all Mac OS systems available for a street price of $3,500 or more. In this category, performance counted most. We paid particular attention to the MacBench 4.0 Processor, Publishing Disk, and two Publishing Graphics scores. In addition, we gave points for expandability, extra RAM, graphics RAM, and hard-drive capacity, and built-in digital-video capability when deciding a system's mouse rating.

MacBench 4.0 scores are relative to those of an Apple Power Macintosh

in regard to value for dollars may have a point. Once again, one of Apple's products turned in poor numbers in our price/performance comparison. The Power Mac 8500/180, although a capable multimedia computer, came in dead last in the Processor test for this price category. The overall fastest midrange Power Computing PowerTower 180e outscored the 8500 in every test except the Publishing Disk and CD-ROM tests. Note, however, that the 8500 provides video inputs whereas this capability can be added to the PowerTower 180e only via an optional video card.

The Apple Power Mac 9500/200 didn't fare much better. In the Processor test, it outscored the like-priced Power Computing PowerTower Pro 180. However, it just barely squeaked by the less expensive UMAX SuperMac S900/200 in the Processor test and, in this same test, lagged more than 11 percent behind the Power Computing PowerTower 200e. Considering that the PowerTower Pro 180 and the SuperMac S900/200 have substantially more graphics RAM than the Power Mac 9500 — 6 and 2 MB more, respectively — and that the PowerTower 200e costs $450 less than the Power Mac 9500, it's hard to recommend the Apple product to shoppers seeking the best performance or price.

The low end of the over-$3,500 Mac OS systems is competently held down by the UMAX SuperMac S900/200 and S900/180. These clones come configured with an accelerated-graphics card and 32 MB of RAM and turn in reasonable MacBench 4.0 scores, given their cost. They were bettered by the Power Computing PowerTower 200e in our Processor test but outshone the latter in the disk and graphics tests. DTP and multimedia users who can't stray much above the $3,500 mark should take a close look at the UMAX machines.

Once you're over the $4,000 hurdle, Power Computing rules the roost. Power was the first vendor to offer a Mac OS system with a 225-MHz 604e processor and is still the only vendor to offer an optional RAID array. The value of Power's high-end configurations is reflected in high Processor, Disk, Publishing Disk, and Graphics scores — scores that will be of vital interest to DTP and multimedia users who have deep pockets.

Doing Business

High-end machines are too powerful to be used for word processing alone. You'll want one of these systems only if you're the kind of person who demands the absolute pinnacle of power from a computer. And what will you be able to do with this power? Whip

Best High-End Mac for DTP

UMAX SuperMac S900/200

BEST BUY

If you need to reel in a capable system for under $4,000, check out the SuperMac S900/200. For $3,795, you get a Mac that outperforms Apple's top-of-the-line Power Mac 9500/200 and offers graphics acceleration, a fair chunk of RAM, Ethernet, a load of PCI slots, and four drive bays. One additional bonus: As with the Power Mac 9500/200 the SuperMac S900/200 can become a multiprocessor machine with the addition of a CPU card. So far, Power Computing has not announced this capability for its computers.

If price isn't an issue, consider the PowerTower Pro 225. There's not a faster non-RAID system on the market, and you'll love the number of drive bays, six PCI slots, and the 8 MB of graphics RAM on the IMS TwinTurbo accelerated-graphics card.

MacBench 4.0 Scores

Number of PCI slots	Processor	Floating Point	Disk	Publishing Disk	Graphics	Lo-Res Publishing Graphics	Hi-Res Publishing Graphics	CD-ROM
6	451	404	489	370	581	555	622	403
6	461	449	487	372	608	560	650	404
3	456	400	303	206	487	471	501	240
6	415	366	476	367	542	513	592	405
6	461	446	339	264	528	494	553	362
6	408	404	323	249	531	522	599	352
6	452	402	341	266	504	484	531	361
6	398	364	339	266	471	449	506	359
6	377	364	320	248	494	493	569	354
6	409	402	317	249	442	440	530	365
6	410	446	293	276	548	522	606	345
3	329	362	236	210	401	378	420	357
	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER	SCORE BETTER

6100/60 with a 30-MHz memory bus, a 250-MB hard-disk drive, 2 MB of built-in graphics RAM, and no L2 cache. This baseline system is assigned a score of 100 for all MacBench tests. We tested all Mac OS systems as configured by the vendors but with AppleTalk turned off and with virtual memory turned on. We set the screen resolution to 640 x 480 pixels with a bit depth of 8 bits (256 colors) for all MacBench tests except the Hi-Res Publishing Graphics test, for which we set the screen resolution to 1,152 x 870 pixels with a bit depth of 8 bits (256 colors).

BOOKMARK

RELATED INTERNET SITES

- **MacUser Online CPU Report Cards**
  The premier online resource for the latest data, prices, and test results for Mac OS systems.
- **United Computer Exchange**
  Check UCE to find out what your old Mac is worth.
- **Clone Central**
  For lots of Mac-clone talk, check out Clone Central.

GO TO http://www.zdnet.com/macuser/0397.html#mac

out a full-blown multimedia presentation in nothing flat, jockey numbers in massive spreadsheets, teleconference, create glorious Web sites, sort hundreds of thousands of client files, touch up a photograph in the corporate quarterly report . . . to be honest, there's very little you can't do.

Fortunately, you'll get by quite comfortably without ever visiting the top end of this category's price scale — no need to cancel the company picnic to pay for your fast Mac. Typical business users don't need the kind of performance that comes with graphics acceleration, RAID arrays, half-a-dozen PCI slots, and screaming-fast processors. Given a reasonable amount of RAM — 32 MB at least — a high-capacity hard drive, and enough graphics RAM to provide you with 24-bit color, you should be in hardware heaven.

What more could you want? You have the laser printer, the scanner, the fax machine, the DAT drive for backup, the computer-controlled messaging and speakerphone system, the massive monitor, the QuickCam teleconferencing kit, the ISDN line, and a rather comfortable chair. What's missing? A PC.

It's a Windows-centric business world, and you're going to look mighty silly if you can't run company-created custom DOS and Windows applications. However, there's no need to taint your desktop with a DOS box. Purchase a PCI DOS card from Apple, Orange Micro, or Reply.

Best High-End Mac for Digital Video

Power Computing PowerTower Pro 225/RAID

BEST BUY

You wanted the fastest Mac on earth, and this is it. You can purchase a RAID array with any of the PowerTower Pro series — configured either with 4 or 8 GB. Our MacBench 4.0 Disk and Publishing Disk scores shot through the roof once we added an array to the PowerTower Pros, and this is the kind of performance you want if you're producing professional video. Naturally, you'll want a hefty amount of RAM to complement your array. How much would it cost to max out one of these babies? Power Computing will ship you a PowerTower Pro 225/RAID with 512 MB of RAM for a scant $11,280 (not including sales tax and shipping).

Pushing Pixels

Now you're at the top of the game. Whereas the moderately priced Macs are competent tools for design, the top end can be a delight. To justify the purchase of a Mac costing over $3,500, you should be creating far more than the family newsletter. Your ultra Mac is perfectly suited for complex-graphics rendering, vast page-layout documents, professional photo retouching, CAD, and 3-D modeling.

Because you're in the "to heck with price, give me performance" bracket, 2 MB of graphics RAM just won't cut it. You need an accelerated-graphics card. As with any DTP professional, you'll want a wicked-fast hard drive. And to accompany the fast processor and hard drive, plan to add dozens of megabytes of RAM.

If you don't have a 21-inch monitor, now's the time. With 4 to 8 MB of graphics RAM, your accelerated Mac will be able to throw millions of colors onto a screen this size.

At the top end, loads of costly add-ons for DTP professionals are available. Thankfully, graphics service bureaus have the really pricey ones — slide scanners, drum scanners, plotters, and high-quality color laser printers — in-house. However, you'll still need a high-capacity storage device for transporting your files to the bureau.

Moving Pictures

Unfortunately, video and multimedia professionals will discover that their over-$3,500 Mac is just the beginning of a more expansive (and expensive) system. Much of your real work will be performed by pricey add-on peripherals such as video cards, digital-audio systems, and CD-ROM writers. Your Mac can do its part, however. To accommodate these devices, you require lots of processing power, lots of PCI slots, lots of drive bays, lots of RAM, and lots of fast hard drives working together in an array. For you, budget is superfluous. You need the fastest Mac on earth.

As to add-on peripherals, a sympathetic loan officer would be a good start.

The Verdict: *Apple Falls Behind*

REVIEWING OUR RECOMMENDATIONS, one glaring trend emerges — when one considers price versus performance, Apple products never win out against cheaper, faster Mac clones. Although we owe a huge debt of gratitude to Apple for bringing us the Mac in the first place, the truth is that Mac OS systems currently offered by Apple are not competitive — clone makers simply offer better systems for less money. We hope that when we address this issue later this year, Apple's name will again appear in our list of endorsements.

Odd, isn't it? We gathered together 38 Mac OS systems ranging in price from $1,495 to $6,950. We used MacBench 4.0 — the finest diagnostic tool at our disposal — to poke, prod, and probe each and every machine. We sat through endless meetings and pored over reams of spec sheets in order to hash out which features are likely to appeal to which type of user. And we ran extensive value-analysis spreadsheets to help back up what our guts told us about each system we examined. All to answer this one question, Which Mac should you buy?

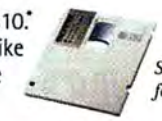
The results are in at last, and the answer is bound to be a Mac without an Apple logo.

Contributing Editor Christopher Breen would like to thank the staff of MacUser Labs for telling him which clone . . . er, Mac, he should buy. MacUser Labs Senior Project Leader Kristina De Nike managed the testing for this report.

Everyone who wants to save big on removable storage, raise your hand.

Low-cost, high-capacity storage is always within reach with the SYS.230™ Personal Storage System.

That's because it packs up to 230 MB onto a single rewritable-optical cartridge that costs only $10.* Compared to the price for any of today's magnetic removables, there's simply no comparison. And unlike magnetic removables, rewritable-optical media is almost indestructible. Which means you never have to worry about data loss due to dust, magnetic fields, shock – or even airport security.



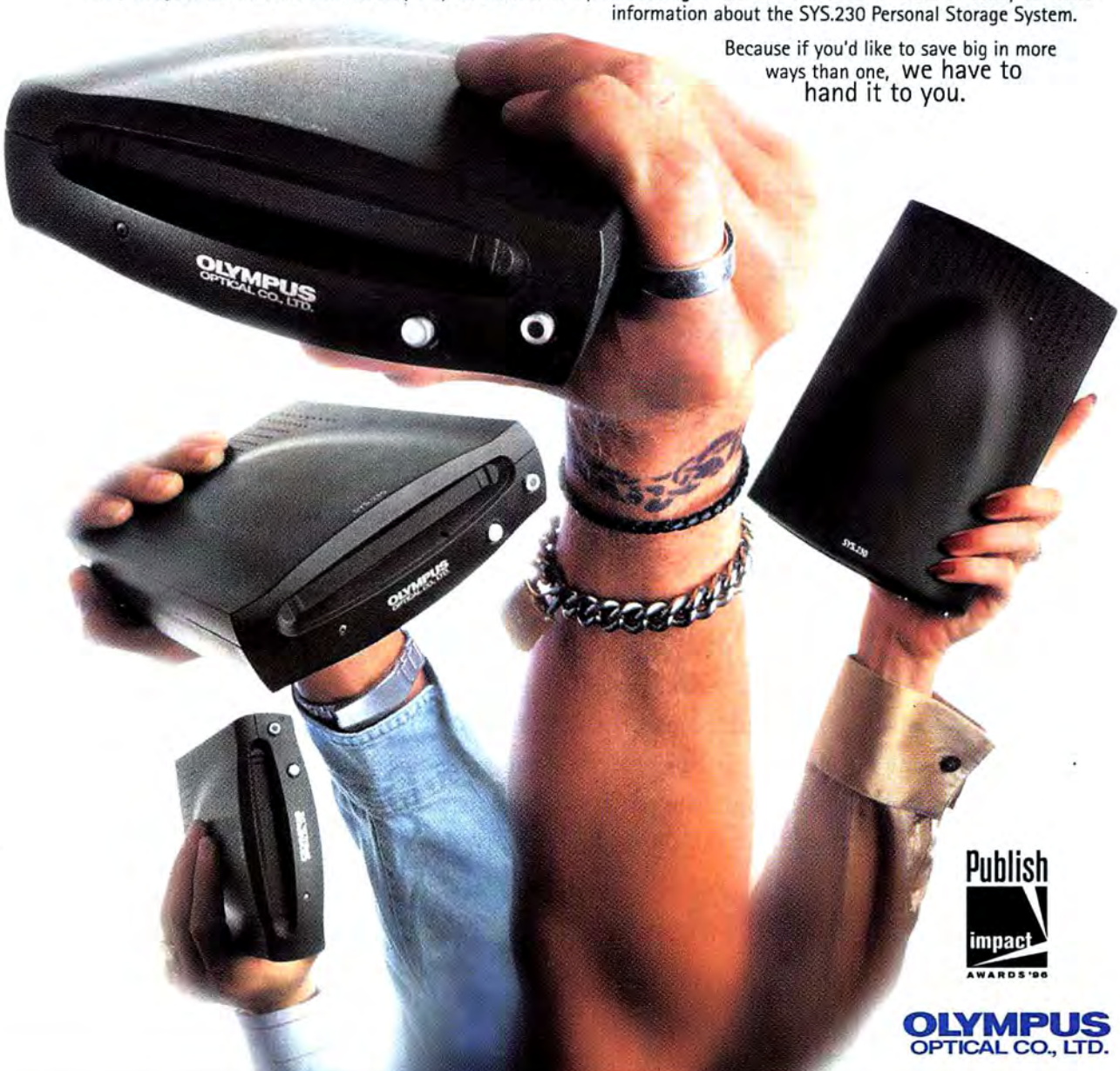
Save 230 MB for just $10!

Plus, you can take the Universal SYS.230 System with you anywhere and use it with whatever you want. It's small enough to slip into the palm of your hand, and it's the only portable solution that works as both a SCSI and a parallel device. So you can use it with your laptop and your desktop, your Macintosh or your PC.

All of which makes the SYS.230 System perfect for storing and transporting images from the Internet, your digital camera or scanner – or for any other data-intensive application.

Why not join the millions who already rely on rewritable-optical storage? Call **800-347-4027** today for more information about the SYS.230 Personal Storage System.

Because if you'd like to save big in more ways than one, we have to hand it to you.



Publish impact AWARDS '96

OLYMPUS
OPTICAL CO., LTD.

The SYS.230 Personal Storage System can be purchased through the following resellers: CDW (800-334-4CDW), MacWarehouse (800-255-6227), MacZone (800-248-0800), MicroSystems Warehouse (800-660-3222) and PrePress Direct (800-443-6600). Resellers, call Ingram Micro (800-456-8000), Optical Laser (800-776-9215) or TechData (800-237-8931).

*When purchased in package of five at suggested retail price of $49.95. SYS.230 is a trademark of Olympus Optical Company, Ltd. All other brand or product names mentioned herein are trademarks or registered trademarks of their respective holders. ©1996 Olympus Optical Co., Ltd.

CIRCLE **69** ON READER SERVICE CARD

Don't Miss the PERFORMANCE of a Lifetime!

Ladies and Gentlemen, FWB is proud to announce the industry's premiere **Trade-Up Offer!** Save 50% on the #1 selling disk utility software during this limited time engagement. Our award-winning cast features the biggest stars in storage management.

RAID TOOLKIT 2.0 tops the bill with RAID Level 0 data striping for double the performance, and RAID Level 1 disk mirroring for ultimate data protection. And now, with removable array support, you can swap RAID canisters (and Jaz™ array cartridges) "on-the-fly".

Find out why nearly a million loyal fans have switched to **HARD DISK TOOLKIT**. Our new 2.0 is the most powerful disk management package available—with universal SCSI and IDE support, one-step disk set-up, and faster I/O for your Mac.

Also, be sure to catch our newest rising star, **TURBO TOOLKIT**, as it works behind the scenes to optimize disk performance, accelerate system start-up, and make all your applications smarter and faster. But hurry, this stellar performance is sure to sell-out fast.

COMPETITIVE UPGRADE

SAVE 50%

RAID TOOLKIT $149	HARD DISK TOOLKIT $99
Eligible products include DiskWorks™, Remus™, Conely RAID™, Anubis RAID™, Express Stripe™ or any other non-FWB array management software.	Eligible products include Silverlining™, Anubis™, Formatter-One™, APS Power Tools™, SCSI Director™, Drive7™, Zip-Tools™ or any non-Apple formatting software.
MW ★★★★	★★★½

Must fax proof of competing product ownership (disks or manual cover). Offer expires March 31, 1997. Upgrades shipped in promotional packaging.

FWB® software

#1 in Storage Management.™

TO ORDER

MENTION FWB COMPETITIVE UPGRADE

MacWarehouse: 1-800-255-6227

MacZone: 1-800-248-0800

MacMall: 1-800-222-2808

For More Info - http://www.fwb.com

FWB ToolKit owners upgrade at: 1-800-581-4FWB

© 1996. FWB Software, LLC. FWB is a registered trademark of FWB Software, LLC. RAID ToolKit, Hard Disk ToolKit, and Turbo ToolKit are trademarks of FWB Software. Mac and MacOS are trademarks of Apple Computer, Inc. and may be registered in certain jurisdictions. All other trademarks are property of their respective owners. All rights reserved. Specifications subject to change without notice.

The Best of '96

The 12th Annual *MacUser* Editors' Choice Awards

Half empty? Or half full?

Record losses. Turmoil at the top. The cancelation of Copland.

Or: A record comeback. Firm new leadership. A fresh OS vision.

NINETEEN NINETY-SIX was a year in which the pessimists argued with the optimists about who were the realists. Today, as the *MacUser* Editors' Choice Awards turn 12, our money's with the optimists.

Our argument can be found on the next few pages. Therein you'll see that the Mac marketplace remains richly innovative, chock-full of powerful products, and animated by a force essential to every thriving enterprise: competition.

This spirit of competition not only mobilizes Mac developers — it also surfaced at the *MacUser* editorial offices as we underwent our annual ritual of argument, wrangling, and — let's admit it — internecine one-upmanship that precedes the editors-only vote for the best products of 1996.

Here are the results of those deliberations: the 1996 *MacUser* Eddy Awards. As you read about these exciting new products — winners and finalists — you may well be inspired to fill that half-empty or half-full glass to the rim and raise it in a toast. Drink up! The Mac is back.

By Rik Myslewski and the editors of *MacUser*

BOOKMARK

RELATED INTERNET SITES

12th Annual *MacUser* Editors' Choice Awards
Detailed product descriptions, real-audio commentaries by *MacUser* editors, downloadable product demos, and the chance to win prizes in the 1996 Eddy Awards Sweepstakes.

GO TO http://www.zdnet.com/macuser/0397.html#ed

Breakthrough Technology of the Year

BeOS

The BeOS is everything the Mac OS isn't: fast, reliable, and stable. It can perform 2, 3, 4, 10, or 20 things at once, barely pausing to catch its breath. It rarely crashes, but when it does, only one application "goes south" — not the whole machine. It delivers what the now-canceled Mac OS replacement, Copland, once promised. And more.

Now that the BeOS has been ported to run on Power Macs and Mac clones, Mac users have an alternative to the Mac OS — an alternative that shows just how shaky the foundations of the Mac OS truly are. For pointing the way to what the Mac could do if it had a better OS foundation, we award this year's Eddy for Breakthrough Technology to the BeOS.

Desktop Publishing and Graphics

the Web and beyond

ALTHOUGH INTERNET EVANGELISM may continue to dominate the popular press, Mac-savvy professional publishers — and the companies that supply their tools — have already integrated Web-page design into their day-to-day creativity. This year, the Web is no longer uncharted territory — it's merely another place where Eddy Award-winning products can strut their stuff. Whether your creativity is bound for the page, the screen, or the Web, you can rely on such powerful software as the exceptionally capable Macromedia FreeHand 7. Adobe Photoshop users should add not only PhotoTools 2.0, Extensis' powerful type tool, to their plug-in arsenal but also the prepress-expert-on-a-disk, ScanPrepPro 3.1, from ImageXpress. And no professional pixel pusher should ignore such award recipients as the Minolta RD-175 megapixel digital camera or the high-resolution Xanté Accel-a-Writer 8300 printer.

Design Tool

Extensis PhotoTools 1.0
Extensis – $99
A sleek interface adds unsurpassed text-handling capabilities to Adobe Photoshop.

Finalists

BeyondPress 2.0.4
Astrobyte USA – $595
The best XTension for QuarkXPress users who want to create graphics-rich Web pages.

Specular 3D Web Workshop 1.0
Specular – $249
All the ingredients you need to make unique Web-page graphics and animations.

Development Tool

BBEdit 4.0.1
Bare Bones Software – $119
Simply the best professional Web authoring environment, bar none.

Finalists

CodeWarrior Gold 10
Metrowerks – $399
Now Java support has been added to this industry-standard compiler and development environment.

UserLand Frontier 4.1
UserLand – freeware
A fast, powerful — and free — alternative to AppleScript; now with CGI-writing capability.

Graphics Application

Macromedia FreeHand 7
Macromedia – $599
A dynamite drawing package that sets new standards of elegance and power.

Finalists

Adobe Illustrator 6.0
Adobe Systems – $595
A solid upgrade to a solid product makes this powerful package a professional necessity.

Canvas 5
Deneba Software – $595
If you have room — or time — for only one graphics program, this jack-of-all-trades is a good choice.

Graphics Resource

Mountain High Maps 2.1
Digital Wisdom – $695
Extensive layers and masks add unprecedented usability to this elegant map package.

Finalists

Grammar of Ornament, Professional Edition
Direct Imagination – $199
A gorgeous presentation of Owen Jones' multicultural classic of ornamental design.

Visual Language Library: Antique Celestial Maps, Volume III
Visual Language (distributed by Image Club Graphics) – $169
Elegance and beauty suffuse this lovely collection of celestial and astrological maps.

PHOTOGRAPHY / PAVLINA ECCLESS

Mac OS System

Power Computing PowerTower Pro 225e RAID
Power Computing – $5,230 and up
The first system to outperform not only Apple's best but also anything the Wintel world had to offer.

Finalists

Apple PowerBook 1400
Apple Computer – $2,499 and up
The most feature-rich, flexible, and reliable PowerBook to date — and the first to sport a CD-ROM drive.

DayStar Genesis MP 720+
DayStar Digital – $8,499 and up
This multiprocessor system provides the ultimate in high-performance computing for demanding graphics professionals.

Power Computing PowerBase 240
Power Computing – $2,195 and up
Accelerated graphics and 3-D graphics, plus a 240-MHz processor, put this system in a class by itself.

UMAX SuperMac C600/240
UMAX Computer – $2,295 and up
Great performance, reasonable pricing, and a good bundle make this system a winner for retail buyers looking for a choice.

Monochrome Printer

Xanté Accel-a-Writer 8300
Xanté – $4,995
The ideal choice for desktop publishers who need high-resolution (1,200-dpi), full-bleed tabloid laser printing.

Finalists

Apple LaserWriter 12/640 PS
Apple Computer – $1,689
Fast and reliable, the perfect printer for small to midsized workgroups.

Hewlett-Packard LaserJet 6MP
Hewlett-Packard – $1,149
Excellent output quality distinguishes this small-office/home-office printer from the rest of the pack.

Page-Design Application

Adobe PageMill 2.0
Adobe Systems – $149
Powerful frame- and table-creation capabilities extend the power of this Web authoring tool.

Finalists

Claris Home Page 1.0
Claris – $99
A surprisingly powerful yet easy-to-use entry-level Web authoring tool.

UniQorn 1.1
SoftPress Systems – $895
By incorporating Java and QuickDraw GX, this Web authoring tool goes where HTML fears to tread.

Production Tool

ScanPrepPro 3.1
ImageXpress – $695
This plug-in is the perfect complement to a scanner and Photoshop — it's like having a prepress professional to advise you on every image-processing decision.

Finalists

Font Box 2.0.2
Insider Software – $79
The most effective way for publishing professionals to keep their fonts well organized.

PhotoGIF 2.1
BoxTop Software – $45
No Web-page author should be without this powerful GIF-conversion tool.

Professional Digital Camera

Minolta RD-175
Minolta – $9,995
Three-CCD design provides image quality never before seen in an under-$10,000 camera.

Finalists

Kodak Digital Science Professional DCS 410 Camera
Eastman Kodak – $7,995
A hard-working camera for the day-to-day needs of imaging professionals.

ScanView Carnival 2000S
ScanView – $29,995
Versatile usage options and exceptional image quality.

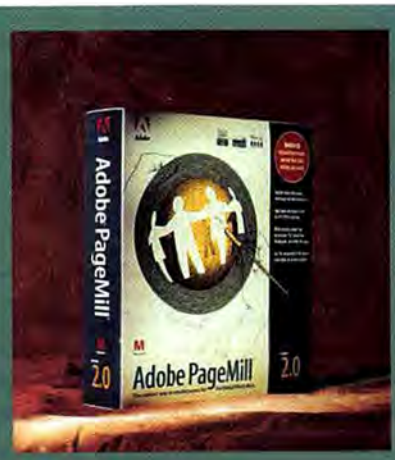
Scanner

Agfa DuoScan
Agfa – $5,500
An innovative design with two scanning beds provides quality reflective-art and transparency scanning in one space-saving unit.

Finalists

Epson Expression 636
Epson America – $899 and up
Epson's ongoing series of affordable flatbed scanners just keeps getting better and better.

Howtek Scanmaster 2500
Howtek – $15,900
Precision hardware coupled with exceptionally powerful professional software for large-format, flatbed scanning.



Software Product of the Year

Adobe PageMill 2.0

In 1996, a slew of competitors arrived to take on Adobe PageMill 1.0, the WYSIWYG Web-page-creation standard. Adobe responded with version 2.0, an upgrade that erased any doubt about the ability of the company to retain its leadership position in this competitive arena. Not only does PageMill 2.0 make it easy for average users to become Web publishers but it also provides powerful tools for HTML veterans. The creation of complex layouts via the use of tables and frames was a difficult and time-consuming task for even the most well-versed Web authors, but with this version of PageMill, it's a piece of cake. In addition, the program's native support for Netscape plug-ins makes it the tool of choice for creating and previewing multimedia-rich Web sites.

Business

a bean counter's dream

ALTHOUGH THE MAC may be better known for its strengths in graphics and desktop publishing, it continues to please savvy bean counters who understand the benefits of a computing platform that's easy to maintain, simple to use, and low in training costs. Among this year's Eddy Award-winning business-software packages are Claris' powerful, easy-to-use FileMaker Pro 3.0 database manager; BestWare's M.Y.O.B. 6.0 for small-business accounting; and Microsoft Internet Explorer Starter Kit 2.1, our choice as the best Internet browser for the Mac. The In Focus LitePro 220 presentation projector and the superbly engineered MicroNet DataDock 7000 RAID array are examples of elegant Mac hardware that's comfortable in any business setting.

COLOR PRINTER

Tektronix Phaser 350
Tektronix – $3,495
Forget color laser printers — this speedy solid-ink printer will meet all of your business-printing needs.

FINALISTS
Apple Color StyleWriter 2500
Apple Computer – $349
A solid inkjet performer equally suitable for the home or the small office.

Epson Stylus Color 500
Epson America – $279
Not only is its output sensational but this inkjet printer is also bundled with a wealth of software goodies.

COMMUNICATIONS PRODUCT

Trancell WebRamp IP Router
Trancell Systems – $899
An elegant multifunction eight-port hub and router that demystifies ISDN and Ethernet.

FINALISTS
RNS DataShuttle ISDN 256/PCI
RNS – $1,695
A fast, efficient ISDN card with exceptionally easy-to-use setup software.

Timbuktu Pro 3.0 for Macintosh
Farallon Communications – $139
Seamless remote control of just about any computer, using just about any communications protocol.

CONSUMER DIGITAL CAMERA

Olympus D-200L
Olympus America – $599
A brilliant balance of image quality and ease of use at an affordable price.

FINALISTS
Fuji Fujix DS-220
Fuji Photo Film U.S.A. – $1,200
Beautiful, ergonomically effective design coupled with a highly productive feature set.

Kodak Digital Science DC50 Zoom Camera
Eastman Kodak – $1,000
A solid performer designed to exceed the needs of image-conscious business users.

CROSS-PLATFORM PRODUCT

Reply DOS on Mac Card — PCI (Pentium)
Reply – $1,395
Ignore Apple's offerings — this is the card to get if you need a Wintel machine inside your Mac.

FINALISTS
PC MACLAN 6.0
Miramar Systems – $169
This PC-to-Mac network-connectivity utility is easy to install and intuitive to use.

uShare 4.1D for Apple Network Server
IPT – $995 (5 users)
Easy-to-use Chooser-level access from your Mac to an AIX-based Apple Network Server.

DATA-MANAGEMENT APPLICATION

FileMaker Pro 3.0
Claris – $199
The best general-purpose Mac database-management application just keeps getting better.

FINALISTS
DeltaGraph 4.0
DeltaPoint – $195
There's no better way to explain reams of data than by using this comprehensive charting package.

Panorama 3
ProVUE Development – $395
This client/server database couples astonishing speed with powerful scripting capabilities.

PHOTOGRAPHY / PAVLINA ECCLESS

Display Product

In Focus LitePro 220
In Focus Systems – $7,499
Never has a bright, sharp LCD projector been easier to use — or sounded so good.

Finalists
Mitsubishi Diamond Pro 91TXM
Mitsubishi Electronics America – $1,699
The most recent monitor incorporating Mitsubishi's DiamondTron technology is the sharpest ever.

Proxima Lightbook Projector
Proxima – $4,999
Full-size performance from a lightweight, easy-to-use, portable LCD projector.

Internet-Access Application

Microsoft Internet Explorer Starter Kit 2.1
Microsoft – $25
This fast browser edges out the competition with its elegance and responsiveness.

Finalists
Eudora Pro 3.0
Qualcomm – $89
Simply the best Internet e-mail client.

Netscape Navigator 3.0
Netscape Communications – $49
Still the pioneer in bringing multimedia capabilities to the World Wide Web.

Internet Server Application

NetCloak 2.0.1
Maxum Development – $195
Provides unprecedented control over how your Web site appears.

Finalists
RushHour 1.1
Maxum Development – $295
Turbocharges graphics-file delivery from your Web server.

Tango for FileMaker
EveryWare Development – $349
This full-featured CGI provides a development environment for creating and serving FileMaker databases over the Web.

Networking Product

Apple Network Server 700
Apple Computer – $16,299
If only Apple's desktop systems were as elegantly designed as this fast and competitively priced AIX-based file/OPI/Internet/database server.

Finalists
NetDoubler 1.2.2
Asanté Technologies – $99
No savvy network administrator should fail to install this file-transfer-acceleration software.

RunShare 2.0.2
RUN – $399
Every prepress shop will benefit from this utility's large-file-transfer acceleration.

Reference Product

Select Phone 1997 Edition
Pro CD – $99
An exceptionally versatile search engine complements this collection of 1 million U.S. phone numbers.

Finalists
Bookshelf 1996-97 Edition
Microsoft – $55
This handy one-CD reference work combines a dictionary, thesaurus, world atlas, encyclopedia, almanac, dictionary of quotations, and much more.

Cinemania 96
Microsoft – $35
Over 25,000 movie reviews, enhanced by clips, quizzes, stills, and biographies, all Internet-updatable.

Small-Business-Accounting Application

M.Y.O.B. 6.0
BestWare – $140
A single-user package, loaded with flexibility, that's a joy to use.

Finalists
Big Business 2.0
Big Software – $199
This multiuser package is strong in reporting and security and includes an HTML online-catalog creator.

QuickBooks Pro 4.0
Intuit – $119
As you'd expect from a Quicken sibling, this single-user package is both powerful and easy to use.

Storage Product

MicroNet DataDock 7000
MicroNet Technology – $3,499 and up
Phenomenally well engineered, easily upgradable — everything you've ever wanted in a RAID system.

Finalists
FWB Hammer SledgeHammer•Pro
FWB Hammer by StreamLogic – $3,679 and up
Differential-by-design engineering ensures exceptional speed from this array.

Panasonic KXL-D742
Panasonic Computer Peripheral – $399
Compact, battery-powered, and engineered to be your PowerBook's perfect traveling companion.

Hardware Product of the Year

Apple Network Server 700

The most elegantly engineered computer that Apple has ever built isn't a Mac. The operating system isn't even the Mac OS — it's a version of IBM's UNIX operating system, AIX. Don't let that difference put you off, though — the Apple Network Server 700 is actually easier to upgrade and maintain than any Mac, and all the components — from fans to drives to power supplies — are hot-swappable, for no-downtime fixes and upgrades. This solidly designed computer, complete with a road-tested operating system behind it, is an excellent choice for an Internet, OPI, or file server. C'mon, Apple — let's see some of this sophistication migrate to the desktop.

Multimedia

Mac in motion

THERE'S AN EXCELLENT REASON why the Mac continues to be the content-creation platform of choice among creative professionals: From 3-D and animation packages to authoring applications and desktop-video enablers, the Mac has the best collection of multimedia tools, bar none.

Animation Application

Adobe After Effects 3.1
Adobe Systems – $1,995
A powerful and indispensable animation and special-effects package.

Finalists

ElectricImage Broadcast
Electric Image – $2,995
Hollywood-quality tools at a desktop-video price.

FutureSplash Animator
FutureWave Software – $250
Brighten your Web page with quick-downloading vector-based animations.

Desktop-Video Product

Data Translation Media 100 Whole Deal
Data Translation – $22,990
Excellent image quality and QuickTime integration distinguish this top-flight hardware/software bundle.

Finalists

Avid Technology MCXpress 1.0
Avid Technology – $14,995
Powerful hardware teamed with a highly evolved editing interface.

Truevision TARGA 2000 RTX
Truevision – $10,995
High-quality, QuickTime-native, dual-channel, Motion-JPEG desktop-video card.

Graphics/Video Card

miro miroMOTION DC20
miro Computer Products – $799
The undisputed price/performance leader in the consumer-level digital-video arena.

Finalists

IMS Twin Turbo 128M8
Integrated Micro Solutions – $899
Impressive performance and excellent value distinguish this 8-MB graphics card.

Radius ThunderPower 30/1920
Radius – $1,399
Super-resolution graphics combined with 30-bit color accuracy.

Interactive-Authoring Application

mTropolis 1.1
mFactory – $1,195
Elegantly flexible, professional-quality multimedia-authoring software.

Finalists

Director 5.0
Macromedia – $929
A host of improvements distinguishes version 5.0 of this popular authoring tool.

QuarkImmedia 1.0
Quark – $995
Approaches multimedia authoring completely from a print-publishing perspective.

John J. Anderson Distinguished Achievement Award

Steve Capps

In a year when the continued viability of the Mac OS has been brought into question, one fact remains clear: the superiority of the Macintosh interface. That's why we're honoring Steve Capps, codesigner of the Finder and much of the Mac's graphical user interface — the basis of all interface innovation for the last decade. Steve continued to refine the Mac OS interface through the '80s, when he joined the Newton Group to help design the Newton OS. He was also chief architect of Newton 2.0, which revitalized the PDA and led to its much wider acceptance.

Multimedia Utility

Movie Cleaner Pro 1.3
Terran Interactive – $189
An invaluable QuickTime-compression tool for novices and experts alike.

Finalists

Berserk 1.0 for After Effects
DigiEffects – $289
Unique, compelling effects with pro-quality precision at a far lower price than competing packages.

MovieFlo' 2.02
The VALIS Group – $699
Excellent morphing and mesh-distortion tools for creating eye-popping effects.

Music/Sound Product

LOGIC Audio 2.5.4
EMAGIC – $799
Everything the Mac music pro needs can be found in this powerful package.

Finalists

Cubase 3.0 VST
Steinberg North America – $399
This MIDI-sequencer/digital-audio/notation program stands out for its unique real-time effects.

Digital Performer 1.7
Mark of the Unicorn – $895
Stunning pitch-transposition effects and the most elegant interface in the Mac music arena.

3-D Application

Fractal Design Detailer 1.0
Fractal Design – $449
Take the guesswork out of adding texture maps to 3-D models by painting on them.

Finalists

Bryce 2
MetaTools – $249
Easily sculpt virtual worlds with this fast, feature-rich upgrade to the popular terrain-creation software.

Infini-D 3.5
Specular – $649
Impressive upgrade to an already well rounded 3-D-animation-and-design package for novices and graphic designers.

PHOTOGRAPHY / PAVLINA ECCLESS, PORTRAIT / CHLOE ATKINS

High and Mighty Printing With a Down to Earth Price.

For Just $2495 You'll Get

OVERSIZED 11X17 PRINTING

600X600 DPI (UPGRADEABLE TO 1200X1200 DPI)

ADOBE™ POSTSCRIPT™ LEVEL 2

HALFTONE ENHANCEMENT

X•ACT™

(XANTÉ'S ACCURATE CALIBRATION TECHNOLOGY)

SPOIL YOURSELF.

XANTÉ®'s Accel-a-Writer® 8300

Duplexing also available.

Call 800 926-8839

EXT. 2231 • DEALERS CALL EXT. 2232 • FAX 334-342-3345

MasterCard•Visa•Amex•Discover

Optional on-site service provided by XANTÉ in partnership with Olivetti North America

olivetti

AT&T Capital Corporation

XANTÉ

Innovations In Output

Adobe PostScript

MacUser AWARDS Editors' Choice 1996 Finalist

MacUser

© 1996 XANTÉ Corporation. XANTÉ and Accel-a-Writer are registered trademarks of XANTÉ Corporation. X•ACT is a trademark of XANTÉ Corporation. Adobe, PostScript, and the PostScript logo are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTÉ Corporation 4621 Springhill Ave. Mobile, AL 36608 P.O. Box 16508 Mobile, AL 36616-0508 Phone (334) 342-8840 Fax (334) 342-3345

CIRCLE 126 ON READER SERVICE CARD

After Hours bringing it all back home

IT WAS A GREAT YEAR for those millions of users fortunate enough to have a Mac at home. More CD-ROMs, more games, more children's educational software, more productivity tools and add-on hardware — all in all, everything you need to make a MacHouse a MacHome.

Children's Software

Trudy's Time & Place House
Edmark – $40
A spunky little alligator named Trudy leads an exceptionally inventive adventure in geography, mapping, and time.

Finalists
Africa Trail
MECC – $48
Do Africa in this CD-ROM adventure based on an actual 12,000-mile bike trek.

Logical Journey of the Zoombinis
Brøderbund – $40
Twelve sets of math and logic puzzles help save the adorable Zoombinis and guide them to a safe new home.

Desktop Diversion

Kai's Power Goo
MetaTools – $49
This wacky image-distortion tool will have you singing the American Breed's "Bend Me, Shape Me" as you do just that.

Finalists
Gryphon Bricks
Gryphon Software – $39
All the fun of Lego creativity with no risk of stepping on those damn plastic blocks.

The Residents' Bad Day on the Midway
Inscape – $50
Tour a repellent-yet-fascinating carnival and learn the sordid pasts of its denizens.

Documentary Product

Critical Mass: America's Race to Build the Atomic Bomb
Corbis – $49
An exemplary combination of vivid storytelling and satisfying exploration of 1940s Los Alamos.

Finalists
Robert Winter's Crazy for Ragtime
Calliope Media – $49
A well-designed exploration of ragtime and its importance to American culture.

Volcanoes: Life on the Edge
Corbis – $49
Stunning photographs enhance the wealth of volcano lore in photographer Roger Ressmeyer's adventure.

Game

Warcraft II: Tides of Darkness
Blizzard Entertainment – $55
Enjoy brutal medieval warfare in this addictive, fast-paced, networkable strategy game.

Finalists
Marathon Infinity
Bungie – $35
The ultimate Mac shoot-'em-up adds new levels and map and shapes editors.

X-Wing Collector's CD
LucasArts Entertainment – $49
The Mac's best flight simulator/arcade game lets you fly multiple space fighters on over 100 missions.

Input Device

Logitech Cordless MouseMan
Logitech – $69
What a mouse should be: smooth, programmable, and cordless.

Finalists
Connectix Color QuickCam
Connectix – $299
This remarkably affordable color-video camera captures compact digital images.

Logitech TrackMan Live!
Logitech – $149
Light, programmable, radio-controlled mouse for remote-control presentations.

Personal Organizer

Quicken Deluxe 7
Intuit – $60
Interface updates make this top personal-finance software easier than ever to use.

Finalists
Claris Organizer 2.0
Claris – $70
A well-integrated calendar and contact manager with innovative search tools.

Now Up-to-Date & Contact 3.6
Now Software – $70
This network calendar and contact manager shares schedules and e-mail addresses.

Utility

RAM Doubler 2
Connectix – $60
Double or triple your apparent RAM safely and effectively without slowdown.

Finalists
Now Utilities 6.5
Now Software – $89
An already impressive suite of productivity enhancements adds an improved Startup Manager.

QuicKeys 3.5
CE Software – $119
This upgrade lets you create macros that perform most tasks with one keystroke.

PHOTOGRAPHY / PAVLINA ECCLESS, PORTRAIT / CHLOE ATKINS

Derek Van Alstyne Rising Star Award

Aaron Giles

Aaron Giles' young career has affected two hot Mac markets: the Internet and games. While attending Cornell University, he created several Internet freeware tools; helped develop MacMosaic; and created JPEGView, which won a prize in the '94 Apple Cool Tool competition. Aaron's career as a game programmer began when, after discovering that LucasArts' Rebel Assault wasn't PowerPC-native, he wrote a patch and distributed it free on the Net. LucasArts responded not by suing him but by hiring him to convert its titles to the Mac.

RDC-2

BEST OF BYTE COMDEX Fall '96
FINALIST

Hear what you see.

Capture images with sound

Capture images in motion

multimedia digital camera

RDC-2 Digital Camera with optional flip-up LCD monitor.

Easy to hold yet small enough to fit in your shirt pocket.

Five ways to capture

High Resolution, Sharpness and Color Accuracy...

That's what you need to capture a quality image with a digital camera. The RDC-2's advanced design supports these requirements, as well as offering exciting features that let you go beyond just taking stills. Now you can bring your images to life by capturing the movements and sounds of your subjects.

Still Mode captures high res images in vivid 24-bit color. Exclusive macro capability lets you take pictures as close as 1cm away.

Document Mode utilizes a sharpening filter to capture razor-sharp images of text and graphics.

Still with Sound Mode allows you to take a picture while recording 10 seconds of digital sound.

Sound Mode uses the RDC-2's built-in microphone to record pure digital sound in 8-bit, 11kHz WAVE file format.

Continuous Shooting records the movements of your subject in 1 second intervals. Play back as *QuickTime* or *AVI* files. (Requires use of PC cards to transfer data to your computer.)

- **High Resolution 768 x 576 Pixel Images** captured in 24-bit color utilizing a 410,000 pixel CCD.
- **2MB Built-In Memory** stores up to 38 images in economy mode.
- **PC Memory Card** support lets you store hundreds of images.
- **Dual Lens Design** utilizes a wide-angle 35mm and telephoto 55mm lens, as well as macro optics for close-up photography.
- **LCD Monitor** (optional) allows you to view images before and after you capture them.
- **Fully Automatic Features** like Autoflash, Autofocus, and Autoexposure make picture taking effortless.

Visit us at: www.ricohcpg.com

RICOH®

RICOH CORPORATION • 475 Lillard Drive • Sparks, Nevada 89434 • Tel 702.352.1600 • FAX 702.352.1615

CIRCLE **160** ON READER SERVICE CARD

Directory

Adobe Systems
San Jose, CA
800-833-6687
408-536-6000
http://www.adobe.com/

Agfa
Wilmington, MA
800-685-4271
508-658-5600
http://www
.agfahome.com/

Apple Computer
Cupertino, CA
800-776-2333
408-996-1010
http://www.apple.com/

Asanté Technologies
San Jose, CA
800-662-9686
408-435-8388
http://www.asante.com/

Astrobyte USA
Denver, CO
888-278-7629
303-534-6344
http://www
.astrobyte.com/

Avid Technology
Tewksbury, MA
800-949-2843
508-640-6789
http://www.avid.com/

Bare Bones Software
Bedford, MA
617-676-0650
http://www
.barebones.com/

BestWare
Rockaway, NJ
800-322-6962
201-586-2200
http://www.bestware.com/

Big Software
Cupertino, CA
888-244-7638
408-725-7200
http://www
.bigsoftware.com/

Blizzard Entertainment
Irvine, CA
800-953-7669
714-955-1380
http://www.blizzard.com/

BoxTop Software
Starkville, MS
800-257-6954
601-323-6436
http://www
.boxtopsoft.com/

Brøderbund
Novato, CA
800-521-6263
415-382-4400
http://www
.broderbund.com/

Bungie
Chicago, IL
800-295-0060
312-563-6200
http://www.bungie.com/

Calliope Media
Santa Monica, CA
800-617-2541
310-277-5079
http://www.calliope.com

CE Software
West Des Moines, IA
800-523-7638
515-221-1801
http://www.cesoft.com/

Claris
Santa Clara, CA
800-544-8554
408-987-7000
http://www.claris.com/

Connectix
San Mateo, CA
800-950-5880
415-571-5100
http://www
.connectix.com/

Corbis
Bellevue, WA
800-246-2065
206-641-4505
http://www.corbis.com/

Data Translation
Marlboro, MA
800-773-1770
508-460-1600
http://www.datx.com/

DayStar Digital
Flowery Branch, GA
800-972-8711
770-967-2077
http://www.daystar.com/

DeltaPoint
Monterey, CA
800-446-6955
408-648-4000
http://www
.deltapoint.com/

Deneba Software
Miami, FL
800-622-6827
305-596-5644
http://www.deneba.com/

DigiEffects
San Francisco, CA
888-344-4339
415-563-4318
http://www
.digieffects.com/

Digital Wisdom
Tappahannock, VA
800-800-8560
804-758-0670
http://www.digiwis.com/

Direct Imagination
Pasadena, CA
818-793-8387
http://www.dimagin.com/

Eastman Kodak
Rochester, NY
800-235-6325
716-726-7260
http://www.kodak.com/

Edmark
Redmond, WA
800-426-0856
206-556-8400
http://www.edmark.com/

Electric Image
Pasadena, CA
888-736-3371
818-577-1627
http://www
.electricimage.com/

EMAGIC
Grass Valley, CA
916-477-1051
http://www
.emagicusa.com/

Epson America
Torrance, CA
800-463-7766
310-782-0770
http://www.epson.com/

EveryWare Development
Mississauga, ON, Canada
888-819-2500
905-819-1173
http://www
.everyware.com/

Extensis
Portland, OR
800-796-9798
503-274-2020
http://www.extensis.com/

Farallon Communications
Alameda, CA
800-463-1988
510-814-5000
http://www.farallon.com/

Fractal Design
Scotts Valley, CA
800-297-2665
408-688-5300
http://www.fractal.com/

Fuji Photo Film U.S.A.
Elmsford, NY
800-378-3854
914-789-8100
http://www
.fujiamerica.com/

FutureWave Software
San Diego, CA
800-619-6193
619-552-7680
http://www
.futurewave.com/

FWB Hammer by StreamLogic
Menlo Park, CA
415-325-4392
http://www
.sledgehammer.com/

Gryphon Software
San Diego, CA
800-795-0981
619-536-8815
http://www
.gryphonsw.com/

Hewlett-Packard
Palo Alto, CA
800-752-0900
408-246-4300
http://www.hp.com/

Howtek
Hudson, NH
800-444-6983
603-882-5200
http://www.howtek.com/

Image Club Graphics
Las Vegas, NV
800-661-9410
403-262-8008
http://www
.imageclub.com/

ImageXpress
Lawrenceville, GA
770-564-9924
http://www.scanprep.com/

In Focus Systems
Wilsonville, OR
800-294-6400
503-685-8888
http://www.infs.com/

Inscape
Los Angeles, CA
800-693-3253
310-312-5705
http://www.inscape.com/

Insider Software
San Diego, CA
800-700-6340
619-622-9900
http://www.theInside.com/

Integrated Micro Solutions
San Jose, CA
888-467-8282
408-369-8282
http://www
.integratedmicro.com/

Intuit
Mountain View, CA
800-624-8742
415-944-6000
http://www.intuit.com/

IPT
San Luis Obispo, CA
805-541-3000
http://www.iptech.com/

Logitech
Fremont, CA
800-231-7717
510-795-8500
http://www.logitech.com/

LucasArts Entertainment
San Rafael, CA
800-985-8227
415-472-3400
http://www.lucasarts.com/

Macromedia
San Francisco, CA
800-326-2128
415-252-2000
http://www
.macromedia.com/

Mark of the Unicorn
Cambridge, MA
617-576-2760
http://www.motu.com/

Maxum Development
Streamwood, IL
630-830-1113
http://www.maxum.com/

MECC
Minneapolis, MN
800-685-6322
612-569-1500
http://www.mecc.com/

MetaTools
Carpinteria, CA
800-472-9025
805-566-6200
http://www
.metatools.com/

Metrowerks
Austin, TX
800-377-5416
512-873-4758
http://www
.metrowerks.com/

mFactory
Burlingame, CA
888-622-8669
415-548-0600
http://www.mfactory.com/

MicroNet Technology
Irvine, CA
800-800-3475
714-453-6100
http://www.micronet.com/

Microsoft
Redmond, WA
800-426-9400
206-882-8080
http://www.microsoft.com/

Minolta
Ramsey, NJ
800-964-6658
201-825-4000
http://www
.minoltausa.com/

Miramar Systems
Santa Barbara, CA
800-862-2526
805-966-2432
http://www
.miramarsys.com/

miro Computer Products
Palo Alto, CA
800-249-6476
415-855-0955
http://www.miro.com/

Mitsubishi Electronics America
Cypress, CA
800-843-2515
714-220-2500
http://www
.mitsubishi-display.com/

Netscape Communications
Mountain View, CA
800-320-2099
415-937-3777
http://www.netscape.com/

Now Software
Portland, OR
800-730-7854
503-274-2800
http://www.nowsoft.com/

Olympus America
Melville, NY
800-347-4027
516-844-5000
http://www.olympus.com/

Panasonic Computer Peripheral
Secaucus, NJ
800-742-8086
201-348-7000
http://www.panasonic.com/

Power Computing
Austin, TX
800-999-7279
512-388-6868
http://www.powercc.com/

Pro CD
Danvers, MA
800-992-3766
508-750-0000
http://www.procd.com/

ProVUE Development
Huntington Beach, CA
800-966-7878
714-841-7779
http://www.provue.com/

Proxima
San Diego, CA
800-447-7692
619-457-5500
http://www.prxm.com/

Qualcomm
San Diego, CA
619-587-1121
http://www
.qualcomm.com/

Quark
Denver, CO
800-788-7835
303-894-8888
http://www.quark.com/

Radius
Sunnyvale, CA
800-227-2795
408-541-6100
http://www.radius.com/

Reply
San Jose, CA
800-801-6898
408-942-4804
http://www.reply.com/

RNS
Santa Barbara, CA
800-262-8023
805-968-4262
http://www.rns.com/

RUN
Mahwah, NJ
800-478-6929
201-529-4600
http://www.runusa.com/

ScanView
Foster City, CA
415-378-6360
info@scanview.com

SoftPress Systems
Sausalito, CA
800-853-6454
415-331-4820
http://www.softpress.com/

Specular
Amherst, MA
800-433-7732
413-253-3100
http://www.specular.com/

Steinberg North America
Chatsworth, CA
800-355-9312
818-993-4091
http://www
.steinberg-na.com/

Tektronix
Wilsonville, OR
800-835-6100
503-682-7377
http://www.tek.com/

Terran Interactive
San Jose, CA
800-577-3443
408-278-9065
http://www.terran-int.com/

Trancell Systems
Santa Clara, CA
888-493-2726
408-988-5353
http://www.trancell.com/

Truevision
Santa Clara, CA
800-522-8783
408-562-4200
http://www.truevision.com/

UMAX Computer
Fremont, CA
800-232-8629
510-226-6886
http://www.supermac.com/

UserLand
http://www.scripting.com/
frontier/

The VALIS Group
Tiburon, CA
800-827-4704
415-435-5404
http://www.valisgroup.com/

Xanté
Mobile, AL
800-926-8839
334-342-4840
http://www.xante.com

Here's your guide to the new QuickTime VR's lofty, if rocky, peaks.

By Jeffy Milstead

Virtual Vistas

IF YOU WANT TO TRY your hand at QuickTime Virtual Reality, now may be the time. As you read this, a new version of Apple's QTVR software, chock-full of new features and Internet potential, has hit the market. Version 2.0 supports 3-D sprites, live QuickTime movies, stereo sound, and an open API for intrepid developers. You can even turn QTVR panoramas into image maps for the Web.

QTVR (http://qtvr.quicktime.apple.com/) may be hotter than ever, but it's still not cheap or easy to use. The obtuse command-line parameters in version 1.0 (which made less geeky folks shudder) remain, even though version 2.0 does do away with a hardware dongle, requires less RAM, and works faster.

Take heart. Even if you're not a programmer, all that is cool about QTVR can be yours with just a little time, patience, money, and technique. In this article, we'll start you on the road to QTVR confidence by walking you through the making of a basic panorama.

Anatomy of a Panorama

Imagine you're on vacation and really want to shoot the sweep of the Grand Canyon around you. You could do it with your regular camera — just turn through 360 degrees, and take several shots as you go. But later, when you're home trying to tape the shots together, you'll notice that the rocks at the edges don't quite line up.

QTVR authoring tools correct such distortion by warping images and "stitching" them together into one long PICT file. Then, to create the digital bubble of the QTVR environment, the software "dices" the photos into quickly displaying tiles and compresses them into QuickTime-movie format. When you move around with your cursor in the completed movie, the QTVR software dewarps the images so that you pan smoothly around the scene. You can look at 360 degrees as if you were standing in the center of a room, spinning on your heels.

Making Your Panorama

STEP 1: Get Your Gear Together. As you start to gather your equipment (see the "Equipment Checklist" sidebar), your first big decision will be what camera and lens to choose. In theory, you can use anything, but in fact, these are the choices that will make life easier or harder.

The basic factors that will affect your decision are the importance of image quality, how much time and money you want to spend on processing images, and how much scripting you're willing to do. (As you'll see in step 4, making a QTVR scene can involve a lot of scripting if you stray from recommended setups.)

If image quality is king in your world, then you'll want to use an analog camera. Regular cameras still take *considerably* better photos than digital ones. But if your material is destined for the Web, a digital camera is probably fine.

On the other hand, digital cameras will save you the time and money you'd have to spend on developing and scanning pictures. Also, you can buy QTVR pan and tilt heads designed specifically for a few of them, such as the Kodak Digital Science DC40 and the Apple QuickTake 150. However, you have no control over exposure, few lens options, and limited storage. The QuickTake 150 can store only 16 images at its highest-quality setting.

If you use a regular camera, you might have trouble renting a 15mm lens, which is recommended but which is also rare and expensive. The alternative is a cheaper, more common lens, such as a 28mm. This lens has a smaller field of view, so you'll have to shoot more

ILLUSTRATION / ELIZABETH LADA

photographs to capture the entire panorama, 18 instead of 12. In the end, this means more photos to develop and scan, more processing time, more RAM, and a larger resulting file.

As for scripting, the software we suggest you use, the freeware Sanity SaVR, comes with premade scripts for a few camera/lens combinations, including a regular camera with a 15mm lens, a QuickTake, and a QuickTake with a Kaidan wide-angle lens. Using one of these setups will save you time you'd otherwise have to spend writing scripts and calculating rig adjustments by hand.

STEP 2: Set the Scene. Even if your photographic prowess is limited to documenting the family barbecue, you can still successfully produce a QTVR panorama by following a few guidelines (see figure 1).

In general, make sure the camera rig (the entire assembly: the camera, the tripod, and the bracket that holds them together) is level at all times during the shoot. If you forget to check frequently, you'll probably end up having to fine-tune the placement of your photos during the normally automatic stitching process.

Next, make some adjustments to your rig to line up the optical center of your camera (where the image comes into focus) directly over the rig's pivot point. You want the optical center of your camera to be the "nodal point" your panorama will spin around. Stand in front of the camera to make sure the center point of the lens eye lines up with the center of the rig. You'll need to get out a measuring tape to check that the center point is not slightly off to the left or the right.

Next, make sure the nodal point isn't too far backward or forward. The camera's optical center is closer to the center of the lens tube than to the center of the camera body. If you don't adjust for this, you'll get a distortion called parallax error, which makes objects change position relative to each other as your camera pivots. To make this adjustment, look through the camera's viewfinder and line up two vertical objects, such as the side of a building and a distant tree, on the left side of the frame. One should be close to you and the other in the distance. Then pivot the camera until both objects are on the right side of the frame. Watch to see if the two objects change their position with respect to each other. Adjust your camera by pushing it backward or forward over the pivot point of the rig until the movement is minimized.

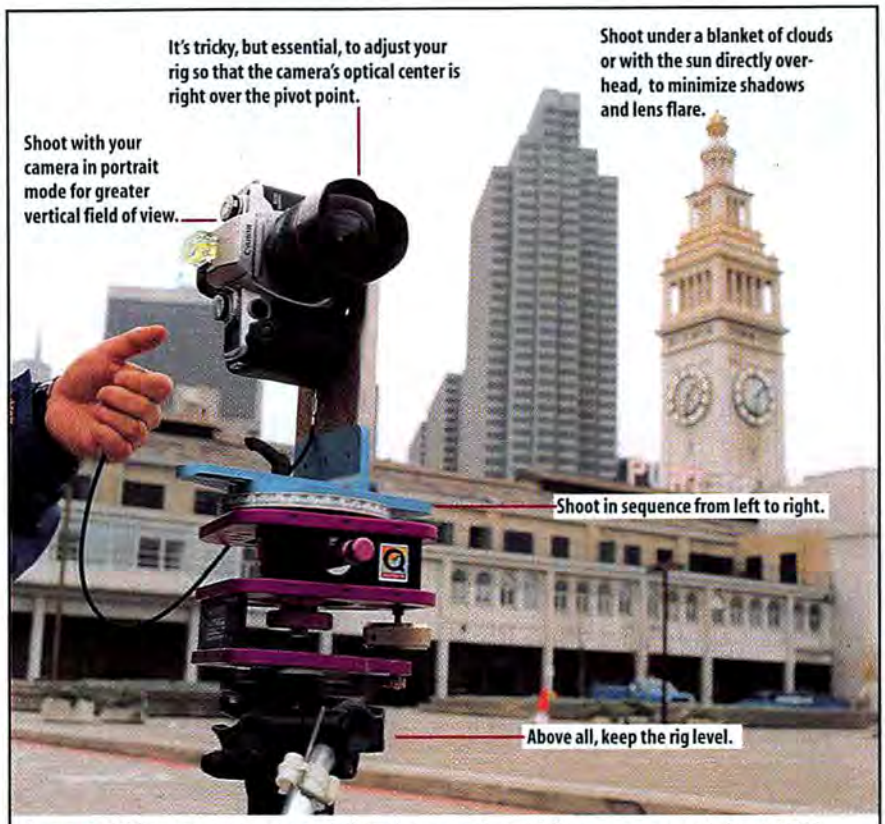


figure 1 / Whatever gear you use, follow these simple guidelines to set up and shoot QTVR scenes like a pro.

The QuickTake and other point-and-shoot digital cameras don't have through-the-lens viewing, so determining the nodal point takes a lot of trial and error. Fortunately, one of the QTVR-rig manufacturers, Kaidan, supplies nodal-point settings for its custom brackets for the QuickTake and the Kodak Digital Science DC40.

STEP 3: Shoot Your Panorama. It's important to be well organized and meticulous during the actual shoot. Since you'll accumulate dozens of images, keep notes so you won't need to take time later hunting for the right picture.

Take the shots in sequence, from left to right — the order the stitching software (the "stitcher") expects them to be in.

A general guideline for lighting and exposure is to aim for evenly lit shots with similar exposure. The stitcher does an amazing job of blending images that have various exposures, but it can't work miracles. If one shot is much brighter than the next, you may end up with a dark band where the pictures overlap. You'll have the easiest time outdoors in strong overhead sunlight or under a reflective blanket of clouds.

In theory, shooting the 12 or more pictures

PHOTOGRAPHY / CHLOE ATKINS

Equipment Checklist

Here's what you'll need to get started with QuickTime VR. The equipment can be costly, so we've included price ranges for each piece to help you plan. You can rent photographic equipment in most cities.

- Apple's QuickTime VR Authoring Tools Suite 2.0. $395.
- Sanity SaVR, an unsupported utility available over the Web. Free.
- A reasonably fast computer (preferably a Power Mac) with a minimum of 30 MB of RAM allocated to the QTVR application. $2,000 to $6,000.
- A camera: either a standard 35mm with ASA 400 film or a digital camera. Each brings a different set of choices to the QTVR process. $300 to $900.
- If you use a standard camera, a rectilinear lens, smaller than 50mm — preferably 15mm. $550 to $2,000.
- A sturdy tripod with a pan/tilt head and two built-in spirit levels. $150 to $450.
- A bracket that will allow you to adjust and turn your camera. You can make your own from an L bracket and a twin camera plate or purchase one from a QTVR-equipment manufacturer. $100 to $600.
- Image-editing software, such as Adobe Photoshop. $300 to $1,000.

Why 7 out of 10 people choose Family Tree Maker™

Family PC — "Online links make your research easier."

PC MAGAZINE — "★★★★... Excellent!" 9/12/95

PC MAGAZINE — "...Easy to use..." 9/12/95

ComputerLife BEST OF BEST EVERYTHING 1996 — "...Best-in-its-class..."

#1 Selling and Best Value

Why should you choose the program 7 out of 10 family history enthusiasts choose?* Quite simply, Family Tree Maker's huge community of users and vast database of genealogy records will help you find your ancestors. And this award-winning program gives you the best variety of beautiful printouts.

Find Your Ancestors Fast

Unlike other family tree programs, Family Tree Maker actually helps you find your ancestors. Just click the FamilyFinder™ button to search a list of 115 million people from centuries of genealogy records. You'll instantly learn where to find more information about possible ancestors. And, if a distant relative has already traced your family tree, you may find it on one of the accessory CD-ROMs that work with Family Tree Maker. In fact, we have the world's largest collection of actual family trees and genealogy records on CD-ROM. Save precious time while tracing your family tree from the comfort of your home!

Join a Huge Community of Users

We've sold nearly one million copies of Family Tree Maker. And thousands of those users visit our Web site every single day. Just click the Online button from inside Family Tree Maker and you'll be on the Internet, too. Once there, use our FREE matching service to quickly find others working on your same family tree. Create a FREE Web page for your family. Or post a FREE classified advertisement seeking family information. If the Internet contains information about your family, we'll help you find it fast!

Create Heirloom-Quality Family Trees

Family Tree Maker makes it rewarding and fun to preserve your family history for future generations. The program stores literally any kind of information. Start with names, dates, and basic facts. Record cherished family stories. Include photos and video clips, too. Then, choose from a variety of attractive printouts to share with your family—beautiful family trees, family journals, scrapbooks, and more.

Let Family Tree Maker Help YOU

Don't miss the chance to preserve your family history before more time slips away. Order today! Or find Family Tree Maker at a software store near you. Satisfaction guaranteed.

Broderbund®

*According to PC Data, Reston, VA, 7 out of 10 people buy Family Tree Maker over other family tree programs (Jan-Jun 1996). Available now for Windows 3.1 & Windows 95. Macintosh version available early 1997. Features vary according to platform and price. Accessory CDs sold separately. © 1996 Broderbund Software, Inc. All products are trademarks of their respective holders.

Source Code 532

Call us at 1-800-474-8696 or visit www.familytreemaker.com

that comprise a panorama takes a short time. But between rotating the rig, checking that everything is level, and shielding for glare, you'll be lucky if the scenery hasn't changed very much between the first and the final photo. You may wish you could scare off the tourists who walked by in the distance in shot #6, but it's really changes close to the camera that'll require touch-up in Photoshop later.

STEP 4: Set Up the Software. The QTVR authoring toolkit is built around MPW, the Macintosh Programmer's Workshop. As its name implies, it's made to be friendly to programmers, not average folk. Everything that happens inside MPW — and hence the QTVR authoring environment — is driven by a script. Those experienced with scripting will feel immediately at home; those who aren't should set aside some time to learn.

After installing both the MPW and the QTVR authoring environments, double-check that the tools (such as dice and msnm) are in the Tools folder of the MPW Shell application.

Next, seek refuge from the un-Mac-like face of the authoring tools in a very helpful utility called Sanity SaVR. Although this is an unsupported, beta AppleScript application not included with the QTVR authoring kit, it represents the direction the QTVR tools are headed. You'll appreciate Sanity SaVR's efforts to tack a much needed graphical user interface onto the QTVR tools (see figure 2). The 1-MB download is available over the Web at http://solutions.apple.com/pub/quicktime-vr/Goodies/Sanity_SaVR/Sanity_SaVR.html.

STEP 5: Get Your Images Together. After you've shot your scenes and installed the authoring tools, bring the images into the computer.

If you've used a regular camera, you can scan your negatives with a desktop slide scanner, but most QTVR veterans hand this task off to a film developer that processes Photo CD discs. This not only saves you time but also lets you take advantage of the QTVR software's premade scripts for Photo CD images. Make sure you tell the Photo CD developer to turn off automatic exposure compensation during the scanning process.

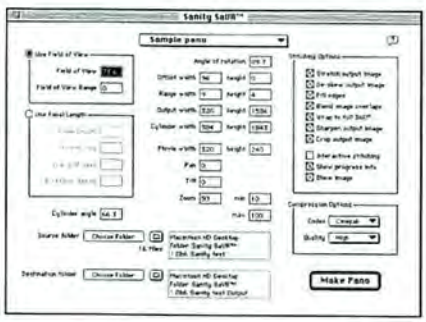


figure 2 / The free, unsupported utility Sanity SaVR adds a friendlier interface to the scripting-based QTVR authoring environment.

STEP 6: Stitch, Dice, and Make Your Movie. Once you have your scans together, you're ready to make your panorama.

Sanity SaVR comes with settings for a few camera setups. Choose the appropriate one in the dialog box by using the pull-down menu at the top. Then select your destination folder and the source folder containing your pictures. To avoid error messages, it's a good idea to keep your source and destination folders on the desktop and within the folder hierarchy so that you avoid hitting the 63-character pathname limit. Finally, click on the Make Pano button and let Sanity SaVR take over.

Sanity SaVR generates a text script based on the information you've supplied it, instead of making you create the script by hand. It then feeds this script to a program called ToolServer (which you downloaded with Sanity SaVR), which activates the individual tools in the QTVR authoring kit one after another.

If all goes as planned, a finished QTVR file (see figure 3) will appear in a few minutes in your destination folder.

STEP 7: Stitch Fixes and Fancy Moves. Of course, everything doesn't always go as planned. There may be times when you want to interrupt the sequence of QTVR tools to make some adjustments to your pictures or the stitch before the final panorama is completed.

Most commonly, you may want to get a look at the long PICT file, or SrcPict (source PICT), the stitcher creates from your individual photos. Even if the stitcher has done a great job, you might want to remove glare (or those tourists) from the image in Photoshop.

In such a case, edit the script Sanity SaVR created by cutting out the final two steps (dicing the stitched PICT file and making the movie). Paste those steps into a separate SimpleText file so you can use it later. Drag the edited script file onto the ToolServer icon, and the script will activate only the tools you've specified, stopping when the photos have been combined as a PICT file. Open and edit it in Photoshop, but make sure you rotate the image back to its original orientation before saving, if necessary. When you're done, drag the script containing the steps you omitted onto the ToolServer icon to finish the job.

Other times your images may stitch poorly and you'll have to tweak them yourself (the culprit is usually a poorly aligned rig). To fix a really bad stitch, you need to use the stitcher's interactive mode. Your pictures will appear on the screen one at a time, and you use the keyboard to move each one up, down, left, or right. You can shrink or stretch the left edge of the image vertically or horizontally. Pressing the Return key locks the image in place and loads the next image.

figure 3 / Using your cursor (the circle at this picture's base), you can navigate 360 degrees of a completed scene. Check this scene out online at http://www.zdnet.com/macuser/mu_0397/gu/gu01.html.

Scaling Beyond the Basics

Now that you've got the basics, there's plenty more you can do. You can create complex QTVR worlds made up of multiple scenes linked together or turn your panorama into an image map for the Web. You can also learn how to make an "object movie," a different type of QTVR movie that lets you turn and examine an object with your cursor.

We've mapped out a few great places where you can find out more about QTVR in the bar at the top of each page of this article. Remember, the QTVR learning curve can be a tough climb, but you'll discover the coolest stuff when you reach the summit.

Jeffy Milstead is a senior project leader at MacUser Labs. His New Year's resolution is to be able to calculate the field-of-view parameters for new camera/lens combinations while reciting the alphabet backward.

What *was* on your PowerBook?

"Losing" your PowerBook is a harsh blow, no question about it. But what's even worse is losing all your files.

Hardware can be replaced, but you may never recover your data. Not to mention all the time and energy invested in creating those files.

There's only one real solution—regular and reliable backups. And if it wasn't so hectic every time you got back into the office you'd remember to do it. Instead you just keep your fingers crossed and hope that today is not the day when you lose everything.

Wouldn't it be great if every time you plugged your computer into the office network, it would get backed up without you even thinking about it?

That's why you need Retrospect Remote.®

Just plug your computer into the network and Retrospect Remote's unique Backup Server™ automatically goes to work. Backup Server patrols your network looking for Macintosh, Windows 95, and Windows NT computers in need of backup. Then it backs them up in priority order—the one with the oldest backup gets backed up first. This simple innovation makes backups conform to your schedule—and everyone else's, too.

score card
MacWEEK ◆◆◆◆◆
MacUser RATED

It's unanimous. MacWeek says Retrospect is "the best of the breed." MacWorld writes "Retrospect leaves the competition in the dust." And MacUser reports "no other backup utility can match its breadth or depth."

For more information on how you can protect your productivity, call 1-800-982-9983 for your free white paper on mobile computing.

Because even if your computer checks out, your data is always checked in.

If you're not on a network, we still have you covered with our single user version, Retrospect® 3.0.

dantz *To go forward, you must backup.®*

©1996 Retrospect Remote and Retrospect are registered trademarks of Dantz Development Corporation. All other trademarks are property of their respective holders. Dantz Development Corporation, 4 Orinda Way, Building C, Orinda, CA 94563. Phone: 510.253.3000. Fax: 510.253.9099. Internet: info@dantz.com, upgrades@dantz.com, www.dantz.com.

CIRCLE **28** ON READER SERVICE CARD

Making Color Management Fly

Precise previews can guarantee your design isn't full of hot air.

INEXPENSIVE BUT ACCURATE previews are key if you'd rather not spend the money on making something twice. Boeing used QuickTime Virtual Reality to show the 777 to customers before a single airplane was made. Architects routinely construct buildings on-screen before a shovel ever hits the dirt. After all, it's a lot easier to redraw lines a client dislikes than to move bolts or repaint.

No matter how big or small the object you're designing, you can make your Mac work for you too. But the first obstacle to the creation of realistic previews — whether you're using fabrics, tiles, paints, wood finishes, or metals — is color. The trick is not to just eyeball shades on-screen but to also measure light readings from real materials in order to build yourself a reliable color palette.

Color-measurement devices, or spectrophotometers, such as the $1,295 Colortron II, from Light Source Computer Images, or the $1,345 Digital Swatchbook, from X-Rite, measure the spectral data of any reflective object and transfer it to the computer as color information. This color information is very accurate, but you need to calibrate your monitor for it to be useful for on-screen design. Check your Adobe Photoshop or spectrophotometer manual for calibration instructions.

In this example, we use a Colortron II, fabric samples, and Adobe Illustrator to design our hot-air balloon, named the *Vaporware*. The same steps can guarantee realistic color even with less lofty projects.

Brian P. Lawler is a graphics and printing consultant in San Luis Obispo, California.

5. GET YOUR DESIGN OFF THE GROUN

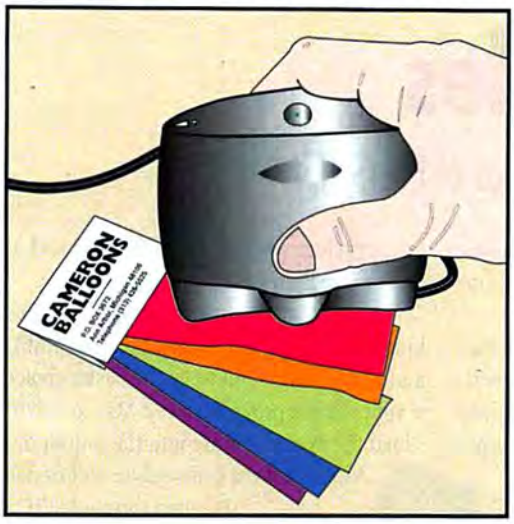
STEP BY STEP

1. TAKE COLOR SAMPLES FROM YOUR SOURCE MATERIAL. Use the spectrophotometer to measure your materials' color. Watch out for thin fabric or pale colors that can throw off your readings. For our balloon, we used a Colortron II to measure nylon swatches supplied by the balloon manufacturer. The swatches were made of fabric so thin that the Colortron picked up the color of the table underneath. Sometimes placing black or white paper behind a material can help, but in this case, white paper made the readings too light and black paper made them too dark. Our solution was to fold the fabric several times. To measure difficult materials, you may need to use something such as the Colortron software's average function. You can take measurements from various angles and average them to get a more accurate reading.

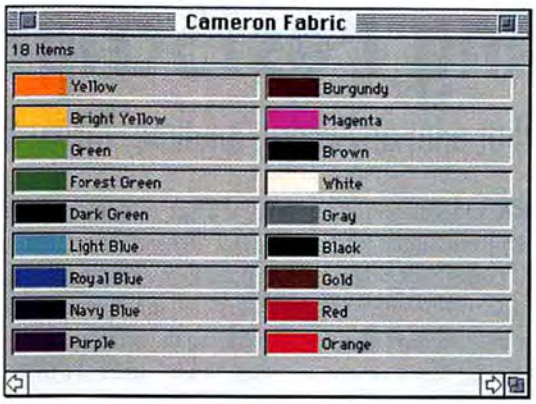
2. BUILD A COLOR PALETTE BY USING THE READINGS FROM YOUR MATERIALS. While measuring your materials, build a collection of colors for use in your project. As with most spectrophotometers, the Colortron's software saves captured digital color information as EPS files called Palettes that can be imported into applications such as QuarkXPress and Adobe Photoshop. We built a palette from our balloon swatches and then imported it into Adobe Illustrator (File: Import Styles).

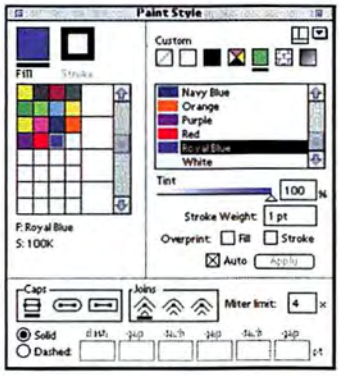
3. EXPERIMENT WITH YOUR COLORS IN A GRAPHICS PROGRAM. Once you have your palette, it's time to go about the business of design. Our manufacturer gave us an Illustrator file of the balloon's construction to work with. If you aren't so lucky, you'll need to draw or render your object from scratch. Using Illustrator's paint-bucket tool, we created several

1. TAKE COLOR SAMPLES FROM YOUR SOURCE MATERIAL.



2. BUILD A COLOR PALETTE BY USING THE READINGS FROM YOUR MATERIALS.





3. EXPERIMENT WITH YOUR COLORS IN A GRAPHICS PROGRAM.

4. CHECK AND COMPARE THE PROTOTYPES WITH MATCHPRINT PROOFS.

balloon prototypes by applying colors to the panels in different patterns. To get a good idea of how a design will really look, sometimes you need to experiment with more than one view of the object. In our case, we had trouble imagining our 75-foot-tall aircraft in flight, so we ended up using a snapshot of a balloon at a different angle to supplement the view our manufacturer supplied. We scanned the new photo, redrew it in Illustrator, and tried our color schemes on it as well.

4. CHECK AND COMPARE THE PROTOTYPES WITH MATCHPRINT PROOFS. As you test different designs, print out copies to compare to your source materials, as well as to see which design you, or your client, like best. Any color StyleWriter or color inkjet printer will work — we printed proofs of our balloon on a Kodak XL7700 dye-sublimation printer. We compared the prints with the actual fabric and were satisfied that our digital colors were representative. You may want to pay a visit to a service bureau if you need high-quality prints to show a client; our "client" was pretty easy to please.

5. GET YOUR DESIGN OFF THE GROUND. The final step is the manufacture of the actual project, using the digital prototype you've created. We sent our illustrations and a "cutting list" — a chart of the balloon panels, complete with color indications for each panel — to the factory for construction. Cameron Balloons built the balloon, and we received it three weeks later. When compared to the Illustrator prototype, this photo of the *Vaporware*'s inaugural flight shows just how successful our technique was.

EXPERT TIPS / By Bob Schaffel and Chuck Weger

Creating PostScript Files

To create files that print anywhere, anytime, follow these rules of PostScript.

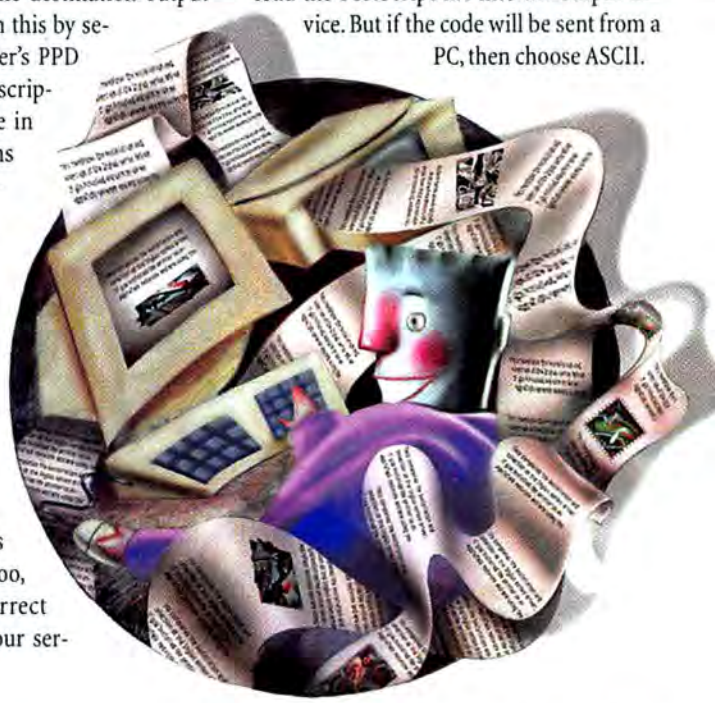
AFTER LAST MONTH'S speculation about which OS we'll be using in the future, we thought we'd come back down to earth with some real-world problems — PostScript files. There are two fundamental questions: "What's the right way to make a PostScript file?" and "I've been given a PostScript file, but how do I know it will work?" We'll address these questions in two parts — in two columns.

Let's make sure we understand the problem. In most cases, service bureaus and prepress houses prefer to output files directly from an application such as Adobe PageMaker or QuarkXPress. Working with native files gives them greater flexibility for correcting errors in setup, typography, and so on. However, sometimes service providers ask you to supply PostScript files instead. Why? The No. 1 reason is compatibility. Any problems that arise if the versions of the operating system, applications, or fonts don't match can be avoided by using a PostScript file. That's because it captures not only the content of the pages but also those idiosyncrasies of the original system.

Usually you create PostScript files by using the Print command and clicking on File instead of choosing the printer as the destination. The printer driver then generates PostScript code and sends it to your hard disk instead of to the printer. In the current version of Apple's LaserWriter printer driver (8.4.1 at press time), you make the selection in the pop-up menu at the upper right of the Print dialog box. After you click on Save, you will be asked to designate where on your hard disk you want the file to be saved (it's a good idea to have a lot of disk space available, because PostScript can be verbose). So far, so good.

But creating a PostScript file that will print flawlessly from someone else's output device also requires that you make the right decisions when preparing the file. Is the final output black-and-white or in color? Does the output device have more than one tray? Although PostScript is device-*independent*, some device-*dependent* attributes must be embedded in the PostScript code.

To do all the above, you have to make sure to choose the correct printer driver (the software that turns WYSIWYG data into PostScript code) for the destination output device. You accomplish this by selecting the final printer's PPD (PostScript Printer Description) file. PPDs reside in the Printer Descriptions folder, in the Preferences folder, in the System Folder. You can usually choose the PPD in the Page Setup dialog box of your page-layout application, but you also need to click on the Setup button in the Chooser to make sure the right one is selected. Make sure, too, that you have the correct version of the PPD your service provider uses.



Driving Deeper

Now, when you print, you can select the other appropriate choices in the Print dialog box. After you choose File as your print destination, click on the pop-up menu immediately below (which should read General) and select Save as File. This will bring up a new set of choices. The next option is Format. If you're creating PostScript for someone else to output, choose PostScript Job from the Format pop-up menu.

The next option lets you select PostScript Level 1 or Level 2 compatibility. Unless your service provider instructs otherwise, always choose Level 1 compatibility. Your provider may have similar output devices of different ages, each of which may have PostScript interpreters. Using Level 1 as your default lets your provider use Level 1- as well as Level 2-compatible machines.

Your next choice is data format: ASCII or binary. Binary creates smaller files than ASCII and usually turns out to be the better choice if your service provider uses a Mac to download the PostScript file into the output device. But if the code will be sent from a PC, then choose ASCII.

Finally, you'll reach the Font Inclusion pop-up menu. Of the choices appearing there (None, All, All But Standard 13, All But Fonts in PPD File), the safe choice is All. This option increases the file size and may duplicate fonts already installed in the output device. That's OK. These days, computers, networks, and processors are fast enough to handle the excess overhead, and it's a small price to pay to ensure font compatibility.

In our next column, we'll look at how to tell what has been included in a PostScript file and what to do to verify that it will print properly before you commit to actual output.

Bob Schaffel is emerging-technologies consultant for R. R. Donnelley & Sons. Chuck Weger is a graphic-arts consultant and a partner in Genex Media, a company specializing in new media and Web design.

ILLUSTRATION / STU SUCHIT

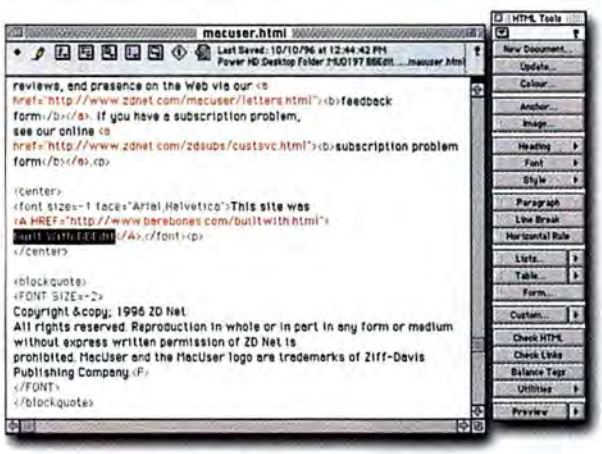
Behind every good web site...

Every job requires the proper tool. When it comes to creating web sites, **BBEdit 4.0** is the **Swiss Army Chainsaw** of HTML editors.

"BBEdit deserves a place in everyone's HTML toolkit..."
-- MacUser, August 1996

- Use **drag & drop** HTML tools to build your page quickly
- **Spell check** text; **syntax check** your HTML
- **Preview your page** using the browser of your choice
- **Open from** and **Save to** FTP server from the File Menu

A page from **www.macuser.com** created using **BBEdit**.



HTML code from the **www.macuser.com** site displayed in **BBEdit 4.0.**

...is a great HTML editor.

BBEdit 4.0

MacUser · score card MacWEEK · MacUser Awards Editors' Choice 1996 Finalist

http://www.barebones.com/chainsaw

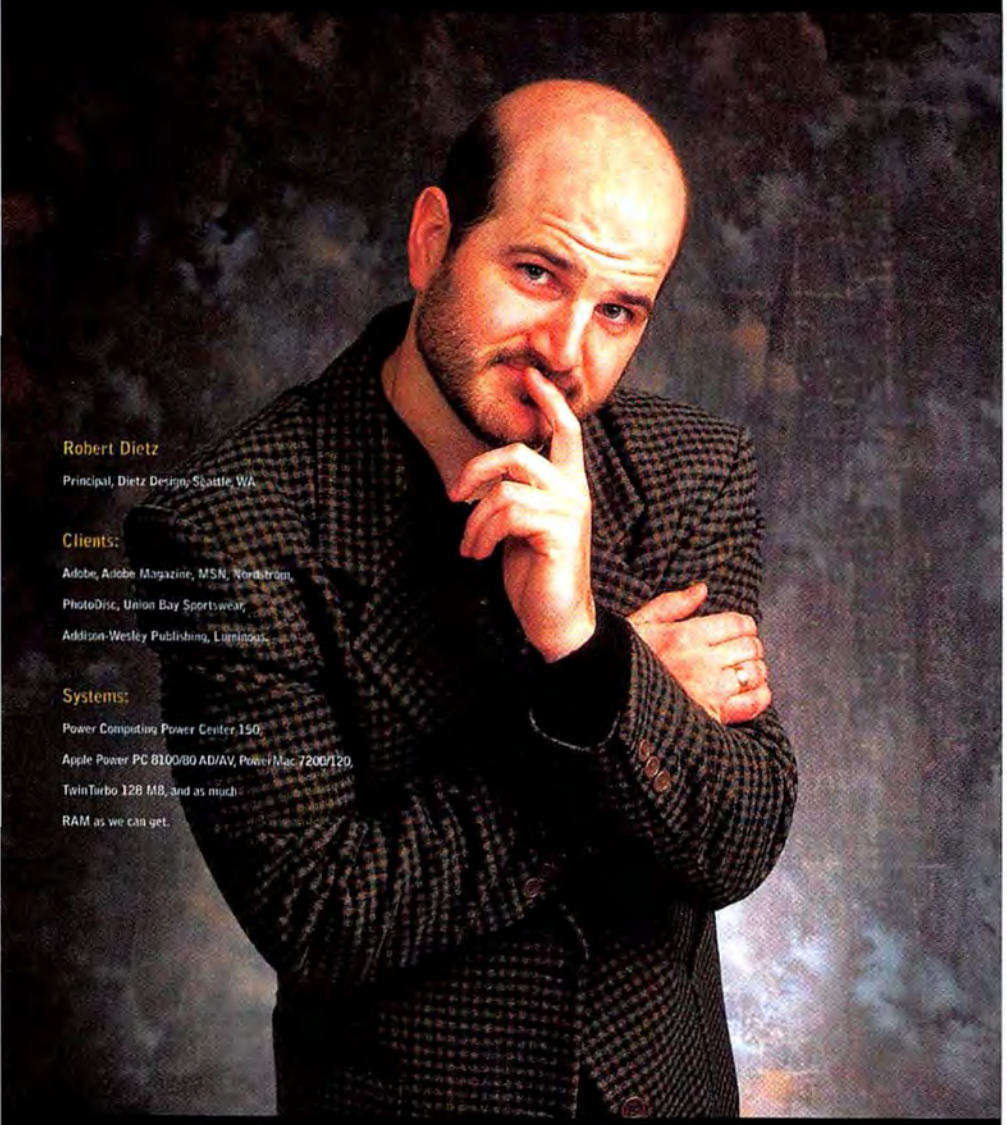
To order, call 617-676-0650

Bare Bones Software, Inc.
P.O. Box 1048, Bedford, MA 01730 • main 617-676-0650 • fax 617-676-0651

BBEdit is a trademark of Bare Bones Software, Inc. All other trademarks and registered trademarks are properties of their respective holders. © 1996 Bare Bones Software, Inc.

CIRCLE **76** ON READER SERVICE CARD

power hungry professionals



Robert Dietz

Principal, Dietz Design, Seattle, WA

Clients:

Adobe, Adobe Magazine, MSN, Nordstrom, PhotoDisc, Union Bay Sportswear, Addison-Wesley Publishing, Luminous

Systems:

Power Computing Power Center 150, Apple Power PC 8100/80 AD/AV, PowerMac 7200/120, TwinTurbo 128 M8, and as much RAM as we can get.

RELY ON TWINTURBO 128

The Award-Winning TwinTurbo 128 Series of Multimedia Accelerators for Macintosh.

1996 MacUser Editor's Choice Award Finalist —TwinTurbo 128M8

"No matter how much we invest in equipment it seems like we're always needing more power. And more speed. Because clients demand fast turn-around, and I'm striving to do break-through creative in new media. Which means working in programs like Photoshop™ and Director™. So we've installed the TwinTurbo 128 in every machine possible. That way, when we need to move an outrageous high-end image fast, we can."

Photo realistic image quality from 640x480 to 1920x1080. 180 Mbyte/sec image scroll rate. And the ability to move 24-bit images in real-time. Plus QuickTime compatible acceleration for true-color, full-screen, real-time video playback at 30 fps. Available with 2, 4 or 8 Mb of VRAM.

TWINTURBO 128M

CIRCLE **43** ON READER SERVICE CARD

Keep pace with the leaders.

Call 1-888-IMS-8282 today or visit our Website: www.integratedmicro.com.

INTEGRATED MICRO SOLUTIONS

MacWEEK ★★★★ MacUser ★★★★ MAC HOME ★★★★½

©1997 Integrated Micro Solutions, Inc. All rights reserved. All brand, product and service names are trademarks of their respective owners.

If your file server or router goes down, you'll hear about it from users. Wouldn't you rather know first?

By John Rizzo

Keeping an Eye on Your Network

MAC NETWORKS HAVE always been the most plug-and-play around, but that doesn't make them impervious to broken cables, misbehaving routers, or crashing servers. Fortunately, you don't have to wait for users to begin complaining about a network disaster before you take remedial action. Network-monitoring software can warn you of problems as soon as they occur or even spot symptoms before they bring down the network. Combining the right software with some troubleshooting techniques can keep network headaches to a minimum.

Network-monitoring packages generally fall into two categories: those that observe and analyze network traffic and those that monitor the status of specific devices — routers, servers, and so on. Traffic monitors are best suited for discovering networkwide configuration problems, whereas device monitors can locate isolated but critical network failures.

Traffic Reports

Network-traffic-monitoring software is based on the idea that a change in the level or type of traffic on your network often signals a problem. A drop in network traffic, for instance, can mean that a heavily used server has gone down or that a network segment has been disconnected by a misbehaving router. Similarly, an increase in traffic can signal a technical problem such as a packet storm — a flood of network signals broadcast by a malfunctioning network device.

Other changes in network-traffic patterns have nothing to do with device failures but result from the evolution of the network and its use in your organization. These changes may indicate that you need to reconfigure some portion of the network. Congestion on a segment may warrant the creation of a new one or the movement of a server or an imagesetter to its own segment. A gradual rise in overall *network utilization* — the portion of the total possible network bandwidth being used — can signal a slowdown in network performance you might not notice without a traffic monitor.

To detect a change in network-traffic patterns, you need to know what is normal for your network. Skyline and Satellite, from The AG Group, are good tools for finding the traffic baseline on multisegment networks (networks that have at least one router). Satellite is a data-collection engine that runs on a Mac and takes over its Ethernet port, making it unavailable for other network tasks, such as printing. To monitor an entire multisegment network, you install a copy of Satellite on one Mac on each segment. Each "satellite" delivers traffic information to Skyline, which runs on a central Mac. Skyline processes the Satellite data and generates graphs representing traffic patterns over time. You can look at this data in slices of time ranging from a minute to several days and can configure Skyline to report certain anomalies.

To create a baseline for your data usage, you might record hourly time slices over the course of several days. Skyline can display the overall network utilization for each segment and can provide statistics by protocol. For instance, you can see how much network bandwidth is being eaten up by Web-browsing and Usenet-reading users by having Skyline count HTTP (Hypertext Transfer Protocol) and NNNP (Network News Transfer Protocol) packets. To see how heavily a printer on a network segment is being used, you can monitor PAP (Printer Access Protocol) traffic on that segment. You can also use Skyline to tell you which Macs, PCs, or other devices use the network the most.

After you've created a traffic baseline, you

ILLUSTRATION / VICTOR GAD

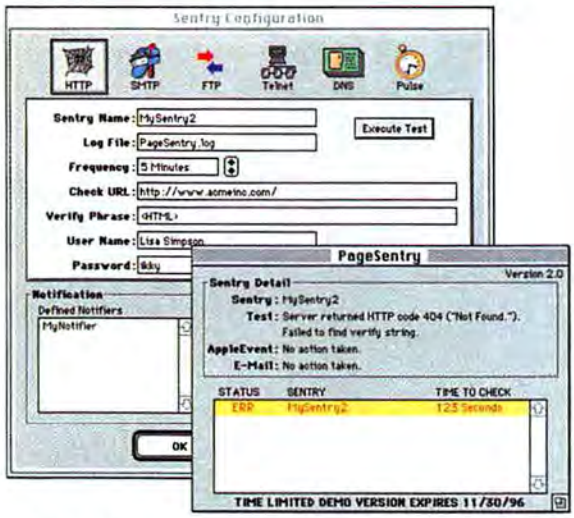


figure 1 / PageSentry periodically tests Web, e-mail, FTP, and other server applications running on an Internet server and can report failures via pager, via e-mail, or to an AppleScript-aware application.

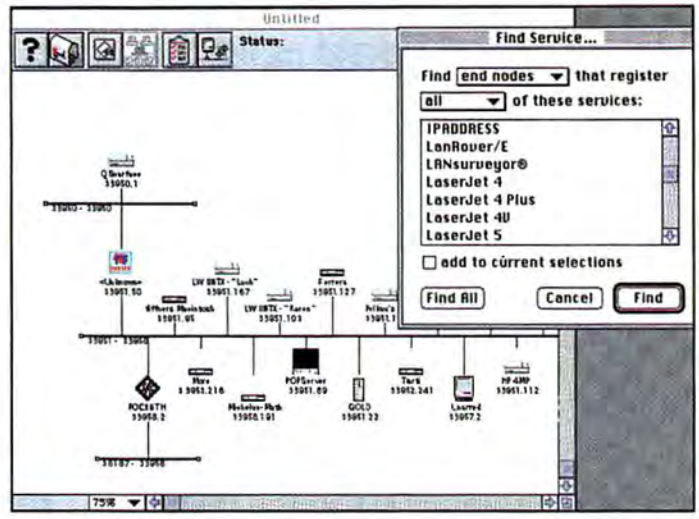


figure 2 / LANsurveyor (shown here) and Net Watchman can each draw a map of your network's servers, printers, routers, workstations, and other nodes. LANsurveyor allows you to concen- trate on specific device types by creating maps that include only those devices you're interested in.

can set Skyline to notify you when traffic moves significantly above or below it. Skyline can notify you via a dialog box, a sound, or an alphanumeric pager message. NetMeter, another AG Group tool that uses Satellite data to monitor the network, can help you track traffic by issuing a variety of meters, charts, and audio and visual alerts. You can monitor total network traffic, or you can limit yourself to particular protocols or a heavily used Web, AppleShare, or NetWare server. You can even monitor your network while you're on the road, by using NetMeter to access a satellite via an ARA connection.

If your network-monitoring needs are simpler — perhaps you have only one network segment — or if your budget can't stand dedicating a Mac to run Satellite, you can use Neon Software's TrafficWatch II for monitoring network utilization. TrafficWatch monitors a single network segment and displays bar charts of network statistics, including network utilization rates, packet sizes, error rates, and percentage of network traffic by protocol type. You can also call up a handy pie chart showing the portion of network traffic attributable to each node — workstation, server, printer, or router. For analyzing trends over time, you can save the data and export it to TrafficChart, a Microsoft Excel macro included with TrafficWatch.

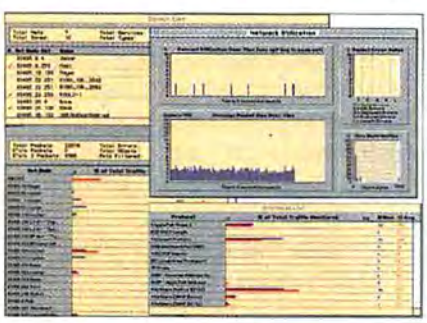


figure 3 / TrafficWatch II can display live network-traffic data by node, by device type, and by protocol, all of which are handy for tracking down bottlenecks and problem areas. It can also display network utilization and average packet size.

Your Own Devices

When the functioning of a server or a router, rather than overall traffic levels, means life or death for your network, your attention is better focused on the device than on, say, how much network bandwidth the marketing department was using at lunchtime. If the server goes down, nobody gets any work done. You can monitor critical servers, printers, and even routers with tools that watch for failures and let you know when they occur.

Rating Network-Monitoring Products

CyberGauge 1.0
♦♦♦
Price: $139 (list).
Pros: Inexpensive. Lets you save/review utilization data.
Cons: Monitors one IP router only. Can't search for routers.
Company: Neon Software.

LANsurveyor 3.0
♦♦♦
Price: $395 (list).
Pros: Can query a DNS to find an IP address. Sends alarms to pager. Supports SMTP.
Cons: Supports AppleTalk and IP only. Confusing configuration.
Company: Neon Software.

Net Watchman 2.2.3
♦♦♦
Price: $295 (list).
Pros: Runs in background in less than 1 MB of RAM. Alarms can activate AppleScript scripts.
Cons: Interface needs lots of mouse clicks. AppleTalk only.
Company: The AG Group.

NetMeter 1.0
♦♦♦♦
Price: $395 (list).
Pros: Good use of multimedia to display real-time data and alarms. Monitors single node or entire network. Multiprotocol.
Cons: Requires Satellite.
Company: The AG Group.

PageSentry 2.0
♦♦♦♦
Price: $149; PageSentry PRO 2.0 (supports 100 servers), $395 (list).
Pros: Tests a variety of IP services (HTTP, FTP, SMTP, DNS, Telnet). Sends alarms via e-mail or AppleScript.
Cons: No traffic info. Few status indicators within the application itself.
Company: Maxum Development.

RouterCheck 3.0
♦♦♦♦
Price: $649 (list).
Pros: Diagnoses multirouter problems, reporting per router and per port. AppleScript alarms.
Cons: Not cheap for small networks with one or two routers. AppleTalk only.
Company: Neon Software.

Skyline/Satellite 1.1
♦♦♦♦½
Price: $795; additional copies of Satellite, $200 to $300 each, depending on quantity (list).
Pros: Good graphing. Versatile alarms. Good tools for analysis of packet and byte data. Multiprotocol.
Cons: Expensive. Requires dedicated network interface.
Company: The AG Group.

TrafficWatch II
♦♦♦½
Price: $495 (list).
Pros: Multiprotocol (AppleTalk, IP, IPX, DECnet). Graphs traffic data by device, protocol, and network utilization.
Cons: Viewing saved data requires export to spreadsheet.
Company: Neon Software.

COMPANY INFO

The AG Group
Walnut Creek, CA
800-466-2447
510-937-7900
http://www.aggroup.com/

Maxum Development
Streamwood, IL
630-830-1113
http://www.maxum.com/

Neon Software
Lafayette, CA
800-334-6366
510-283-9771
http://www.neon.com/

The Internet isn't for everybody.

But then again, you're not everybody.

Since you're one-of-a-kind, we thought you might appreciate it if we untangled the web and made it more like you. So what we created is the most personal, hassle-free Internet service there is. And in addition to Internet access, we offer hundreds of our own special features. Like our handy navigation tools. They make it a cinch to point and click wherever you want to go. We even made it surprisingly affordable. To see why the Internet is for you, call us. We'll give you one free* month of unlimited use to figure it out.

To get your free Macintosh® software with Netscape Navigator™ 3.0 Browser
call 1-800-PRODIGY (776-3449) x3005 / www.prodigy.com

$19.95/month for unlimited hours or $9.95/month for 10 hours†

prodigy internet™

make it yours.

CIRCLE **138** ON READER SERVICE CARD

*Limit one free trial per individual. Valid credit card required. Additional charges may apply for certain features. Phone company charges not included. Supplemental access charges may apply. To avoid being charged your first monthly fee, simply cancel your membership before your free one month trial ends. For Basic 10 Plan and Unlimited Plan pricing after your one month trial, refer to the online Member Services or Help sites. Offer subject to change without notice. †For complete details on the Basic 10 Plan ($9.95/mo. for 10 hrs.) and Unlimited Plan ($19.95/mo.), refer to the online Member Services or Help sites.

Prodigy Internet and the Prodigy Internet logo are trademarks of Prodigy Services Corporation. Netscape Navigator is a trademark of Netscape Communications Corporation. Macintosh is a registered trademark of Apple Computer Inc. ©1996 Prodigy Services Corporation. All rights reserved.

If your network is divided into segments or if it's connected to the Internet, the router or routers that make this possible are among the most important devices you manage. A failure or misconfiguration may prevent users from printing or may keep your Web server off the Net. Even if the router is working, your network may perform at less than its best if your Internet connection has slowed down. Neon Software's CyberGauge monitors a single IP router and calculates bandwidth utilization, using the industry-standard SNMP. CyberGauge is easy to use and doesn't require a dedicated Ethernet port, as does Satellite.

You can also monitor AppleTalk routers. Misconfigured routers are the source of a variety of network problems that are difficult to detect with traffic analyzers. For instance, a mysteriously vanishing network segment, known as a black hole, can occur when two or more routers have different AppleTalk-address numbers for the same Ethernet segment. Neon Software's RouterCheck can find black holes by looking at all the AppleTalk routers on a network, reporting the segment- and zone-configuration information, and recommending corrective action. RouterCheck uses both SNMP and AppleTalk to communicate with a wide variety of AppleTalk routers. It can notify you when a router configuration changes; when router ports stop responding; and when router responsiveness slows down, in the case of an overly taxed router. It notifies you via a dialog box, a sound, or a pager message.

To keep tabs on file and Internet servers, production printers, and other network workhorses, you need a tool that can locate and monitor specific AppleTalk devices. The AG Group's Net Watchman is a simple background application that creates a list of some or all of the AppleTalk nodes on a multisegment network. When a device goes down, Net Watchman notifies you with a page, an e-mail message, a dialog box, sounds, or an entry in a log file. Like CyberGauge, Net Watchman is simple and doesn't require a dedicated Mac. Its use is limited to AppleTalk devices, however. Neon's LANsurveyor can also track wayward devices and draw a map of your network (see figure 2).

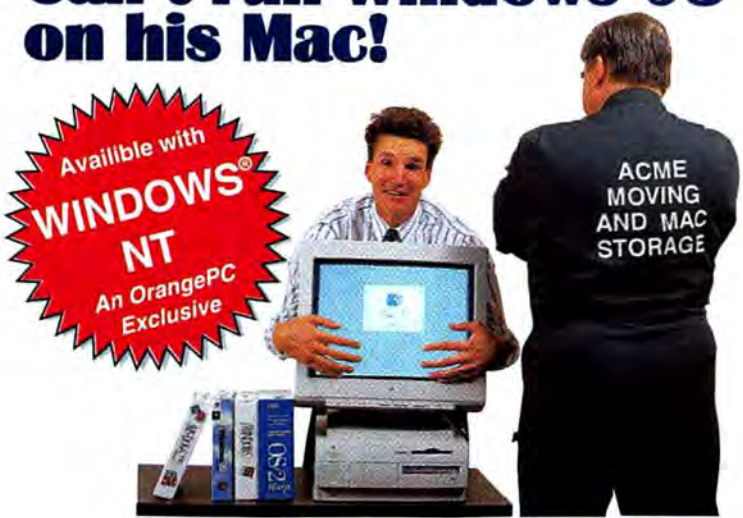
If your network contains IP devices, you'll need a different tool to monitor them. PageSentry, from Maxum Development, uses SNMP to communicate with IP-based devices, such as Web servers, letting you know when devices disappear from the network. It can also tell you when a particular service or protocol stops functioning. You can set PageSentry to send an e-mail message or an alphanumeric page and to automatically restart a Mac-based server after a specified downtime.

Advance Notice

There is nothing more unpleasant for a network manager than a network failure. Implementing one or more early-warning systems to alert you to problems you may not have discovered on your own gives you a great advantage over the forces of entropy that sometimes seem to rule the network world. Network monitors can also help you solve problems before they strike. Locating the cause of poor performance and nonfunctioning network segments can be much like looking for the proverbial needle in a haystack. Network-monitoring tools can help you sift the statistics. More often, they act as a magnet that draws the needle out for you.

John Rizzo is a MacUser *contributing editor.*

Can't run Windows®95 on his Mac!



got OrangePC®?

When you must run DOS™, Windows®, Windows95, or WindowsNT, no one replaces your Mac as long as you "got OrangePC." Yes, unlike any other product on the market today, the OrangePC hardware card puts the major PC operating systems on all PCI and all NuBus Macs and PowerMacs.

The Intel®486 (or 5x86) processors power our OrangePC 300 series for Nubus Macs, and the 400 series for PCI based Macs. For power hungry users with PCI systems, the OrangePC 500 series supports Pentium processors up to 200 MHz.

Major features include up to 128 Mb RAM on board, 256K cache, parallel/serial/game ports, accelerated SVGA video (2 Mb), and Sound Blaster™ stereo sound. OrangePC also comes with free network software to connect to PC type Ethernet with full compatibility.

And the OrangePC is affordable, with prices starting at $599! Get a grip on your Mac!

Get OrangePC!

MacUser Nov/91 MacUser May/94 MacWorld Aug/94 MW EDITORS' CHOICE Mac World Sep/95 yes It runs with NetWare Microsoft Windows Compatible

Orange Micro Inc.

"17 Years of Innovation and Excellence"
1400 N. Lakeview Ave., Anaheim, CA 92807
(714)779-2772 www.orangemicro.com

© Orange Micro, Inc., 1997

CIRCLE **130** ON READER SERVICE CARD

www.netbuyer.come

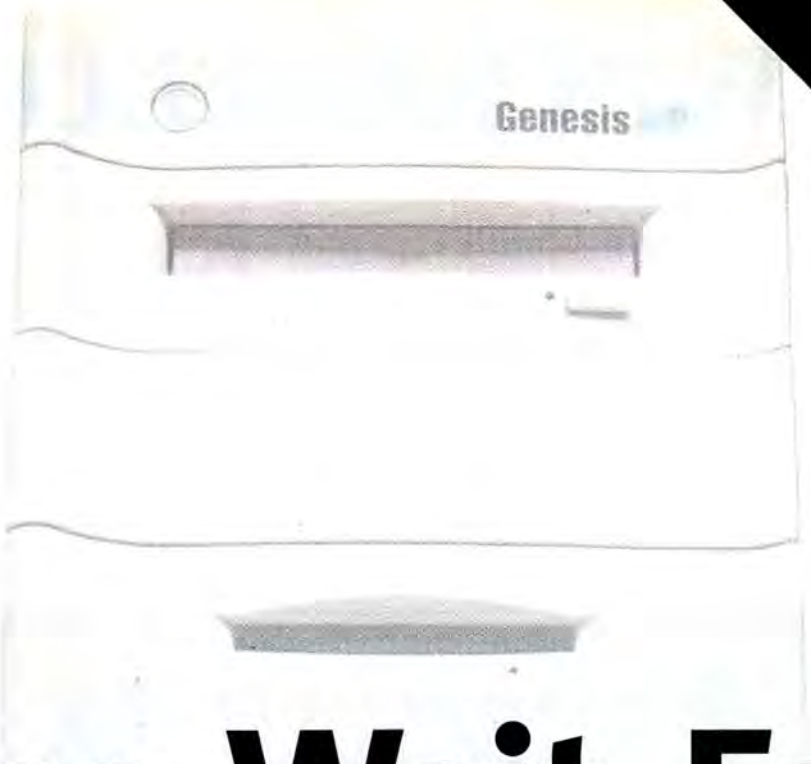
—and get it!

Computer Shopper introduces NetBuyer, the *best* one-stop, online shopping service for computer buyers—and it's free!

Now there's one super web site where you can shop with confidence and ease. With over 40,000 computer products and more than 180 vendors, **NetBuyer** is a direct shopper's paradise. A few smart moves of the mouse and you search and compare products, check specs and prices, get advice from the experts at Ziff-Davis, cash in on weekly specials and order what you want direct from vendors — online or on the phone.

From a world-class system to cables and adapters, you can search for it, find it, compare it and buy it without leaving your desk or testing your patience. It's a fast and powerful tool. Come see today. The service is free!

Go to NetBuyer on the World Wide Web (www.netbuyer.com) to enter the NetBuyer sweepstakes. Sweepstakes are open only to U.S. residents who are at least 18 years of age. A random drawing will occur each week between October 1st and December 2nd. The prize for each weekly sweepstakes is a check for $500. No purchase necessary. Void where prohibited or restricted by law. Sweepstakes are subject to the full official rules posted on the NetBuyer web site.



MULTIPROCESSING
SYSTEMS STARTING AT
$4,999

Lose Wait Fast

Waiting on your PowerMac costs you money

nPOWER Multiprocessing Systems	PowerPC 604e	Cost
Genesis LT 400+ Mini Tower; Configured*	Dual 200 MHz	$4,999
Genesis MP 720+ Full Tower; Non-configured	Quad 180 MHz	$8,499
Genesis MP 800+ Full Tower; Non Configured	Quad 200 MHz	$9,999
nPOWER Multiprocessing Card		
nPOWER 360+ For PowerMac 7500, 7600 8500, 9500 and SuperMac S900 & J700	Dual 180 MHz	$1,499

*Includes 16 MB RAM, 2 gigabyte hard drive, 4 MB graphics card

So, lose the wait fast with the world's fastest multiprocessing solutions for the Mac OS. High-speed workstations and an upgrade from DayStar, the inventor of nPOWER multiprocessing technology - the same technology now used by Apple!

How's it work? Easy. One processor is fast, but four processors are nearly four times faster. So, you can move through your imaging, video and 3-D projects in a fraction of the time. That means a lot more work in a lot less time - that translates into real bottom-line gains. Or, for the budget conscious, dual processing is nearly twice as fast, and costs less than comparable systems. You can choose from the inexpensive nPOWER Card, or Mini Tower.

You'll not only have plenty of speed, you have plenty to run on it. Twenty high-speed multiprocessing software packages are now available including Photoshop, After Effects and Premiere from Adobe, Electric Image, Strata Studio Pro Blitz, Apple QuickTime, Metrowerks CodeWarrior, and Deneba Canvas. Another 20 are in development!

As you can see, you can get money-making speeds from a DayStar upgrade for your existing system, or as one of a variety of DayStar Genesis MP computers. Either way, you'll lose wait fast. So if you make money with your Mac, you will make more with a nPOWER solution from DayStar. After all. We invented it.

Nothing is faster. Nothing pays off quicker. nPOWER Multiprocessing Systems.

To register for your free poster contact us at www.daystar.com.

To learn more, check out our Web Site at www.daystar.com, or drop us an e-mail at info@daystar.com

DAYSTAR DIGITAL

CIRCLE **105** ON READER SERVICE CARD

NET.CETERA / By Jason Snell

The Plug-In Paradox

Plug-ins have made multimedia on the Web a reality, but it's easier to plug than to play.

LIKE EVERYONE ELSE on the Web, I could not wait to get my hands onNetscape Navigator 2.0. Navigator 2 was supposed to revolutionize multimedia on the Web, thanks in large part to plug-ins. But plug-ins have been a mixed blessing. They've allowed Web designers to add much-needed spice to their Web pages — but at a price to users.

Plug-in Pains

Adding multimedia content to a Web page is pretty easy — just insert an `<EMBED>` or `<OBJECT>` tag and point to the relevant file on your Web server — whether it's a Shockwave movie created in Macromedia's Director, a FutureSplash vector-based animation created in FutureWave's FutureSplash Animator, or another kind of multimedia file in any of dozens of plug-in data formats. But if members of your audience don't have the required plug-in — and most of them won't, at least at first — they'll instead be interrupted by a "plug-in not found" error dialog box.

Of course, these users can opt to download the relevant plug-in, quit their browser, install the plug-in, relaunch, and go back to your Web site. But a lot of them may choose to skip your page entirely rather than go to all that trouble.

That's not the only problem. Data in popular formats — MIDI sound files, for example — will probably be supported by several different plug-ins. MIDI choices include LiveUpdate's Crescendo, Yamaha's Midi Plug, and several others. Unfortunately, having *a* MIDI plug-in doesn't mean that your browser is now compatible with any page that contains embedded MIDI. If a page you visit has been designed to work with a different MIDI plug-in, you might get no music at all, an error dialog box, or other strange behavior.

Netscape and Microsoft aren't ignoring this problem, but right now their solutions aren't great ones. Netscape keeps signing deals to bundle various plug-ins with Navigator — first up was Apple's QuickTime plug-in, which is included as a part of Navigator 3.0, and Macromedia's Shockwave, the Pointcast Network, and Inso's Word Viewer are on the way. Microsoft has built support for various audio and video formats directly into Internet Explorer, but Explorer's built-in support doesn't apply to pages designed for Netscape plug-ins. For example, even though Internet Explorer supports QuickTime, it won't play a movie on a page written for Apple's QuickTime plug-in.

Plug-ins also eat up a lot of RAM. For example, Macromedia recommends that you allocate 9 MB of RAM to Netscape Navigator in order to run Shockwave. Web authors should keep in mind that every plug-in they add to their pages escalates RAM requirements and prevents more and more low-RAM users from seeing their site as it was meant to be seen.

In the Pipeline

But don't despair: Microsoft and Netscape are both working to make sure that Web surfers aren't doomed to a life of downloading and installing big plug-ins in order to get access to the coolest Web pages. Microsoft's answer to plug-ins, called ActiveX controls, can be downloaded and installed on the fly. If you come to a Web page that requires a control you don't have, Internet Explorer will download the control and then display the content. Unfortunately, most ActiveX controls exist only for Windows, so if Mac users find a page that uses ActiveX, they may be out of luck. Netscape has promised to fix some plug-in problems in Navigator 4.0, which will be released as part of the Netscape Communicator suite (see "Navigator Is Dead; Long Live Navigator," February '97, page 20). Like Internet Explorer's ActiveX Controls, plug-ins needed for viewing multimedia-rich pages in Navigator 4.0 should download and install automatically and then display the relevant item. Microsoft says that it will eventually implement that method of plug-in support in Internet Explorer.

The Solution

Until Navigator 4 becomes widely available, Web authors should use plug-ins with caution. If you do use plug-ins on your Web pages, settle on one or two and use only those, to minimize potential RAM problems and to avoid frustrating plug-in-poor users. Place obvious links on your site to where Web surfers can download the plug-ins if they don't currently have them. And if you must use plug-ins, consider creating two versions of your site — one with all the multimedia bells and whistles and another without any embedded plug-in files at all. By using this approach, you'll keep your hot multimedia site intact without driving away people who aren't as plug-in-savvy.

MacUser *Senior Editor, Online, Jason Snell operates several Web sites, including InterText and TeeVee.*

ILLUSTRATION / BARBARA POLLAK

Now there's a Pilot for the rest of us.

Pilot™ is your automatic link to the personal info on your Apple® Macintosh® computer.

Pilot includes its own Personal Information Manager software that lets you edit, import and export info to and from your Macintosh.

Pilot stores thousands of addresses, phone and fax numbers, personal notes — you name it.

Touch here to see the day's agenda. Make recurring meetings appear automatically.

Delete old records from your Pilot, and keep for future reference in an archive file on your Macintosh.

Enter any word and touch "Find" to retrieve a stored item instantly.

It's easy to add memory, upgrade software, or in the future, attach products like modems.

Prepare a To-Do list, prioritizing items by due date. Make items disappear as you complete them.

Take notes on the road, then later copy and paste them into programs like Word and Excel on your Macintosh.

Enter data once into your Pilot or Macintosh. Then press the HotSync™ button to keep your Pilot and Macintosh up-to-date.

One touch automatically keeps the data on your Pilot safe and backed up on your Macintosh.

At about 4.5" tall, and 5.5 oz. and at $299,* the new Pilot organizer fits your shirt pocket — and your budget. Yet it's huge on functionality. But instead of telling you all it can do, we think you'd rather try it out yourself. To find out where to get your hands on one, give us a call at 1-800-881-7256. To arrange a demo, visit our web site at http://www.usr.com/palm.

pilot™
The one touch organizer

*The average U.S. street price for Pilot 1000, complete with all desktop PIM software and organizer software, docking cradle and accessories. Additional Mac Pac required at $14.95. © 1996 U.S. Robotics, Inc. U.S. Robotics and the U.S. Robotics logo are registered trademarks and Pilot and HotSync are trademarks of U.S. Robotics and its subsidiaries. All other product names are registered trademarks or trademarks of their respective owners.

U.S.Robotics

CIRCLE **143** ON READER SERVICE CARD

ILLUSTRATION / SUSAN LEVAN

Your Mac won't fetch your slippers when you tell it to, but it can easily follow other verbal commands.

By Shelly Brisbin

Talking Back to Your Mac

TALKING TO ANY electronic gadget, particularly if it's acting up, isn't all that unusual. Having the machine understand and act on what you say — now, that's a neat trick. Macs have been able to speak and recognize your words for a while, but more-powerful Macs and improved software from Apple have made voice control of your Mac truly useful. Apple's Speech Recognition software has recently been updated (it was in version 1.5 at press time) so that more Mac models can use it and so that it's less taxing on your Mac's speed. It's also easier to use, thanks to commercial and shareware AppleScript script collections.

Speech Recognition is not without gotchas, though, and needs a powerful system and some tinkering to get it to perform a good batch of tricks. In this article, we'll help you make your Mac sit up, roll over, open your applications, and even surf the Web, in response to your voice.

Parts of Speech

Before you can get your Mac to do your spoken bidding, you'll need the right software and the right hardware. The right software depends on the Mac you use. If you have a PowerPC-based system, get the latest version of Apple's PlainTalk software (which includes Apple's Speech Recognition software) for the best results. It's available from Apple's speech Web site (http://www.speech.apple.com/) and from MacUser Software Central (http://www.zdnet.com/macuser/software).

For the first time, PowerPC-based Performas can use Speech Recognition too, as long as they have PlainTalk 1.5 or a later version installed. You can also use Speech Recognition with audiovisual (AV) Macs, the only non-Power Macs that support it. For these Macs, you should get PlainTalk 1.3, the latest version that runs on them. Unfortunately, this version doesn't have the important option that minimizes the effect of Speech Recognition on your Mac's speed. No matter which version of PlainTalk you use, you must have System 7.5 or later installed on your Mac also.

PlainTalk contains both Speech Recognition (SR) and Text-to-Speech software. Be sure to install not only SR but also Text-to-Speech — it lets your Mac give spoken feedback to your commands. In addition, if you're the type who tinkers with your System Folder, you should make sure that it contains AppleScript. Speech Recognition uses it to automate many of the commands you're likely to use.

Besides a powerful Mac, Apple recommends a minimum of 16 MB of RAM. We recommend more. Speed and flexibility are much greater with more memory installed or with a boost from Connectix's RAM Doubler 2.

Last but not least, you need to have a 16-bit, PlainTalk-compatible microphone. Apple's PlainTalk mic, which comes with some Mac models, is a good choice. The mics built into many Apple and third-party audiovisual monitors also work. Unfortunately, that old mic that came with an LC or IIsi won't work. For the best results, position the mic a bit above or below eye level and speak normally.

Make Your Mac a Good Listener

With your software and hardware in place, the next step is to configure the Speech control panel (see figure 1). It's a simple procedure, but the choices you make as you do so will have a significant impact on your Mac's speed and on Speech Recognition's responsiveness.

One way to keep Speech Recognition from slowing down your Mac is to control when it "listens" for commands. To maintain the most speed, have your Mac listen only while you're holding down a specific key (the Esc key, by

figure 1 / To chat with your Mac, you need to spend time with these three windows. (a) The Speech control panel gives you important options for Speech Recognition. The configuration shown has the least impact on your Mac's speed. (b) Connie, in the lower right window, is one of several characters who stays on your screen at all times, acknowledging commands and giving spoken feedback. (c) The Speakable Items folder shows you exactly what items on your Mac you can control with your voice. You can add to it to have wider control or subtract from it to increase your Mac's speed.

default). To do so, select Listening from the Options pull-down menu in the Speech control panel and select the "Listen only while key(s) are pressed" option.

You can instead have it breathlessly await your commands all the time, but it's more likely to slow down your Mac — just choose the "Key(s) toggle listening on and off" option in the Speech control panel. This option will probably increase the number of misfired commands too — it listens to everything you say and may mistake your casual conversation for an order. To minimize such mistakes and still use this option, you can tell your Mac not to follow commands unless you call out its name first (choose "Required before every command" from the Name Is pull-down menu). Name your Mac whatever you want by typing it into the Name box.

Vocabulary Building

The Speakable Items folder (see figure 1) is the key to pleasant discourse with your Mac. This folder contains the instructions — the aliases and AppleScript scripts — for carrying out your commands. When you issue a command, PlainTalk looks here to find an item with a name that sounds like what you've said. Although more than a couple of dozen items go into this folder automatically when you install Speech Recognition, you'll probably want to add to your Mac's vocabulary. Sure, you'll be able to carry out some useful Finder commands, such as closing an open window, but you won't be able to control applications, using the original set of items.

It's easy to make an application (or any folder or file) speakable: You just click on its icon and say, "Make this speakable." Speech Recognition does as you ask and even drops an alias of the item into Speakable Items. Tell your Mac to open the item, and — voilà — it opens. Be careful how many items you add to this folder, though. In our testing, we found that the more items you store, the slower Speech Recognition runs.

This brings us to the tricky business of naming files and phonetic pronunciation. If you've ever listened to MacinTalk speech synthesis, you've had a firsthand demonstration of the difference between phonetics and American English spelling. Since Speech Recognition is based on MacinTalk, you'll sometimes have to adjust the spelling of the items in your Speakable Items folder. If you use Eudora to read your e-mail, for example, name its alias "open Udora." If you're not sure how something will sound to your Mac, open SimpleText, type the command you want to use, select the text, and choose Speak Selection from the Sound menu. We used this method to make the screen-sharing application Timbuktu (Timbuktoo) speakable.

Outside Help

Once you've told your Mac to "close all windows" or "start file sharing" a few times, you'll realize that Speech Recognition isn't much good unless you can use it to control more than the Finder and the launching of your applications. You have two choices: dive headfirst into the world of AppleScript, or get some help. If you're an AppleScript scripter already, controlling applications with speech is fairly simple. You can create scripts that invoke menu commands within one or more applications and make the scripts speakable.

If the idea of cooking up your own scripts from scratch leaves you cold or petrified, there are tools around that can ease the chore or even eliminate the need for scripting altogether. If you use ClarisWorks, Microsoft Excel, Microsoft PowerPoint, Microsoft Word, or Netscape Navigator, consider Scantron Quality Computers' $49 EZ-Speak (see review, December '96, page 44). It's a collection of over 200 scripts and aliases that control these applications. The speakable items you get with EZ-Speak include menu commands, a few Finder goodies, and over 100 bookmarks for popular Web sites. Since such a large quantity of speakable items is bound to slow your computer to a crawl, get rid of the ones you don't need, such as items for a program you don't use or Web sites you won't visit.

Shareware authors, too, have been dabbling in Speech Recognition. Jonathan Lapin has a collection of scripts called SR 2.0 (http://www.vannevar.com/Mac_SR/index.shtml) that can be modified and used for such tasks as checking your mail and logging onto the Internet via PPP. Lapin's Web site is also a treasure trove of Speech Recognition tips.

A Final Word

If ordering your computer around appeals to you, and if high RAM demands or the prospect of opening up the AppleScript editor hasn't managed to dull your enthusiasm, now's the time to load Speech Recognition. The software is more useful than ever, and hardware is powerful enough to make the technology worthwhile.

MacUser *Associate Editor Shelly Brisbin reflexively thanks her Mac when it follows her verbal instructions. It says, "You're welcome," thanks to one of Jonathan Lapin's scripts.*

By Bob LeVitus and Christopher Breen

Help Folder

How to tame large herds of fonts, the dual-platform Jaz blues, and Net cookies.

Full o' Fonts

Q. I have an enormous number of fonts. Unfortunately, I have so many of them that they don't all display in my various font pull-down menus. What can I do to organize them?

Joe Olivier
via AOL

CHRIS: I offer the same advice as anyone who's ever passed within a hectare of my crowded office: "Maybe you need to clean this place up." Before ganging your plethora of fonts together into cozy suitcases, it wouldn't be a bad idea to clean out some fonts you may not need. And what do we recommend for just such a cleaning, Bob?

BOB: Why, Font Box, of course. This cool tool from Insider Software sifts through your fonts, checks the reliability of each one, eliminates duplicates, resolves ID conflicts, moves orphaned fonts (Type 1 screen fonts lacking their printer counterparts), and provides several ways to organize your newly cleaned font library. One dose of Font Box should remove a few of those fonts from your menu as well as free up a fair hunk of hard-disk space.

CHRIS: Now that you've tidied up, let's get your font house in order. If you're really serious about organizing your fonts, you'll want a font utility that lets you create application-specific groups of fonts — a group for your page-layout program, another for your graphics applications, and one more for your word processor, for example. Organizing fonts in this fashion guarantees that your font menus will be far less congested. Currently you have several utilities to choose from: Symantec's Suitcase, ALSoft's MasterJuggler Pro, Adobe's Adobe Type Manager Deluxe, and DiamondSoft's Font Reserve.

BOB: As we write, Adobe Type Manager Deluxe and Font Reserve are in beta, but they should be released by the time you read this. Both look promising.

CHRIS: If you use an extension manager such as Casady & Greene's Conflict Catcher 3 or Now Software's Now Startup Manager, you have a partial solution to font fat within your grasp. These babies let you create not only sets of extensions but font sets as well. Of course, unlike the font-specific utilities we mentioned earlier, these packages make you restart your Mac in order to change font sets.

BOB: And speaking of restarts, you can also give Ed Hopkins' $10 shareware program Fonts Manager a try. It works like Apple's Extension Manager and allows you to create font sets that can be swapped at startup.

Discordant Jaz

Q. I have both a Mac and a PC, and I'd like to use my recently purchased Jaz drive with both. Is there any way for me to get access to the complete Jaz Tools for both the Mac and PC?

Lane Weiss
Madrid, Spain

CHRIS: I've got a bone to pick with Iomega on this very subject. Let me start by saying that I really like my Jaz drive. It seems solidly built and has a more convenient power supply than that hulking brick attached to my Zip drive. *However*...

BOB: Here it comes...

CHRIS: ...did it ever occur to the fine folks at Iomega that we are living in a cross-platform world, where people routinely work with Macs as well as PCs?

BOB: Hang on, partner. I know where this is leading. You're whining because the installer erases Jaz Tools for DOS and Windows when you load Jaz Tools for the Mac.

CHRIS: Exactly! The same thing happens with the Zip drive. Run Zip Install, and the darned thing vaporizes the tools for the other platform. I paid for the cartridge. Shouldn't I be the one to decide what gets erased and what doesn't?

BOB: OK, I agree. Iomega should give you the

WRITE TO HELP FOLDER/TIPS

c/o MacUser
50 Beale Street, 12th Floor
San Francisco, CA 94105

Don't want to wait for an answer? Post your question on the MacUser Forum on either America Online or CompuServe, or send e-mail to helpfolder@macuser.com or tips@macuser.com. We pay $25 to $100 for any undocumented tips we publish.

Tips / Online

Flashier FlashSession

Tired of sitting around while America Online dials, logs on, logs off, redials, logs on, logs off, and so on because you're checking on an account that has multiple screen names? If you have a dial-up Internet account and AOL 2.5 or later, you can cut out one of the steps in the process.

With the AOL application open but not connected, use the pull-down Location menu to select TCP Connection. Now fire up your PPP/SLIP Internet account, select Activate FlashSession Now from the Mail menu, check the screen names you would like to use, and click on the Go Ahead button. Because you're logging in via your Internet provider, you don't need to redial with each connection. AOL will simply log in and out for each screen name in succession.

One additional speed benefit you may gain from this procedure is a faster connection to AOL. AOL may not offer a local 28.8-kbps connection, whereas your Internet provider probably does.

Haseeb Omar
via the Internet

ILLUSTRATION / BOB STAAKE

option. But you're not completely hosed — at least not if you have an online account. Just go to the Iomega forum on AOL or to Iomega's Internet site (http://www.Iomega.com/) and download Jaz Tools for the particular flavor of computer you own.

CHRIS: Hang on a sec. I'm going there now to check this out.

BOB: While Chris is online, let me mention that *my* just acquired Jaz drive, which has never been sullied by evil-empire operating systems, is thus far functioning flawlessly. I can't imagine why Chris would want to use his with a PC anyway, much less own a PC . . . .

CHRIS: I heard that. OK, since print is a not a time-based medium, I've already downloaded the over-5-MB Iomega Tools software, installed it on my PC, and made a discovery or two.

1. Downloading 5+ MB takes a long time. I still contend that having the choice of keeping or trashing the other platform's tools would be a nice gesture to us cross-platform types.

2. In order to use Jaz Tools for the PC, you have to first fire up the Guest program on the PC. This is a fairly painless procedure — just insert the Jaz Windows/DOS installation floppy, run the appropriate Guest program (Windows 95, Windows 3.1, or DOS), and watch as the Jaz drive becomes a fully functioning member of your PC's hard-drive family. Once the Jaz drive has checked in, you can access Jaz Tools.

3. According to the documentation, you have to run Guest only once in Windows 95 — the driver remains on your startup drive, and you needn't bother with the Guest program again. Apparently Windows 3.1 and DOS users aren't as blessed — they have to use Guest every time they want to mount their Jaz drive. To obtain a permanent driver, these users have to shell out $149 for another Jaz Tools disk.

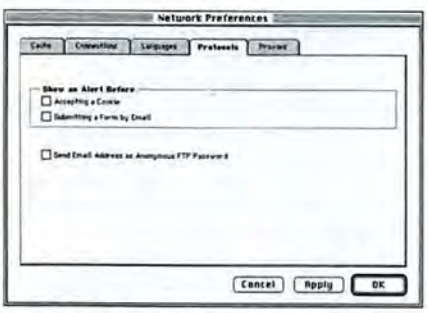


figure 1 / If you see a cookie warning while you're visiting a Web site, that means the maker of the site is gathering info about your online habits. If you'd rather not be reminded of this, you can turn off the warnings by unchecking the top box in this Navigator window.

Tips / Browsers

A Page Too Long

Wouldn't it be nice if you could preview the page breaks in your Web browser so that you knew whether a document you were about to print was just one or two lines too long for a single page? Current browsers don't provide such a preview, but there's a workaround if you use desktop printing.

Before printing, select the printer icon on the desktop and choose Stop Print Queue from the Printing menu. Now print the Web page and wait for the Printer Queue window to appear. If you see that more than one page is being spooled to the printer, open Page Setup and scale the size of the printout — say to 90 percent. Now again choose Print. If the printer queue continues to indicate that more than one page is being spooled, reduce the size of the page further.

Because you've stopped the queue, no pages are actually printed. Once you've found the proper scaling percentage, open the desktop printer, delete those files that have more than one page, and select Start Print Queue from the Printing menu. Your Web page will print to one piece of paper.

Stuart Cheshire
via the Internet

Are Net Cookies Crummy?

Q. What is this cookie thing on the Web? Whenever I go to the Adobe site (http://www.adobe.com/), there's a dialog box that appears indicating that Adobe wishes to set a "cookie."

Martin Lazatin
via the Internet

CHRIS: Martin, if you poke around in your Netscape *f* folder (it's inside the System Folder's Preferences folder), you'll find a file called MagicCookie. If you use Internet Explorer 2.0, the file is called cookie.txt (follow the path System Folder: Preferences: Explorer: Cache). These files contain data that's been sent from an Internet site's server. Numerous Internet sites — including Adobe's — like to save bits of data to a cookie file in order to keep track of how you use the site.

Such data can include the current date and time, a list of links you've clicked on when visiting a particular site, and customization options.

BOB: If you want to get rid of these warnings and you don't mind collecting cookies, go to Navigator's Network Preferences dialog box (under the Options menu), click on the Protocols tab, and uncheck the appropriate box (see figure 1). You'll be free of that dialog box forever. (You don't get the dialog box if you're using Explorer.)

CHRIS: As Bob hints, the real question is whether you mind companies collecting information about your online habits.

Now hang on. Before you sign your paycheck over to the local talk-radio loony, stock your pickup with nonradiated canned foods, and move to a county where the moose population is twice that of bipeds, dig this: Cookies aren't the tyrannical tools of Big Brother.

To begin with, cookies can be retrieved only by the sites that issued them. So, for example, the congregation at The Shrine of the Most Holy Hanky will have a record of which of its links you've accessed but will never suspect that you've recently browsed Beelzebub's House of Hoochie-Coochie.

BOB: Wow! You have the URL for that one?

CHRIS: Down, boy.

Also, cookies can't be used to unlock the personal secrets contained on your hard disk. No one will discover — at least not through a cookie — that you like to surf the Web while dressed as a marmot.

BOB: True enough. But I'm not willing to help a Webmaster create more-effective advertising. If you're like me and you want to keep your cookie jar covered, try this technique, contributed by reader Mark A. Nicolia via the Internet. Drag the cookie file out of the folder in which it resides (Netscape *f* folder for Navigator users, Cache folder for Explorer), and replace it with a folder with the same name. If you use Navigator, you'll name the folder MagicCookie, for instance. The browser won't be able to create a new cookie file, since files can't replace folders, nor is it possible to write information to a folder.

CHRIS: Scott Barnham's freeware program Cookie Cutter is a bit more flexible. It lets you selectively allow cookies for some sites and deny them for others.

The Last Word on Gold Plating

BOB: David Lerner, a highly respected Mac technician at Tekserve, in New York City, says this of our advice on whether or not to use gold-plated DIMMs (Help Folder, September '96, page 101):

"The rule is simple: [Get] SIMMs tin-plated to match the SIMM sockets, [get] DIMMs gold-plated to match the DIMM sockets . . . eventually you might get fretting corrosion

1996 Macworld WORLD CLASS AWARD WINNER

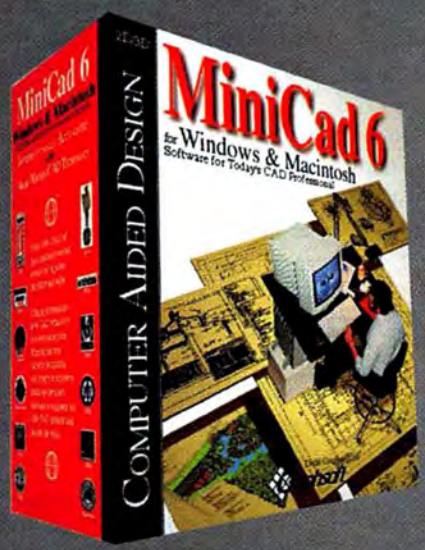
SHOULD MINICAD 6 BE YOUR CAD SOLUTION?

- A program tailored to your needs. Specialized tools for many design industries: A/E/C, mechanical engineering, landscape, space planning, food service, theater/lighting and more.
- A proven market leader that handles any job: 2D, 3D, materials lists and cost estimates.
- A program that can be used for every stage of the design process — from concept sketches to working drawings and 3D client presentations.
- A program that's easy to use, easy to buy: lower entry and training costs and less downtime equal higher productivity.
- THE cross-platform solution: move files flawlessly between Mac and Windows. Full 32-bit power!
- A program you can try ... RISK FREE!

MiniCad® 6

MACINTOSH® WINDOWS®

THE FULL-FEATURED CAD PROGRAM with INTEGRATED PROFESSIONAL SOLUTIONS



MINICAD 6: THE COMPLETE CAD PACKAGE!

Just what you're looking for: a hybrid 2D/3D drafting environment; a powerful database to track costs and materials; a built-in macro language to automate routine drafting tasks; full file-transfer capabilities to other major programs, including QuickDraw™3D; even digital terrain modeling! All highly organized and easy to use. You even get high-end presentation features and QuickTime™ animation.

MONEY BACK GUARANTEE 30 DAY AT PARTICIPATING DEALERS

FREE DESIGN AND DRAFTING TOOLKIT™

No extra symbol libraries to buy! MiniCad 6 is packed with thousands of symbols, tools, commands, templates, parametrics, formatted reports, worksheets and sample files created for specific industries. These specialized modules are powerful, complete and already in MiniCad 6, giving you both design flexibility and targeted industry solutions.

INTERNATIONALLY RECOGNIZED

Now in its 11th year, MiniCad is the best-selling CAD program on the Mac. And now there's a Windows™ version! Available in 13 languages, MiniCad 6 is used by design professionals in more than 80 countries.

TRY IT RISK FREE FOR 30 DAYS!

When you buy MiniCad 6 from a participating dealer, you'll get our no-hassle, 30-day money-back guarantee. You'll also get 18 months of free technical support, a 24-page newsletter and a CD-ROM with QuickTime demonstrations of each Tool and Command as well as samples of MiniCad files from around the world.

Diehl Graphsoft Inc
Software for Today's CAD Professional
A NASDAQ TRADED COMPANY
www.diehlgraphsoft.com

For more information, please call **1-800-694-7318 (Dept. U)** or 410-290-5114 Fax: 410-290-8050
In Canada, call PaXar at **1-800-260-0905** For Academic pricing, call **1-800-531-3227**

CIRCLE **10** ON READER SERVICE CARD

MiniCad and Design and Drafting Toolkit are trademarks of Diehl Graphsoft, Inc. QuickTime, QuickDraw and Macintosh are trademarks of Apple Computer. Windows is a trademark of Microsoft Corp.

when mixing dissimilar metals."

Mike Frost, president of RAM maker Technology Works, concurs: "Match the metals. SIMM sockets are tin; DIMM sockets are gold. It might not matter for years, but why take the chance?"

CHRIS: Who am I to argue with these experts? Well, OK, I'll argue this much: My buddy who's designed and constructed more circuit boards and handled more computer chips than just about any sentient being on earth had this to say: "If I were sending a probe to Jupiter, I'd make sure that all metals matched. Otherwise, I wouldn't be too concerned about it. In most climates, failure due to corrosion is rare."

SimpleText, Be Gone

Q. In the accolade you gave Tom Bender's Tex-Edit Plus (Help Folder, November '96, page 144), you advised us to get rid of SimpleText and use Tex-Edit Plus instead. But how exactly is this done? My system still asks for the missing SimpleText when I double-click on a ReadMe file.

J.S. Penner
via the Internet

BOB: I hate it when this happens. We should have explained what to do after eliminating all traces of SimpleText and its even crummier predecessor, TeachText.

CHRIS: Start by opening the Macintosh Easy Open control panel. Uncheck the "Always show dialog box" and "Include applications on servers" check boxes, and check the "Auto pick if only 1 choice" check box. Now, click on Delete Preferences. A dialog box will warn you that you're about to delete any Easy Open links you've got lying around (at least that's what the words in the cryptic dialog box mean). Click on Delete, and then close Macintosh Easy Open.

Next, create a startup set in Extensions Manager, with only Macintosh Easy Open active. Restart, and then rebuild the desktop (hold down Command and Option during startup). Restart again, with your normal complement of extensions active, and double-click on a SimpleText document. This will bring up a dialog box (assuming you've gotten rid of all your copies of SimpleText and TeachText on all mounted volumes) that lets you choose Tex-Edit Plus as the substitute application. That done, all SimpleText and TeachText files should open in Tex-Edit Plus.

Lock Mess Monster

Q. I read your advice in the November '96 Help Folder about disabling the Help key (page 139), but I've been unable to apply the same techniques to the Caps Lock key. Do you have any suggestions?

Lee A. Licata
Ankara, Turkey

CHRIS: Oh boy, oh boy, oh boy . . .

BOB: Uh-oh. I can see Chris is gearing up for something big. He's put on the orange overalls and the miner's helmet, which can mean only one thing . . .

CHRIS: ResEdit!!!!

BOB: Before Chris plunges into the codey depths, I should offer two far-easier-than-ResEdit solutions: Physically remove the Caps Lock key with a key-cap puller, or download a copy of David Sumner's OptionCaps. It's an extension that forces you to press Option-Caps Lock if you want the Caps Lock key to do its stuff — making it impossible to accidentally engage Caps Lock.

CHRIS: My turn? My turn? Lee, the reason you can't use a macro program to disable Caps Lock is because it's different from most of the other keys on your keyboard. Like the Shift and Control keys, it alone can't generate a character. Although the Help key doesn't appear to generate a character either, it is capable of it. Go ahead, open Key Caps and see for yourself. Push Help, and the cursor moves forward. Push Caps Lock and — nada.

Therefore, in order to keep Caps Lock from generating capital letters, you must change the characters produced when Caps Lock is pressed. And this means using Apple's ResEdit. Here's what you do:

(1) Open your System file (in your System Folder), locate the U.S. - System 6 file, and Option-drag it to the desktop. This will create a copy of the file. (2) Open the copy with ResEdit. (3) Open the KCHR resource. (4) Select the one resource (it's ID 16383), and open it with a double-click. (5) Press the Caps Lock key. You'll notice that the on-screen picture of the Caps Lock key darkens. (6) Drag the lowercase letters in the upper window to the appropriate spots on the picture of the keyboard; drag *a* to the *A* key, for example. Change only the letters; leave the numbers alone. (7) Use the Save As command to give your hacked file a unique name — something like No Caps Lock will do nicely. (8) Drag your No Caps Lock file to the closed System Folder. You'll be asked whether you want the file placed in the System file. Indicate that it's okeydokey with you. (9) Restart your Mac. (10) To get rid of Caps Lock, open the Keyboard control panel and select the No Caps Lock layout you just created. From this day forward, pressing the Caps Lock key will seemingly have no effect when you type.

BOB: Gee, that was swell. Why would you want to go through all this trouble when you could use OptionCaps instead?

CHRIS: For the most important reason on earth: In such first-person-perspective shoot-'em-ups as Marathon, Quake, and DOOM, I configure the Caps Lock key as the "always run" key. Using OptionCaps would force me to hit the Option key first, wasting valuable milliseconds and increasing the risk that I'll be fragged in a heated network battle.

Bob LeVitus is the author of 20 computer books and is a columnist for the Houston Chronicle. *Christopher Breen recently coauthored* The Macintosh Bible Guide to Games, *published by Peachpit Press.*

You can find the shareware and freeware programs referenced in this article at *MacUser*'s Software Central (http://www.zdnet.com/macuser/software/). You can also find them in the *MacUser* areas on CompuServe (GO ZMC:MACUSER) and America Online (keyword MACUSER).

Tips / System Tricks

HotSauce on Your Hard Disk

I've been playing around with Apple's HotSauce, formerly called Project X — the application that allows you to navigate the Internet in 3-D. I discovered that you can also browse your hard disk in this fashion.

Just drop your hard disk's icon onto the HotSauce stand-alone application's X-space Window, and HotSauce will catalog your disk and display your files (as shown here) — even the invisible ones. You can then use the X-space window as a 3-D Finder for launching applications and opening files. If you prefer a 2-D list view, click on your hard disk's name and press Command-S for Finder view.

Bill Stephenson
via AOL

[*You can download HotSauce from http://hotsauce.apple.com/. — Ed.*]

A rose is a rose is a... wait a second.

Kodak DC-40 Digital Camera

Casio QV30 Digital Camera

EPSON PhotoPC 500 Digital Camera

$499

THE NEW EPSON® PHOTOPC™ 500 DIGITAL CAMERA WITH SUPERIOR IMAGE QUALITY. Roses are red, violets are blue, but only if you take their picture with the EPSON PhotoPC 500. The digital camera with 640 x 480 pixel resolution that gives you the most lifelike pictures around. It's got all the convenience of a regular camera, from its built-in red-eye reduction flash to its optional lenses and filters. But no other camera has Epson's unique ColorTrue™ in-camera processing and ClearOptics™ system, for accurate, vivid images that add impact to documents or e-mail messages.

The PhotoPC 500 is flexible, too. With an optional LCD to preview,

playback, or erase images. Memory that expands to hold 200 JPEG images. PC/Mac compatibility. And our free Internet Sampler Pak (valued up to $300) that lets you access and create Web pages. So, when it comes to digital photography, a camera by any other name just isn't as good. For more information, visit www.epson.com to download some sample images, or call 1-800-GO-EPSON and ask for operator 3015.

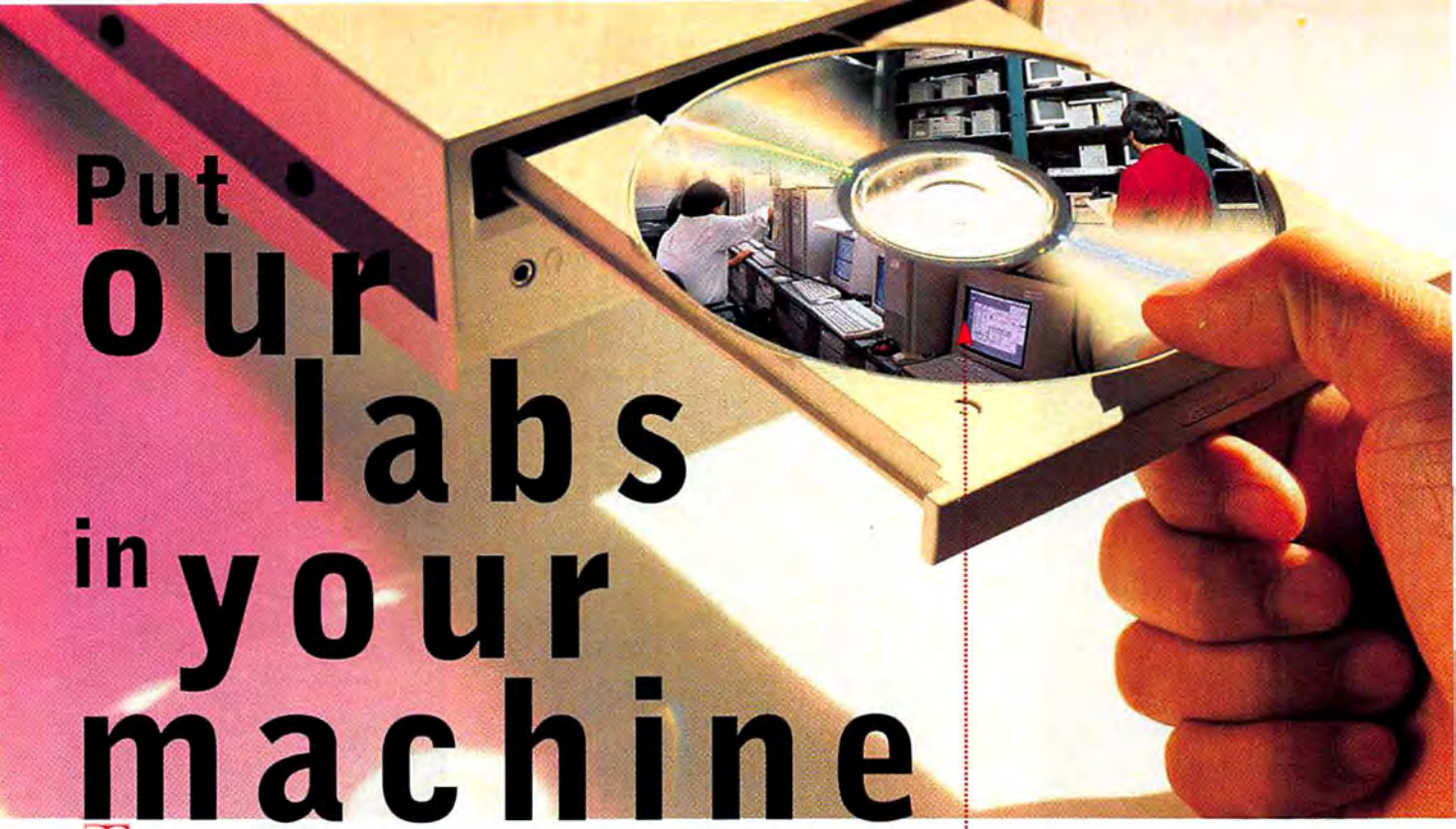
YOU'VE GOT TO SEE IT IN EPSON COLOR.™

CIRCLE **123** ON READER SERVICE CARD

RITZ CAMERA CENTERS

COMPUTER CITY COMPUSA

Street price may vary. Rose photos were taken with the Casio QV30, Kodak DC-40 and EPSON PhotoPC 500 as configured for retail sale. No special effects or lenses were used. Awards given to the EPSON PhotoPC, the first in the line of Epson color digital cameras. EPSON is a registered trademark of Seiko Epson Corp. ColorTrue and ClearOptics are trademarks of Epson America, Inc. All other trademarks are the property of their respective owners. © 1996 Epson America, Inc.



Put our labs in your machine

PC MAGAZINE PCWEEK Windows PC Computing COMPUTER SHOPPER MacUser MacWEEK

Did you know you can test your computers using the very same benchmarks the Ziff-Davis experts do? Absolutely. You can run the same scientific performance tests that make our product reviews so reliable and so successful. You too will get dependable results. What's more, Ziff-Davis benchmarks incorporate real-life computing tasks. No wonder they're such a worldwide success.

With over 7 million copies distributed in the last three years, they're the industry standards for measuring hardware performance.

Where do we get objective benchmarks of such high quality? We create them. Through the Ziff-Davis Benchmark Operation, the world's largest independent benchmark research and development team. Entirely dedicated to developing benchmarks you can trust.

Ziff-Davis Benchmarks: The Whole World Watches

Winstone®

WinBench®

NetBench®

ServerBench®

MacBench®

FREE!

BENCHMARK SOFTWARE

We can't test your machine in our labs, so we'll send our benchmarks to you free of charge. Full programs, not demo versions. We want *everyone* to make the best buying decisions possible.

You can download the benchmarks from ZD Net/CompuServe (GO ZDBOP) or from our World Wide Web home page at http://www.zdnet.com/zdbop.

Or, for a CD-ROM ($5 each for shipping and handling) fax your credit card information to 919-380-2879 or send a check to ZDBOp. Allow 4 to 6 weeks for regular delivery or enclose your FedEx number.

ZD Ziff-Davis Publishing

Ziff-Davis Benchmark Operation, 1001 Aviation Parkway, Suite 400, Morrisville, NC 27560

By Jeff Pittelkau

Seeing Double

Using more than one monitor with your Macintosh system gives you room to roam, and it's a lot easier than you may think.

IF PROLIFERATING applications and windows are overtaking your Mac's screen, you may think replacing your monitor with a bigger one is the natural solution. But before you bulldoze your current screen real estate to make way for an expensive new high-rise monitor, consider an alternative: adding onto your property.

Since the days of the Mac SE, the OS has supported multiple monitors whose desktops can be arranged in perfect alignment to each other. Adding more monitors offers a cost-effective way to increase your display area without tossing your existing investment.

Although 21-inch monitors often top $2,000 each, good 14- and 17-inch monitors can be found for $500 to $1,000 each. Smaller displays are typically sharper, and since windows displayed on them tend to be smaller, scrolling and screen updating are faster. The easy availability of small monitors and the lure of a larger Mac desktop have led some *MacUser* editors to top their Mac systems off with as many as three monitors. But why stop there? We've had as many as six running with one Mac in our lab. Here are some tools and tips to make a dual-monitor setup work. You can use the same techniques to add even more.

Get a Graphics Card

Besides finding a good-quality monitor to be a second display, you'll need a graphics card to run it. The first thing to consider is the maximum bit depth and resolution you'd like your new monitor to display. If you need only 832 x 624 pixels of 24-bit color, a 2-MB graphics card will suffice. For a crisp 1,152 x 870 at 24 bits, you'll need a 4-MB card. For even higher resolutions, consider getting an 8-MB card. If you don't need 24-bit color, you can get a 2-MB card that can support 1,152 x 870 pixels at 8-bit color — it's a bargain at as little as $200.

If your current monitor is already connected to a graphics card (rather than the Mac's built-in video port), we recommend that you buy the card for your new monitor from the same graphics-card vendor, for compatibility and top performance. Whether you buy a new graphics card or use an existing one, the way you pair cards and monitors can significantly affect the screen view you'll have. If you're doing DTP or other graphics-intensive work, pair the larger monitor with the better graphics card and leave your e-mail, word-processing, or other text-heavy work for the low-resolution monitor.

The second factor to consider when pairing cards with monitors is speed. You should arrange your monitors so that the one you use most is running on the fastest graphics circuitry. We recommend running MacBench 4.0's Graphics test on each display system (the combination of graphics circuitry and monitor) to see how they compare. If you're a desktop publisher, you should run the Publishing Graphics tests too. Note that MacBench results can be compared fairly only when both display systems are set to the same resolution and bit depth.

Avoid Interference

If you plan to use both monitors at the same screen resolution and refresh rate — 1,152 x 870 pixels at 75 Hz, for example — you can place the two monitors right next to each other. If, however, you plan to run them at differing resolutions or refresh rates, you may need to separate them by 6 to 12 inches, to avoid interference. Magnetic interference manifests itself as a visible shaking of the displayed images where the monitors are closest to each other. TCO-compliant monitors — which tend to be a bit more expensive — have fewer magnetic emissions than other monitors and can be placed closer to each other than non-TCO-compliant models.

A Triple Threat / three heads are better than one

USING THREE RELATIVELY INEXPENSIVE MONITORS lying around the *MacUser* offices and two graphics cards, one editor created a megasystem that displays over 2 million pixels. This setup lets him view the office calendar, surf the Web, analyze test data, and edit his current projects at the same time.

Choose Your Resolution

The first time you start up your computer with a new graphics card and monitor, the Mac OS gets information from the graphics card, which in turn checks the monitor cable or cable adapter for special circuitry called *sense codes*. These codes tell the card which resolutions and frequencies the monitor supports. After this process has been completed, the card defaults to a resolution and refresh rate that are compatible.

But the chosen configuration often doesn't provide the resolution you want. You can make changes to the default resolution via the Monitors control panel: Select a monitor icon in the control panel. Click on the Identify button to find out which icon corresponds to which monitor. Once you've selected a monitor's icon, click on the Options button, and you'll get a list of options for that monitor. After you've selected a resolution for each monitor in this way, you can set the number of colors (the bit depth) from the list of choices available in the main window of the Monitors control panel.

Align Your Displays

You may notice that your Mac has your monitors reversed: It thinks your second monitor is on the left, even though you've actually placed it on the right. That's because the Mac orders monitors according to which slots their graphics cards occupy inside your Mac. Fortunately, this is easy to fix. Open the Monitors control panel, and drag the icon of the monitor you want to move to the other side of the window. Note that there is only one limitation on the placement of these monitor icons — they must be touching each other so they form a continuous desktop and the mouse has a way to get from screen to screen.

If you have an AV Mac, the Monitors control panel will display an extra icon: a "ghost" monitor icon that's associated with the AV Mac's built-in video-out circuitry. Unless you have an NTSC monitor or television set connected to this circuitry, you'll want to get the virtual display system out of the way, to minimize the chances of losing your mouse pointer. The best way to banish the ghost is to align this icon with the lower-left corner of your leftmost monitor (see figure 1). That way, if you lose your mouse's pointer, you can find it by dragging up and to the right.

On one of the monitor icons, you'll see a visual representation of a menu bar. You can drag the bar to any monitor icon to make that monitor your primary monitor (it will display the menu bar after you restart). If you hold down the Option key while clicking on a monitor's icon, you'll see a small Mac icon with a smiley face, indicating which monitor will display the "Welcome to Macintosh" message and startup icons. This icon too can be moved.

Once your monitors are in proper order, it's time to start perfecting their alignment. To accomplish this, open a window (Stickies works just fine) and expand it so that it appears across both monitors — this will give you a visual cue as to how well the displays are aligned. If the window on the left-hand monitor is lower than it is on the right monitor, go to the Monitors control panel and move the left monitor's icon up just slightly. Reboot your Mac, and repeat this process until you get it just right.

Safeguard Your Setup

The alignment of your displays is now perfect, but that alignment will be ruined if you change the resolution of either monitor. You can bulletproof your Mac in order to make it difficult for you or anyone else to change resolutions. One way is to hide the Monitors control panel somewhere else on your hard disk. Even if this file isn't in the Control Panels folder, it's still usable — just hidden from easy access. Second, if you use the Mac Control Strip, you'll want to remove the Monitor Resolution module from the Control Strip Modules folder (within the System Folder). This will prevent anyone from changing the resolution of your monitors via the Control Strip.

Remember, it's only your displays' resolutions that are critical to their screen alignment. You can still change the bit depth on each without mucking up their alignment to each other. Since you've hidden your Monitors control panel, the easiest way to do this is via the Monitor Bit-Depth module in the Control Strip. Keeping the Control Strip and this module active is a smart idea — that way, you can switch your monitor to black-and-white, for superfast scrolling in Word or Excel, when it's needed.

And while we're on the subject of scrolling, you should remember that the Mac OS needs to communicate with each graphics card every time the contents of a screen change. So be careful not to allow windows to overlap onto two screens unless it's absolutely necessary; otherwise, your scrolling speed will slow to a crawl.

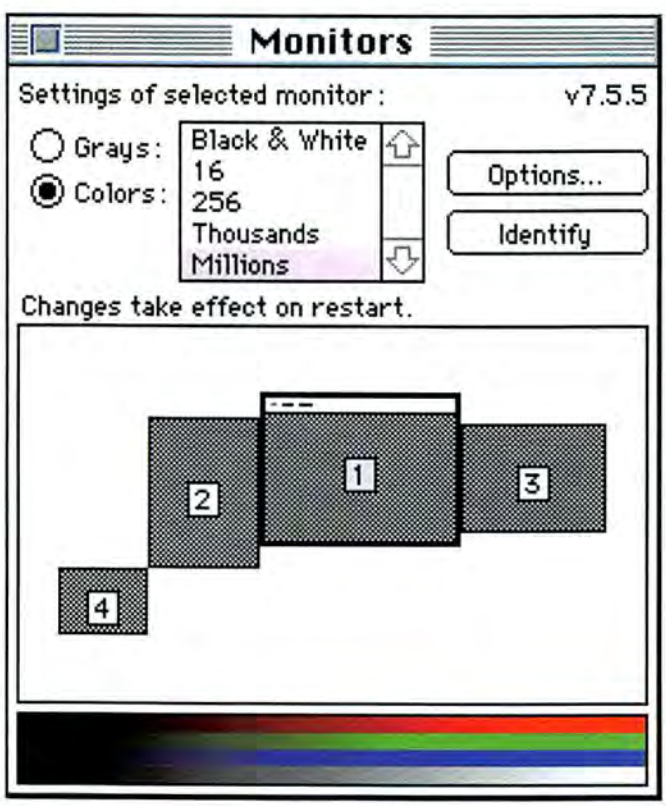


figure 1 / You can move monitor images around in the Monitors control panel, to create just the right alignment. You can also get the "ghost" icon created by an AV Mac's video circuitry out of the way. Here, three monitors are attached to an AV Mac. The fourth icon is the ghost.

Jeff Pittelkau is director of MacUser Labs.

The latest version of the MacBench benchmark software is available online on ZD Net from Ziff-Davis Benchmark Operation at http://www.zdnet.com/zdbop/.

DIRECT LINE

For many of you, mail order is your primary means of purchasing Macintosh products and services. That's why MacUser has put together the following special section.

It's what you've been demanding—a convenient place to quickly find the products you need from the vendors you want to buy from. MacUser's Direct Line to products is just one more reason to turn to MacUser for the relevant information aimed at the serious user.

MacUser

MacWAREHOUSE

Authorized Catalog Reseller

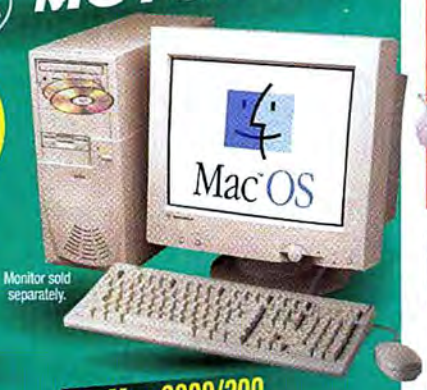
We carry over 6,000 products for your Mac! Plus

100% MAC-OS COMPATIBLE SUPER SYSTEMS!

MOTOROLA

Monitor sold separately.

AS LOW AS **$1599!** Includes 28.8 Modem!



Monitor sold separately.

New! 240MHz

StarMax 3000/240 Mini-Tower
240MHz, 32MB RAM, 2.5GB hard drive, 8X CD-ROM
Ask for Item # CPU 0548
$2799

StarMax 3000/180
180MHz, 16MB RAM, 1.2GB hard drive, 8X CD-ROM/28.8 modem
Ask for Item # CPU 0538 ..... **$1599**

StarMax 3000/200
200MHz, 16MB RAM, 1.2GB hard drive, 8X CD-ROM/28.8 modem
Ask for Item # CPU 0449 ..... **$1999**

StarMax 3000/180 Mini-tower
180MHz, 32MB RAM, 2.5GB hard drive, 8X CD-ROM/28.8 modem
Ask for Item # CPU 0537 ..... **$1899**

StarMax 3000/200 Mini-tower
200MHz, 32MB RAM, 2.5GB hard drive, 8X CD-ROM/28.8 modem
Ask for Item # CPU 0450 ..... **$2199**

NEW! FM Tuner

LACIE LIMITED

Connects to your ADB port so you can play your favorite FM radio stations on your Mac!

only **$49.95**

Ask for item # INP 0969

GET MYST FREE!*

when you buy a 12X CD-ROM Drive for only **$249.95**

Ask for item # BND 1727

WHILE SUPPLIES LAST!

*Shipped in promotional packaging on CD-ROM.

3 Ways to Order:

1. Call: 1-800-725-1458
2. FAX: 1-908-905-9279
3. MacWAREHOUSE is now on the Internet

http://www.warehouse.com

✓ *Hundreds of shareware and demo titles for you to download!*

✓ *Latest information on the newest products!*

1. Our customer service staff is ready to take your order 24 hours a day, 7 days a week.
2. We accept the following major credit cards: Visa, MasterCard, Discover Card/NOVUS, AmEx. Your credit card will not be charged until each item is shipped (no surcharge).
3. CT, IL, NJ, and OH residents add applicable sales tax.
4. Shipping charge for orders under 5 lbs. is $3.00. Orders over 5 lbs. are $1.00 per pound or fraction thereof.
5. Place your order for "in-stock" items up to 12:00 midnight(E) (weekdays), and we will ship same day for overnight delivery (barring system failure, etc.).
6. Many of our products come with a 30-Day Money Back Guarantee. All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects.

30 DAY Money Back GUARANTEE

30-DAY Guarantee Against Defects

© Copyright 1996 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. MacWAREHOUSE® and MicroWAREHOUSE® are registered trademarks and Data Comm WAREHOUSE and MacSystems WAREHOUSE are trademarks of Micro Warehouse, Inc. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer, Inc. Item availability and price subject to change without notice. We regret that we cannot be responsible for typographical errors. All prices shown in U.S. dollars.

The SUPERFAST 33.6 Internet Access Kit

ONLY **$99.95*** FASTEST MODEM EVER!

Includes Earthlink Total Internet Access

Ask for item # BND 1447

*Price reflects $30 mail-in rebate. Price before rebate is $129.95. Offer good while supplies last.

ATTENTION DIRECTOR & DIRECTOR STUDIO OWNERS!

Trade up To mTropolis 1.1

Multimedia authoring with drag-and-drop ease!

Trade-up & SAVE OVER $475!

Ask for Item # SID 0386 (CD-ROM) ... $519

mTropolis 1.1: Ask for Item # GRA 1705 995

APPLE HARD DRIVES

2GB AS LOW AS **$499**

Interchangeable foot pads make it easy to use vertically or horizontally!

Authorized Catalog Reseller

2GB drive: DRI 1336 $499
3GB drive: DRI 1658 $569
4GB drive: DRI 1828 $999

Turbo Mouse 5.0

Great Low Price! only **$99.95**

Ask for item # INP 0626

KENSINGTON

Upgrade to OMNIPAGE PRO 7.0 for only **$129.95**

caere

Ask for item # UPG 0582

RAM Doubler 2

Upgrade For Only **$29.95***

After $25 mail-in upgrade rebate.

Ask for item # UTI 0986

*Price reflects $25 publisher's mail-in upgrade rebate for previous owners. Price before rebate is $54.95.

UPGRADE TO Microsoft Office 4.2.1

FOR ONLY **$269.95**

Ask for Item # UPG 0237

PLUS! Essential tools for small business

Microsoft Office: BUS 1015....$449.95

REHOUSE®

a full line of Macintosh™ and Mac OS computers!

FREE!* WHILE SUPPLIES LAST!

WITH ANY PURCHASE
Marathon 2: Durandal
Ask for item# AAA 0442. *You pay only $2.95 shipping and handling. While supplies last. Shipped in promotional packaging on CD-ROM.

17" COLOR DISPLAY

ONLY $499!

Ask for item # MON 0378

15.8" viewable display area, resolutions up to 1024 x 768

PowerUser

JAZ DRIVE

Store up to 1GB on one 3.5" cartridge!

$499.95 includes your first 1.0GB cartridge*

Ask for item # DRI 1119

*Jaz Tools Utility Software included on first cartridge.

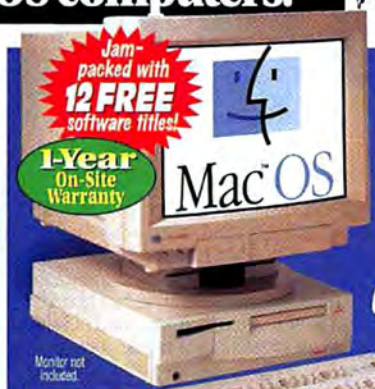
Upgrade to Speed Doubler2 for only $29.95*

*After $25 publisher's mail-in upgrade rebate. Price before rebate is $54.95. Ownership of previous version required.

1GB Jaz Cartridges

Ask for item # MED 0177

1-4 carts.	5-9 carts.	10+carts.
$124.95 ea.	$99.95 ea.	$89.95 ea.



Jam-packed with 12 FREE software titles!

1-Year On-Site Warranty

Mac OS

Monitor not included.

160MHz PowerPC 100%-compatible Mac OS Computer only $1299*

- 160MHz PowerPC 603e Processor!
- 16MB RAM (expandable to 144MB)!
- 8X CD-ROM Drive!
- 1.2GB Internal Hard Drive!

UMAX Computer Corporation

SuperMac C500 Item # CPU 0476....*$1299**

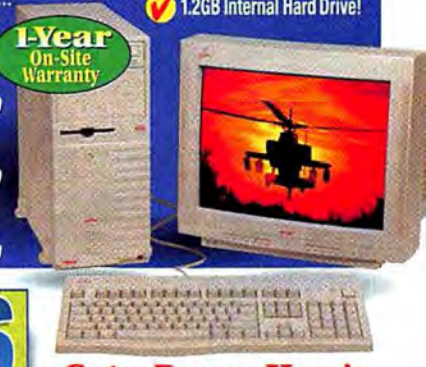
*Price reflects a $50 mfr.'s mail-in rebate. Price before rebate is $1349. Rebate coupon in box. Offer exp. 1/31/97.

Monitor not included.

SuperMac C600

180MHz/603e/1.2GB/16MB/8X CD
Item # CPU 0555....*$1599*
Item # CPU 0479(with 28.8 modem)....*$1699*
200MHz/603e/2.1GB/16MB/8X CD
Item # CPU 0556....*$1899*
Item # CPU 0478(with 28.8 modem)....*$1999*
240MHz/603e/2.1GB/24MB/8X CD
Item # CPU 0554.....*$2199*
Item # CPU 0533(with 28.8 modem)....*$2299*

1-Year On-Site Warranty



Upgrade WAREHOUSE!

SAM 4.5 Upgrade
Ask for item # UPG 0585 ..... $39.95
Proof of ownership required.

Speed Doubler 2—Upgrade
Ask for item # UTI 1052 ..... $29.95*
*Price after $25 Manufacturers mail-in upgrade rebate for previous owners. Price before rebate is $54.95.

Adobe Illustrator 6.0 Upgrade from 5.0
Ask for item # UPG 0222 (CD-ROM) $99.95

Claris FileMaker Pro 3.0 Upgrade
Ask for item # UPG 0231 ..... $99.95

Macromedia Director 5 Upgrade
Ask for item # UPG 0248 (Mac CD-ROM)
Ask for item # UP 3348 (Win. CD-ROM) $369.95

Macromedia Director Multimedia Studio 2 Upgrade
Ask for item # UPG 0249 (Mac CD-ROM)
Ask for item # UP 3346 (Win CD-ROM) $468.95

Microsoft Office 4.2.1 Upgrade
Ask for item # UPG 0237 ..... $269.95

Symantec Norton Utilities 3.2 Upgrade
Ask for item # UPG 0210 ..... $39.95

DeskWriter 600

B&W: 600dpi! Color: 300 x 600dpi!*

$149.95

COLOR Ready!

HEWLETT PACKARD

Ask for item # INP 0542

*Color printing requires optional color kit—Only $39.95. Item # PA 0078

Adobe PageMill 2.0

Upgrade for only $49.95

Ask for item # BND 1554

FREE WEB GRAPHICS from PhotoDisc!

PhotoDisc WebGraphics shipped in promotional packaging on CD-ROM. PageMill 1.0 serial number required at time of order.

SIMMs as low as $19.95

1MB 30-pin 80ns SIMMs

Ask for item # CHP 0022

FREE CATALOG!

Get a Power User's Tool Kit® FREE! with every order!

Demo loads of powerful programs for FREE—some authors ask that you pay a small fee ($8-$25). The Power User's Tool Kit is FREE when you order from MacWAREHOUSE. You pay only $2.00 shipping and handling. If you would like the disk, please ask for **Item # AAA 0462.** All programs work with System 7.

To order, call toll-free 24 hours a day, 7 days a week

1-800-725-1458

FREE CATALOG SUBSCRIPTION! Check the appropriate box(es) to receive your FREE 1-year catalog subscription(s) and mail this coupon to: 1720 Oak Street, P.O. Box 3013, Lakewood, NJ 08701

Name

Address Apt.

City State Zip

(Expect to receive your first issue(s) within 4-6 weeks.)

MU0397

❑ *Yes, send me my FREE Power User's Tool Kit. Enclosed is my check for $2.00 to cover shipping & handling.*

❑ MacWAREHOUSE ❑ MicroWAREHOUSE ❑ DataComm WAREHOUSE ❑ MacSystems WAREHOUSE ❑ MicroSystems WAREHOUSE

For your FREE Canadian Catalog, call toll-free 1-800-603-5139!

CIRCLE 157 ON READER SERVICE CARD.

THE BEST DEALS

MacMall

YOUR #1 MAC SOURCE!™

Get Your Best Price! Then Call Us!

UMAX COMPUTER

UMAX Computer Corporation

Presenting the SUPERMac® C500/160

It's a serious tool for fun and business! The new SUPERMac C500 is loaded with a fast 160MHz 603e PowerPC processor (for fast-paced game and more practical application performance). And it includes a big 1.2GB fast-SCSI hard drive, two high-speed PCI slots for easy expandability and much more.

- 16MB RAM / 1.2GB HD
- PowerPC 603e processor
- 256K Level 2 cache
- 8X CD-ROM

Monitor sold separately.

~~$1349~~ MacMall mail-in rebate -100* Mfr. mail-in rebate -50

as low as **$1199***

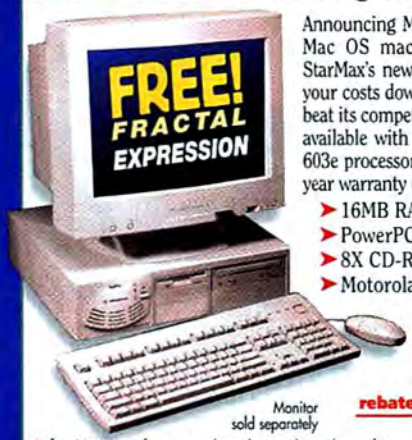
*After $100 MacMall mail-in rebate with purchase of Panasonic PM17 Monitor & $50 Mfr. mail-in rebate. #88342

MORE UMAX DEALS!

Model/MHz	Processor	RAM/HD/CD	Price	Order #
SUPERMac® C600/180	PowerPC™ 603e	16MB/1.2GB/8X	$1495*	#88344
SUPERMac® C600/200	PowerPC™ 603e	16MB/2.1GB/8X	$1795*	#88343
SUPERMac® C600/240	PowerPC™ 603e	24MB/2.1GB/8X	$2095*	#88347
SUPERMac® J700L/150	PowerPC™ 604	16MB/2.1GB/6.7X	$2695*	#88340
SUPERMac® J700L/180	PowerPC™ 604	24MB/2.1GB/8X	$2895*	#88346
SUPERMac® S900L/180	PowerPC™ 604e	32MB/2.1GB/8X	$3495*	#88338
SUPERMac® S900L/200	PowerPC™ 604e	32MB/2.1GB/8X	$3695*	#88341
SUPERMac® S900L/225	PowerPC™ 604e	32MB/2.1GB/8X	$4195*	#88345

MOTOROLA

Presenting the StarMax 3000 DT



Announcing Motorola's new low cost, ultra-fast Mac OS machine, the StarMax 3000! The StarMax's new motherboard architecture keeps your costs down, but gives you sizzling speed (it beat its competition by a healthy 14 percent). It's available with a 180, 200 or 240MHz PowerPC 603e processor. And it's backed by Motorola's 5-year warranty (the best in the business).

- 16MB RAM / 1.2GB HD
- PowerPC 603e processor
- 8X CD-ROM
- Motorola 28.8 data/ fax modem

MOTOROLA

Monitor sold separately

~~$1599~~ rebate -100*

as low as **$1499***

*After $100 manufacturer mail-in rebate with purchase of Panasonic PM17 Monitor. #88998

MORE STARMAX DEALS!

Model/MHz	Processor	RAM/HD/CD	Price	Order #
StarMax 3000MT/180	PowerPC™ 603e	32MB/2.5GB/8X	$1799*	#88996
StarMax 3000DT/200	PowerPC™ 603e	16MB/1.2GB/8X	$1899*	#88310
StarMax 3000MT/200	PowerPC™ 603e	32MB/2.5GB/8X	$2099*	#88311
StarMax 4000DT/160	PowerPC™ 604e	16MB/1.2GB/8X	$2199*	#88312
StarMax 4000MT/160	PowerPC™ 604e	32MB/2.5GB/8X	$2799*	#88313
StarMax 4000DT/200	PowerPC™ 604e	16MB/1.2GB/8X	$2899*	#88314
StarMax 4000MT/200	PowerPC™ 604e	32MB/2.5GB/8X	$3099*	#88315

ADOBE SYSTEMS

NEW ITEM

Photoshop 4.0 *Upgrade CD Mac®/PowerPC™*

w/FREE PhotoTools SE & Intellihance SE CD

$149.99 #84980

offer expires 2/11/97 or while supplies last.

PANASONIC

EXCLUSIVE Save $100 on a PanaMedia™ PM17 Display!

- 17" Display (16" viewable image size)
- 1280 x 1024 Resolution NI
- .27mm Dot Pitch
- Dome Stereo Speaker™ System
- Microphone & Audio in/out

$699.99* #88210

Panasonic

*After $100 MacMall mail-in rebate with purchase of Panasonic PM17 Monitor WITH any qualifying purchase over $1000.

POWER COMPUTING

Presenting the PowerBase 180

This revolutionary Mac OS compatible features one of the fastest Mac CPU speeds. But that isn't the only thing the PowerBase has going for it. You can easily upgrade to faster future processors with a simple daughtercard swap. Each PowerBase is packed with a super-speed 8X CD-ROM drive for fast access to hundreds of multimedia titles. And it's available in low profile (to save space) or tower model (for extra expandability).

Monitor sold separately

PowerComputing

~~$1495~~ rebate -100*

low profile as low as **$1395***

*After $100 manufacturer mail-in rebate with purchase of Panasonic PM17 Monitor. #88331

MORE POWER COMPUTING DEALS!

Model/MHz	Processor	RAM/HD/CD	Price	Order #
PowerBase 200 LP	PowerPC™ 603e	16MB/1.2GB/8X	$1695*	#88329
PowerBase 240 LP	PowerPC™ 603e	16MB/1.2GB/8X	$2095*	#88327
PowerCenter 132 LP	PowerPC™ 604	16MB/1GB/8X	$1795*	#88333
PowerCenter 150 LP	PowerPC™ 604	16MB/1GB/8X	$1995*	#88335
PowerTower 166	PowerPC™ 604	16MB/2GB/4X	$2795*	#80476
PowerTower 180e	PowerPC™ 604e	16MB/2GB/8X	$3195*	#88326
PowerTower 200e	PowerPC™ 604e	16MB/2GB/8X	$3495*	#88325
PowerTower Pro 180	PowerPC™ 604e	16MB/2GB/8X	$4095*	#88322
PowerTower Pro 200	PowerPC™ 604e	16MB/2GB/8X	$4395*	#88323
PowerTower Pro 225	PowerPC™ 604e	16MB/2GB/8X	$4895*	#88324

Call by 11:00pm EST for Delivery by 10:30am the Next Day via FedEx Priority Overnight!

Authorized Catalog Reseller

UMAX | MOTOROLA | PowerComputing

SUPER DEALS ON SOFTWARE AND ACCESSORIES!

CD DRIVES

12X EXTERNAL CD-ROM DRIVE
- 100ms access time
- 1800Kbps transfer rate

$199.99 #87873

External 2X Write / 4X Read CD Recordable ..... $479.99 #82911
CD Recordable Media ..... $8.99 #68428
Pinnacle 4X4 External Optical 4X Read/Write w/CD Burner Software ..... $999.99 #85306
4.4X External SCSI CD-ROM ..... $129.99 #88047

MEDIA

Zip Media as low as ..... $11.99* #82229
*with purchase of 10 or more after mail-in offer
CD Recordable Media ..... $8.99 #68535
1.4MB Diskette 100pk *with $30 mail-in rebate ..... $14.99* #88268

MEMORY

8MB SIMM 70ns speed $79.99 #4177

16MB SIMMs - 70ns ..... $169.99 #65416
32MB SIMMs - 70ns ..... $329.99 #65417

MONITORS

Sony MultiScan 15sx Digital Color Display $349.99 #79786

MAGInnovision DX1495 14" Color Display ..... $249.99 #85921
Panasonic PM17 Color Monitor plus $100 mail-in rebate with purchase of $1000 or more ..... $699.99 #88210
SuperScan Mac 20" Color Display ..... $1399.99 #71918

SCANNERS

UMAX Vista S-6E
After $20 mail-in rebate $279.99 #81385

UMAX

Vista S-6E w/Adobe PhotoDeluxe, Presto! PageManager (with OCR) w/transparency adapter ..... $399.99 #87821

Vista S-12 w/Adobe PhotoDeluxe, Presto! PageManager (with OCR) ..... $499.99 #86345
PowerLook 1 w/Photoshop 3.0, KPT SE & FREE Transparency Adapter ..... $999.99 #84924
PaperPort Vx™ for Mac™ ..... $299.99 #76217

MODEMS

SupraExpress 33.6Kbps Fax Modem $129.99 #81991

PCMCIA 28.8Kbps Fax Modem for Mac™ *with $20 mail-in rebate ..... $99.99* #86169
Teleport Internet Edition 33.6Kbps Fax Modem ..... $168.99 #85232
Sportster 33.6Kbps Fax Modem *with $30 mail-in rebate ..... $168.99* #86236

REMOVABLE

Jaz™ 1GB Drive MacMall Exclusive! FREE DataSaver Backup Software
- External SCSI
- 1GB Removable Cartridges
- Fast 12ms seek time

$499.99 #87888

SYQUEST

EZFlyer 230 Removable External SCSI Drive for Mac™ *after $55 mail-in rebate ..... $244.99* #82063
Vertex 2.6GB Removable External Optical Drive with 1 blank disk ..... $1495.99 #79648

PRINTERS

HP DeskWriter 600 Printer
- 600dpi b&w printing at 4ppm
- Color-capable w/upgrade kit

$149.99 #73683

HP DeskWriter 680C Printer ..... $289.99 #79788
HP DeskJet 855Cxi Printer ..... $389.99 #85621
HP LaserJet 6MP Printer ..... $949.99 #83916
Epson Stylus Color 500 Printer $279.99 #83463
Elite XL 616 Printer ..... $2699.99 #74309
Phaser 140 Color Printer ..... $1674.99 #87634

SOFTWARE

UTILITIES

Norton Utilities 3.2/ RAM Doubler Bundle Mac®/PPC™ 3.5" Diskette while supplies last
$98.99 #86769

Speed Doubler 2.0 Mac™ *with $25 mail-in upgrade rebate ..... $24.99* #86424
SoftWindows 3.0 for Power Macintosh® CD ..... $299.99 #79229
Spring Cleaning™ ..... $49.99 #85741

GRAPHICS

CorelDRAW! 6 with FREE Descent CD Mac®/PPC™ Competitive Upgrade
$148.99 #82852

QuarkXPress™ 3.3.2 CD w/FREE Stuffit Deluxe 4.0 Mac®/PPC™ ..... $649.99 #82393
FreeHand™ Graphics Studio 7 Upgrade CD Mac® ..... $189.99 #84730
Poser™ 2 Upgrade Mac®/PPC™ $68.99 #86718
Adobe™ PageMaker™ 6.5 CD Upgrade w/FREE PageTools SE CD by Extensis Mac®/PPC™ ..... $99.99 #88274

BUSINESS

Quicken Deluxe 7/ Macintax Deluxe Final Bundle
$59.99* #89181
*After $30 mail-in rebate. Offer ends 4/15/97.

Claris Home Page 2.0 Mac®/PPC™ 3.5" Diskette *with $20 competitive upgrade mail-in rebate ..... $79.99* #88033
Microsoft Office 4.2.1 CD Upgrade Mac®/PPC™ with FREE FA-18 Hornet Classic $269.99 #88575
Street Atlas 3.0/Phone Search 2.0 Value Pak CD *with $20 mail-in rebate ..... $38.99* #79852

EDUCATION/REFERENCE

Encarta® Encyclopedia 1997 Deluxe Edition
$49.99* #83745
*After $20 Microsoft rebate for owners of previous versions of Encarta.

Popular Photography ..... $39.99 #84341
Apple Internet Connection Kit 1.2 CD Mac® ..... $48.99 #86043
A.D.A.M. The Inside Story® 1997 Edition CD Mac® ..... $34.99 #86687

Four reasons why MacMall is the best choice for all your computing needs:

THE FASTEST OVERNIGHT DELIVERY AVAILABLE
A MacMall Exclusive! Call as late as 11:00 p.m. EST and get your order by 10:30 a.m. the next day via FedEx Priority Overnight.

CUSTOM CONFIGURATION
Have the system you want, custom-configured by our factory-trained technicians.

EXCLUSIVE DEALS & SPECIAL OFFERS
We ALWAYS give you more for your computing dollar.

OVER 20,000 PRODUCTS
You can count on us to have the products you want, when you want them!

Get your FREE issue today!

Please check issue(s) you wish to receive.
❑ MacMall ❑ PC Mall ❑ DataCom Mall

Name _____
Address _____
City _____
State _____ Zip _____

Mail to: MacMall, Dept. ADV.,
2645 Maricopa St., Torrance, CA 90503

MacMall Exclusive! FREE DataSaver Backup Software

100MB Zip Drive

The original lightweight Iomega Zip™ drive stores your documents safely and quickly on 100MB cartridges–that's the equivalent of 70 floppy disks! Order one today and save $50 off our regular price.

$199.99
mail-in rebate -50
$149.99* #86693
*After $50 manufacturer's mail-in rebate. Offer ends 1/31/97

Zip Cartridges as low as $11.99 #82229

Visit MacMall on the Web at www.macmall.com

Prices and specifications subject to change without notice. Limited to stock on hand.
IMPORTANT: While we do our best to check errors, mistakes may occur–Call to verify pricing.

CIRCLE 18 ON READER SERVICE CARD

OFFER CODE
MacUser
ZMUS731

MacMall

Place Your Order 24 Hours a Day

1·800·217·9498

Professional Storage and Computer Solutions

ProDirect

Work Faster. Work Smarter.

Never a Surcharge! No Sales Tax Outside MN Same Day Shipping

International Orders: 612-884-0012
ProDirect Fax: 612-941-1109
Toll Free Tech Support 800-524-9952

Order Hours: M-F 8 AM - 7 PM SAT. 10 AM - 3 PM

"Test Drive" any Hard Drive We Sell for almost 3 months with Our Unbeatable **90 Day Performance Guarantee.**
Simply put, We want you to have the exact drive you need for the job, period.

It's Hard to Wait for System 8

Where, Oh Where Can it Be?

800-524-9952

90 Day ProDirect Performance Guarantee — Always the right drive for the job guaranteed!

Only ProDirect Has Speed-Tuned Hard Drives

At ProDirect we take the time to speed-tune each hard drive to exact manufacturers optimum operating specifications for the Macintosh, and put it through a rigorous test-run inspection routine to insure that it is dialed-in to it's peak level of performance.

SPEED-TUNED HARD DRIVES

FAST SCSI 2

Fast SCSI 2 allows for transfer rates of up to 10 Megabytes Per Second.

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
240MB	Quantum LPS	10ms	Fast SCSI 2	110	170
540MB	Quantum Fireball	9ms	Fast SCSI 2	155	215
540MB	IBM DeskStar	10ms	Fast SCSI 2	155	215
1080MB	Quantum Atlas	8ms	Fast SCSI 2	289	329
2.1GB	Micropolis 4221AV	8.5ms	Fast SCSI 2	595	655
2.0GB	Quantum Atlas	8ms	Fast SCSI 2	595	655
2.5GB	Seagate Barracuda 2	8ms	Fast SCSI 2	695	755
2.1GB	Micropolis 4421	8.5ms	Fast SCSI 2	399	469
4.3GB	Micropolis 3243	8.5ms	Fast SCSI 2	865	925
4.3GB	Micropolis 3243AV	8.5ms	Fast SCSI 2	925	995
4.3GB	Seagate Barracuda 4	8ms	Fast SCSI 2	1149	1219
4.3GB	Quantum Atlas	7.9ms	Fast SCSI 2	935	1035
9.0GB	Seagate Elite	11ms	Fast SCSI 2	1875	1975
9.0GB	Micropolis 1991	11ms	Fast SCSI 2	1675	1775
9.0GB	Micropolis 1991AV	11ms	Fast SCSI 2	1795	1895

FAST & WIDE SCSI 2

Fast & WIDE SCSI 2 allows for transfer rates of up to 20 Megabytes Per Second.

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
2.0GB	Quantum Atlas	8ms	Fast & Wide SCSI 2	655	755
2.1GB	Micropolis 4221WAV	8.5ms	Fast & Wide SCSI 2	675	775
2.5GB	Seagate Barracuda Wide	8ms	Fast & Wide SCSI 2	735	835
4.3GB	Micropolis 3243WAV	8.5ms	Fast & Wide SCSI 2	975	1075
4.3GB	Seagate Barracuda Wide	8ms	Fast & Wide SCSI 2	1195	1295
4.3GB	IBM Ultrastar XP Wide	8.5ms	Fast & Wide SCSI 2	995	1095
9.0GB	Seagate Elite	11ms	Fast & Wide SCSI 2	1975	2075
9.0GB	Micropolis 1991WAV	11ms	Fast & Wide SCSI 2	1875	1975

ULTRA SCSI 3

ULTRA SCSI 3 allows for transfer rates of up to 20 Megabytes Per Second.

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
1280MB	QuantumTempest	10.ms	Ultra SCSI 3	245	315
2.2GB	IBM Ultrastar ES	8.5ms	Ultra SCSI 3	339	395
2.1GB	Quantum Tempest	10.5ms	Ultra SCSI 3	345	415
3.2GB	Quantum Tempest	10.5ms	Ultra SCSI 3	399	465
4.5GB	Quantum Atlas II	7.9ms	Ultra SCSI 3	975	1045
4.5GB	Micropolis 4345	7.9ms	Ultra SCSI 3	985	1055
4.5GB	Micropolis 4345 AV Toma	7.9ms	Ultra SCSI 3	1035	1105
4.3GB	IBM 34320	7.9ms	Ultra SCSI 3	995	1065
4.5GB	Seagate Barracuda LP	7.9ms	Ultra SCSI 3	1145	1215
8.7GB	Micropolis	7.9ms	Ultra SCSI 3	1695	1765
9.1GB	Quantum Atlas II	7.9ms	Ultra SCSI 3	1475	1545
9.1GB	Micropolis Tomahawk 3391	7.9ms	Ultra SCSI 3	1875	1945
9.1GB	IBM 39100	7.9ms	Ultra SCSI 3	1899	1969
9.1GB	Seagate Barracuda	7.9ms	Ultra SCSI 3	2179	2249

FAST & WIDE ULTRA SCSI 3

Fast & WIDE ULTRA SCSI 3 allows for transfer rates of up to 40 Megabytes Per Second.*

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
4.5GB	Quantum Atlas II	7.9ms	Fast & Wide Ultra SCSI 3	1025	1125
4.5GB	Micropolis 4345 Tomahawk	7.9ms	Fast & Wide Ultra SCSI 3	1075	1175
4.5GB	Micropolis 4345 AV Toma	7.9ms	Fast & Wide Ultra SCSI 3	1125	1225
4.3GB	IBM 34320	7.9ms	Fast & Wide Ultra SCSI 3	1055	1155
4.5GB	Seagate Barracuda LP	7.9ms	Fast & Wide Ultra SCSI 3	1195	1295
8.7GB	Micropolis	7.9ms	Fast & Wide Ultra SCSI 3	1645	1745
9.1GB	Quantum Atlas II	7.9ms	Fast & Wide Ultra SCSI 3	1575	1645
9.1GB	Micropolis 3391W Tomahk.	7.9ms	Fast & Wide Ultra SCSI 3	1875	1945
9.1GB	IBM 39100W	7.9ms	Fast & Wide Ultra SCSI 3	1999	2069
9.1GB	Seagate Barracuda 19171W7	7.9ms	Fast & Wide Ultra SCSI 3	2279	2379

* When utilized with an appropriate SCSI Accelerator Card

The wider 68 pin bandwidth inherent in a Fast & Wide drive is utilized by a Fast & Wide SCSI accelerator card. Note: All ProDirect Fast & Wide hard drives come with a free 68/50 pin adapter that allows use of the Fast & Wide drive on your current Mac. Later, the adapter can be removed and replaced with a Fast & Wide accelerator card that will render the increased transfer rates.

Transfer Rates Qualifier All drives were tested utilizing a UMAX 150 Mhz CPU with 32 Megabytes RAM, Adaptec 2940 Ultra SCSI Accelerator and MacBench software. Sustained transfer rates will vary depending on system type, memory, PCI cards and software. All drives were formatted and configured with FWB Toolkit and Speed-Tuned according to Manufacturer documented guidelines.

Blinding Speed! Ultra AV 8.7GB

Fast & Wide Ultra SCSI 3 Only 1645 Int. 1745 Ext. (PowerStor)
- Sustained Transfer Rate of 11.5 MB/Second with Adaptec 2940UWM
- 7 bms Seek
- 7200 RPM
- 512K Cache Buffer
- 5 Year Warranty (48 Hour Replacement)

ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. RETURNED ORDERS ARE SUBJECT TO A RESTOCKING FEE. INTERNATIONAL CUSTOMERS PAY ALL SHIPPING CHARGES. ALL SHIPPING CHARGES ARE NON-REFUNDABLE. TO RETURN MERCHANDISE CALL FOR AN RMA NUMBER. ALL RMAS MUST BE RETURNED WITHIN 10 BUSINESS DAYS OF ISSUANCE. CUSTOMERS ARE RESPONSIBLE FOR SHIPPING CHARGES TO RETURN PRODUCT.

ProDirect PowerStor

ProDirect powerStor external

ProDirect PowerStor Externals

All ProDirect External Hard Drives are Enclosed in our Attractive, High Performance PowerStor Cabinet.

- All Drives Pre-Tested
- QUIET Cooling Fan
- Active Terminator
- Attractive System-Complimenting, stackable Design
- Reliable 110-220 Auto sensing 40 Watt UL, TUV, CV, Approved Power Supply
- INCLUDES System or Daisy Chain Cable
- Preformatted with FWB Hard Drive Toolkit.

TAPE DRIVES

ALWAYS BACK UP!

GIGS	PRODUCT	MEDIA	TRANSFER/MIN.	INT.	EXT.
30	Quantum DLT2000XT	DLT	150MB	-	2575
40	Quantum DLT4000	DLT	180MB	-	4495
150	Quantum DLT2500XT	DLT	180MB	-	5500
280	Quantum DLT4700	DLT	180MB	-	CALL
20	Mammoth	8mm	360 MB	-	5995
4	Conner TravanQIC	QIC 80 M	20 MB	-	485
4-8	Conner/Seagate DAT DDS-2, SCSI-2	DAT 120M	40 MB	-	875
4-8	Hewlett Packard C1533 DAT DDS-2	DAT 120M	60MB	-	999
8	Sony 7000 DAT DDS-2	DAT 120M	90MB	-	989
24-48	HP1553 Auto Tape Loader	DAT 120M	60MB	-	2995
2-5	ExaByte 8205XL	8mm	30 MB	1395	1485
5-7	ExaByte 8505XL	8mm	60 MB	2065	1485
14	ExaByte 8700	8mm	60 MB	1419	1479

DDS2 backup tape drive in our PowerStor external enclosure

ProDirect Tape Back-Up
ProDirect Tape Drives are available with your choice of mechanism and media and include one piece of media and RetroSpect Software. External drives feature our PowerStor enclosure or can be configured into a DriveCenter Tower cabinet.

High Performance Value! Atlas II 4.5 & 4.5GB Wide

Quantum 975 Internal 1025 Internal Wide

- 7.5ms Seek
- 512K Cache Buffer
- 5 Year Warranty
- 7200 RPM
- AV Configured for Maximum Performance
- MR head Technology Improves Speed & Reliability
- Ultra SCSI 3 and Fast & Wide Ultra SCSI 3 Performance

SCSI ACCELERATORS

Express PCI Ultra SCSI 315
Single Channel. RISC based PCI to Fast/Wide SCSI 3 for PCI Macs.

DualChannel Express PCI Ultra SCSI 3 589
Dual Chan. RISC based PCI to Fast/Wide SCSI 3 for PCI Macs. Transfer to 40 MB/Sec.

JackHammer 445
Fast/Wide 16BIT SCSI 2 Card for Nubus Macs. Supports fast/wide SCSI 2 (15 Bit) transfer rates up to 20MB/Sec. & Fast SCSI 2 (8 Bit) transfer rates up to 10 MB/Sec. Full 16 Bit wide support for latest drives and disk arrays.

PCI JackHammer 385
Single channel RISC based PCI to Fast/Wide SCSI 3 for PCI Macs. Ideal for audio, video, prepress, and real time apps. Transfer up to 20MB/Sec. Formatting software included.5 year warranty. Call for Disk Array Solutions!

PowerDomain 2940 UWM 285
Single channel RISC based PCI to Fast/WideULTRA SCSI 3 for PCI Macs.

PowerDomain 3940 UWM 565
Dual channel RISC based PCI to Fast/Wide ULTRA SCSI 3 for PCI Macs. Transfer up to 40 MB/Sec.

REMUS RAID SOFTWARE

Remus Raid Software combines multiple hard drives into a disk array, providing greater speed for disk intensive applications such as desktop publishing and digital video. Remus software also offers data protection, keeping your critical data safe from drive failures.

Remus Striping 195

Remus Raid Level 5 295

Incredible Quantum 3.2

3.2GB Internal 399

- 10.5ms Seek
- 4500 RPM
- 128K Cache Buffer
- 5 Year Warranty
- Lowest Price Per Megabyte
- Advanced PRML, MR Head Technology
- 1,000,000 MTBF (Mean) Time Between Failure

ProDirect DriveCenter

Let us Configure One for You!

ProDirect DriveCenter Tower Enclosures Are The Smart Way to Handle Additional Peripheral Drives on Your Desktop.

- Reliable UL, TUV, CV, Approved Power Supply (DriveCenter2: 80 WATT, DriveCenter4: 200 WATT)
- SCSI SELECT SWITCHES
- Attractive System-Complimenting Design
- ELIMINATES SCSI CABLE TANGLE AND CONNECTION PROBLEMS
- ENCLOSES ANY COMBINATION OF INTERNAL OR REMOVABLE MEDIA DRIVES
- INCLUDES CORRECT BEZELS
- CONVENIENT LARGE FRONT POWER BUTTON AND LED ACCESS INDICATORS
- AVAILABLE alone or CUSTOM CONFIGURED WITH YOUR CHOICE OF COMPONENTS

ProDirect DriveCenter2 & DriveCenter4

PERFECT FOR RAID SYSTEMS

ProDirect

ProDirect, Inc. 10830 Nesbitt Avenue South, Bloomington, MN 55437

Professional Storage and Computer Solutions

Make Yours a ProPowerMac
with ProDirect Storage and Acceleration Components!

Work Faster, Work Smarter.

17 GIG PowerRaid

With 2 -Micropolis Tomahawk 8.7GB Speed-Tuned Drives, Adaptec 3940 Dual Channel Accelerator Card, Remus Raid software and a Transfer Rate Exceeding 20Mb/Sec. Sustained Write

ProDirect 4795

800-524-9952

ProDirect Power Mac Systems

SUPERmac · MOTOROLA

Get a ProPowerMac!

Let us build your next system.

90 Day ProDirect Performance Guarantee — Always the right drive for the job guaranteed!

ProDirect will configure and install any Hard Drive, RAID, or Software for custom turnkey DTP, Video Editing Systems. Leasing is available through AT&T Capitol or your current leasing vendor.

POWER MAC SYSTEMS

Apple Power Macintosh

MODEL / MHZ	PROC.	CASE	RAM	HDRIVE	VRAM	CD	PRICE
9500/200	604e	Tower	32MB	2.0GB	2MB	8X	3895
9500/150	604e	Tower	16MB	2.0GB	2MB	8X	3185
8500/180	604e	Tower	32MB	2.0GB	2MB	8X	3285
8500/150	604	Tower	16MB	2.0GB	2MB	4X	2655
8500/132	604	Tower	16MB	1.0GB	2MB	4X	2189
7600/132	604	Desktop	16MB	1.0GB	2MB	8X	1975

SuperMac from UMAX

SUPERmac · UMAX Computer Corporation

MODEL / MHZ	PROC.	CASE	RAM	HDRIVE	VRAM	CD	OTHER	PRICE
C500L/160	603e	Desktop	8MB	1.2GB	1MB	8X	1 PCI Slots	1299
C600L/180	603e	MiniTow	16MB	1.2GB	1MB	8X	3 PCI Slots Modem	1675
C600L/200	603e	MiniTow	16MB	2.1GB	1MB	8X	3 PCI Slots Modem	1975
C600L/240	603e	MiniTow	24MB	2.1GB	1MB	8X	3 PCI Slots Modem	2275
700L/150	604	Desktop	16MB	2.1GB	2MB	6.7X	6 PCI Slots	2995
900L/150	604	Tower	16MB	2.1GB	4MB	6.7X	IMS 128 6 PCI Slots	3490
900L/180	604e	Tower	32MB	2.1GB AV	4MB	8X	6 PCI Slots	3790
900L/200	604e	Tower	32MB	2.1GB AV	8MB	8X	IMS CARD 6 PCI Slots	3990
900L/225	604e	Tower	32MB	2.1GB AV	8MB	8X	IMS CARD 6 PCI Slots	4490
900L/180	Dual604e	Tower	32MB	2.1GB AV	4MB	8X	7200RPM 6 PCI Slots	4690

5 YEAR WARRANTY FROM MOTOROLA ON ALL STARMAX MACS

Motorola StarMax Series

MOTOROLA

MODEL / MHZ	PROC.	CASE	RAM	HDRIVE	VRAM	CD	OTHER	PRICE
StarMax 4000 Series (Keyboard & Mouse Included)								
4000/160	604e	Desktop	16MB	1.2GB	2MB	4X	3 PCI Slots	2265
4000/160	604e	Minitower	32MB	2.5GB	2MB	4X	5 PCI Slots	2375
4000/200	604e	Desktop	16MB	1.2GB	2MB	4X	3 PCI Slots	2575
4000/200	604e	Minitower	32MB	2.5GB	2MB	4X	5 PCI Slots	2765
StarMax 3000 Series(Keyboard & Mouse & 28.8 Modem Included)								
3000/160	603e	Desktop	16MB	1.2GB	2MB	4X	3 PCI Slots Modem	1495
3000/160	603e	Minitower	32MB	2.5GB	2MB	4X	5 PCI Slots Modem	1895
3000/200	603e	Desktop	16MB	1.2GB	2MB	4X	3 PCI Slots Modem	1995
3000/200	603e	Minitower	32MB	2.5GB	2MB	4X	5 PCI Slots Modem	2145

The Mac experts at ProDirect can configure the right Mac for your needs. ProDirect Mac Systems come pre-tested and ready to go with full assurance of optimum performance. Tell us what you want to do with your computer and we'll assemble a ProDirect Mac System that will give you the best possible performance. With ProDirect Speed-Tuned Hard Drive, Accelerator Card, Memory, whatever you need, we can install it, optimize it and fully test it before we ship it out to you. And, all ProDirect Mac Systems are covered by our 90 Day Performance Guarantee!

MAC MEMORY

TECHWORKS — LIFE TIME WARRANTY

SIZE	168 PIN DIMMS	60NS	SIZE	72 PIN SIMMS	70NS	60NS
8MB	DIMM	51	4MB	SIMM	24	25
16MB	DIMM	86	8MB	SIMM	44	45
32MB	DIMM	189	16MB	SIMM	91	93
64MB	DIMM	419	32MB	SIMM	-	189

New 5 Volt EDO DIMMs Available CALL

5 YEAR / 24 HOUR REPLACEMENT WARRANTY ON ALL POWER RAID COMPONENTS

POWER RAIDS

CAPACITY	DRIVES UTILIZED	SCSI ACCELERATOR	ONLY
4.0 Gig	2-Quantum Atlas 2GB	Adaptec 2940 Ultra SCSI 3	1895
8.0 Gig	2-Quantum Atlas 4GB	Adaptec 2940 Ultra SCSI 3	2895
17 Gig	2-Micropolis Tomahawk 8.7GB	Adaptec 3940 Dual Channel	4795
	Transfer Rate Exceeds 20 MB/SecOND Sustained Write		
25 Gig	3-Micropolis Tomahawk 8.7GB	Adaptec 2940 Dual Channel	6495
	Transfer Rate Exceeds 34 MB/SecOND Sustained Write		

REMUS 1.4 RAID SOFTWARE INCLUDED WITH ALL RAIDS

ALL POWER RAIDS COME PRETESTED AND CONFIGURED WITH SPECIALLY CONFIGURED ULTRA SCSI 3 WIDE AV DRIVES FOR YOUR SPECIFIC NEEDS. ALL YOU DO IS PLUG AND PLAY. PLUS THEY CARRY A 5 YEAR/24 HOUR TECHNICAL REPLACEMENT WARRANTY FOR ALL POWER RAID COMPONENTS.

CD DRIVES & WRITERS

Yamaha CD Writer CDE100 External Only 1024 K Cache Buffer • Multi Session • 4x CD Rom	989
Panasonic PD 4x/650MB 4 x CD ROM & 650MB Optical Drive in one!	489
Pinnacle Apex 4.6 GIG Optical 21ms, 3700 RPM, 1024K Buffer, 3.5Mb/Sec.	1685
Fujitsu 640mb 3.5" Optical 30ms, Compatible with 128/230mb	585

DRIVECENTER2 CONFIGURED WITH COMBINATION OF JAZ DRIVE AND CD-R DRIVE

ONLY FROM ProDirect — Call for More Info on How You Can "Cash-in" Your Old Hard Drive.

ONLY FROM ProDirect — All Hard Drives Speed Tuned to Manufacturers Optimum Specifications

ONLY FROM ProDirect — Test Drive Any Drive for 90 Days & be sure you get the right drive for the job!

ONLY FROM ProDirect — FREE — Ask About Free Shipping On All Domestic Orders!

ONLY FROM ProDirect — All Hard Drives Include FWB Hard Drive Toolkit PE The Best Available!

Complete Video Workstations Configured to Your Specifications Available

ProDirect

ProDirect, Inc. 10830 Nesbitt Avenue South, Bloomington, MN 55437

TRUEVISION · radius · MEDIA 100

CIRCLE **75** ON READER SERVICE CARD

radius™ Quantities are Limited...

AWARD WINNING PRODUCTS

DISPLAYS

TWENTY ONE INCH DISPLAYS

21 Inch DiamondTron Monitor $1999*

- Rated Superior to Trinitron
- Two year Mfr's Warranty
- Largest Aperture Grille monitor available
- Up to 1600x1200 on Macs and PCs
- Full Digital Control from Keyboard

Radius SuperMatch 21 TXL	from $1699*
Radius PrecisionView 21	$CALL
Radius PressView 21sr	from $2899*
NEC	$CALL
Radius PrecisionColor Display 21	$1499*
RasterOps SuperScan MC 21	$CALL
Radius Multiview 21	$CALL
Radius 21 inch Grayscale Display	$799

*With qualifying videocard, accelerator, or computer purchase

TWENTY INCH DISPLAYS

TRINITRON BLOWOUT-LOWEST PRICE EVER! $999*
While Supplies Last!

20" SONY Trinitron Technology

- Industrial Grade CRT
- Two page WYSIWYG output

SuperMac SuperMatch 20 Plus	$999*
Radius PrecisionColor 20v	$1099*
Digital 20 inch Display Up to 1280x1024	$1399
RasterOps 20 Multimode	$1299
Radius PrecisionColor 19	$899*

Radius IntelliColor Display 20 $1499*

- MacUser, MacWorld, MacWeek Editor's Choice
- 1600x1200 to 640x480

Apple Multiple Scan 20 Display	$CALL
Ikegami 20 inch Grayscale Display	$699
Radius 20 inch Grayscale Display	$699

*With qualifying videocard, accelerator, or computer purchase

SEVENTEEN INCH DISPLAYS

SuperMac/E-Machines T16IIMR $599*

- Studio Grade Trinitron CRT
- 0.26 Dot Pitch

SuperMatch 17T TRINITRON	$799
PrecisionColor Display 17	from $899
PrecisionView 17	$CALL
Radius PressView 17sr	$CALL
SuperMac SuperMatch 17	from $499*

*With qualifying videocard, accelerator, or computer purchase

PORTRAIT DISPLAYS

Radius Pivot Display $199*

We have cards for SE/30, LC, IIsi Nubus, and Quadras

* With purchase of video card.

PrecisionColor Pivot	$599
Color Pivot LE	$399
Radius Full Page Display	$CALL
Apple Portrait Display	$399
Portrait Display Labs 1700	$CALL
E-machines ColorPage 15 with NUBUS card	$499

VIDEO CARDS

1600x1200 PCI & NUBUS

IMS Twin Turbo 128M ♦♦♦♦MacWEEK from $299

- 1600 x 1200 to 640 x 480 resolutions
- MPEG video playback
- 128-bit wide architecture
- Interleaved VRAM

RasterOps OptiColor 128 4MB/8MB $IN STOCK

MW ★★★★ FASTEST CARD AVAILABLE! -- Macworld
If you need fast graphics redraw, this is your card!

HARD TO FIND NUBUS CARDS IN STOCK!

Radius Thunder II & IV GX Cards	$BELOW COST
Radius Thunder 24/GT (accepts PhotoEngine)	$CALL
Radius ThunderColor 30/1152 & 1600	$CALL
Radius PrecisionColor 8/1600	$399

21" RESOLUTIONS PCI & NUBUS

Radius PrecisionColor 24X	$599
Thunder 8 "Fastest 8 bit card ever"	$CALL
Thunder 24 (DSP available)	$CALL
Radius LeMans GT	$799
SuperMac Ultura LX*	$799
RasterOps Horizon 24*	$899
RasterOps Prism GT	$CALL
Radius PrecisionColor 8XJ	$499

*DSP Available

20/19" RESOLUTIONS PCI & NUBUS

SuperMac Spectrum 24 Series V	$599
Radius PrecisionColor Pro 24XK	$CALL
SuperMac Futura MX	$499
RasterOps PaintBoard Lightning	$CALL
SuperMac Spectrum 8	$199
PowerView/SuperView for Powerbooks	$199/$299

17/16" RESOLUTIONS PCI & NUBUS

Radius 24 bit video cards	from $199
Radius PrecisionColor Pro 24XP	$CALL
SuperMac Futura SX	$299
RasterOps 24 MX	$399

PHOTOSHOP ACCELERATION

Radius PhotoEngine from $399* Retail at $999

- Four AT&T 3210 66MHz DSPs
- Accelerates Photoshop Filters
- Up to 15x acceleration on all Macs
- MacUser Editor's Choice
- Available in Daughtercard or NUBUS versions

Adaptive Solutions PowerShop	$CALL
Radius Photo Booster for Quadra/PDS or Rockets	from $199
SuperMac DSP daughter cards for Thunder/Ulturas	$299

COLOR CALIBRATORS

SuperMac Display Calibrator	only $199
SuperMac Display Calibrator PRO	$499
Radius Mac ProSense Calibrator	$799

POWERBOOK 5300

FOCUS enhancements Lapis Color MV Cards from $249 Compare at $399

- Multiple resolutions up to 21"
- 10BASE-T ethernet
- Uses PDS slot leaving your PCMCIA slot available for other uses.

The Lapis Color MV card is the only solution that does not use your PCMCIA slot, thus allowing for additional uses such as a modem for your PB5300. Since the card was jointly developed with Apple, it is virtually the only ethernet solution that does not drop data packets and is the only external video solution available.

For prices starting from $249, you will not find a better value!

www.cra-sys.com

Supplies Won't Last... SUPERMAC. RASTEROPS

AT OR BELOW DEALER COST!

PRINTERS

TABLOID LASERS

QMS 860 HammerHead from $1999
- 600 dpi 11 x 17
- PostScript Levels 1&2
- 8ppm heavy-duty Canon engine
- Powerful RISC processor

QMS PS2210/2220 from $1499
- 20,000 page monthly duty cycle
- 22ppm • Dual-tray input

Mac and PC Ready

GCC Elite XL series 800dpi	from $2499
Hewlett-Packard 4MV	$2499
GCC SelectPress 1200x1200dpi	$4999
GCC ELITE XL808 & XL1208	$CALL
Radius Proof Positive PTR 220/230 Dye-Sublimation	$CALL

Ask about Printers available in 220v!

LETTER/LEGAL

QMS PS1700 for Macs and PCs from $1499
- True Adobe Postscript
- 17ppm output
- Dual Paper output; Duplex Option
- 50,000 print monthly duty cycle

Hewlett-Packard 5mp 600dpi	$CALL
Apple Select 360 10ppm, 600dpi	$1199
GCC WriteMove II portable printer for Powerbook	$CALL

CPU SPECIALS

POWER MACS

All PCI PowerMacs Available -- CALL for Lowest Prices Ever!!

Radius 81/110 from $999
FACTORY CLOSE-OUT! LAST CHANCE!

Price with Monitor Purchase

PowerMac 7200/7500/7600	from $1699
PowerMac 8500/9500	from $2399
Umax C500/C600/S700/S900L	from $1349
Power Computing	from $1895
Motorola StarMax 3000/4000	$CALL

POWERBOOK/QUADRA

PowerBooks/Duos	$CALL
Quadra 800 8/250/CD *NEW*	$CALL
Quadra 840AV 8/250/CD *w/ Spigot Power AV*	$CALL
Quadra 900/950	$CALL

FREE ClarisWorks with every CPU purchase !!

GUARANTEED LOWEST PRICE ON ALL DIGITAL VIDEO!

TRUEVISION Targa 2000 *NEVER UNDER SOLD!!*
- 16-bit audio up to 48KHz
- NTSC: 30 frames/60 fields per second,
- Supports PAL broadcast standards

Other Truevision Products:
- Targa 1000/2000 Pro
- BRAVADO/Targa 1000

Video Vision Studio, PCI and Nubus
- 24bit Full-Screen, Full-Motion Video
- Includes Adobe Premiere and VideoFusion
- Breakout bar supports dual input

CALL FOR BEST PRICE!!

Video Vision Studio Array 4-12GB	$INSTOCK!
Radius Spigot Pro AV $999 • 24bit Full-Screen, Full-Motion Video	
Radius Spigot Power AV $799	
Video Vision Telecast • Full-motion, broadcast-quality video • Available as upgrade for Video Vision Users	Compare at ~~$4999~~ $2999
miroMOTION DC20 *M-JPEG PCI video capture & playback*	$CALL
Spigot II Tape *Now Bundled with Adobe Premiere*	$499
VideoSpigot Cards Nubus/LC/IIsi	from $99

BEST DEAL IN THE COUNTRY!

Full Digital Video Workstation for less than a PCI Digital Video card alone!!

SAME TECHNOLOGY FOR HALF THE PRICE!!

RADIUS 81/110
32/2GB AV Drive/CD with Video Vision

only $2998

RADIUS 81/110 from $999

EarthLink Network

SET-UP WAIVED! 10 FREE DAYS With every purchase!

CRA SYSTEMS

New and Factory Recertified Models of Most Items Available

CRA Systems, Inc.
300 South 13th St., Waco, TX 76701
Monday thru Friday 9AM to 7PM CST Saturday 10AM-4PM *Sales Dept.Only*
Domestic Sales sales@cra-sys.com Fax 817.750.9050
Consultants/Dealers 817.754.2120 International Sales 817.754.2120
Prices reflect 2% cash discount. Prices subject to change. Not liable for typographical errors. All shipping charges for COD orders to be secured by credit card. Dealers and consultants call for quantity pricing. We ship anywhere. FedEx

THE MOST KNOWLEDGEABLE SALES STAFF IN THE INDUSTRY!

CIRCLE **50** ON READER SERVICE CARD

800/375-9000

CALL CLUBMAC FIRST!

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

REMOVABLE STORAGE

Zip 100MB Drive

$199.95
-$50.00
$149.95

I044 1010

iomega

*Manufacturers Mail-in Rebate (ends 9/30/96)

Includes One Free Cartridge

Jaz 1.0GB Drive

Includes One Free Cartridge

I044 1014

In Stock

$499.95

1 Year Manufacturer's Warranty

ClubMac 200MB SyQuest

FEATURING SyQuest REMOVABLE TECHNOLOGY

$389.95

C104 1801	ClubMac 200MB 5.25" Removable*	$389.95
S198 2100	SyQuest SyJet 1.5GB Removable	$499
C104 2500	ClubMac Nomai 540MB Removable*	$249

*Price after $50 mail-in rebate

as low as $23

Genuine SyQuest Media

Part	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	$40ea	$39.50ea	$39ea
S198 1011	88MB	$44ea	$43.50ea	$43ea
S198 1012	200MB	$69ea	$68ea	$67ea
S198 1014	270MB	$57ea	$56ea	$55ea
S198 2110	1.5GB	$124.95ea	$123ea	$121ea
S198 2011	EZ230MB	$30ea	$29.50ea	$29ea
N220 1005	Nomai 540MB Media			$59

CD-ROM DRIVES

ClubMac 4.4X

$129

C104 1770

676KB/sec data transfer
190ms avg access time
Caddy-less design

CLUBMAC		
C104 1770	ClubMac 12X-Speed CD-ROM Drive 140ms 1800k/sec	$229
C104 1700	ClubMac 4.4X-Speed CD-ROM Drive 140ms 676k/sec	$129
C104 1730	ClubMac Nakamichi 4 disk 8X-Speed CD disk changer 140ms 676k/sec	$279

CD RECORDABLE

YAMAHA 4X CD Recorder

NEW LOW PRICE

$999

Y010 1002

CLUBMAC		
C104 1780	ClubMac 2X/4X CD-ROM Recorder w/Toast CD ROM Pro 3.0 Mastering software	$599
YAMAHA		
Y010 1002	Yamaha 4X CD Recorder w/Toast CD ROM Pro 3.0 Mastering software	$999

TAPE BACKUP

ClubMac DDS-2 DAT Drive

$879

C104 0901	2-4GB SCSI QIC MiniCartridge Drive*	$429
C104 1303	4-8GB DDS-2 DAT Drive	$879
C104 1304	12-24GB DDS-3 DAT Drive	$1249
MEDIA		
T010 1030	3M Travan TR-4 4-8GB	$39
S100 1043	Sony QW3080XLF QIC/WIDE 2-4GB	$29
V010 1018	Verbatim 90M 4mm DAT 2-4GB	$9

*Cartridge not included

REMOVABLE STORAGE

ClubMac Nomai 540MB

Includes One 540MB Cartridge

$249*

C104 2500

*Price after $50 mail-in rebate

MEMORY

SOUTHLAND MICRO SYSTEMS

ClubMac Slashes Memory Prices

Guaranteed Compatibility

Memory prices fluctuate frequently, please call for latest prices.

LIFE TIME Manufacturer's Warranty

memory as low as $22

32-Bit 72pin SIMMS		
M101 1031	4MB 1X32 70NS	$25
M101 1054	8MB 2X32 70NS	$45
M101 1072	16MB 4X32 70NS	$99
M101 1070	32MB 8X32 70NS	$199
8-Bit 30pin SIMMS		
M101 1017	1MB 1X8 70NS	$22
M101 1026	2MB 2X8 70NS	$25
M101 1042	4MB 4X8 70NS	$45
64-Bit 168pin DIMMS (PCI PowerMac, Umax, PowerComputing)		
M101 1081	8MB DIMM Module	$55
M101 1082	16MB DIMM Module	$99
M101 1083	32MB DIMM Module	$199
M101 1084	64MB DIMM Module	$425
PowerBook 2300		
M101 2004	8MB Module	$89
M101 2006	16MB Module	$199
M101 2008	24MB Module	$285
PowerBook 190		
M101 1098	4MB Module	$65
M101 1099	8MB Module	$99
M101 2000	16MB Module	$189
M101 2001	24MB Module	$299
M101 2002	32MB Module	$349
PowerBook 520,520C,540,540C		
M101 1037	4MB Module	$59
M101 1059	8MB Module	$99
M101 1007	16MB Module	$199
M101 1029	32MB Module	$375
Video RAM		
M101 1085	2MB VRAM for ATI XClaim GA	$139
M101 1047	512K VRAM 8100 & 605	$30
M101 1086	1MB VRAM 7200, 7500, 7600, 8500	$55
Cache Memory for PowerMacs & PowerPC Performas		
M101 1019	256K level 2 cache 7100, 8100	$73
M101 1045	512K level 2 cache 7100, 8100	$285
M101 1087	256K 7200, 7500, 7600, 8500	$75
M101 1088	512K 7200, 7500, 7600, 8500	$149

ACCELERATORS

DayStar nPower 360+ Dual Processor Card for PowerPCI!

D040 1059

NEW

$1499

DAYSTAR		
D040 1059	nPower 360+	$1499
Performa, Quadra, 605 & 630, LC 470,570 & 580		
D040 1057	100MHz PowerCard 601	$969
Mac II, IIX, IICX, IISI, IIVI, IIVX, SE/30 & Performa 600		
D040 1018	40/80 Turbo 040 with 128 cache	$655
D040 0046	Mac IIcx Adapter Turbo 040	$129
Quadra and Centris 620, 650, 700, 800, 900, and 950		
D040 1043	100MHz PowerPro 601 with 1MB cache	$1199
D040 1053	100Mhz PowerPro Adapter (610 only)	$105
D040 1048	100Mhz Turbo 601 (IIci)	$1139
D040 1050	100Mhz Turbo 601 (IIsi)	$1139

HARD DRIVE STORAGE

Quantum TEMPEST 1280MB

128K CACHE
4500 RPM

$269

C104 0015

Quantum Atlas II™

$989

Atlas II
C104 0022

4GB

Seagate Barracuda™ 4 LP

8.5ms average seek time

C104 0306

$1169

4.3GB

ULTRA SCSI

Quantum TEMPEST 3.2GB

128K CACHE
4500 RPM

$439

C104 0014

IBM	Model Number	Access	Internal	Price	External	Price
2.1GB IBM	07H1125	12ms	C104 1001	$379	C104 1051	$439
QUANTUM						
1280MB Tempest	QM31280TMS	10.5ms	C104 0015	$269	C104 0065	$329
2150MB Tempest	QM32150TMS	10.5ms	C104 0013	$339	C104 0063	$399
3255MB Tempest	QM33255TMS	10.5ms	C104 0014	$439	C104 0064	$499
4550MB Atlas II	QM34550ALS	8ms	C104 0021	$989	C104 0071	$1049
9180MB Atlas II	QM39100ALS	8ms	C104 0022	$1699	C104 0072	$1759
SEAGATE						
2.1GB Barracuda 2LP	ST32550N	8ms	C104 0300	$749	C104 0350	$809
2.1GB Barracuda 4LP	ST32171N	8.5ms	C104 0308	$789	C104 0358	$849
4.3GB Barracuda 4LP	ST34371N	8.5ms	C104 0306	$1169	C104 0356	$1229
9.1GB Barracuda™ 9	ST19171N	8ms	C104 0307	$2299	C104 0357	$2359
9.1GB Elite 9	ST410800N	11ms	C104 0305	$2099	C104 0355	$2199

POWER BACKUP

as low as $89

APC		
A080 1027	Back-UPS 200 2 outlets	$89
A080 1028	Back-UPS 280 2 outlets	$109
A080 1029	Back-UPS 400 2 outlets	$149
A080 1035	Back-UPS Pro 420 420VA UPS 4 outlets	$239
A080 1036	Back-UPS Pro 650 650VA UPS 4 outlets	$299
A080 1047	Back-UPS Pro 1000 1000VA UPS 4 outlets	$389
A080 1044	Back-UPS Pro 1400 1400VA UPS 6 outlets	$525

ClubMac®

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number. Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ http://www.club-mac.com

Inquiries & International Sales
(714) 768-8130
24 Hours a day 7 days a week

Corporate/Educational Sales
(800) 258-2621
M - F: 5am - 5pm PST

Apple® Computer Corporation
Authorized Catalog Reseller

UMAX
Computer Corporation
Authorized Dealer

MOTOROLA StarMax
Authorized Dealer

PowerComputing
Authorized Dealer

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

GRAPHIC CARDS

radius Thunder 30/1600
High performance PCI for your Mac
R013 1071

$699

RADIUS

R013 1012	Precision Color Pro 24XP (Nubus)	$299
R013 1081	ThunderPower 30/1920 (PCI)	$1229
R013 1071	Thunder 30/1600 (PCI)	$699
R013 1085	Thunder 3D (PCI)	$2989
R013 1069	PrecisionColor 8/1600 (PCI)	$329
R013 1082	PrecisionColor 24/1600 (PCI)	$449

ATI

A143 1010	XClaimGA 2MB PCI video card	$245
A143 1009	XClaimGA 4MB PCI video card	$345
A143 1023	XClaimGA VR 4MB PCI	$369

INTEGRATED MICRO SOLUTIONS

I143 1002	Twin Turbo 128M 2MB PCI	$299
I143 1001	Twin Turbo 128M 4MB PCI	$499
I143 1003	Twin Turbo 128M 8MB PCI	$799

NETWORKING

ASANTÉ

A120 1010	10BaseT FriendlyNet Adapter FN10TA	$29.95
A120 1011	Thin FriendlyNet Adapter FNTNA	$44.95
A120 1041	Thin FriendlyNet Adapter FNBNC	$44.95
A120 1009	10BaseT/Thin FriendlyNet Adapter FN10T/TN	$79.95
A120 1083	10/100 PCI Card w/Net Doubler	$198
A120 1084	10/100 Nubus Card w/Net Doubler	$279
A120 1078	ASANTÉFAST 10/100 Bridge	$889
A120 1081	FriendlyNet PC Card 10BT	$159
A120 1082	FriendlyNet PC Card 10BT/Thin (for PowerBook)	$189
A120 1039	Thin/10BaseT Micro SCSI Ether Micro EN/SC	$265
A120 1001	10BaseT Hub 12 RJ45, 1 AUI, 1 BNC 10THUB/12	$235
A120 1003	10BaseT Hub 8 RJ45, 1 AUI, 1 BNC 10THUB/8	$129
A120 1050	10BaseT Hub 24 RJ45, 1 AUI 10THUB/24	$379

DAYNA

D300 1013	MiniHub 5 5 RJ45, 1 cross-over	$89
D300 1029	MiniHub 8 8 RJ45, 1 cross-over	$119
D300 1057	Hub 16 16 RJ45, 1 BNC, 1 AUI	$245
D300 1055	Communicard Plus Ethernet 28.8 Fax Modem	$439
D300 1049	Communicard 10BT 10BT/Ethernet	$145
D300 1050	Communicard 10BT BNC 10BT/Thin Ethernet	$169
D300 1044	10/100BT Adapter PCI	$180
D300 1045	10/100BT Adapter Nubus	$319
D300 1058	10/100BT Adapter PDS	$275
D300 1045	100Base-T Hub 12 port fast hub	$1239

FARALLON

F010 1043	Farallon Fast 10/100 Card Nubus	$239
F010 1019	Farallon 10BT Starlet 8 Hub	$125
F010 1032	Farallon 10BT Starlet 4 Hub	$105
F010 1053	Farallon Ethernet LAN/Modem PC card	$445
F010 1054	Farallon Netopia ISDN Modem	$295
F010 1017	Farallon Etherwave LC 10BT	$149
F010 1055	Farallon Streamline Starlet 16 Hub	$239
F010 1050	Farallon ISDN Internet Router w/Appletalk	$1099

DIGITIZING TABLETS

WACOM ARTZ II 6"x 8" Graphics Tablet
W010 1028

LIFETIME LIMITED WARRANTY
30 DAY MONEY BACK GUARANTEE
Edit images, paint, draw and develop your technique to create stunning art with a new Wacom Graphics tablet!
$298

WACOM

W010 1026	ArtPad II 4x5	$139
W010 1027	ArtPad II 4x5 w/Dabbler	$149
W010 1028	ArtZ II 6x8	$298
W010 1029	ArtZ II 12x12	$425
W010 1030	ArtZ II 12x18	$695

CALCOMP

C290 1010	DrawingSlate II 4x5 w/Dabbler	$99
C290 1002	DrawingSlate II 6x9	$205
C290 1001	DrawingSlate II 12x12	$229
C290 1004	DrawingSlate II 12x18	$299

MONITORS

radius PrecisionView 21 Display

- Res up to 1600 x 1200
- .30mm Dot Pitch
- 21" .25m high performance DiamondTron display
- Color support for AGFA FotoTune 1.0 & 2.0, Apple ColorSync 1 & 2, EFIColor, and Kodak Precision.

R016 1032

$2349

RADIUS

R016 1031	PressView 17SR 17", 1600x1200	$1999
R016 1032	PrecisionView 21 21", 1600x1200	$2349
R016 1034	PressView 21SR 21", 1600x1200	$3299

RASTEROPS

R053 1031	SuperScan MC20 20", 1600x1200	$1395
R053 1043	SuperScan MC800 21", 1600x1200	$1799
R053 1040	MC15M 15", Monochrome	$229
R053 1036	MC21M 21", Monochrome	$649

NEC

N026 1031	XV15+ 15", 1024x768	$469
N026 1036	M500 15", 1024x768	$499
N026 1032	XV17+ 17", 1024x768	$799
N026 1037	M700 17", 1024x768	$779

SONY

S106 1026	Multiscan 100SX 15", 1024x768	$385
S106 1024	Multiscan 200SX 17", 1024x768	$695
S106 1025	Multiscan 200SF 17", 1152x870	$795

VIEWSONIC

V056 1017	15GA w/Speakers 1024x768 (14" viewable)	$479
V056 1016	17GA w/Speakers 1024x768 (16" viewable)	$755
V056 1024	P810 1600x1200 (20" viewable)	$1699

PRINTERS

EPSON Stylus COLOR Pro
E047 1019

$379

EPSON

E047 1031	Epson Stylus 500	$279
E047 1019	Epson Stylus Pro	$379
E047 1022	Epson Stylus Pro XL w/Live Picture 2.5	$1799

HEWLETT PACKARD

H047 1067	HP DeskWriter 680C Color InkJet	$289
H047 1076	HP DeskJet 870CXI Color InkJet	$498
H047 1077	HP LaserJet 6MP Printer	$899

MODEMS

Global Village Communication
TelePort Internet Edition 33.6kbps
$169
Now with complete Internet Solution
Includes:
- Web browser
- E-mail
- Internet Access Software

G050 1025

GLOBAL VILLAGE

G050 1025	TelePort 33.6kbps data (Internet Ed)	$169
G050 1019	PowerPort Platinum PC Pro 28.8/10BT	$499

NETSPEED

B020 1001	ClubMac NetSpeed 33.6 Modem	$89.95*

U.S. ROBOTICS *After $20.00 mail-in rebate.

U020 1025	28.8 Sportster Voice for Mac 36.6 data	$195
U020 1021	28.8 Sportster for Mac 33.6 data	$169

DIGITAL CAMERAS

EPSON PhotoPC For the Mac
PhotoPC 500 for Mac & PC
w/optional LCD Display
E043 1007

$499 NEW

EPSON

E043 1005	PhotoPC for the Mac Color Digital Camera	$399
E043 1007	PhotoPC 500 for the Mac & PC	$499
E043 1008	LCD Display for PhotoPC 500	$199

KODAK

K043 1014	Kodak DC25 Camera	$499
K043 1003	Kodak DC20 Camera	$199
K043 1001	Kodak DC40 Camera	$599
K043 1002	Kodak DC50 Zoom Camera	$999

MAC OS SYSTEMS

PowerComputing PowerTowerPro™ 225

MacUser ★★★★★
MacWEEK ★★★★★
Protect ME! APC
Monitor sold separately
$4995
P512 1001

P512 1021	PowerCenter 132LP 132MHz, 16MB/1GB, 8X CD	$1895
P512 1023	PowerCenter 150LP 150MHz 16MB/1GB, 8X CD	$2095
P512 1006	PowerTower 166 166MHz, 16MB/2GB, 8X CD, 2MB VRAM	$2895
P512 1005	PowerTower 180 180MHz, 16MB/2GB, 8X CD, 2MB VRAM	$3295
P512 1004	PowerTower 200 200MHz, 16MB/2GB, 8X CD, 2MB VRAM	$3595
P512 1003	PowerTowerPro 180 180MHz, 16MB/2GB, 8X CD, 8MB VRAM	$4195
P512 1002	PowerTowerPro 200 200MHz, 16MB/2GB, 8X CD, 8MB VRAM	$4495
P512 1001	PowerTowerPro 225 225MHz, 16MB/2GB, 8X CD, 8MB VRAM	$4995

UMAX Computer Corporation
SuperMac C500L
180MHz Super Deal!

Monitor sold separately
U012 1014
$1299*

U012 1014	SuperMac C500L 180MHz, 16MB/1 2GB, 8X CD	$1299*
U012 1001	SuperMac C600L 180MHz, 16MB/1 2GB, 8X CD, 28.8 modem	$1695
U012 1007	SuperMac C600L 200MHz, 16MB/2 1GB, 8X CD, 28.8 modem	$1995
U012 1007	SuperMac C600L 240MHz, 24MB/2 1GB, 8X CD, 28.8 modem	$2295
U012 1011	SuperMac J700L 180MHz, 16MB/2 1GB, 6X CD, 2MB VRAM	$2795
U012 1017	SuperMac J700L 180MHz, 24MB/2 1GB, 6X CD, w/MS card	$3095
U012 1006	SuperMac S900L 180MHz, 32MB/2 1GB, 8X CD, 4MB VRAM	$3595
U012 1007	SuperMac S900L 200MHz, 32MB/2 1GB, 8X CD, 4MB VRAM	$3795
U012 1012	SuperMac S900L 225MHz, 32MB/2 1GB, 8X CD, 4MB VRAM	$4295
U012 1010	SuperMac S900L DP (2 180MHz, 32MB/2 1GB, 8X, 4MB VRAM	$4595

*After $50 mail-in rebate

SOFTWARE

Adobe Illustrator 6.0
Upgrade for
$89.95
A030 1003 5060CD

ADOBE

A030 1003	Illustrator 6.0 CD upgrade	$89.95
A030 1001	Photoshop 4.0 upgrade	$134.95
A030 1060	PhotoDeluxe 1.0	$79.95
A030 1015	PageMaker 6.5 upgrade	$89.95
A030 1002	Premiere 4.2 upgrade	$134.95

APPLE

A109 1370	Apple Remote Access Client 2.1	$49.95
A109 1372	Apple Remote Access Personal Server 2.1	$179.95

CASADY & GREEN

C049 1003	Conflict Catcher 3.04 upgrade	$38.95
C059 1008	SpellCatcher	$59.95

CLARIS

C089 1002	FileMaker Pro 3.0 competitive upgrade	$95.95
C089 1026	ClarisWorks 4.0 bundled w/CPU or Storage	$59.95
C089 1037	Claris Emailer 1.1	$44.95
C089 1036	Claris OfficeMail 1.0	$275.95

CONNECTIX

C149 1020	RAM Doubler 2	$28.95
C149 1010	Speed Doubler	$53.95

*After $25 mail-in-rebate for users of previous versions.

COREL

C309 1017	COREL DRAW 6.0 Suite upgrade for Mac	$149.00
C309 1016	COREL WordPerfect 3.5 upgrade for Mac	$89.00

DENEBA

D059 1009	Canvas 5.0 Upgrade	$149.95

FRACTAL

F039 1003	Painter 4.0 upgrade	$129.00
F039 1009	Poser	$89.00
F039 1057	Detailer (sidegrade)	$149.00
F039 1055	Expressions (sidegrade)	$149.00
F039 1024	Ray Dream Studio 4.1 upgrade	$149.00

MACROMEDIA

M209 1027	Extreme 3D	$489.00
M209 1024	Macromedia xRes 3	$399.00
M209 1028	Fontographer 4.1	$329.00
M209 1018	FreeHand 7 Upgrade	$149.00
M209 1037	Director Multimedia Studio 2 upgrade	$489.00
M209 1027	Extreme 3D	$489.00
M209 1046	FreeHand Graphics Studio Upgrade	$199.00

MICROSOFT

M089 1021	Office Standard 4.21 upgrade CD or Disk	$275.95
M089 1034	Word 6.0.1 upgrade	$118.95
M089 1029	Excel 5.0 upgrade	$118.95
M089 1040	Works 4.0	$49.95

QUARK

Q069 1001	QuarkXPress 3.3 CD	$658.95

INTERNET SOFTWARE

ADOBE

A030 1054	PageMill 2.0	$95.95
A030 1061	SiteMill 1.0	$185.95

ALADDIN

A290 1001	Stuffit Deluxe	$69.95
A290 1005	CyberFinder	$19.95

APPLE

A109 1348	Apple Internet Connection Kit 1.2 (AICK)	$45.95

CE SOFTWARE

C209 1010	WebArranger	$79.95

CLARIS

C089 1039	Claris Home Page 1.0	$99.00

SOFT QUAD

S609 1001	HotMetal Pro 3.0	$55.00

SCANNERS

VISIONEER PaperPort Vx
V029 1008

FREE SCSI adapter with purchase of Paperport VX! Call for details.
$279

AGFA

A055 1322	Agfa SnapScan for MAC 600DPI 24-Bit	$325
A055 1311	Agfa StudioScan IIsi	$649
A055 1315	Agfa StudioStar LE w/PhotoShop LE	$825
A055 1317	Agfa StudioStar w/PhotoShop full	$975
A055 1001	Agfa Arcus II Desktop Pro Scanner	$1995

UMAX

U010 1061	Vista S6E w/PhotoDeluxe	$299
U010 1052	Powerlook II w/transparency adapter	$1955

EPSON

E045 1026	Epson Expression 636 Upgrade Model	$799
E045 1027	Epson Expression 636 Executive Model	$879
E045 1026	Epson Expression 636 Artist Model	$1299
E045 1026	Epson Expression 636 Pro Model	$1799

RELISYS

F060 1004	Reli4830 30-bit w/trans adapt, Photoshop LE	$599

Microtek

M150 1006	Microtek Scanmaker III	$1495
M150 1026	Microtek Scanmaker E3	$329

DIGITAL VIDEO

radius VideoVision Studio 2.5.1
Record full-screen, full-motion, 60 field-per-second digital video input and output on your NuBus Based PowerPC
R013 1018

$1399

RADIUS

R013 1018	VideoVision Studio 2.5.1 (Nubus)	$1399
R013 1079	VideoVision Studio 2.0 (PCI)	$3795

TRUEVISION

T043 1008	Bravado 1000 (PCI)	$699
T043 1017	Targa 1000 (PCI)	$2099
T040 1001	Targa 2000 (PCI)	$3295

Call 1-800-258-2622 for a FREE subscription to the ClubMac Catalog.

Authorized Catalog Reseller
24 HOURS A DAY OPEN 7 DAYS A WEEK

Technical Support
(800) 854-6227
M - F: 6am - 6pm PST
Sat: 8am - 1pm PST

ClubMac E-Mail Addresses
ClubMac Sales.....cmsales@club-mac.com
Customer Service...custsvr@club-mac.com
Technical Support...techsup@club-mac.com
7 Hammond, Irvine CA 92618

ORDER 24 HOURS A DAY • 7 DAYS A WEEK
1-800-258-2622
Order On-Line @ http://www.club-mac.com

When placing an order please mention source code
680397

ClubMac®

MAC BARGAIN$®

DI$COUNT PRICE$ ON QUALITY HARDWARE, $OFTWARE & ACCE$$ORIE$

Buy with Confidence Online from MAC BARGAIN$.

- NEW! To place an order, e-mail to mac.bargains@mzi.com
- NEW! For detailed product information, e-mail to mac.bargains.info@mzi.com
- Over 2500 products in stock

As Low As $1349

Model C500

UMAX SuperMac Computers

- Upgradable PowerPC™ 603e processor running at 240, 200, 180 or 160MHz
- 16MB RAM, expandable to 144MB
- Spacious 2.1 or 1.2GB hard drive
- 1MB VRAM and 1 or 3 PCI expansion slots
- External and internal Fast SCSI connector
- For more information, e-mail keyword SUPERMAC

UMAX

#81530	SuperMac C500L/160 16/1.2GBHD 8CD 603e	$1349
#81531	SuperMac C500L/180 16/1.2GBHD 8CD 603e	$1695
#81532	SuperMac C500L/200 16/2.1GBHD 8CD 603e	$1995
#81533	SuperMac C500L/240 16/2.1GBHD 8CD 603e	$2295

Only $89.98

Adobe PageMaker 6.5 Version Upgrade

- Automatic reformatting and document-wide layers
- New text and graphics frames
- Export pages to HTML format for Internet publishing
- For more information, e-mail keyword PAGEMAKER

Adobe #83068

HP LaserJet 6MP Printer

- 8 ppm print speed
- True 600 dpi; 128 levels of gray
- 3MB RAM, up to 35MB with Adobe™ Memory Booster™

Only $949.98

Hewlett-Packard #82666

Software

Adobe

88827	Adobe After Effects 3.0 CD	$648.89
06263	Adobe Dimensions 2.0	$128.89
88207	Adobe Illus 5.0 To 6.0 Upgr CD/3.5"/Mac	$128.89
88205	Adobe Illustrator 5.0 to 6.0 Upgrade CD	$98.89
88206	Adobe Illustrator 6.0 CD & 3.5"	$388.89
87610	Adobe Illustrator 6.0 CrossGrade CD & 3.5"	$128.89
87628	Adobe Illustrator 6.0 CrossGrade CD for Freehand	$98.89
91256	Adobe PageMaker 6.0 CD & 3.5"	$548.89
99605	Adobe PageMaker 6.0 Competitive Upgrade	$188.89
91255	Adobe PageMaker 6.0 Upgrade	$144.49
83932	Adobe PageMill 2.0 Upgrade	$48.89
83060	Adobe PageMill 2.0 w/PageMill Handbook	$88.89
38523	Adobe Persuasion 4.0 Mac & Win	$244.49
81740	Adobe Persuasion 4.0 Upgrade	$118.89
83083	Adobe Photoshop 4.0	$548.89
83084	Adobe Photoshop 4.0 Upgrade	$134.49
04670	Adobe Premiere 4.2 CD	$488.89
03971	Adobe Streamline 3.1	$128.89
92218	Adobe SuperPaint Deluxe 3.5	$68.89
92249	Adobe TextureMaker 1.0 Mac & PowerMac	$128.89
95307	Adobe Type Twister 1.0 for Mac	$29.99

AEC Software

03456	Fast Track Schedule 4.0 PowerMac or Mac	$167.20

Aladdin

05827	StuffIt Deluxe 4.0	$66.11
85605	StuffIt Deluxe 4.0 Upgrade	$32.36
87434	StuffIt Dlx 4.0/Conflict Catcher 3 Bundle	$79.99

Alien Skin

92297	The Black Box 2.0	$79.93

Alsoft

00618	DiskExpress II 2.2	$39.99
04543	Master Juggler 2.0	$39.99

Berkeley Systems

83662	After Dark 4.0 w/$10 Rebate	$27.46
83667	You Don't Know Jack Sports	$27.46

BestWare

04712	MYOB Accounting 7.0	$76.98

Broderbund

86677	Logical Journey Of The Zoombinis	$32.42
97733	MYST	$34.96
88862	Passage to VietNam Mac/Win CD	$33.69

Bungie Software

96284	Marathon	$35.00
88450	Marathon 2 Durandal	$41.12

Caere

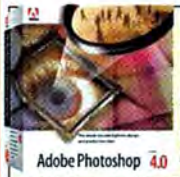
05161	OmniPage Direct 2.0	$57.46
91304	OmniPage Pro 6.0 Upgrade	$116.17

Casady and Greene

91310	Conflict Catcher 3 Competitive Upgrade	$28.65
82126	Conflict Catcher 3/Ram Dblr/ Speed Dblr Bndl	$98.89
95255	Glider Pro	$23.81

Claris

84075	Claris Em@iler 1.1	$12.98
86444	Claris Organizer 2.0	$62.45
18052	ClarisDraw 1.0 v3	$179.69
99734	ClarisImpact 2.0	$78.75
93424	ClarisWorks 4.0	$116.09



Only $134.98

Adobe Photoshop 4.0 Upgr

- Batch-process files with Actions Palette
- Guides and Grid feature for precise control
- Adjustment Layers let you experiment with effects

Adobe #83084

84051	ClarisWorks 4.0 & Apple Internet Connection Kit	$116.09
92638	ClarisWorks 4.0 Comp/Ver Upgrade	$62.38
88830	FileMaker Pro 3.0	$181.02
88829	FileMaker Pro 3.0 Comp/Ver Upgr CD/3.5"	$89.90
04140	MacProject Pro 1.5	$364.98
06525	MacWrite Pro 1.5	$44.85

Connectix

91300	Conflict Catcher 3	$56.17
82126	Conflict Catcher 3/RAM Dblr/Spd Dblr Bnd	$98.89
84048	Connectix RAM Doubler 2	$53.63
90375	Connectix Speed Doubler for Mac V1.1	$53.63

Corel

91628	Corel GALLERY 2 (Mac)	$33.75
31722	Corel Pro Photo Vol 13-Txtrs, Backgds & Objs	$124.88
92234	Corel Stock Photo Library 1 $869.98	
91276	Corel Stock Photo Library 2	$869.98
84053	CorelDraw 6	$391.97
84052	CorelDraw 6 Ver/Comp Upgrade	$136.12
03972	WordPerfect 3.5 Full Version CD-ROM	$146.07
83933	WordPerfect 3.5.1 C/V Upgrade CD-ROM	$78.75

Dantz

02586	Dantz Retrospect 3.0	$136.13
04194	Dantz Retrospect w/10 User Remote	$247.11

QuarkXPress 3.32/ QuarkImmedia Bundle

- The layout software design pros prefer
- Plus, interactive multimedia capabilities

Quark #82536

Dataviz

96907	MacLink Plus/PC Connect 8.0	$116.08
96908	MacLink Plus/Translators Pro 8.0	$87.11

Datawatch

02077	Virex 5.6 for Mac	$61.18
89501	Virex 5.6 Version Upgrade	$22.46

Davidson & Associates

84730	Warcraft 2: Tides of Darkness CD	$41.13

Epson

82860	Epson PostScript Level2 SW for Stylus Pro	$190.90
83649	Epson PostScript Level2 SW for Stylus XL	$238.43

Equilibrium

98360	DeBabelizer Toolbox 1.6	$233.40

Extensis

91343	QXTools	$87.35

Farallon

96801	Farallon Timbuktu Pro for Mac 2.0 2-Pack	$168.51
96800	Farallon Timbuktu Pro for Macintosh 2.0	$127.38

Fractal

37624	Fractal Design Dabbler 2.0 CD	$44.49
83051	Fractal Design Detailer	$279.99
83073	Fractal Design Expressions	$279.99
00665	Fractal Design Painter 4 for Mac	$344.49
93967	Fractal Design Painter 4 Upgrade for Mac	$124.49
91289	Fractal Design Poser	$89.99

FWB

06271	FWB CD-ROM Toolkit 2.0 CDT	$44.94
00555	Hard Disk Toolkit 2.0	$112.36
05476	Hard Disk Toolkit Personal Ed 2.0	$49.99

GDT

82867	GDT Softworks StyleScript 3.0	$88.56
00642	PowerPrint 3.0	$88.56
86168	PowerPrint GX	$117.35

GraphSoft

97781	MiniCad 6.0	$519.42

GT Interactive

92035	Doom II for Mac	$28.71
87501	The Ultimate Doom CD	$28.69

Insignia

04768	SoftPC 3.1 Professional	$92.37
98471	SoftWindows 3.0 for PowerMac 3.5" Disk	$292.06
98475	SoftWindows 3.0 for PowerMac CD	$292.06
89308	SoftWindows 3.0 for PowerMac CD Upgr	$67.30
87440	SoftWindows 95 for PowerMac CD	$325.90
87442	SoftWindows 95 for PowerMac CD Upgr	$141.01
91088	Softwindows for Performa	$114.93

Intuit

93222	Quickbooks 4.0 for Mac	$112.39
89653	Quickbooks Pro 4.0 for Mac	$182.34
04230	Quicken 7 for Mac	$39
89685	Quicken Deluxe 7 for Mac	$57

Jian

04257	BizPlanBuilder 5.0 Mac w/Video	$76

Jump Development

92896	Optimem RAM Charger 2.0	$36

Leister Productions

05984	Reunion 4.0 The Family Tree Software	$89

Macromedia

88730	Director 5.0 w/Shockwave	$848
92266	Director Multimedia Studio 2.0	$894
86007	Director Multimedia Studio 2.0 Upgrade	$457
88748	Extreme 3D Competitive Upgrade	$198
04537	Fontographer 4.1	$328
82501	FreeHand 7.0	$368
92290	FreeHand Graphic Studio 2.0	$448
86005	SoundEdit 16 2.0 PI Deck II 2.5	$398
84242	FreeHand 7.0 Version Upgrade	$148

MetaTools

81843	Bryce 2.0	$158
84479	Kai's Power Goo	$48
06668	Kai's Power Tools 3.0	$124
91258	Vector Effects 1.0	$118

Microsoft

37803	MS Cinemania '97 for Mac CD	$29
95750	MS Encarta 1996 Mac CD	$69
00227	MS Excel 5.0 for Mac	$294
04545	MS Excel 5.0 for Mac Version Upgrade	$118
04293	MS Flight Simulator 4.0 Mac	$44
99696	MS FoxPro 2.6 for Mac	$88
96024	MS Office 4.2.1 with Essential Tools Comp/Version Upgrade CD	$274
83315	MS Office 4.2.1 with Essential Tools	$454
06300	MS PowerPoint 4.0 Version Upgrade	$118
04161	MS Project 4.0 for Mac	$424
04898	MS Word 6.0.1 for Mac	$294
00596	MS Word 6.0.1 Version Upgrade	$118
05750	MS Works 4.0 for Mac	$48
35483	Publisher 97 Upgrade/Full Version	$65

Nisus

83691	Writer 5.0 Comp Upgrade	$143
81652	Writer 5.0 Upgrade	$91

Now Software

86085	Now Up to Date/Now Contact 3.6	$63
04191	Now Utilities 6.5	$51
86442	Now Utilities 6.5 Upgrade	$23

Only $98.98

NEW! Upgrade to System 7.6 w/Apple Internet Kit

- Integrates latest versions of hot technologies such as QuickTime and QuickDraw!
- Now supports Windows 95 disks!
- Faster printing, improved stability & revise virtual memory for better performance
- For more information, e-mail keyword APPLEOS

Apple #80438

ParSoft

88389	A-10 Attack CD-ROM	$44

Qualcomm

91072	Eudora Pro Mac	$52

Quark

82500	QuarkImmedia	$657
95320	QuarkXPress 3.32 Native PowerPC	$635

SoftKey

87626	Amer Her Dlx Talking Dictionary Mac/Win	$28
03631	Calendar Creator 2.0 Mac	$36
00641	WriteNow 4.0 with Correct Grammar	$39

Symantec

06231	ACT! 2.5 for Mac	$149
06997	Norton DiskDoubler Pro 1.1	$68
94186	Norton DiskLock 4.0 Upgrade	$48
04890	Norton Utilities 3.2	$94
93976	Norton Utilities 3.2 Upgrade	$38
00116	SAM 4.5 Full/Upgrade	$68
04776	Suitcase 3.0 Full/Upgrade	$68

Call MAC BARGAIN$ before you buy!

1-800-407-7404

Add applicable sales tax (only in OH, WA). All shipments refer to "in stock" items, barring system failure, etc. Not responsible for typographical errors. Credit cards are not charged until the order is shipped. Most products ship the same day for overnight delivery. Overnight delivery is only $7 for the first 7 pounds and $1 for each additional pound. Call for international shipping rates. Packaging and handling $4 per order for delivery in the USA. Returns subject to a restocking fee. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand.

For the Best Deals Around!

1-800-407-7404

T/Maker

7188 ClickArt Handwritten Fonts $31.19
1303 ClickArt Incredible Image Pak 25000 ..... $33.60

Monitors

Hitachi

7013 Rasterops SuperScan MC 17s $738.24
1077 Rasterops SuperScan MC 21 ..... $1711.00

NEC

7642 NEC Multisync C400 14" Monitor $297.49
5793 NEC Multisync M700 Clr Monitor 17" $779.98
7645 NEC Multisync XV15 Plus Monitor $438.28
9719 NEC XE21 21" Color Monitor $1,699

Sony

3676 Sony Multiscan 15sf II Monitor $449.98
5675 Sony Multiscan 15sx Monitor $388.89
3909 Sony Multiscan 17se II Monitor $990.20
5677 Sony Multiscan 17sf II Monitor $749.98
5961 Universal Mac Video Adpt I-178 ..... $7.41

ViewSonic

3429 ViewSonic 17GA Monitor/Adapter Bundle $698.98
3431 ViewSonic 17GS Monitor w/Adapter Bndl $635.14
7296 ViewSonic GT770 17" Color Monitors $692.56
3486 ViewSonic P810 Monitor/Adapter Bndl $1541.11
9932 ViewSonic PT770 17" Color Monitor $739.44

Video Cards

ATI

0136 ATI Exclaim GA 4MB PCI $325.84

Connectix

5317 Connectix Color QuickCam for Mac $223.46
2884 Connectix QuickCam for Macintosh $94.84

Radius

0907 Radius Thunder 30/1600 PCI Video Card $681.57
4143 Radius Thunder 3D Video Card $2999.00

Accelerators

DVC

1361 DVC Equalizer Pwr Mac 6100 7100 & 8100 ..... $65.33

FWB

0124 FWB PCI SCSI JackHammer $344.53
4121 FWB SCSI JackHammer $434.64

Modems

Boca

2765 FastMac V.34 33.6 FaxModem $119.89

Global Village

3312 PowerPort Platinum Pro V.34/ 10-T PC Card $494.98
3313 PowerPort Platinum V.34 PC Card $329.58
2575 TelePort Internet Edition 33.6 Fax/Modem $165.34
5641 TelePort Platinum Comm Slot 28.8 V.34 ..... $198.25

Megahertz

5528 CruiseCard Cellular Ready XJack 288 Mac $239.99

Only $169.98

Global Village Teleport 33.6 Data/FAX Modem

- 33.6 Kbps – the fastest standard today!
- Call Sensing – take fax and voice calls on the same line as your answering machine
- GlobalFax software for fast, easy faxing
- Complete address book

Global Village #82575

Supra

3465 Supra FAXModem V.34 33.6 External Mac $183.07
3856 SupraExpress 336e External $122.47

US Robotics

3701 Mac & Fax Sportster 14.4 Fax/Data Modems $55.53
2953 Mac & Fax Sportster 28.8 V.34 ..... $164.13
7406 Mac Sportster Voice v.34 28.8 ..... $188.07

Storage

LaCie

6295 LaCie 2160MB IBM External HD $443.07
2193 LaCie Fireball TM 1.280GD Int SCSI HD $300.45
9878 LaCie IQ 2160MB Internal HD $363.52
9876 LaCie Q 4300MB Ext HD $999.89

MicroTech

86174 MicroTech 200MB SyQuest External Drive $364.89
89609 MicroTech Polaris 500MB Ext HD $238.52
89619 Road Runner 500MB PowerBook Drive $511.36

ProMax

86199 ProMax Iomega Jaz Cartridge 1GB $108.52

VST

87426 VST Expan Bay 230MB MO Dr. for PB 190/5300 ..... $381.31

Only $399.98

Sony Multiscan 15sx 15" Monitor (13.9" viewable image size)

- .25mm dot pitch
- Max resolution of 1024x768 at 75Hz

Sony #06675

Media

Fuji

94094 Fuji 3.5" MF2HD Mac Formatted 10-Pk 1.4MB $5.20
91952 Fuji CDR-74 ..... $7.80
05717 Fuji DG90M 4mm Data Grade Tape 1.95GB $6.51

Iomega

97291 Bernoulli MultiDisk 150MB Single Cart $94.49
91160 Zip Media Mac100 3-Pack $49.99
91161 Zip Media Mac100 10-Pack $149.99
91159 Zip Media Mac100 Single $17.64

Kyocera

86251 Kyocera CDR-74 ..... $7.79

Performantz

83437 Performantz 10x Ext CD Drive $199.88
83400 Performantz 4x CD Drive $129.29

Philips

89805 Philips CD-Recordable 74 Min. Disk $7.80

Sony

01140 Sony 3.5" 230MB M.O. 512b/s $18.32
14368 Sony CD-R 650MB 74 Min. Disk $6.54
86839 Sony SRS-300D Speakers w/sub $159.41
32804 Sony SRS-PC21 PC Speakers $22.20

SyQuest

00278 SyQuest 200MB 5.25" Removable Cartridge $164.49
97992 SyQuest 270MB 3.5" Removable Cartridge $51.19
02183 SyQuest 44MB Cart Unfo $41.19
00183 SyQuest Cart 88MB $43.39
24910 SyQuest EZ135MB 3.5" Cartridge 10-Pk $198.89
24909 SyQuest EZ135MB 3.5" Cartridge 5-Pk $109.99

Verbatim

91979 Verbatim 230MB 3.5" M.O. Mac Formatted $20.82
01169 Verbatim 230MB 3.5" R/W 1024b/s $18.25
21922 Verbatim CD-R 74 Min. 4X $7.81

Scanners

AGFA

02135 AGFA Arcus II Scanner, Mac Version $1856.49
84141 AGFA SnapScan $327.08
89851 AGFA StudioScan IIsi Color Scanner $649.98
06685 AGFA StudioStar $792.79

Epson

91939 Epson ES-1000C Flatbed Scanner $575.51
82673 Epson Expression 636 Professional Scanner $1778.99
82671 Epson Expression 636 Executive Scanner $858.88
06919 Epson Transparency Unit - Enhanced $617.98

UMAX

82874 UMAX Gemini D-16 UTA w/Photoshop, KPTse $1428.20
84149 UMAX Powerlook II w/TMA & Phtshp LE $1811.46
21401 UMAX Transparency Adapter for Vista $190.90
83501 UMAX Vista S-6E w/Adobe Photodeluxe $292.13
83505 UMAX Vista-S12 w/Adobe Photoshop LE $620.45

Umax

83503 Umax Vista-S6E w/Full Photoshop $573.03

Visioneer

86783 PaperPort Vx SCSI Adapter for Mac $57.42
88164 Visioneer PaperPort Vx For Macintosh $280.79

Input

Adesso

91854 Adessc Soft Touch Keyboard $44.09
90766 Tru-Form Extended Keyboard $73.18
91099 Tru-Form Extended Keyboard w/Pointer $82.05

Apple

93374 Design Keyboard $84.49
94461 Extended Keyboard II $154.49

Calcomp

91862 Drawing Slate II 12x12" w/Pressure Pen $213.31
91869 Drawing Slate II 12x18 w/Pressure Pen $272.61
91864 Drawing Slate II 6x9 w/Pressure Pen $212.05

Gravis

89394 Advanced Gravis FireBird for Mac $63.07
05998 Gravis MouseStick II $40.39

Kensington

89379 Kensington Mouse 1.0 ..... $54.31
93628 Kensington Thinking Mouse ADB $63.17
87483 Turbomouse 5.0 ..... $100.94

Thrustmaster

95201 Thrustmaster Flight Control System $97.16
95200 Thrustmaster Weapons Control System $56.70

Wacom

90644 ArtPad II (ADB) w/Dabbler Bundle $147.63
90643 ArtPad II (ADB) w/Erasing UltraPen $133.77
90646 Artz II 12x12 (Serial) w/Erasing UltraPen $417.65
90645 Artz II 6x8 (ADB) w/Erasing UltraPen $301.72

Printers

Epson Stylus Color 500 Inkjet Printer

- 720 dpi color
- Prints 4 ppm black text

Only $279.98

- Keyword EPSON500

Epson #83409

Epson

90488 Epson Multi-Protocol Ethernet Interface $385.82
83409 Epson Stylus Color 500 InkJet Printer $278.31
89901 Epson Stylus Color Pro InkJet Printer $370.79
87980 Epson Stylus Color Pro XL InkJet Printer $1780.22

Hewlett-Packard

89150 HP DeskJet 1600CM Color Printer $2005.03
36156 HP DeskJet 870Cse InkJet Printer $499.99
88902 HP DeskWriter 600 Printer $202.16
86345 HP DeskWriter 680C InkJet Printer $289.55
88911 HP LaserJet 5si $2799.00
82666 HP LaserJet 6MP Printer $930.02
13692 HP Tri-Chamber ColorPrint Cartridge $23.78

Surge/Back-up

American Power Conversion

19035 APC Back-UPS 1250 ..... $442.00
07150 APC Back-UPS 280 ..... $99.88
99364 APC Back-UPS 400 ..... $141.11
11651 APC Back-UPS 600 ..... $238.52
26812 APC Back-UPS 650 PnP $289.58
94395 APC Personal Surge Arrest 7 Outlet w/Ph $19.97
94393 APC Prof Surge Arrest 7 Outlet w/Phone $32.42
94917 Powerchute for Mac $59.96
94396 APC Personal Surge Arrest – 7 Outlet $14.97

Battery Technology

87494 BTI 2-Slot Batt Chgr f/Int 5300/190 Batt $78.71
88751 BTI Auto Pwr Adpt f/PB 5300/190 Series $53.60
06022 BTI PB 140-180c 3.2Ah Battery $48.65
06641 BTI PB 140-180c Power Charger $78.71
85820 Internal 5300/190 Battery $78.71

Mobile Accessories

Curtis

85810 Curtis Case – Leather $108.52
85809 Curtis Case – Vinyl $85.80

DoubleCase

87219 zipPack Hard Case w/Iomega Zip Drive Bndl $227.79
88293 zipPack Hardcase $30.31

Targus

06023 Targus Notepac Case Black $28.98
07454 Targus Universal PowerBook Case $59.32

Great Prices on the Complete Line of Apple Computers.

Only $59.98*

Quicken Deluxe/ MacInTax Deluxe Bundle

Intuit #40871

*Price after Mail-in $30 Rebate. Regular Low Mac Bargains price: $89.98

Only $499.95

Iomega Zip and Jaz Drives

Only $149.95*

- Faster than most hard drives
- 100MB of space on each Zip Cartridge
- Provides 1GB of space on each Jaz Cartridge
- For more information, e-mail keywords ZIPSCSI or JAZSCSI

Iomega

#91825 Iomega Zip 100 SCSI $149.95*
#25659 Iomega 1GB Jaz Drive $499.95
*After $50 Mfr. Mail-in Rebate. Low Mac Bargains Price $199.95

WHY PAY MORE when you can get a better price from MAC BARGAIN$?

DI$COUNT PRICE$ ON QUALITY HARDWARE, $OFTWARE & ACCE$$ORIE$

CIRCLE **108** ON READER SERVICE CARD

IF YOU DON'T SEE IT... CALL!

MAC BARGAIN$®

FAX: 1-206-430-3520
E-Mail Address: mac.bargains@mzi.com
707 South Grady Way, Renton, WA 98055-3233

Our Knowledgeable Sales Advisors help make buying easy!

YOUR SOURCE CODE **BU703**

©1997 MZI, Inc. Renton, WA. All product names throughout this ad are trademarks ™ of their respective holders. All rights reserved.

Call 800-289-5385 • 24 Hrs x 7 Days a Wk

APS TECHNOLOGIES®:
HIGH-TECH 2 GIG FOR ONLY

Give your Mac the extra storage space it needs by installing the new APS Q 2100. At only 17¢ per MB internal, the APS Q 2100 is the value leader in 2GB SCSI hard disk drives. Its performance is a great match with any application, and it is backed by a 3-year warranty.

APS Q 2100

$329.95 Internal configuration

Quantum

- MR heads, PRML and Ultra SCSI Technology
- Reliable 4500 rpm mechanism
- Works on SCSI-2 and Ultra SCSI buses

APS is now bundling Nisus® Writer 4.1 at no extra charge with all of its formatted hard drives and M•Power systems.

JUST THE RIGHT CAPACITY!
APS Q 3200

NEW LOWER PRICE!

$399.95 Internal configuration

Quantum

- 3GB for the price of 2GB
- Works on SCSI-2 and Ultra SCSI buses
- 4500 rpm mechanism

2GB is too little, 4GB is too much. The new APS Q 3200 is priced lower than some 2GB SCSI drives, yet it delivers a perfect 3000MB of reliable storage. This drive uses MR heads and an advanced PRML read channel to fit its 3GB into a 3.5" low profile Ultra SCSI drive.

1.2GB OF STORAGE FOR ONLY
APS Q 1280

NEW LOWER PRICE!

$249.95 Internal configuration

- High areal density and PRML read channel
- Works on SCSI-2 and Ultra SCSI buses

Quantum

Finally there's a hard drive that combines the reliability of a 4500 rpm mech. with high performance. The APS Q 1280 uses MR heads, PRML and Ultra SCSI technology for improved performance. It is backed by a 3-year warranty.

APS M•Power 603e160™

- 160MHz Motorola® PowerPC 603e processor
- 1.2GB hard drive
- 10X CD-ROM
- 16MB of RAM

Mac OS

$1399.95*

APS M•Power 603e200™

- 200MHz Motorola® PowerPC 603e processor
- 1.2GB hard drive
- 10X CD-ROM
- 16MB of RAM & 256K L2 Cache

$1599.95*

*Monitors are not included.

603e160 & 603e200

- 2-5.25" Half Height Internal Bays
- 2-3.5" Low Profile Internal Bays
- 3-PCI Expansion Slots

INTERFACES
- Printer Port
- Modem Port
- ADB Port
- SVGA Monitor Port
- SCSI Port
- 2-PS/2 Ports
- IDE Bus
- 16-bit Sound Output Port
- Supports 14", 15", 17" & 21" Monitors
- Rear Headphone Jack
- Microphone Jack

INCLUDES:
- 10X CD-ROM
- 16MB RAM
- 1.2GB HD
- Floppy Drive
- 1MB VRAM
- Desktop Case
- ADB Keyboard & Mouse
- One-Year Limited Warranty

APS DESKTOP DRIVES

Model	Capacity/Awards	Internal	SR2000
APS Q 1280 Quantum Fireball™	1222MB	$249.95	$299.95
APS Q 2100 Quantum Fireball™	2000MB	329.95	379.95
APS Q 3200 Quantum Fireball™	3000MB	399.95	479.95

- 30-day money-back guarantee on all APS brand drives and accessories. Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to 20% restocking fee.
- International customers must pay for all shipping charges.
- Listed capacities are formatted.
- Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.
- Prices and specifications are subject to change without notice.
- You need to install system software appropriate to your machine before using our hard drives.
- Not responsible for typographical errors.
- © 1996, Alliance Peripheral Systems, Inc. All Rights Reserved.

APS HIGH-PERFORMANCE DRIVES

Model	Capacity	Internal	SR2000	APS Pro
APS WD 4300 Western Digital Enterprise	4200MB	1099.95	1099.95	1199.95
Ultra/Wide available for an additional $100.00				
APS Q 4300 Quantum Atlas II	4341MB 7200 rpm	899.95	949.95	999.95
Ultra/Wide available for an additional $100.00				
APS MS 4300 Micropolis 4345	4240MB 7200 rpm	999.95	1049.95	1099.95
Ultra/Wide available for an additional $100.00				

APS HIGH-PERFORMANCE DRIVES

Model	Capacity	Internal	SR2000	APS Pro
APS Q 9000 Quantum Atlas II	8682MB 7200 rpm	1499.95	1549.95	1599.95
Ultra/Wide available for an additional $100.00				
APS MS 9000 Micropolis 3391	8669MB 7200 rpm	1899.95	1949.95	1999.95
Fast/Wide available for an additional $100.00				

CALL FOR YOUR **FREE** Winter 1996 **CATALOG**

PCI Ultra SCSI Host Adapter for Mac

Adaptec PowerDomain™ 2940UW

- Get the most from your Ultra SCSI capable drives
- Installs in seconds, transparent operation
- Combines Fast, Wide, and Ultra SCSI on a Mac PCI bus
- Supports transfer rates as high as 40MB/sec. on SCSI-2 bus

106428 $299.95

MacWorld Magazine World Class Award | MacUser Editor's Choice Award | Consultants Choice Award

MW★★★★ ◆◆◆◆ MacWEEK

MW EDITORS' CHOICE | MW SERVICE HERO

THE NAME TO REMEMBER IN MAC COMPATIBLE PRODUCTS™

THE LOWEST PRICES & BEST SERVICE IN MAC™ OS COMPATIBLE SYSTEMS!

APS M•POWER 604e200™

- ✔ Blazing fast 200MHz PowerPC 604e processor
- ✔ 3.2GB hard drive
- ✔ 10X CD-ROM
- ✔ 32MB of RAM

Mac OS

604e200

- 3-5.25" Half Height Internal Bays
- 5-3.5" Low Profile Internal Bays
- 5-PCI Expansion Slots

INTERFACES

- Printer Port
- Modem Port
- ADB Port
- IDE Bus
- SCSI Port
- Supports 14", 15", 17" & 21" Monitors
- SVGA Monitor Port
- 2-PS/2 Ports
- 16-bit Sound Output Port
- Rear Headphone Jack
- Microphone Jack

INCLUDES:

- 10X CD-ROM
- 32MB RAM
- 3.2GB HD
- Floppy Drive
- 2MB VRAM
- 512K L2 Cache
- ADB Keyboard & Mouse
- One-Year Limited Warranty
- Mini-Tower Case

$2599* *Monitors are not included.

1GB REMOVABLE! APS Jaz

$599.95 External configuration

- ✔ Hard drive performance
- ✔ Huge 1GB capacity on removable media

APS Jaz drive with 1 cartridge $499.95 **Includes THREE cartridges**

The immense 1GB capacity of its removable media has changed the removable storage market forever! The APS Jaz's performance rivals most fixed-platter hard disk drives; and who would you rather buy it from than APS?

STEAL THIS 12X CD-ROM DRIVE! APS CD12

$179.95 External configuration Slimline case*

- ✔ High performance 12X CD-ROM drive
- ✔ Great for home and office CD-ROM use

Smooth full-screen video output, the 12X performance of the APS CD12 supercharges any CD-ROM application! Its speed enhances multimedia AND business CDs. At this incredibly low price, you can hardly afford to live with that old 2X or 4X CD ROM drive.

*Does not include EaTerm®

BEST VALUE IN MO!

$299.95 External configuration SR 1000 enclosure as pictured

APS 230 MO

- ✔ Up to 217MB of reliable optical storage
- ✔ 256KB cache buffer
- ✔ Choice of enclosure

APS 230 MO in SR 2000 enclosure $379.95

Our best value ever in removable media devices, the new APS 230 MO is the perfect solution for your growing data storage needs. It's compatible with 230MB and 128MB MO cartridges and delivers excellent MO performance.

Introducing IC²E, the industry's hottest (and coolest) enclosure cooling technology.

A radical new concept in drive mechanism climate control, APS' exclusive IC²E system uses digital technology to sense heat build-up around the drive mechanism. Applying that information, IC²E controls a high-performance, super-efficient ball bearing fan subsystem to maintain mechanism temperature comfortably within the manufacturer's specified operating range. Should the mechanism exceed the specified operating temperature range, the intelligent IC²E circuitry provides a clear indication that a thermal problem exists. This approach drastically reduces cooling noise at low ambient temperatures, and improves both fan and drive mechanism life.

APS QIC & DAT BACKUP SYSTEMS

Model	Capacity/Awards	Internal	SR2000
APS HyperQIC™ Travan 4 Conner QIC 3095	8GB	N/A	$399.95
APS HyperDAT® DDS-2 DC	8GB	849.95	899.95
APS HyperDAT® Pro DDS-2 DC	8GB	949.95	999.95
APS HyperDAT® III DDS-3 DC	8GB	1249.95	1299.95

APS MO DRIVES

Model	Capacity/Features	SR1000	SR2000
APS 230 MO	Up to 217MB	$299.95	$379.95
APS 640 MO	640MB		599.95
APS 2.6GB MO	4MB cache		1699.95

APS REMOVABLE DRIVES

Model	Capacity/Awards	SR 1000	SR 2000
M540 (with 1 cartridge)	500MB	N/A	$299.95
APS M540 (with 1 cartridge)		N/A	499.95
APS Jaz (with a cartridge)	1GB	$499.95	499.95
APS Jaz (with 3 cartridges)	1GB	599.95	599.95

Xclaim 3D Graphics Accelerator Card

- Resolution up to 1280 x 1024
- Supports QuickDraw 3D RAVE
- Up to 6x faster than a Power Mac 9500 using QuickDraw 3D
- Real-time rendering – no waiting!

106634	4MB	NEW FROM APS	$329.95
106635	8MB		449.95

APS CD-ROM DRIVES

Model		External
APS CD12	12X CD-ROM in Slimline case	$179.95
APS CD12 Pro	12X CD-ROM in SR 2000 case	279.95
APS CD Changer	8X 4 Disc CD changer	299.95
APS CD-R Plus	2X record/6X read CD-R	699.95
APS CD-R Pro	4X4 performance CD-R in Pro Case	999.95
Retrospect	CD-R drop in driver (with drive purchase)	49.95

Motorola, and Motorola logo are registered trademarks of Motorola, Inc. PowerPC is a trademark of International Business Machines Corp. and is used by Motorola, Inc. under license from International Business Machines Corp. Microsoft is a trademark of Microsoft Corporation. Windows NT is a registered trademark of Microsoft Corporation. AIX is a registered trademark of International Business Machines Corp. Mac OS is a registered trademark of Apple Computer, Inc. M•Power, APS and APS Technologies are registered trademarks of Alliance Peripheral Systems, Inc. Other brand or product names are registered trademarks or trademarks of their respective holders.
Prices and specifications are subject to change without notice.
Computer case may not exactly match images shown.

VISA MasterCard DISCOVER AMERICAN EXPRESS Card TeleCheck

Visa, MasterCard, Discover, American Express: No Surcharge
Same day shipping for personal checks (Restrictions apply)

Call 800-289-5385

Visit our Web Page at http://www.apstech.com/
International Sales: (816) 920-4109

APS Technologies

CIRCLE 148 ON READER SERVICE CARD

Call 800-289-5385 • 24 Hrs x 7 Days a Wk

SIZZLIN' HOT PRICES
WITH A NORTHWEST FLAVOR FROM "THE LLB CO."

1.800.848.8961

Fax: 206.746.5168

- **Founded in 1990, The LLB Co. Inc.** is acknowledged by our cutomers and competition alike to be a leading reseller of memory upgrade products in the U.S.A.
- **Most competitive pricing:** Our buyers keep abreast of developing trends, buy at the lowest possible price and pass the savings to our customers. You may shop the competition, but you will buy from The LLB company.
- **Experienced sales staff:** Our sales associates who also provide customer service are Mac enthusiasts who know what you need from a unique but practical point of view.
- **Warranty & reliability:** LLB sells only 100% tested brand name, brand-new products. All memory products carry life-time warranty & replacement is hassle-free.
- **Product availability:** LLB carries products in inventory that are advertised for sale. All orders are processed and products delivered the next day.
- **PO's are accepted upon approval.**
- **The world is our market** - we export to most countries.

ACCESSORIES

PBDUO SERIES

PB1504-Powerbook Duo Auto Adapter	$69
PB1513-Slimpack Battery for DUO	253
PB1515 Mini/A/C Adapter for DUO	50

PB100 SERIES

PB1503 Internal Battery Pack for PB 140-180c	$59
PB1511-Battery PB100	49
PB1512-Slimpk Ext. Battery PB100-180c	145
VSTC1001-VST Thinpack Complete	115

PB5300 Series

VSTBAT5000-VST PB190/5300 Battery NIMH	$163
VSTBAT5300-VST PB5300 Bat/Chrgr/AC Adptr	329
PB1522-Apple AC Adapter	59
PB1519-NIMH Internal Battery PB5300	189
PB1520-Supercharger Batt/Charger PB5300	95
PB15210 Supercharger Batt/Charger PB5300	69
PB1521 Mini A/C Adapter-PB5300	69
PB121 Mini A/C Adapter-PB5300	69

PB500 SERIES

Newer NUPOWR 117 MHz 0MB	$370
Newer NUPOWR 117 MHz 8MB Intl	560
Newer NUPOWR 0M w/19.2 Modem	510
Newer NUPOWR 8M w/19.2 Modem	690
Newer NUPOWR 167 MHz 0MB	653
Newer NUPOWR 167 MHz 8MB	899
Newer NUPOWR 167 MHz 8MB w/modem	1040
PB1507-PB500/BB Auto Adapter	65
PB1523 Apple A/C Auto Adapter	119
APLM2995LL/C-Apl PCMCIA Exp.	215
APLM3081LL/A-Apl PB500 Power PC Upgd.	1229

POWERBOOK MEMORY!

PB5300

8MB	$79
16MB/32MB	157/283
48MB	506

PB 2300

4MB	$80
8MB	115
16MB	186
20MB	250
32MB	360
36MB	365
48MB	520

PB500

4MB/8MB	$74/86
16MB/32MB	158/288

PB-DUO

DUO 4MB	$75
DUO 8MB	89
DUO 12MB	135
DUO 20MB	220
DUO 32MB	363
DUO 36MB	370

PB 190

4MB/8MB	$70/105
12MB/16MB	137/191
32MB 7ONS	349

PB 150

4MB/8MB	$55/90
12MB/20MB	218/280
28MB	390

DRIVES +

QUANTUM

IBM 2.1GB EXTERNAL DRIVE	$599
IBM 2.1GB INTERNAL DRIVE	389
ATLAS 4.3GB EXTERNAL DRIVE	970
ATLAS 4.3 INTERNAL DRIVE	999

APPLE

EXTERNAL 4GB DRIVE	$1075
APPLE CD600 EXT 600KB 4X SCSI2	269

IOMEGA

ZIP 100 EXTERNAL DRIVE	$199
ZIP 100MB CARTRIDGE SINGLE	19
ZIP 100MB CARTRIDGE 3 PACK	49.50
ZIP 100MB CARTRIDGE 10 PACK	139
JAZ 1GB EXT. SCSI DRIVE	499
JAZ 1GB CARTRIDGE SINGLE	123
JAZ 1GB CARTRIDGE 5 PACK	479

NEC

NEC 4V 4X 200MS INT CDROM	$180
NEC 4XC 7CHANGR CDROM 350MS	369
NEC 6XE CD DRIVE 145MS/900KB	369

PINNACLE MICRO

PINNACLE APEX 4.6GB EXT DRIVE	1589
PINNACEL MICRO RECORDABLE	1295
PMO TAHOE 230MB OPTICAL DR	695
PINNACLE VERTEX 2.6GB M.O	1619

MEDIA

sony

CDR 650MB 74 min.	$8
DDS 4mm 1.3GB Data Cart	7
DDS 4mm 2GB Data Cart	8
DDS 4mm 4GB Data Cart	23
DDS 4mm Cleaning Cartridge	10.90
D8 8mm 2.5/5GB Data Cart	7.50
DAT 4mm 120 min. Tape	9.99
128MB 3.5 MO cartridge	16
128MB 3 pack MO 3.5	44
128MB Mac Format 3 pack	50
230MB 3.5 MO Cartrige	22
230MB 3 Pack MO 3.5	55
230MB Mac Format 3 Pack	52
600MB/521 MO Cartridge	52
650MB/1024 MO Cartridge	59
1.2GB/512 MO Cartridge	59
1.3GB/1024 MO Cartridge	59
2.6GB/1024 MO Cartridge	86
3.5 MO Disck Cleaning Kit	28
5.25 MO Disk Cleaning Kit	44

VERBATIM

Data 4mm DC 195 ft	$6.50
Data 4mm DC 195 ft	7.50
128MB 3.5 MO Cartridge	16
230MB 3.5 MO Cartridge	20
600MB/521 MO Cartridge	51
650MB/1024 MO Cartridge	51
1.2GB 512 B/S MO Cart.	60
1.3GB 1024 B/S MO Cart.	60

PRINTERS & SCANNERS

HEWLETT PACKARD

4MV 16PPM 600 DPI LASER	$2840
6MP 8PPM 600 DPI LASER	955
5L 4PPM 300 DPI LASERJ	515
DESKJET 600 MAC	239
DESKJET 855 CXI 7PPM	509
DESKWRITER 680C MAC	319

APPLE

COLOR LW 12/600	$6465
LASERWRITER 16/600	2249
STYLEWRITER 1200 W/QD	215
CLR STYLEWRITER 2200	399
CLR STYLEWRITER 2500	375

EPSON

STYLUS COLOR INKJET	$499
STYLUS COLOR II PRO	319
ACTION SCANNING SYSTEM	465
STYLUS 1500 INKJET	995
STYLUS COLOR PRO X	1825
1200C PRO MAC SCANNER	1202
1200 MAC SCANNER	1025
LOCAL TALK CARD INTERFACE	145
1200C TRANS. ADAPTER	659
1000C COLOR SCANNER	625

WE CARRY ALL PRINTER SUPPLIES!

VISIONEER

PAPERPORT VX FOR MAC	$295
PAPERPORT VX SCSI ADAPTER	65

POLAROID

PLD 621343/619111 SPRINTSCAN 35 LE/ES	$979/1559
PLD 621659/621035 SPRINTSCAN 35+/45	2015/7529

UMAX

VISTA S-6/S-8 AUTOP DOC	$48
VISTA S-6/S-8 TRANSP. ADPTR	40
GEMINI D16	1599
GEMINI D16 TRANSP. ADPTR	45
MIRAGE ENGINE	5469
POWERLOOK ENGINE	1369
POWERLOOK W/TRANSP. ADPTR	1999
POWERLOOK 2000 ENGINE	3935
POWERLOOK II ENGINE	1525
POWERLOOK II TRANSP. ADPTR	445
VISTA S-12 ENGINE	679
VISTA S-12 TRANSP. ADPTR	405
VISTA S-6 ENGINE	415

NIKON

COOLSCAN II EXT LS/20	$1125
SCANTOUCH AX-1200	1055
COOLPRINT DIG PRINTER	1835
SUPER COOLSCAN LS	2049
SUPERCOOLSCAN SF100 AUTOSLD	529

THE LLB CO.

CIRCLE 23 ON READER SERVICE CARD

COMPUTERS

Scanners

VIDEO CARDS

IMS
TWIN TURBO 128M PCI 2MB V • • • • • • • • $370
TWIN TURBO 128M PCI 4MB V • • • • • • • • 569
TWIN TURBO 128M PCI 8MB V • • • • • • • • 995

TRUE VISION
TV 281733 - TARGA 1000 PCI FOR MAC • • • $2459
TV 281732 - TARGA 2000 PCI FOR MAC • • • 4165
TV281749 - BRAVADO 1000 MAC • • • • • • 879*
*After Manufacturer's Rebate

RADIUS
#0446 - THUNDER IV GX-1300 • • • • • • • • $995
#0485 - THUNDER IV GX-1 152 • • • • • • • • 815
#0513 - THUNDER IV GX-1600 • • • • • • • • 1085
#0528 - THUNDER 30-1600 PCI • • • • • • • • 1085
#0531 - THUNDERCOLOR 30/1152 PCI • • • • 2105
#R0552 - PRECISIONCOLOR 8/1600 • • • • • 1685
#R0553 - PRECISIONCOLOR 24-1600 PCI • • • 545

RASTEROPS
#RO2562 - VIDEO TIME • • • • • • • • • • • • $415
#RO2566 - 24MXTV • • • • • • • • • • • • • • 1689
#RO2618 - PAINTBOARD LI • • • • • • • • • • 759
#RO2678 - HORIZON 24 • • • • • • • • • • • 1655
#RO2685 - LIGHTNING NUBUS • • • • • • • • 745
#RO2722 - PAINTBOARD PRIS • • • • • • • • • 995

ACCESSORIES

FPU
CENTRIS FPU 25 MHz • • • • • • • • • • • • $189
DUO/P600 FPU 33 MHz • • • • • • • • • • • 52
COLOR CLASSIC FPU 25 MHZ • • • • • • • • 49
LCIII FPU 33 MHz • • • • • • • • • • • • • • 49
LC/LCII FPU 16 MHz • • • • • • • • • • • • 49
LC575 FPU 33 MHz • • • • • • • • • • • • • • 240

VRAM
256K VRAM • • • • • • • • • • • • • • • • • $13
512K VRAM • • • • • • • • • • • • • • • • • 20
1MB VRAM PM72/75/8500 • • • • • • • • • 49
2MB VRAM PM9500 • • • • • • • • • • • • • 119

CACHE
256K CACHE CARD • • • • • • • • • • • • • $72
512K CACHE CARD • • • • • • • • • • • • • 282
1MB CACHE CARD • • • • • • • • • • • • • • 329
256K DIMM CACHE • • • • • • • • • • • • • 69
512K DIMM CACHE • • • • • • • • • • • • • 139
1MB DIMM CACHE • • • • • • • • • • • • • • 259

NECESSITIES
CONNECTIX RAM DOUBLER • • • • • • • • • $55
CONNECTIX RAM & SPEED DOUBLER • • • • • 89
KENSINGTON TURBO MOUSE • • • • • • • • 109
MAC101E KEYBOARD • • • • • • • • • • • • 95

MEMORY

DIMMS
128MB 60NS • • $1312
64MB 60NS • • • 480
32MB 60NS • • • 210
16MB 60NS • • • 99
8MB 60NS • • • • 49

72-PIN SIMMS
32MB 60NS • • • $220
16MB 70/60NS • 106/109
8MB 70/60NS • • 49/52
4MB 70/60NS • • 25/26

30-PIN SIMMS
16MB 70NS • • • $150
8MB 70NS • • • • 78
4MB 80/70NS • 33/34
4MB PAL FOR II/IIX 60
2MB 80/70NS • • 26/28

PC SIMMS
9-BIT
30 PIN 4MB 70NS $45
30 PIN 1MB 70NS 15
36-BIT/32 BIT
32MB 70NS/EDO • $250/249
16MB 70NS/EDO • 169/120
8MB 70NS/EDO • 72/58
4MB 70NS/EDO • 49/40

64-PIN SIMMS FOR IIFX
16MB70NS • • • • $179
8MB 70NS • • • • 110
4MB 70NS • • • • 59

ACCELERATORS

=NEWER TECHNOLOGY
N 7MX 180A - MAXPOWER 180 MHz • $830
N 7MX 200A - MAXPOWER 200 MHz • 1015

daystar
#3059 - 40 MHz TURBO 040/CACHE P600 $679
#371107 - TURBO 601 100 MHz IIVX/VI • 1175
#371138- TURBO 601 100 MHz IISI • • • 1175
#371220 - TURBO 601 100 MHz IICI • • • 1175
#371411 - 100 MHz POWERCARD 601 • 959
#3729 - POWERCARD 601 66 MHz • • • 649
#3737 - 100 MHz POWERPRO 601 • • • 1240
#371909 - NPOWER 360+DUAL 180 MHz 604E 1485
#3730 - TURBO 601 66 MHz • • • • • • 489

MODEMS

global village
#137339 Teleport Gold II 14.4 • • • • • • $112
#137390A Teleport Plat Comm Slot 28.8 • 209
#137389 Teleport Plat Internet 28.8 • • • 209
#137379 Powerport Platinum PCCard • • 299
#137380 Powerport PlatPro PCCard • • • 469
#137335 Powerport/PB500 Mercury 19.2 338

supra
#5033FX Supra 33.6 v.34 Fax Modem • • $199
#5033XP Supra 33.6 v.34 Fax Modem • • 149
#50V34E-MC Supra 28800 V.34 S/R • • 175
#5033SS SupraSonic 33.6 v.34 W/Voice 275
#5014XP SupraExpress 144 Plus • • • • 45

US Robotics
#USR 388979 Sportster 14400 Mac Fax • $78
#USR 719100 Sportster 28.8 V.34 Inet Bndl 175
#USR 719119 Sportster 28.8 V.34 Voice • 205
#USR 719113 Sportster V.34 PCCard • • • 215

Megahertz
#MHZ XJA2288 Cruize Card 28.8 • • • • $259
#MHZ XJA3288 Cell CapableCruise 28.8 • 252

Electronic Orders:
E-Mail- 73423.1272
@Compuserve/com
FREE CATALOG: 1.800.848.8967

- PO's are accepted upon approval.
- All major credit cards accepted & charged when order is shipped.
- No surcharge on charge cards.
- Prices subject to change, not responsible for errors.
- We welcome International orders.
- Orders received before 8:00pm EST weekdays shipped same day.
- Open 6am to 7pm M-F 9am to 4pm PST
- Returns subject to a 15% restocking fee.

The LLB Co., Inc.
13228 NE 20th St., Ste. B,
Bellevue, WA 98005

Printers

The LLB Co.

1.800.848.8967

International: 206.746.0229 Web Site: HTTP://llb.com Fax: 206.746.5168

The Mac Zone®

Established 1986

your Macintosh® catalog SuperStore™

Serving Mac users since 1986

TV not included.

New

Only $499.95* #81549

Pippin™ @WORLD

Connect to the Internet and more without a computer!

1. Explore and harness the World Wide Web!
2. E-mail family and friends
3. Learn AND play with interactive multimedia on CDs
4. Create colorful, impressive documents

*With minimum 12-month internet service subscription at $19.95 per month provided by Bandai Digital Entertainment. Pippin @WORLD configuration subject to change. Call for current configuration information.

Only $599.98* #38728

16.0" viewable image size

Panasonic

PM17 Multimedia Monitor

*With purchase of any computer. Low Mac Zone price $679.98

Intuit

MacInTax Deluxe Final 96/Quicken Deluxe 7 Bundle

$30 REBATE!

Mac Zone Price	$89.98
Mfr. Mail-in Rebate	– $30.00
Your Price After Rebate	$59.98

Order #06188

Only $399.98 #36156

Hewlett-Packard

HP DeskJet 870Cse Printer

- 8 ppm black; 4 ppm color
- 27 Macintosh TrueType fonts

UNLIMITED PORTABLE STORAGE

Only $149.98* #91825

Zip™ Drive

iomega

- Unlimited storage on inexpensive 100MB disks
- Includes one 100MB disk!

*After $50 Mfr. Mail-in Rebate. Low Mac Zone Price $199.98. Rebates are limited to 4 per household. Offer expires 3/31/97.

Only $249.98 #80203

12X Speed CD-ROM External Drive

Top speed, top performance!

Only $89.98 #83068

NEW!

Adobe

PageMaker 6.5 Version Upgrade

New breakthrough page layout features!

Only $169.98 #92953

U.S. Robotics

Sportster V.34 33.6 Faxmodem

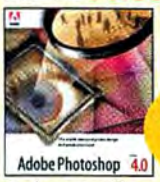
High-speed communications – affordably priced for your home or office!

Only $499.98 #25659

Jaz 1GB External Drive

- 5.53MB/second transfer rate and 17ms access time
- Includes 1GB cartridge!

Adobe Photoshop 4.0 Upgrade



Only $134.98 #83084

Batch-process files with a single click!

New features improve productivity!

AGFA

Only $1895* #02135

AGFA

Arcus II Scanner

The best scanner you can put on your desktop!

*After $100 Mfr. Mail-in Rebate. Low Mac Zone Price $1995.00.

ADD MEMORY

BOOST YOUR MAC's PERFORMANCE!

16MB KIT

Only $99.98 #38362

Only $649.98 #80903

Fortner Research

Visualization Suite

Save over $800 when you purchase this suite! Suggested retail price $1450 when purchased separately. Includes Slicer, Transform and DataPlot.

Only $98.98 #80438

Apple System 7.5 to 7.6 Upgrade

w/FREE Apple Internet Connection Kit 1.1

Before you buy, call The Mac Zone

1-800-436-8000

Fax (206) 430-3500 • International (206) 430-3550

www.maczone.com

CORPORATE SALES	GOVERNMENT SALES	EDUCATION SALES	INTERNATIONAL SALES
1-800-258-0882	1-800-372-9663	1-800-381-9663	1-206-430-3570

A **NASDAQ® COMPANY** Ticker Symbol: **MZON**

Add applicable sales tax (only in OH, WA). All shipments refer to "in stock" items, barring system failure, etc. Not responsible for typographical errors. Credit cards are not charged until the order is shipped. Most products ship the same day for overnight delivery. Overnight delivery is only $3 for the first 5 pounds and $1 for each additional pound. Call for international shipping rates. Returns subject to a restocking fee. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand.

© Copyright 1997 Multiple Zones International Inc. All rights reserved. The Mac Zone is a federally registered trademark.

Full Line of Apple® Macintosh® Computers

Overnight Delivery AIRBORNE

- Over 5000 Products
- Overnight Delivery only $3 (up to 10 lbs)
- The Hottest Bundles!
- Low Prices Everyday

ORDER ANYTIME 24 HOURS A DAY 7 DAYS A WEEK

Authorized Catalog Reseller

Power Computing†

A *complete* family – from entry level to top-of-the-line Mac-compatibles!

PowerBase Series Computers
#83734 603e, 180MHz, 16/1.2GB, 8X CD Low Prof. ...$1495.00
#83737 603e, 180MHz, 16/1.2GB, 8X CD Minitower ..$1595.00
#83733 603e, 200MHz, 16/1.2GB, 8X CD Low Prof $1795.00
#83736 603e, 200MHz, 16/1.2GB, 8X CD Minitower ..$1895.00
#83732 603e, 240MHz, 16/1.2GB, 8X CD Low Prof $2195.00
#83735 603e, 240MHz, 16/1.2GB, 8X CD Minitower ..$2295.00

PowerCenter Series Computers
#91537 604, 132MHz, 16/1GB, CD-ROM Low Prof.....$1895.00
#91535 604, 132MHz, 16/1GB, CD-ROM Low Prof.....$1995.00
#91538 604, 150MHz, 16/1GB, CD-ROM Low Prof.....$2095.00
#91536 604, 150MHz, 16/1GB, CD-ROM Low Prof.....$2195.00

PowerTower Series Computers
#86649 604e, 180MHz, 16/2GB, 8X CD-ROM Tower ..$3295.00
#86648 604e, 200MHz, 16/2GB, 8X CD-ROM Tower ..$3595.00
#83731 604e, 180MHz, 32/2GB, 8X CD, AV, Jaz Drive .$4455.00
#83730 604e, 200MHz, 32/2GB, 8X CD, AV, Jaz Drive .$4755.00

PowerTower Pro Series Computers
#86642 180MHz, 16/2GB, 8X CD-ROM $4195.00
#86643 200MHz, 16/2GB, 8X CD-ROM $4495.00
#86644 225MHz, 16/2GB, 8X CD-ROM $4995.00
#86646 180MHz, 32/2GB, 8X CD-ROM, AV, Jaz Drive..$5414.00
#86647 200MHz, 32/2GB, 8X CD-ROM, AV, Jaz Drive..$5714.00
#86645 225MHz, 32/2GB, 8X CD-ROM, AV, Jaz Drive..$6214.00

PowerComputing

†Prices and configurations subject to change without notice.
Ask your Sales Advisor to confirm your order.

UMAX Computer Corporation

The SuperMac Series†

Featuring the absolute lowest price for a new Mac-compatible!

#81530 C500L 603e, 160Mhz, 16MB/2.1GB, 8X CD-ROM	$1349
#81531 C600L 603e, 180Mhz, 16MB/2.1GB, 8X CD, 28.8 Modem	$1695
#81532 C600L 603e, 200Mhz, 16MB/2.1GB, 8X CD, 28.8 Modem	$1995
#81533 C600L 603e, 240Mhz, 16MB/2.1GB, 8X CD, 28.8 Modem	$2295
#90937 J700L 150Mhz, 16MB/2.1GB, 6.7X CD-ROM Desktop	$2795
#81534 J700L/180Mhz, 24/2.1GB, 6.7X CD-ROM Desktop	$3095
#90936 S900L 180Mhz, 32MB/2.1GB, 8X CD-ROM, IMS	$3595
#90935 S900L 200Mhz, 32MB/2.1GB, 8X CD-ROM, IMS	$3795
#81529 S900L 225MHz, 32MB/2.1GB, 8X CD-ROM, IMS	$4295
#90934 S900L 180DP, 32MB/2.1GB, 8X CD-ROM, IMS	$4595

†Prices and configurations subject to change without notice.
Ask your Sales Advisor to confirm your order.

Monitor sold separately.

Monitor sold separately.

MOTOROLA

Motorola StarMax Series

Stable, reliable performance from the creators of the PowerPC™ chip

#81521 3000 603e, 160MHz, 16/1.2GB, 8xCD, 28.8, Desktop	$1495
#81522 3000 603e, 160MHz, 32/2.5GB, 8xCD, 28.8, Minitower	$1795
#81523 3000 603e, 200MHz, 16/1.2GB, 8xCD, 28.8, Desktop	$1995
#81524 3000 603e, 200MHz, 32/2.5GB, 8xCD, 28.8, Minitower	$2195
#81525 4000 603e, 160MHz, 16/1.2GB, 8xCD, 28.8, Desktop	$2295
#81526 4000 603e, 160MHz, 32/2.5GB, 8xCD, 28.8, Minitower	$2895
#81527 4000 603e, 200MHz, 16/1.2GB, 8xCD, 28.8, Desktop	$2995
#81528 4000 603e, 200MHz, 32/2.52GB, 8xCD, 28.8, Minitower	$3195

1-800-436-8000

Call Today for Your FREE CATALOG!

Shop The Mac Zone ONLINE!

- Online Shopping

Internet Address:
Visit our store on the Web!
www.maczone.com
CompuServe type: **GO MZ**

The Mac Zone – Trusted Internationally

Australia	Indonesia	Poland
Austria	Israel	Portugal
Benelux	Italy	Scandinavia
Brazil	Japan	Singapore
Central America	Kenya	Spain
Chile	Korea	Switzerland
Colombia	Malaysia	UAE/Middle East
France	Mexico	United Kingdom
Germany	New Zealand	Venezuela
Hong Kong		

YES! START MY FREE 1-YEAR CATALOG SUBSCRIPTION ASAP!

☐ MAC ZONE ☐ PC ZONE

Name _____
Address _____ Apt _____
City _____ State _____ Zip _____
Mail to: The Mac Zone, 707 South Grady Way, Renton, WA 98055-3233

I buy primarily for:
_Home Use
_Business Use
_Work-from-Home Use

Your Source Code **MU703**

Circle 135 on the reader service card

Your Source Code **MU703**

FREE CATALOG! BEST Service!

10,000 HOT PRODUCTS 24 HRS A DAY!

Authorized Catalog Reseller

YOUR #1 SOURCE FOR MOBILE COMPUTING SOLUTIONS!

FREE! Technical Support!

FREE System Customization Overnight!

FREE Catalog Subscription!

FREE Memory Installation Offer!

MORE Exciting Bundles!

MORE Hot New Products!

ALWAYS Open! 24 hrs. a day

ALWAYS Available! Knowledgeable sales reps ready to help you.

SAVE! MacInTax & Quicken Deluxe
Get America's #1 Tax software and personal finance software for one low price. Call for details.
ONLY! $49.95* *After rebates
32732

FREE! EXCLUSIVE! Microspeed KidTRAC
Get a FREE Mr. Potato Head Saves Veggie Valley with purchase of KidTRAC.
ONLY! $69.95
34832

SAVE $100! 35042
Three time-saving utilities and communication software for your Mac!
ONLY! $58.95
*All 3 reg. $158.95
Exclusive Bundle!

NEW LOW PRICE! Adobe PhotoDeluxe for Macintosh
Put your photos to use in hundreds of fun, different ways!
25860
ONLY! $49.95

NEW VERSION! RAM DOUBLER 2
Double, even triple, your available RAM in seconds with this simple software solution!
Connectix 31151
ONLY! $29.95*
*After $25 rebate for previous owners

Connect your modem without a costly outside line!
Inside Line prevents damage to PC Card Modems, and requires just three simple connections to install.
18792
ONLY! $99.95

HOT! Netscape Navigator 3.0 for Macintosh
Makes it easy for you to select an Internet Service Provider and create Internet and email accounts.
ONLY! $44.95
32570

BEST PRICES ON POWERBOOKS!

VST Epic PowerBook 1400 Charger with battery and FREE AC Adapter NEW!
The Charger 1400 quickly and safely charges two (NiMH) Macintosh PowerBook 1400 batteries. It provides real time indication of charge mode, charge completion and error detection through on board LED's.
36103
ONLY! $289.95

Connectix Color QuickCam FREE!
The new Color QuickCam is the first low-cost, digital color camera for your Mac. Just plug it in and you're taking brilliant 24-bit color pictures and videos. Get Crystal Caliburn and QuickCards Lite Free with purchase, while supplies last!
27405
$199.95* *After $30 Rebate

Softquad HoTMetal PRO 3.0
Makes it easier than ever before to create eye-catching web pages. The automatic import and conversion capabilities allow you to instantly turn word processing documents into Web pages simply by opening them.
32552
ONLY $114.95

JBL Ensemble Speaker Set EXCLUSIVE!
Delivering great imaging and home theater sound, these advanced 120W satellite speakers boast a 3 1/2" woofer, 3/4" dome tweeter, and a separate 20 watt stereo amplifier.
33775
ONLY $299.95
120W SPEAKERS

Sony Zip Disk 6-Pack with FREE Holder GREAT OFFER!
35387
Back up and Store with Confidence!
FREE Zip Disk Drive Holder with 6-Pack!
$79.95* SONY
*Price after manufacturer's rebate

ATI Xclaim VR 4 HOT!
3D Gaming & Multimedia Solution
- Arcade-style, big-screen gaming
- Awesome QuickDraw 3D acceleration
- QuickTime capture, video-out capabilities

ONLY $299.95
34428

Symantec/Connectix Bundle SAVE OVER $50!
33955
ONLY $99.95
Keep your Mac running right with the multi-functionality of acclaimed Norton Utilities. And instantly expand your system memory with the impressive new RAM Doubler 2.

SONY Multiscan 100sx Trinitron Monitor NEW!
ONLY $399
34919
15" Trinitron CRT (13.9" viewable larger size)
Digitally controlled Multiscan technology
Supports resolutions up to 1024x768 @ 80Hz

Canon BJC-4550 Color BubbleJet! 11x17" COLOR OUTPUT
This brand new BubbleJet printer produces beautiful color on small jobs and large ones. Features include 720x360 dpi color, 720x360 dpi black, 300+ TrueType fonts on CD-ROM, prints on a wide variety of papers.
ONLY! $499
31539

Nikon Scantouch AX110 Special Bundle
ONLY $299
- Accurate 24-bit color (8-bits per color R, G, B)
- Fast single-pass scanning of images up to 8.5" x 11.7"

Includes free Pantone Color Web Software!
35820

Global Village Teleport 33.6 Internet Edition HOT!
- Includes NETCOM and Netscape Navigator web browser and e-mail software
- Call sensing allows you to receive fax and voice calls automatically on the same line as your answering machine

33230
ONLY $169.95

"Best Mail-Order Company!"

BCS THE BOSTON COMPUTER SOCIETY — PC Connection was awarded "Best All Around Company" for the second year in a row by The Boston Computer Society!

BMUG SPRING 1995 CHOICE PRODUCT — The highly regarded Berkeley Mac Users Group (BMUG) named MacConnection the Best Mac Mail-Order Company.

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and NOVUS cards. No surcharge. • Most products are covered by manufacturer's warranty against defects for at least 30 days from the invoice date. • All returns require prior authorization; please call for an RMA. • We are not responsible for typographical errors. • Pricing and promotions are subject to change without notice. **Continental U.S.:** Shipping Charges: $5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is $1 per pound. Please call for weight/shipping charge information. Items of excessive size and/or weight may require additional days to deliver via a freight carrier. Please check with your sales rep for more details. Barring events beyond our control, all credit card orders phoned in weekdays by 3 a.m. ET will ship Airborne Express for delivery the next business day. Saturday delivery available to many areas upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some areas require an extra day delivery. **APO/FPO, international orders and Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands:** Shipping may require additional time and charges. All other areas: Call 603-446-4444 or FAX 603-445-7791 M-F 9 a.m.-5:30 p.m. ET.

©1996 PC Connection, Inc., Marlow, NH. MacConnection & the raccoon characters are registered trademarks of PC Connection, Inc. All other trademarks remain the property of their respective companies.

LOWEST Prices!

EVERYTHING OVERNIGHT® $5! (up to 10lbs)

HOTTEST DEALS ON APPLE® PERFORMAS, POWER MACS & POWERBOOKS!

www.macconnection.com

Now shop on-line with a name you can trust!

- Search our 10,000+ product database
- Access daily price updates on all products
- Link to other valuable resources and manufacturers

SAVE ask about... LEASING OPTIONS for BUSINESS CALL FOR DETAILS

SuperMac S900L

225 MHz

LEASE FOR $149.09† PER MONTH

FREE UTILITIES Software!

ONLY $4,295

33461

- 225MHz PowerPC 604e
- Dual processor capable
- 32MB RAM/1GB max.
- IMS TwinTurbo 128M card w/8MB VRAM
- 2.1GB Hard Drive
- 8X CD-ROM
- keyboard & mouse

UMAX C500L

- 160MHz 603e
- 16MB RAM
- 1.2GB HD
- 8X CD-ROM
- 28.8 Faxmodem
- Keyboard Mouse

Monitors Sold Separately

ONLY $1349*

LEASE FOR $45.09† PER MONTH

32617

UMAX Computer Corporation

THE BEST PRICES ON MACS!

CALL US FIRST!

800-800-MACs

Authorized Catalog Reseller

MOTOROLA STARMAX 3000

NEW!

- 180MHz 603e
- 16MB RAM
- 1.2GB HD
- 28.8 Faxmodem

ONLY $1595 LEASE FOR $55.37† PER MONTH

Monitor sold separately

35700

SYQUEST EZFlyer

230MB Removeable Drive!

The Perfect Answer to Your Data Storage Needs!

- 13.5ms average seek time
- Up to 2.4MB/second sustained transfer

ONLY $239*

30645

*Price after $55 rebate

FREE! MEMORY INSTALLATION!

1MB SIMMS as low as $16.95 1107

SUPER LOW SIMMS!

4MB	8MB	16MB	32MB
as low as $24.95	as low as $49.95	as low as $99.95	as low as $199.95

Purchase a computer & memory upgrade together and we'll install your new memory upgrade at no extra charge!

VILLAGE TRONIC™ MacPicasso 320

Turbo Charge Your Monitor!

ONLY $299.95

35586

- Accelerated Cirrus graphics controller
- 2MB 50ns-EDO-DRAM
- B/W, 256, thousands, and millions color modes
- Dual connectors (Apple and VGA 15-pin)
- QuickDraw accelerator

Newer Technology NUpowr 200 MHz CPU and cache for Epic PowerBook 1400

ONLY! $649.95

35227

The PowerBook with NUpowr becomes the fastest PowerBook, ever. Fits into the CPU socket on the logic board. Comes with a one year warranty, toll-free Tech Support and illustrated installation manual.

FREE! CATALOG SUBSCRIPTION!

CALL TODAY!

(Mention source code 397MU)

❑ MacConnection ❑ PC Connection

Please check the catalog(s) you wish to receive

Name _____

Address _____ Apt ____

City _____ State _____ Zip _____

† Leasing option available to businesses. CALL 800-800-0014 to see if you qualify.

MacConnection®

MACUSER 397MU

800-998-0029

Order as late as 3 a.m. ET and *still* get Overnight Delivery!

FAX US AT: 603-446-7791

CIRCLE 147 ON READER SERVICE CARD

Your Ram Headquarters, please call for current pricing 800-990-5692

Optical/Removable

Zip Drive Internal $199

Zip Drive External	189
Zip Drive Internal	**199**
Zip Mounting kits	29
Zip Cartridge 10 Pack	139
Jaz Drive External	469
Jaz Drive Internal	379
Jaz Cartridges Single	99
Jaz Cartridge 5 Pack	489
Zip/Jaz Carrying Case	29

Monitors

Apple 15" Multiscan	409
Apple 15AV 15"	499
Apple 1705 17"	689
Apple 20" Refurbished	1379
Magnavox 14" Mono	129
Magnavox 14" Color	269
Magnavox 20" CM5600	**1239**
NEC M500 15"	489
Princeton Graphics 17"	539
Panasonic S17 17"	649
Viewsonic 15ES 15"	348
Viewsonic 17EA 17"	**639**
Viewsonic Optiquest V775 17"	649
Viewsonic 17GA 17"	719
Viewsonic G810 21"	1539
Viewsonic P815 21"	1749
Portrait Display 17"	859
RasterOps Mc 21 HR	2039
Sony 200 SX 17"	695
Sony 20" SFII	1689
Mitsubishi 91TXM	1699

Systems

7200/120 16/1.2/8xCD	1499
7600/132 16/1.2/8xCD	2099
8500/180 32/2.0/8xCD	3269
9500/180MP 32/2.0/8xCD	5449
9500/200 32/2.0/8xCD	4189
Performa 6360 16/1.2/8xCD	1439
Performa 6400 16/1.6/8xCD	1459
SuperMac C500 603e/160Mhz	1349
SuperMac C600 603e/180Mhz	1719
SuperMac C600 603e/200Mhz	1889
SuperMac S900 604e/200Mhz	**3669**
SuperMac S900 604e/225Mhz	4159
PowerTools 200Mhz 604e	from 1499

Call today for the Best Price!

Memory

4MB 72pin	26
8MB 72pin	44
16MB 72pin	89
32MB 72pin	179
8MB DIMMs/EDO 5v	42
16MB DIMMs/EDO 5v	89
32MB DIMMs/EDO 5v	179
64MB DIMMs TechWorks	389
EDO 3.3 volt	Call
PCI Vram 1MB	29
256k Cache (6100/7100)	**29**
512K Cache (7500)	129
PowerBook 1400 memory	**Call**
PB 1400 8bit Video Upgrade	159
PowerBook 5300 16MB/24MB	139/249
PowerBook 5300 32MB/48MB	299/399
PowerBook 5xxx 16MB/32MB	149/269

All memory backed by a lifetime warranty.

Focus 16-Port 10BT Hub $139

$139 Lapis Color MV-16EN for 5300

IMS TwinTurbo 2MB $199 4MB $299

Networking/Modems

Focus 9-Port 10BT Hub	**69***
Focus 16-Port 10BT Hub	**139***
Qunatities limited	
Dayna 100/10BT PCI	184
AsanteFAST 10/100BaseT PCI	199
10BaseT Transceiver	29
Sonic 10BT PCI Card	81
Farrallon 10BT PCMCIA	165
Farrallon 10BTthin PCMCIA	198
Supra Express 33.6 v.34	**126**
Supra Fax 33.6	194
GV PowerPort Platinum Voice	249
GV Teleport Platinum 33.6	165
GV PowerPort Plat. PCMCIA	285
GV PowerPort Mercury 5xx	139
Viking Netlink 33.6 PCMCIA	169
US Robotics 33.6	166
Sportster 33.6 w/Voice	198

Digital Cameras

BEST PRICE!

Kodak DC20	**89**
Kodak DC25	459
Kodak DC40	539
Kodak DC50	799
Epson PhotoPC	389
Casio QV10A	395
Casio QV100	635
Video Labs Flexcam	369
Chinon ES-3000	899
Polariod PDC 2000/40	3399

Scanners

Vista S6E Mac/PC	299
Vista S12 Mac/PC	779
Microtek ScanMaker E6	**529**
Microtek ScanMaker E3	319
Agfa StudioStar Mac/PC	995
Agfa SnapScan Mac/PC	325
Agfa Arcus II Mac/PC	1879
Agfa DuoScan Dual Mode	4799
Polaroid Sprintscan LE	849
Polaroid Sprintscan Plus	2199

VISA MasterCard DISCOVER

BOTTOM LINE DISTRIBUTION

1-800-990-5692

http://www.blol.com/macuser/ 512 892-4070

Shipping: **$5, 5 lbs., 2 Days** Payment: No credit card surcharge. Corporate POs welcome. Tax: Texas residents add 8.25% sales tax. Prices: Items, prices and availability subject to change. Returns: Call for RMA number. Must be in original condition, opened software is non-refundable. Subject to a restocking fee. Original shipping is non-refundable. Apple brand products are not returnable for refund. Bottom Line Distribution cannot be responsible for errors in typography or photography. Customer Service: 512 892-4090. International Sales: Bottom Line Distribution is committed to the needs of international Macintosh users. We offer discounted rates with DHL. 2 to 3 day delivery to most countries. Dealer inquiries welcome. Language interpreters available. Address: 4544 S. Lamar Blvd., #100, Austin, TX 78745 Fax: 512-892-4455. Hours: M-F 9-9 | Sat 9-4

CIRCLE **19** ON READER SERVICE CARD

A Great Review is Worth Repeating

Almost nothing influences buyers in the computer market as much as a great product review, particularly one in MacUser. That's because computer product buyers rely on these reviews to help them make informed purchase decisions. They know that our labs, writers and editors can be trusted to be thorough, fair and impartial in their testing and reporting. For a computer product marketer a great review is almost priceless.

Its Value Increases With Use

Reprints of your review are an invaluable selling tool for your product and an important image builder for your company. An objective, third party product evaluation will be read, and trusted, by far more people than any regular product literature, direct mail, press release or sales letter. Think of all the ways you can take advantage of reprints:

- Use them in sales proposals
- Hand them out at trade shows
- Send them to your mailing list
- Provide them to distributors
- Add them to a press release or a mailing to your stockholders.

And, if you customize your reprint— with a special cover, highlighting, an ad, sales office listings, etc.— the value increases even more.

Get the most value from your MacUser review. Call Ziff-Davis Reprints today at

800-825-4237.

REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS REPRINTS

MacUser

$0 Down 100% Business Financing NO Payments for 90days

FREE!

5 x 200 mb Syquest Cartridges with Ultimate lease

$345 Value

Ultimate Designers Special

- PowerMac 8500/180 — PowerMac 8500/180 Starting at $2899
- Internal CD ROM
- 64MB RAM
- 2GB internal hard drive
- Extended keyboard
- Sony 20SF II Trinitron monitor
- ATI Xclaim PCI Graphics Card 4MB
- Microtek Scanmaker 3E
- SyQuest 200 Drive (FREE 5 cartridges)
- Okidata 610e/ps 600dpi Laser Printer
- 12x12 Graphics Tablet

Per Month $199

FREE VALUE ADDED SERVICES

Most Popular Configuration

Why Lease?

Digital GraphiX NOW LEASING

- $0 Down 100% Business Financing No Payments for 90 days. You can lease hardware, software and extended warranties.
- Converts a large cash purchase into low monthly payments.
- Leasing allows your business to pay for equipment as it generates income, not before.
- Computer equipment depreciates rapidly, so don't spend your hard earned capital, it's the most important asset your company has.

Why Lease or Buy from Digital GraphiX?

WE PROVIDE THE BEST VALUE ADDED SERVICE IN THE INDUSTRY.

FREE VALUE ADDED SERVICES

- We are system experts. WE ARE NOT ORDER TAKERS. We offer the best service, price and selection.
- We cater to marketing and advertising professionals, printing shops, service bureaus, multimedia, digital imaging, and CAD/CAM professionals. Our Business is knowing your mac system needs.

PowerMac System Specials

CPU/XKey/Mouse	Monitor/Card	Cash	Lease	
9500/200 /40mb/2.0GB/CD	Sony 20SF II/ATI Xclaim 2mb	$5699	$149	SALE
9500/200/80mb/2.0GB/CD	Sony 20SF II /ATI Xclaim 4mb	$6249	$159	
8500/180 /32mb/2.0GB/CD	Viewsonic 17" /VRAM upgrade	$4239	$109	SALE
8500/180 /64mb/2.0GB/CD	Sony 17 200SF /ATI Xclaim	$4499	$129	
7600/132 /32mb/1.2GB/CD	Sony 17 200SF /VRAM upgrade	$2899	$79	SALE

Graphix & CAD Systems

Perfect for: Graphic Designers, Printers, Service Bureaus, advertising agencies, and marketing departments

New $0 down NEW BUSINESS Financing Available

FedEx

FREE!

Quark With Every Graphix System Lease

$650 Value

7600/132 Entry Level System

Per Month $149

- PowerMac 7600/132
- Internal CD ROM
- 40MB RAM
- 1.2GB internal hard drive
- Extended keyboard
- Viewsonic 17EA AV Monitor
- 4MB VRAM Upgrade
- ScanMaker E6 color Scanner
- Okidata 610e/ps 600dpi Printer
- 6x8 Graphics Tablet
- IOMega Zip 100 with 1 cartridge

Systems Starting at $1799

8500/180 Mid Range DTP System

Per Month $319

- PowerMac 8500/180
- Internal CD ROM
- 80MB RAM
- 4GB internal hard drive
- Extended keyboard
- Sony 20SFII monitor
- ATI XClaim PCI Video Card 4MB
- Agfa Studio Scan IIsi/w Trans
- Sony 8GB DAT tape drive
- SyQuest 200 Drive with 2 carts
- GCC 608 600dpi, 11x17 Printer
- 12x12 Graphics Tablet

Systems Starting at $2899

9500/200 Ultimate Super Station

Per Month $449

FREE VALUE ADDED SERVICES

- PowerPC 9500/200MHZ
- Internal CD ROM
- 272MB RAM
- 8GB internal Stripped Disk Array
- Two Adaptec Disk Array Controllers/SW
- IMS 8MB Video
- Sony 20SFII Monitor
- IOMega JAZ 1GB with 1 cartrige
- Microtek ScanMaker III wTrans
- GCC XL 808 800dpi, 11x17 Printer,ENET
- Epson Stylus Color Pro XL 11x17,ENET,PS
- 12x18 Graphics Tablet

Systems Starting at $3599

Digital & Multimedia Systems

Perfect for: Video Editing, Video Production, Digital Imaging, Multimedia and Hi-End Graphic Professionals

FREE!

Adobe Premiere With Every Digital System Lease

$485 Value

9500/200 Digital Video Power System

Per Month $399

- PowerPC 9500/200MHZ
- Internal CD ROM
- 144MB RAM
- 4GB hard drive
- Extended keyboard
- Sony 20SF II Monitor
- ATI XClaimPCI Video Card 4MB
- TrueVision Targa 2000 PCI Digital Card
- 8GB SCSI-3 Fast&Wide disk array
- FWB Jackhammer SCSI-3 controller
- Sony SDT-5000 DAT Tape Drive

Systems Starting at $3599

Memory

64 MB Only $359 SALE

Lifetime Warranty

Size	DIMMS/SIMMS	
4MB	$NA	$29
8MB	$49	$47
16MB	$89	$99
32MB	$198	$189
64MB	$359	$NA

Optical & CDR Drives

JAZ 1GB with 1 cartridge	**$449** SALE
Olympus 230MB with 1 cartridge	$499
Sony 2.6GB with 1 cartridge	$1799
Yamaha 4x/2xCDR with toast & Director	$829

SyQuest & Zip Drives

Includes 25/50 cable, active terminator, FWB Hard Disk ToolKit

Zip 100 with cart	$139*
EZ230MB with cart	$295
200MB with cart	**$449** SALE

SyQuest Cartridges

270MB	$56
200MB	**$61**
88MB	$41
44MB	$37

* With $50 manufactures Rebate

Monitors

Sony 15SX1	$389
Sony 15SFII	$459
Viewsonic 17EA AV	**$659** SALE
RasterOps MC20	$1389
Sony 17 200SF	$779
Sony 20SF II	$1599
Radius 21 PrecisionView	$2329
PressView 21SR	$3249

New

Laser Printers

Okidata 600e/ps	**$739** SALE
HP 6MP	$889
Epson Stylus 500	$269
Epson Stylus Color ProXL	$1729
GCC XL 608, 600dpi	$2339
GCC XL 808, 800dpi	$2989
GCC XL 1208, 1200dpi	$4169

Optical Cartridges

OEM 128MB	**$8.99** SALE
OEM 230MB	$11.99
OEM 600/650MB	$21
OEM 1.2/1.3GB	$39

74 MINUTE CD ROM RECORDABLE MEDIA $75.99 BOX OF 10

Hard Drives

	Internal	External	
Quantum or IBM 2GB	$359	$419	
Quantum 3GB	**$489**	**$549**	SALE
Quantum 4GB	$899	$959	
Quantum 9GB	$1789	$1849	
Fujitsu 4GB	$879	$939	
Seagate 4GB Barracuda 4	$1159	$1219	
Seagate 9GB Barracuda 9	$2289	$2349	

Digital GraphiX

Your Value Added Macintosh Source

20695 S. Western Ave Suite 132, Torrance, CA 90501

30,000 Products on the Internet http://www.DigitalGraphiX.com

800-680-9062

800-680-9062 SALES, USA & CANADA

310-783-1525 FAX

310-783-1515 INTERNATIONAL

Order from 5:30am - 5:30pm M-F , 9:00am - 12 Sat

Prices subject to change without notice. Not responsible for typographical errors. Call for an RMA number before returning equipment.

Product Index

ADVERTISER ..... PAGE

Display Systems & Video

Corel Systems Corporation 613-728-0826 ext. 3080 47
Epson America 800-GO-EPSON 55
Epson America 800-GO-EPSON 133
Mitsubishi Display Products 800-843-2515 41
Portrait Display Labs 800-858-7744 51

Entertainment

Apple Software, Claris 800-950-5382, ext. 784 45
Broderbund Software 800-474-8696 111
MacSoft 800-229-2714 192

Financial Management

Palm Computing 800-881-7256 126

General Hardware & Accessories

Apple Computer, Inc. 800-500-4862 ext. 100 2-3
Motorola Computer Group 800-759-1107 ext. MCU 22-23
Orange Micro 714-779-2772 122
Orange Micro 714-779-2772 195
Power Computing 800-405-7693 ..... Cover 2-4,1
Power Computing 800-405-7693 57-68
Power Computing 800-405-7693 ..... Cover 5-8

Graphics & Design

Corel Systems Corporation 613-728-0826 ext. 3080 47
Deneba Software Inc. 800-7-Deneba 9
Diehl Graphsoft 410-290-5114 131
Engineered Software 910-299-4843 6
Extensis 800-796-9798 16
Integrated Micro Solutions 888-IMS-8282 118
Quark, Inc. 800-788-7835 18-19
Splash Technologies http://www.SplashTech.com 7

Input Devices

Ricoh Corp Consumer Product Group 702-352-1600 107
SONY Electronics Inc. www.sony.com 10-11

Internet/Online Products

Bare Bones Software 617-676-0650 117
EarthLink Network 800-395-8425 71
Microsoft Corporation 800-967-5363 ext. 433 28-29

Mail Order

Bottom Line Distribution 800-990-5699 158
ClubMac 800-258-2622 76-83

ADVERTISER ..... PAGE

ClubMac 800-258-2622 146-147
Computer Discount Warehouse 800-291-4239 161-163
CRA Systems 800-375-9000 144-145
DGR Technologies 800-990-5699 158
Digital Graphix 800-680-9062 159
LLB Company, Inc. 800-848-8967 152-153
Mac Bargains 800-407-7404 148-149
MAC Xtra 800-553-4230 167
MacConnection 800-998-0029 156-157
MacMall 800-217-9498 140-141
MacProducts, USA 800-990-5699 158
MacWarehouse 800-725-1458 138-139
MacZone 800-436-8000 154-155
ProDirect 800-555-1256 142-143

Organizational Tools

AEC Software 800-450-1983 12

Output Devices

QMS, Inc. 800-523-2696 ext. 52 20
Tektronix 800-835-6100 43
XANTÉ Corporation 800-926-8839 105
Xerox Corporation 800-ASK-XEROX ext. 487 52

Performance Enhancers

DayStar Digital 800-962-2077 124

Programming & Systems

Apple Computer, Inc. 800-500-4862 ext. 100 2-3
UMAX Computer Corp. 800-232-UMAX 34-35

Resources

AEC Software 800-450-1983 12

Scanners

Caere Corporation 800-535-SCAN 37
Epson America 800-GO-EPSON 15

Storage Systems

APS Technologies 800-235-3707 150-151
FWB Software http://www.fwb.com 98
Olympus Image Systems 800-347-4027 97

Telecommunications

Prodigy Services Company 800-PRODIGY 121

Utilities

Dantz Development 800-95-BACKUP 113

SUPERSTAR CPUs!

CDW CIRCLE OF SERVICE

UMAX Computer Corporation SUPERmac

SuperMac Series

Designed from the ground up to be the premiere Mac OS®-based computer available, UMAX SuperMac computers are the new generation of Mac compatible computers that you can look to for performance, quality and value.

Serious tools for serious fun!

SuperMac C500/C600 Series

Bundled software includes the Mac®OS and ClarisWorks.

Everything you need and more

SuperMac J700 Series

Bundled software includes the Mac®OS, Asante Net Doubler, Micro mat TechTool Pro, FWB CD-ROM & HD ToolKit and Casady & Greene Conflict Catcher V3.0.

Maximum expandability, maximum performance

SuperMac S900 Series

Monitors sold separately.

Desktop	CPU	RAM	Hard drive	CD-ROM	Modem	PCI slots	Price	CDW
C500	160MHz PowerPC 603e	16MB	1.2GB	8X	optional	2	$1349.00	75926
J700	150MHz PowerPC 604	16MB	2.1GB	6.7X	optional	4	$2795.00	73855
J700	180MHz PowerPC 604e	24MB	2.1GB	8X	optional	4	$3095.00	77519
Mini-tower	**CPU**	**RAM**	**Hard drive**	**CD-ROM**	**Modem**	**PCI slots**	**Price**	**CDW**
C600	180MHz PowerPC 603e	16MB	1.2GB	8X	28.8K bps	3	$1695.00	75927
C600	200MHz PowerPC 603e	16MB	2.1GB	8X	28.8K bps	3	$1995.00	75929
C600	240MHz PowerPC 603e	24MB	2.1GB	8X	28.8K bps	3	$2295.00	77520
Tower	**CPU**	**RAM**	**Hard drive**	**CD-ROM**	**Modem**	**PCI slots**	**Price**	**CDW**
S900L	2 x 180MHz PowerPC 604e	32MB	2.1GB	8X	optional	6	$4595.00	73852
S900L	200MHz PowerPC 604e	32MB	2.1GB	8X	optional	6	$3795.00	73853
S900L	225MHz PowerPC 604e	32MB	2.1GB	8X	optional	6	$4295.00	75930

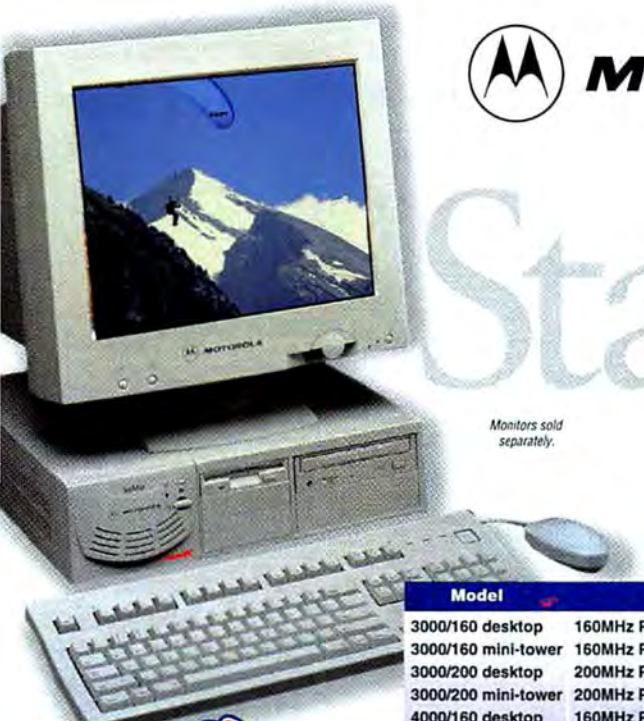
UPGRADES FOR THE J700 & S900 SERIES

P180, 604e/180 A.S.P.D. processor card ..... $795.00 CDW 73857

P200, 604e/200 A.S.P.D. processor card..... $995.00 CDW 73856

P200, 604e/225 A.S.P.D. processor card ..... $1195.00 CDW 75963

E100, Ultra-Wide SCSI-3 and 100BASE-T adapter . $495.00 CDW 71843



NEW!

MOTOROLA StarMax

Processor
- PowerPC 603e (3000 Series) or 604e (4000 Series) processor
- Integrated floating-point unit • 32KB (603e) 64KB (604e) internal cache
- 256KB Level 2 cache

Memory
- 16MB standard (desktop models) or 32MB standard (mini-tower models)

Drives
- 1.2GB EIDE (desktop) or 2.4GB (mini-tower) hard drive
- 8X ATAPI CD-ROM drive

Modem (3000 Series only)
- 28.8K bps Motorola Lifestyle external

Expansion
- Three (desktop) or five (mini-tower) PCI expansion slots

Sound
- 16-bit stereo sound • Built-in speaker • Rear headphone jack

Keyboard and pointing device
- ADB extended keyboard • ADB mouse

Monitors sold separately.

Model	CPU	RAM	Hard drive	CD-ROM	Modem	VRAM	Price	CDW
3000/160 desktop	160MHz PowerPC 603e	16MB	1.2GB	8X	28.8K bps	1MB	$1579.58	76818
3000/160 mini-tower	160MHz PowerPC 603e	32MB	2.4GB	8X	28.8K bps	1MB	$1879.07	76819
3000/200 desktop	200MHz PowerPC 603e	16MB	1.2GB	8X	28.8K bps	1MB	$1866.17	76820
3000/200 mini-tower	200MHz PowerPC 603e	32MB	2.4GB	8X	28.8K bps	1MB	$2009.47	76821
4000/160 desktop	160MHz PowerPC 604e	16MB	1.2GB	8X	optional	2MB	$2129.61	76822
4000/160 mini-tower	160MHz PowerPC 604e	32MB	2.4GB	8X	optional	2MB	$2258.88	76824
4000/200 desktop	200MHz PowerPC 604e	16MB	1.2GB	8X	optional	2MB	$2388.05	76825
4000/200 mini-tower	200MHz PowerPC 604e	32MB	2.4GB	8X	optional	2MB	$2629.84	76826

COMPUTER DISCOUNT WAREHOUSE™

800-291-4239

www.cdw.com

CIRCLE 136 ON READER SERVICE CARD

©1997 CDW Computer Centers, Inc.
MU1987 MacUser 3/97

CDW Software for WORK—or PLAY!

COMPUTER DISCOUNT WAREHOUSE™

Adobe Illustrator V6.0

MacUser AWARDS 1996 Editors' Choice Finalist — Best New Graphics Application

Feel the ultimate power of Adobe Illustrator™ V6.0!

Adobe Illustrator™ V6.0 software for Macintosh® and Power Macintosh combines the finest illustration tools, image-handling capabilities and typographic features to give you the ultimate power to create. Now you can import TIFF images, use Adobe Photoshop™ compatible plug-in filters and even rasterize artwork, all within Adobe Illustrator. And, because all Adobe™ programs work together seamlessly, it's easy to get the results you want.

*The full version of Adobe Illustrator V6.0 (CDW 72985) includes a free copy of Adobe PageMill V1.0. Offer good while supplies last.

3.5 + CD* . . . **$359.18** CDW 72995

CLARIS FileMaker Pro V3.0

Move up to FileMaker Pro 3.0 and make your solutions easier

From the moment you open the box, FileMaker Pro V3.0 makes your life easier with relational capabilities, more than 40 predesigned templates, powerful task-automation features, word processing enhancements and hassle-free integration of your old FileMaker files.

MacUser AWARDS 1996 Editors' Choice Finalist — Best New Data-Management Application

Version upgrade ..... **$89.75** CDW 63951

Full version ..... **$176.25** CDW 63817

FileMaker Pro V3.0 Server ..... **$899.29** CDW 65338

MACROMEDIA Director V5.0

Powerful authoring tool for multimedia and the Internet

FREE! DMS Interactive Training CD and book* $49 value!

Director V5.0 allows you to quickly and easily import and integrate media elements such as 2D and 3D graphics, animation, sound and digital video from a wide variety of sources to create stand-alone interactive applications. With the included Shockwave for Director, you can optimize and deliver high speed interactive multimedia productions on the Internet!

MacUser AWARDS 1996 Editors' Choice Finalist — Best New Interactive-Authoring Application

✔ 2D animation program ✔ Built-in paint program ✔ Full featured text tool ✔ 2 sound channels for voice over and music

Upgrade, CD **$366.91** CDW 66958

Full version, CD **$817.78** CDW 66957

Receive the Director Multimedia Studio Interactive training CD and book from Macromedia with purchase of Director 5. Offer valid through 3/31/97.

Connectix RAM Doubler 2

Triple your memory

Connectix RAM Doubler 2 triples your memory so you can run more applications and increase productivity.

MacUser AWARDS 1996 Editors' Choice Finalist — Best New Utility

✔ Works with as little as 8MB or as much as 84MB ✔ Lets you choose the right amount of additional memory you need ✔ Installs in just seconds and works automatically every time you start your Macintosh ✔ Memory compression is up to twice as fast as the original award-winning RAM Doubler 1x** ✔ Compatible with a full range of Macintosh hardware, software applications and entertainment titles

$55.91 CDW 73962

**According to Connectix tests

Adobe

After Effects V3.1	624.72
Dimensions V2.0	126.67
Illustrator V6.0 (3.5" + CD)	378.45
Illustrator V6.0 upg 3.X to 6.0 (3.5" + CD)	114.98
Illustrator V6.0 upg 3.X to 6.0 (CD only)	89.96
Illustrator V6.0 upg 5.X to 6.0 (3.5" + CD)	114.98
Illustrator V6.0 upg 5.X to 6.0 (CD only)	89.96
PageMaker V6.0 (3.5" + CD)	545.78
PageMaker V6.0 upg	132.81
PageMill V2.0	94.93
Persuasion V3.0.2	243.28
PhotoDeluxe	81.20
Photoshop V3.0.5	545.78
Photoshop V3.0.5 vers upg	159.55
Premiere V4.2 CD	494.50
SiteMill V1.0	176.36
SiteMill V1.0 upg from PageMill V1.0	89.96
Streamline V3.0	123.11
Type Manager V4.0	47.45
Type Reunion Deluxe V2.0	44.44
Apple® Home Office Collection	26.77
Apple® System 7.5 upg	95.41
Apple® System 7.5.3 upg CD	94.72

Caere

Caere OmniForm Filler	173.47
Caere OmniPage Direct V2.0	57.70
Caere OmniPage Pro V6.0	459.02
Caere OmniPage Pro V6.0 upg	131.47

Casady & Greene

Conflict Catcher 3	58.54
Conflict Catcher 3 comp upg	34.91
Conflict Catcher 3 vers upg	34.68

Claris

Apple® Internet Connection Kit V1.1	45.17
Claris Emailer V1.1	41.79
Claris FileMaker Pro V3.0	179.14
Claris FileMaker Pro V3.0 upg	91.95
Claris Home Page	92.17

Adobe — *Special Introductory Price!*

Adobe Type Manager Deluxe V4.0

$47.81 CDW 71489

ClarisDraw V1.0	179.98
ClarisImpact V2.0	79.75
ClarisOrganizer V1.0v2 w/CLICKBOOK	44.53
ClarisWorks V4.0 CPU bundle	63.48
ClarisWorks V4.0 vers/comp upg	64.28
ClarisWorks V4.0 w/Internet	117.31

Connectix

PowerMac PowerPack/RAM & Speed Doubler	74.28
QuickCards V1.1 CD	31.79
RAM Doubler V2.0	56.22
Speed Doubler V1.1	55.45
VideoPhone (software only)	55.34

Corel

Corel CD Creator	154.42
Corel Stock Photo Library 1	879.10
Corel Stock Photo Library 2	868.05
Corel Stock Photo Library 3	681.30
Corel WordPerfect 3.5.1, CD	152.64
Corel WordPerfect 3.5.1 upg CD	79.51
CorelDRAW 6 Suite, CD	363.18
CorelDRAW 6 Suite upg CD	136.48
CA Cricket Graph III V1.53	92.00
Dantz Retrospect Remote V3.0	136.09
Dataviz MacLink+/PC Connection	115.25
Datawatch Virex V5.6	61.34
Deneba Canvas V3.5 + CD	251.83

Edutainment

A.D.A.M. The Inside Story CD	35.97
Berkeley After Dark V3.2	32.62
Berkeley You Don't Know Jack	32.66
Broderbund MYST CD	49.04
Bungie Marathon 2: Durandal	42.39
Bungie Marathon CD	37.04
Davidson The Perfect Resume	38.79
Davidson WarCraft Orcs & Humans CD	31.14
Davidson Your Personal Trainer for SAT CD	34.80
Maxis SimCity 2000	33.42
Maxis SimCity Classic	19.12
ScruTiny in the Great Round	36.50
Virgin 7th Guest CD	31.17

Fractal Design

Dabbler V2.0	39.40
Detailer, CD	268.84
Painter V4.0	282.33
Painter V4.0 upg	122.16
Poser V1.0	89.28
Sketcher V1.0	39.36

FWB

CD-ROM ToolKit™ V2.0	49.88
Hard Disk ToolKit™ Personal V1.7.6	49.28
Hard Disk ToolKit™ V1.8	117.28
RAID ToolKit™	293.21
Farallon Timbuktu Pro V1.0	125.18

Insignia

MacTransfer for Windows 95 PCs	45.46
SoftWindows 95 CD	319.17
SoftWindows 95 upg CD	139.27
SoftWindows for Performa	113.86
SoftWindows V3.0 CD	287.05
SoftWindows V3.0 CD w/CPU purchase	183.20
SoftWindows V3.0 upg	67.02

Intuit

QuickBooks Pro V4.0	182.13
QuickBooks V4.0	111.19
Quicken Deluxe V6.0 CD	59.99
Quicken V6.0	44.53

Adobe PageMill V2.0

MacUser AWARDS 1996 Editors' Choice Finalist — Best New Page-Design Application

Create full-featured Web pages using simple drag and drop commands

$93.34 CDW 73243

Macromedia

Director Multimedia Studio V2.0 CD	893.40
Director Multimedia Studio V2.0 upg CD	458.73
Director V5.0 CD	817.78
Director V5.0 upg CD	366.91
Extreme 3D CD	444.60
Extreme 3D comp upg CD	181.69
Fontographer V4.1	314.38
FreeHand Graphics Studio V2.0 CD	405.63
FreeHand Graphics Studio V2.0 upg CD	276.06
FreeHand V5.5 CD	378.89
FreeHand V5.5 vers upg V4.0 or earlier CD	137.60
FreeHand V5.5 vers upg V5.0 to V5.5 CD	74.97
SoundEdit 16 V2.0 CD	264.62
SoundEdit 16 V2.0 plus DECK II CD	339.60
xRes V2.0 CD	446.04
xRes V2.0 comp upg CD	186.34

MetaTools

Bryce V2.0 CD	179.00
Convolver V1.0 CD	129.00
Kai's Power Goo CD	43.29
Kai's Power Tools 3 CD	129.00
Power Photos I CD	129.00
Power Photos II CD	129.00
Power Photos III CD	129.00
Power Photos IV CD	129.00
Vector Effects V1.0	129.00

Metrowerks

CodeWarrior Gold 9	301.16
Discover Programming for Macintosh	59.59
Discover Programming with Java	73.83

Microsoft

Arcade V1.0	28.95
Excel V5.0	296.94
Excel V5.0 upg	298.44
Flight Simulator V4.0	41.68
Office V4.2.1	449.03
Office V4.2.1 CD	449.31
Office V4.2.1 vers upg, CD	265.72
Office V4.2.1 vers upg	265.86
PowerPoint V4.0	296.94
PowerPoint V4.0 upg	114.98
Project V4.0	421.73
Project V4.0 upg	134.11
Visual FoxPro V3.0 CD	442.61
Visual FoxPro V3.0 upg CD	265.72
Wine Guide CD	29.20
Word V6.0.1	298.44
Word V6.0.1 vers upg	114.98
Works V4.0	45.13

SYMANTEC. SAM V4.5

Maximum Internet virus protection

$64.17

CDW 75075

*Owners of a previous version of SAM qualify for a $40 mail-in manufacturer rebate. Limit one per customer. Offer available while supplies last. Other restrictions apply.

NOW Software

Now Contact V3.6 CD	59.97
Now Contact/Up to Date V3.6 bundle CD	62.36
Now Startup Manager V7.0	65.76
Now Up-to-Date Web Publisher V1.0 CD	252.45
Now Utilities V6.5, CD	79.79

Quark

QuarkXPress V3.32 CD	661.23

Strata

Media Paint V1.1	403.97
Studio Pro BLITZ V1.75	816.26
Vision 3D V4.0	228.61

Symantec

ACT! V1.0 for Newton	92.07
ACT! V2.5	148.18
Norton Utilities V3.2	94.27
SAM AntiVirus V4.0	64.17
Suitcase V3.0	65.43
Symantec Cafe	89.58

800-291-4239

www.cdw.com

©1997 CDW® Computer Centers, Inc.
MU1887 MacUser 3/97

Laser Printers!

CDW CIRCLE OF SERVICE

COMPUTER DISCOUNT WAREHOUSE™

MONITORS

NEC

M500 15" flat square w/speakers	429.81
XV15+ 15" flat square	429.81
XV17+ 17" flat square	759.05
XE21 21" flat scuare	1705.69

MAGNAVOX

CM2080 14" .29mm	249.56
CM1215 15" .28mm	316.80
107B 17" .28mm	599.55
20CM64 20" .31mm	849.00

SONY

15sx 15" Trinitron	369.34
15sfII 15" Trinitron	429.44
17sellI 17" Trinitron	929.76
20sfII 20" Trinitron	1559.84

ViewSonic

15GA 15" PerfectSound .27mm	405.97
17GS 17" PerfectSound .27mm	616.79
GT770 17" Graphics Series .25mm	674.31
17GA 17" PerfectSound .27mm	649.29
PT770 17" Graphics Series .25mm	719.33
GT800 20" Professional Series .30mm	1309.18
G810 21" Professional Series .25mm	1417.89
P810 21" Professional Series .25mm	1469.44
PT810 21" Professional Series .30mm	1634.19
P815 21" Professional Series .25mm	1669.80

radius

PressView 17SR 17"	1979.80
MultiView 21 21"	1415.91
PrecisionView 21 21"	2314.94
PressView 21SR 21"	3177.77

GRAPHICS/VIDEO BOARDS

ATI

Xclaim GA 2MB PCI	229.86
Xclaim 3D 4MB PCI	289.62
Xclaim 3D 8MB PCI	409.04
Xclaim VR 2MB PCI	219.56
Xclaim VR 4MB PCI	289.76

radius

Thunder 30/1600	694.88
ThunderColor 30/1600	1986.48
ThunderColor 30/1152	1585.78
ThunderPower 30/1920	1206.25

TRUEVISION

Bravado 1000 PCI	637.19
Targa 1000 PCI	1949.48
Targa 2000 PCI	3155.03

MODEMS

GLOBAL VILLAGE

PowerPort Platinum 28.8 PC Card	325.29
PowerPort Platinum Pro 28.8 PC Card	487.16
TelePort Internet Edition 33.6	169.57
TelePort Speakerphone Edition 33.6	247.34

Megahertz

28.8K cellular-capableCruiseCard with XJACK	229.95

PRACTICAL PERIPHERALS

14.4 external mini-tower w/fax	81.46
28.8 V.34 external mini-tower w/fax	139.95
33.6 V.34 external mini-tower w/fax	139.95
MacClass 14.4 PC Card	149.69
MacClass 28.8 PC Card	199.17
MacClass 33.6 PC Card	199.65

US Robotics

Sportster 28.8 PC Card w/DataView	199.65
Sportster 33.6 V.34 external	169.29
Sportster Voice 33.6 external	189.68
Courier V.Everything 33.6 external	239.62
Courier I-modem	344.74

STORAGE SYSTEMS

CD-ROM

CDHi-Val 4X SounTastic CD-ROM Kit	159.60
Hi-Val 8X SounTastic CD-ROM Kit	259.11
Hi-Val 10X SounTastic CD-ROM Kit	259.11
Panasonic 4X Portable for PowerBooks	299.00

FWB

HammerCD 2X/4X CD-ROM recorder	869.88
HammerCD 4X CD-ROM recorder	1258.73

iomega

Zip drive 100MB SCSI external	199.95
100MB Zip disk	19.95
Jaz Drive 1GB SCSI-II external	499.95
1GB Jaz disk	124.95

MICRONET

Advantage 1GB drive featuring "Jaz" external	526.37
Advantage 1GB "Jaz" disk	110.00
Advantage 2.6GB optical drive external	1749.54
Advantage 2.6GB optical cartridge	105.44

STORAGE SYSTEMS

SyQuest

EZFlyer 230MB external	289.47
EZFlyer 230MB cartridge	29.39
SyJet 1.5GB SCSI external	499.00
SyJet 1.5GB cartridge	109.25

MEDIA

Fuji 100MB Zip Disk	19.00
3M 63 minute (550MB) CD Recordable	7.87
3M 74 minute (650MB) CD Recordable	8.78
88MB SyQuest cartridge, 5yr	45.41
200MB SyQuest cartridge, 5yr	62.93
270MB SyQuest cartridge, 5yr	51.55

Need more disk space? CDW also carries APS, Conner, IBM, Micropolis, Quantum and Seagate SCSI hard drives. Call for details.

INPUT DEVICES

AGFA

SnapScan	367.37
StudioScan IIsi	694.13
StudioStar	799.24
Arcus II	1995.00

ALPS

Portable GlidePoint	41.45
Desktop GlidePoint	69.84
GlidePoint Keyboard	108.00
GlidePoint Keypad	73.58

ADESSO

PowerMouse	19.59
Soft Touch Plus extended keyboard	47.35
NU-Form extended keyboard	58.98
NU-Form extended keyboard w/touchpad	86.82
Tru-Form extended keyboard	77.39
Tru-Form extended keyboard w/pointer	86.81

CONNECTIX

QuickCam (grayscale) digital video camera	97.12
Color QuickCam digital video camera	219.83

EPSON

Acton Scanning System II	376.41
ES-1000C color flatbed scanner	569.37
Expression 636 Executive scanner	849.57
Expression 636 Artist scanner	1269.71
Expression 636 Professional scanner	1756.88

Kodak

DC20 24-bit digital camera	199.00
DC25 24-bit digital camera	499.00
DC50 24-bit digital camera w/Zoom lens	899.00

Cordless Mouse Man	61.39
TrackMan Marble	85.23
TrackMan Live!	119.24

MICROTEK

ScanMaker E3	309.26
ScanMaker E6	556.25
ScanMaker E6 Pro	839.98
ScanMaker 35t Plus	739.40
ScanMaker III w/trans adapter	1389.52

Nikon

AX-110 Scantouch flatbed scanner	286.83
AX-210 ScanTouch flatbed scanner	684.72
AX-1200 Scantouch flatbed scanner	725.91
LS-20 Super CoolScan II	1154.02
Super CoolScan film scanner	1939.58

Polaroid

SprintScan 35LE film scanner	779.41
SprintScan 35ES film scanner	1499.92
SprintScan 35+ film scanner	1995.86

RELISYS

Scorpio Infinity	349.54
Taurus Infinity	526.61

UMAX

Vista-S6E with PhotoDeluxe	289.60
Vista-S6E with full PhotoShop	556.14
Vista-S12 with PhotoShop LE	629.93
Vista-S12 with full PhotoShop	709.10
PowerLook II	1955.00

VISIONEER

Paper Port VX	277.21
SCSI Adapter for PaperPort VX	62.93

PRINTERS

EPSON

Stylus Color 500	279.00
Stylus Color Pro	379.00
Stylus Pro XL	1799.00

HEWLETT PACKARD

HP DeskJet 870Cse Printer	499.00
HP DeskWriter 340 Portable Inkjet Printer	289.84
HP DeskWriter 680C Printer	285.76
HP DeskWriter 1600CM Printer	1959.07
HP LaserJet 5MP Printer	949.39

HEWLETT PACKARD HP LaserJet 5P printer

Big-office printing on a small-office budget

◆ 600 x 600 dpi ◆ 6 ppm print speed ◆ Printer language: enhanced HP PCL5 with MEt ◆ Memory: 2MB standard, 50MB maximum ◆ Fonts: 35 Intellifont, 10 True Type ◆ Paper handling: letter, legal, A4, B5, C5, executive, Com-10,monarch, plain paper, envelopes, transparencies, card stock, postcards and labels ◆ 12,000 pages per month duty cycle ◆ 1-year warranty ◆ HP-C3150A

$769.89 CDW 52178

HP LaserJet 6P printer

Full-featured laser printer for business

◆ 600 x 600 dpi ◆ 8 ppm print speed ◆ Printer language: HP PCL 6 ◆ Memory: 2MB standard, 50MB maximum ◆ Fonts: 45 scalable typefaces built-in◆ Paper handling: letter, legal, transparencies, envelopes, labels and postcards ◆ 250-sheet universal cassette tray and 100-sheet multipurpose tray ◆ 1-year warranty with free HP Express Exchange overnight printer replacement ◆ HP C3980A

$729.95 CDW 74906

HP LaserJet 6MP printer

MacUser AWARDS Editors' Choice 1996 Finalist Best New Monochrome Printer

Fast, professional printing with expandability options

◆ True 600 x 600 dpi laser–Resolution Enhancement technology (REt) with microfine toner ◆ 8 ppm print speed ◆ 3MB standard plus Adobe Memory Booster™ technology (AMBt), up to 35MB maximum ◆ Printer language: HP PCL 6 and Adobe PostScript Level 2 ◆ Fonts: Adobe PostScript Level 2, 35 scalable typefaces built-in HP PCL 6, 45 scalable typefaces built-in ◆ Paper handling: letter, legal, transparencies, envelopes, labels and postcards ◆ 250-sheet universal cassette tray and 100-sheet multipurpose tray ◆ 1-year warranty with free HP Express Exchange overnight printer replacement ◆ HP C3982A

$878.45 CDW 74908

Stock up on Hewlett Packard supplies at low CDW® prices!

HP LaserJet 5P Printer		
Toner cartridge	$78.41	CDW 53620
4MB memory SIMM	$139.63	CDW 41064
16MB memory SIMM	$449.43	CDW 41067
Adobe PostScript Level 2	$264.88	CDW 55183
HP LaserJet 6MP Printer		
Toner cartridge	$78.41	CDW 53620
HP LaserJet 6P Printer		
Toner cartridge	$78.41	CDW 53620
16MB memory SIMM	$449.43	CDW 41067

800-291-4239

www.cdw.com

Call for a FREE CDW® catalog!

1997 CDW Computer Centers, Inc. MU1987 MacUser 3/97

CIRCLE 136 ON READER SERVICE CARD

MacUser

50 Beale Street, 12th Floor
San Francisco, CA 94105
Phone (415) 547-8600
Fax (415) 547-8803

National

John Blake, Group Publisher (415) 547-8929; (617) 393-3075
William P. Howard, Group Associate Publisher (415) 547-8959
Cheri L. McKeithan, Group National Sales Manager (415) 547-8652
Jen Weiss, Ad Coordinator (415) 547-8726

Mid-Atlantic/Southeast (AL, DC, DE, FL, GA, MD, NC, Metro NY, NJ, PA, SC, VA, WV)

Melinda Martin, District Sales Representative
Mystic Center, 10 President's Landing
Medford, MA 02155; (617) 393-3692
Dina Barberio, Account Executive (415) 547-8677
Andrea Villani, Sales Assistant (617) 393-3068

Northeast (CT, MA, ME, NH, upstate NY, RI, VT, Canada , except Alberta and British Columbia)

Sharon Kiernan, District Sales Manager
Mystic Center, 10 President's Landing
Medford, MA 02155; (617) 393-3060
Heather McKee, Account Executive (415) 547-8640
Andrea Villani, Sales Assistant (617) 393-3068

Midwest (AR, IA, IL, IN, KS, KY, LA, MI, MN, MO, MS, ND, NE, NM, OH, OK, SD, TN, TX, WI)

Tom Hernandez, District Sales Manager
150 North Wacker Drive, Suite 2500
Chicago, IL 60606; (312) 214-7343
Chris Lindberg, Account Executive (415) 547-8622
Jennifer McKiernan, Sales Assistant (312) 214-7348

Northwest CA (San Mateo and north, AK, CO, HI, ID, MT, OR, WA, WY, Canada; Alberta, British Columbia)

Laura Goodwin, District Sales Representative
50 Beale Street, 12th Floor
San Francisco, CA 94105; (415) 547-8657
David A. Griffis, Account Executive (415) 547-8658
Ryan Saurer, Sales Assistant (415) 547-8634

Bay Area CA (South Bay, NV)

Christine Perry, District Sales Representative
50 Beale Street, 12th Floor
San Francisco, CA 94105; (415) 547-8630
John Scott, Account Executive (415) 547-8631
Ryan Saurer, Sales Assistant (415) 547-8634

Southwest CA (So Cal, AZ, UT)

Dan Hudson, District Sales Representative
11766 Wilshire Blvd., Suite 1550
Los Angeles, CA 90025; (310) 268-1376
James Loza, Account Executive (415) 547-8604
Lisa Hooper, Sales Assistant (310) 268-1375

Advertiser Index

RS#	ADVERTISER	PHONE NUMBER	PAGE
15	AEC Software	800-450-1983	12
*	Apple Computer, Inc.	800-500-4862, ext. 100	2-3
*	Apple Software, Claris	800-950-5382, ext. 784	45
148	APS Technologies	800-235-3707	150-151
76	Bare Bones Software	617-676-0650	117
19	Bottom Line Distribution	800-990-5699	158
*	Broderbund Software	800-474-8696	111
99	Caere Corporation	800-535-SCAN	37
119	ClubMac	800-258-2622	76-83
120	ClubMac	800-258-2622	146-147
136	Computer Discount Warehouse	800-291-4239	161-163
77	Corel Systems Corporation	613-728-0826 ext. 3080	47
50	CRA Systems	800-375-9000	144-145
28	Dantz Development	800-95-BACKUP	113
105	DayStar Digital	800-962-2077	124
125	Deneba Software Inc.	800-7-Deneba	9
19	DGR Technologies	800-990-5699	158
10	Diehl Graphsoft	410-290-5114	131
33	Digital Graphix	800-680-9062	159
90	EarthLink Network	800-395-8425	71
73	Engineered Software	910-299-4843	6
122	Epson America	800-GO-EPSON	15
80	Epson America	800-GO-EPSON	55
123	Epson America	800-GO-EPSON	133
153	Extensis	800-796-9798	16
71	FWB Software	http://www.fwb.com	98
43	Integrated Micro Solutions	888-IMS-8282	118
23	LLB Company, Inc.	800-848-8967	152-153
108	Mac Bargains	800-407-7404	148-149
146	MAC Xtra	800-553-4230	167
147	MacConnection	800-998-0029	156-157
18	MacMall	800-217-9498	140-141
19	MacProducts, USA	800-990-5699	158
27	MacSoft	612-559-5140	192
157	MacWarehouse	800-725-1458	138-139
135	MacZone	800-436-8000	154-155
*	Microsoft Corporation	800-967-5363 ext. 433	28-29
86	Mitsubishi Display Products	800-843-2515	41
85	Motorola Computer Group	800-759-1107 ext. MCU	22-23
*	NetBuyer	www.netbuyer.com	123
69	Olympus Image Systems	800-347-4027	97
130	Orange Micro	714-779-2772	122
131	Orange Micro	714-779-2772	195
143	Palm Computing	800-881-7256	126
*	Portrait Display Labs	800-858-7744	51
24	Power Computing	800-405-7693	Cover 2-4, 1
*	Power Computing	800-405-7693	57-68
24	Power Computing	800-405-7693	Cover 5-8
138	Prodigy Services Company	800-PRODIGY	121
75	ProDirect	800-555-1256	142-143
140	QMS, Inc.	800-523-2696 ext. 52	20
5	Quark, Inc.	800-788-7835	18-19
160	Ricoh Corp Consumer Product Group	702-352-1600	107
*	SONY Electronics Inc.	www.sony.com	10-11
54	Splash Technologies	http://www.SplashTech.com	7
124	Tektronix	800-835-6100	43
141	UMAX Computer Corp.	800-232-UMAX	34-35
126	XANTÉ Corporation	800-926-8839	105
68	Xerox Corporation	800-ASK-XEROX ext. 487	52
*	ZDTV	thesite.msnbc.com	197
*	Ziff-Davis Benchmark Operation	http://www.zdnet.com/zdbop	53
*	Ziff-Davis Benchmark Operation	http://www.zdnet.com/zdbop	134
*	Ziff-Davis Reprints	800-825-4237	158

*Denotes no reader service number.

1•800•553•4230

Call Mac Xtra Now!

Fax • 206•746•5324 International 206•746•3803

72-Pin SIMMs

For Q 605/650,610,650, 700,800-840AV, LCIII/475/630,PERF 460-580/575 / 6116CD, PMAC 61/71/8100 W650/60/66/6150/61/8150

4MB 70NS/60NS – $21/23
8MB 70NS/60NS – 42/44
16MB 70NS/60NS – 89/92
32MB 70NS/60NS – 179

PC SIMMS

4MB 70NS/EDO – 35/40
8MB 70NS/EDO – 69/49
16MB 70NS/EDO – 155/95
32MB 70NS/EDO – 246/239

168-Pin DIMMs

For PM 9500,8500,7500,7200

8MB – $45
16MB – 85
32MB – 179
64MB – 367

http://www.macxtra.com

NEW EDO DIMMS

For Motorola StarMax Gateway 200 Systems

8 MB EDO 3.3volt – $59
16 MB EDO 3.3volt – 95
32 MB EDO 3.3volt – 205
64 MB EDO 3.3volt – 419

For Power Computing PowerBase Systems

8 MB EDO 5volt – $55
8 MB EDO 5volt – 95
8 MB EDO 5volt – 202

PLEASE CALL US FOR ALL YOUR OTHER MAC & PC NEEDS .....

Powerbook Series

PB 500 Series

4MB – $74 8MB – $79
16MB – 142 32MB – 270

PB 2300 Series

4MB – $74 8MB – $116
32MB – 327 16MB – 166
36MB – 333

PB DUO 190 Series

4MB – $68 8MB – $105
12MB – 140 16MB – 168
32MB – 307

PB 5300 Series

8MB – $78 16MB – $139
12MB – 141 48MB – 505
32MB – 350

PB DUO 210/230 Series

8MB – $89 12MB – $135
20MB – 220 36MB – 337

PB Accessories

Nupowr 117Mhz 8MB – $560
Nupowr 167Mhz 8MB – 899
Slimpack Battery/Duo – 253
Mini A/C Duo Adapter – 62
VST PB5300 Bat/Chrgr – 329
Apple PB500 PC Upgr – 1229
Int. Battery pk 140/180 – 59
Battery PB100 – 49

Modems

•GLOBAL VILLAGE•
Teleport 33.6 Internet Ed. – $179
Powerport Gold II 14.4 – 112
Powerport Plat. PC Card 28.8 – 349
Powerport Plat. PC Card Pro – 519

•SUPRA•
Expresa 33.6 EXT V.34 – $149
14.4 V.32bis – 69
33.6 V.34 Fax Modem – 199
SupraExpresa 33.6 Int(PC) – 169
Supersonic 33.6 V.34 W/voice 275
Expresa 28.8 v.346/R Fax Ext 175

•MOTOROLA•
ISDN Bitsurfer Pro – $365

•US ROBOTICS•
28.8 V.34 Internet Bundle – $175
28.8 Sporteter Ext W/Voice – 205
28.8 Sporteter V.34PC card – 215

Media

•IOMEGA•
ZIP 100 Single – $19
ZIP 100 5-Pack – 49.50
ZIP 100 10-Pack – 139
JAZ 540MB Single – 69
JAZ 540MB 5-Pack – 294
JAZ 1GB Single – 125
JAZ 1GB 5-Pack – 479

•SYQUEST•
EZ FLYER 230MB Cart. – $29.50
SYJET 1.5GB Cart. – 105
SYJET 1.5GB 3/PK Cart. – 275
SYJET 1.5GB 5-PK Cart. – 462

•SONY•
MO 128MB 3-Pack – $44
128MB Format 3-Pack – 50
MO 230MB 3-Pack – 55
230MB Format 3-Pack – 60
DDS 4MM 2GB Data – 8
DDS 4MM 4GB Data – 25

•VERBATIM•
128MB 3.5 MO Disk – $16
230MB MO Disk – 20
600MB/512K MO Disk – 51
650MB/1024K MO Disk – 51
1.2GB/512K MO Disk – 60
1.3GB/1024K MO Disk – 60
DATA 4MM DC 187 FT – 6.50
DATA 4MM DC 295 FT – 7.50
DATA 8MM DC 367 FT – 6.50

FPU's

FPUS/MATH/COPROCESSOR
CENTRIS FPU 25MHZ – $126
FPU 33MHZ DUO/P600 – 51
FPU Color Classic 16MHZ – 45
LC575 33MHZ FPU – 256
LC FPU 16MHZ – 49
LCIII FPU 16MHZ – 49

•VRAM•
256K 80NS V RAM – $15
512K VRAM – 20
1MB V RAM (DIMM) – 45
2MB V RAM (DIMM) – 119

•CACHE•
256K Cache 61/71/8100 – $55
512K Cache 61/71/8100 – 220
1MB Cache 61/71/8100 – 355
256K DIMM Cache – 64
512K DIMM Cache – 139

Drives

•APPLE DRIVES•
1.2GB Drive – $467
2GB/4GB Drive – 765/1089

•QUANTUM•
1.2GB Int/Ext Drives – $323/599
2.1GB Int/Ext Drives – 389/479
4.3GB Int Atlas Drive – 1127
4.3GB Ext Atlas Drive – 1225

•NEC•
6XE Multi-spin CD Drive – $369
4XC 7-CHR CD-Rom Drive – 359
4X 4V INT. CD-Rom Drive – 176

•IOMEGA•
Zip 100 Drive W/Ctg. – $199
Jaz 1GB Drive w/Cart. – 499

•APPLE•
Apple 600E Ext CD Drive – $269

•SYQUEST•
EZ FLYER 230 Drive – $295
SYJET 1.3GB Drive – 495

•Mac Xtra•

Prices subject to change without notice.
Office Hours: M-F, 7am to 6pm; Sat., 9am to 4pm

Overnight Del. $7.50 and UPS ground $6 & up
Returns subject to approval & restocking fee
We accept P.O.'s from fortune 500 & educational institutions

Mac Xtra - 1075 Bellevue Way NE, Ste. 114.
Bellevue, WA 98004
Phone (206) - 746-3803 - Fax (206) - 746-5324

MacUser MARKETPLACE

MarketPlace
The cost-effective buying arena that provides sellers of Macintosh compatible products 3 advertising options: Premier, Classified and Business Card to meet their specific advertising goals, reaching 452,443 Macintosh Business Buyers. All sections are set up by product category and offer reader service.

Premier
The four-color showcase that spotlights leading-edge products and services.

168-174

Classified
Flexible-format display advertising that offers diverse sizes plus two and three color options. Section meets dynamic advertising needs for all Macintosh products and services.

175-190

Business Card
A forum for innovative, unique, low-cost and hard-to-find Macintosh hardware, software, and miscellaneous products and services.

191

	Premier	Classified
HARDWARE		
Bar Coding		174
Boards/Components/Chips	169	174
CD-Rom		177
Computer Systems	170	177
General		
Input/Output Devices		
Multi-Media		
Peripherals	170	171
Powerbook Products	173	
SOFTWARE		
Bar Coding	173	187
Business		
CAD/ CAM		
CD-Rom		
Communications/Networking	173	
Education		
Entertainment/Games		
General	174	188
Graphics/Fonts		187
Multi-Media	173	
Music/Midi	174	172
Programming Tools/Languages		
Scientific/Engineering		
Security		
Utilities		
Adult		190
SERVICES		
Computer Insurance		
Data Conversion/Data Recovery		187
Desktop Publishing	174	
Digital Output		
Disk Duplication		
Online Services	174	172
Repair Services		187
Slide Imaging		
MISCELLANEOUS		
Accessories		174
Supplies		187

Account Representatives

Massimo Bufalini
212-503-5941
Midwest

Annuradha Kumar
212-503-3802
Northwest

Alexandra D'Anna
212-503-5963
Southwest

Lisala Beatty
212-503-5153
Eastcoast

Central Advertising Staff

Robert A. Bader
Vice President, Central Advertising

Ken Holmstrom
Director, Sales & Marketing

Alexandra D'Anna
Sales Manager

Ad Sales Information

One Park Avenue, Third Floor
New York, NY 10016
(212) 503-5115 or (800) 825-4ADS

David S. Martinez
Sr. Production Coordinator

Debra Barrie
Advertising Coordinator

PERIPHERAL ENHANCEMENTS CORPORATION

WORLDWIDE MEMORY MANUFACTURERS

800/640-0733

Founded in 1986, Peripheral Enhancements Corporation, (formerly Peripheral Outlet, Inc.) is a leading worldwide manufacturer of computer memory upgrades. Our ten-year relationship with our customers is one built on mutual trust and respect. You have no time for problems; that's why our salespeople don't make promises unless they can deliver. Top-quality memory, delivered on time, as agreed and at affordable prices, are the cornerstones upon which Peripheral builds its relationships.

Unsurpassed Technical Support. The Peripheral Enhancements Corporation tech support team stays abreast of the changing memory business, offering reliable, informed answers to your questions. Our easy-to-follow instructions are available with each shipment. Technical assistance calls are toll free!

Lifetime Warranty. Peripheral stands behind every product we sell. We test each and every module prior to shipping. If a problem ever arises with a part, however, send it back for a prompt repair or replacement, often performed within 24 hours of our receiving the part from you.

100% Reliability. Our buyers source top-quality components worldwide and build modules with quality unsurpassed in the industry. Every memory module sold meets or exceeds all original equipment manufacturers specifications.

Aggressive Pricing. Peripheral sells millions of dollars in upgrades every week. Our consistent buying in large quantities assures you a competitive price, every time you order. Order by 6:00 PM CST for same day shipping!* Overnight delivery from $8.00

*some restrictions apply

www.peripheral.com

PERIPHERAL ENHANCEMENTS CORPORATION
327 East 14th, PO Box 2329 Ada, Oklahoma 74821-2329
405/332-6581 FAX 405/436-2245 sales@peripheral.com
HOURS: Monday-Thursday 6AM-7PM, Friday 6AM-6PM CST

CIRCLE 171 ON READER SERVICE CARD

FREE CHILDREN'S SOFTWARE CATALOG

Includes McGee® NO WORDS Software series!

1-800-421-4157

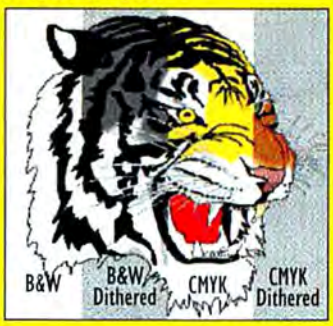
LAWRENCE PRODUCTIONS

CIRCLE 172 ON READER SERVICE CARD

An affordable PostScript solution for Macintosh

Image Alchemy PS features:

- **PostScript RIP**
- **Image Conversion of 75+ formats**
- **JPEG Compression**
- **Color Management**
- **Unlimited Scaling**



Handmade Software, Inc.
Tel +1 510 252 0101
Fax +1 510 252 0909
Email: info@handmadesw.com

CIRCLE 173 ON READER SERVICE CARD

Run Your Mac Faster and Save!

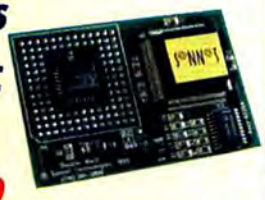
Accelerate Mac LC, LC II, Color Classic, IIci, IIsi, IIvx, or Performa 600 to '040 Speed Starting at $199

Sonnet Presto™ LC 040 50/25 MHz accelerators increase Mac LC, LC II or Color Classic performance 470% as fast as a stock machine (processor performance, MacBench2). Use RAMDoubler or Virtual Memory to break the 10MB barrier with the Presto LC (except Mac LC, OS 7.1+req'd). The Presto LC is only $199, or with hardware Floating Point Unit (FPU) $249.

The 80/40MHz version for the Mac IIsi*, IIci, IIvx, or Performa 600 increases processor performance by 250-500%. The 80/40 MHz Presto is only $299, or with FPU and 128K level 2 cache, $399.

All Prestos are 100% application software compatible and run through System 7.5.5*. The Prestos are easy to install in the Macs' processor direct slot, and come with clear installation instructions. (*Some configurations are not compatible with RAMDoubler or Virtual Memory. Adapter req'd IIsi)

Allegro's Fast 68030s Give New Life to Mac SE, II, IIx, LC, LC II, Color Classic from $99



Give your older Mac more muscle. Sonnet Allegros™ are packed with features at bargain prices. The 33MHz Allegro LC for the Mac LC, LC II, Color Classic doubles your cpu speed, adds 16K level 2 cache and includes an FPU–all for only $149. The 33MHz Allegro SE increases performance 460%, includes an FPU and 4 SIMM slots to expand memory up to 16MB for a bargain $199. Allegro Mac II, IIx models double '030 speed to 33MHz for a mere $99.

150MHz PowerPC 604 for 7500 $399*

Give your Power Mac 7500 the PowerPC 604 upgrade it was designed for. This power-packed upgrade is 100% compatible with your existing software and hardware–including cache card. Just plug it in and enjoy the productivity you deserve. *with 601 card trade-in.

66MHz PowerPC 601 with 256K Cache
For Quadra 605, LC/Performa 47X/57X/58X/63X.....$599

Upgrade Your PowerBook 520/540 to 100MHz 603e with 8MB Memory for $399*

This is the genuine Apple Computer upgrade product designed to bring your trusted PowerBook 520 or 540 into the PowerPC generation with a speedy 100MHz 603e PowerPC processor. With this upgrade you can run all native PowerPC applications the way they were meant to be. Upgrade your reliable ethernet-equipped PowerBook to PowerPC, and prepare for the MacOS future. The upgrade includes 8MB of memory and is compatible with your existing RAM expansion board. *Price after a $100 discount for trade-in of your existing 68LC040 card.

Run the Fastest Quadra Ever! 100/50 MHz is Faster than 840AV

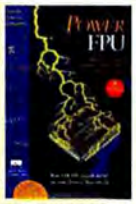
Only $399

Plug the Sonnet QuadDoubler™ into a Quadra 610, 660AV, 700, 900, or Centris 610*, 660AV, 650 and run virtually twice as fast as before for only $399. No software upgrades or changes are required. Just plug the QuadDoubler into your CPU socket and power up your Mac. A CPU extraction tool is even included to simplify installation. The QuadDoubler includes a Floating Point Unit for superfast rendering or calculations. A cache card is also available for the Quadra 700/900 for even more performance. *The Centris 610 QuadDoubler runs at 80/40 MHz and is value-priced at $299 (without FPU $199).

Add Math Coprocessor to 68040 Macs & PowerBooks

Give your Quadra, Centris, or PowerBook 520/540 a math coprocessor for rendering, Photoshop, CAD, or other Math intensive applications. 25MHz 68040 $125*, 33MHz 68040 with heat sink $169*. Add a full 66/33MHz 68040 with FPU to your PowerBook 520 or 540 for $249*. This upgrade also speeds 520 to 66/33MHz 540 performance. Call for PB190, Duo280 or 68882 FPU. *68LC040 trade-in req'd.

PowerFPU



Add FPU support to Apple 68K emulator. Run all 68K FPU applications at full speed on Power Mac FPU hardware. Eliminate "coprocessor not installed" errors. 10x faster than Software FPU. By John Neil. $75

We Are Cache King

We build 'em & will not be undersold!
256K-6100/7100.....$49
256K-7200/7500.....$59
512K-7200/7500/7600/8500.$109
256K-5260/5400/6360/6400...$99

MasterCard

SONNET™ SONNET TECHNOLOGIES, INC.
18004 Sky Park Circle, Irvine, California 92614
714-261-2800 Fax 261-2461 sales@sonnettech.com

800-786-6260
http://www.sonnettech.com

VISA

VISA, MasterCard and AMEX no surcharge. We used to have a surcharge; we don't anymore. Government, corporate and education P.O.s welcome. We actually welcome all types of customers, as long as you are nice to our sales reps. One year limited warranty on all products. If you step on it and break it we limit the warranty, otherwise we don't limit it too much. All returns require an authorization and are subject to a restocking fee. We think you'll love our products; if you don't we have to pay Chuck to process the return, so you have to help pay for Chuck. ©1997 Sonnet Technologies, Inc. Sonnet, the Sonnet Logo, Allegro, Presto and QuadDoubler are trademarks of Sonnet Technologies.

PREMIER

Computer Pros
Your Macintosh Source.

Ask for Our Latest Low Prices!

1-800-329-4MAC (4622)
International Orders (305) 825 9574
E-Mail: mailman@synaptix-inc.com Web address: http://www.synaptix-inc.com

POWER MACINTOSH
7200 120MHz 16/1.2GB/8x/L2...$1595
7200 120MHz 16/1.2GB/8x/L2/DOS....$1895
7600 120MHz 16/1.2GB/8xCD/L2.....$1695
7600 132MHz 16/1.2GB/8xCD/L2.....$1995
8500 150MHz 16/2GB/4xCD/L2.....$2495
8500 180MHz 32/2GB/8xCD/L2.....$3295
9500 180MP 32/2GB/8xCD/L2.....$4599
9500/200 32/2GIG/8xCD/L2.....$3799
ALL APPLE WORKGROUP SERVERS.....CALL

PERFORMAS
6360 160MHz/16/1.2GIG/BXCD/28.8...$1295
6320CD 16/1.2GB/4xCD/15" Monitor/ kb/mouse/28.8/software.....$1599
6400/180 16/1.2GB/BXCD/ 28.8...$1499
6400/200 16/1.2GB/BXCD/ 28.8...$1699

SCANNERS
Apple ColorOne 1200/30.....$785
Apple ColorOne 600/27.....$585
UMAX Vista S-8 w/Tran/Full Photo.....$895
VISTA S6E w/Full Photoshop..$595
UMAX PowerLook2 w/Trans.Adap/ Software.....$2995
Trans.Adapter for S-6/S-8.....$295
VISTA S-12 w/trns.....$995
UMAX COMPUTERS.....CALL

PERIPHERALS
Apple QuickTake 150.....$585
Apple 600e 4xCD-ROM.....$285
Apple Design Power Speakers.....$135
Newton Message Pad 130.....$795
PENT DOS CARD P-100.....$995
586-DOS CARD 100MHZ.....$799
Newton Message Pad 2000.....$Call
E-Mate 300.....$Call

KEY BOARD
Apple Extended Keyboard.....$145
Apple Design Keyboard.....$75
MACally Extended Keyboard.....$72

POWER BOOK
1400CS 12mb/750mb/dual-scan.....$2195
1400CS 16mb/750mb/6xCD/dual-scan...$2595
1400CS 11mb/iGIG/6XD/active-matrix....$3195

STORAGE
Iomega ZIP Drive.....$195
Iomega Jaz Drive.....$495
Syquest EZ-Flyer 230MB.....$285
Syquest 200MB $435
Seagate 2.1gig capella $385
Seagate 2.1 Barracuda.....$695
Quantum 2.1 Tempest.....$395
Seagate 4.3 Capella.....$995

PRINTERS
Apple Color StyleWriter 1500.....$245
Apple Color StyleWriter 2200.....$375
Apple Color StyleWriter 2500.....$335
Apple LaserWriter 4/600PS.....$775
Apple LaserWriter12/640PS.....$1595
Apple LaserWriter 16/600 PS.....$2195
Apple ColorLaserWriter12/600 PS.....$6395
GCC Elite XL 608.....$2195
GCC Elite XL 808.....$2895
GCC Elite XL 1208.....$3895

SIMMS/DIMMS
4MB $45/55
8MB $75/95
16MB $135/175
32MB $240/335
64MB $465/645

APPLE MONITORS
Apple MultiScan 14" Display.....$295
Apple MultiScan 15" Display.....$385
Apple MultiScan 15"AV Display.....$395
Apple MultiScan 1705 Display.....$725
Apple MultiScan 1710 Display.....$895
Apple MultiScan 1710AV Display...$995
Apple Vision 20" MultiScan.....$1895

*Govt/Education PO'S Welcome *Prices reflect a 3% cash discount. *Prices subject to change. * Hablamos Español

CIRCLE 174 ON READER SERVICE CARD

CIRCLE 175 ON READER SERVICE CARD

CIRCLE 176 ON READER SERVICE CARD

"MACUSER MARKETPLACE GIVES A NEW BUSINESS EVERY ADVANTAGE. THE SMARTSTART PROGRAM HELPS CUT THE COST OF ADVERTISING IN THE FIRST ISSUES OF YOUR CAMPAIGN. YOU CAN REAP THE REWARDS OF RUNNING FULL FREQUENCY AND START MAKING MONEY, INSTEAD OF WORRYING ABOUT UP FRONT COSTS."

— Claudia Garcia
President
Compu Concepts
d/b/a Mac Mail

PUT YOUR AD HERE AND WRITE YOUR OWN MACUSER SUCCESS STORY... START ADVERTISING NOW! CALL 800-825-4237 TODAY!

RECORD CDs
NEW!
$499
A/D CD RECORDERS
2X/4X CD-R
• Stackable Design
• Convenient On/Off
• Includes Toast Pro
(4X CD-R $899)
MORE CD-R BLANKS
$5.99
w/purchase of CD-R Drive limit 10 - 7.49 by themselves
Kodak • TDK • Verbatim • Mitsui
MEDIA SPECIALS
OPTICAL
128MB... $10.99
230MB... $14.99
650MB... $29.99
1.3GB... $39.99
2.6GB... $69.99
New Price
JAZ $449
External w/Cart.
1GB Removable HD
DLT 30 GB $2895
40 GB $4895
• Lowest Cost per MB
• Highest Capacity
• Fastest Transfer
SYQUEST JAZ & ZIP
44MB... $33
88MB... $37
200MB... $55
105MB... $45
270MB... $52
JAZ 1GB $95
ZIP 100MB $14.99
CD-R PRINTER
NEW
$1495
• CD's, Paper, or Cardstock
• 720 DPI
• Brilliant Color
JAZ/CD-R DUO
EXTREME
We used our two Extremes to burn over 100 CDs... We couldn't have finished our project on time without the Extremes"
- Greg Labada, McDonnell Douglas
"...I am absolutely floored! An amazing piece of hardware"
- John Manzione, MacNett
MEDIASTORE...has produced a real excitement in my product line. The Extreme fits an important need for my customers"
- Edward Craig, Craig Systems
$999
CD LABELER
• Interactive CD of Templates
• 100 Labels and Jewel Cards
• 100% Accurate Label Applicator
Only $79
NEW
CD-R Safe Pens $4.95
CD DUPLICATION SYSTEM
16 CD's per hour
(see our website under Changers)
or ... CALL
SOFTWARE
ASTARTE.
CD-DA Mac software for writing "Red-Book" Audio CDs $399
CD-COPY Mac software for bit by bit copying of CDs $199
M-PACK MPEG Encoding software for Mac $399
TOAST 3.0 The #1 CD Writing SW for Mac, Improved $299
STUDIO W/TOAST 3.0, CD DA & CD Copy $499
digidesign
AUDIOMEDIA III Mac PCI Audio I/O card $699
MASTERLIST Mac software for writing Pro Audio CDs $499
SESSIONS Audio Edit software $199
PROTOOLS Professional Audio, For use w/PCI $699
MACROMEDIA DIRECTOR 5 #1 Authoring Tool $499
MEDIASTORE
See us at http://www.mediastore.com
800-555-5551
NEVER UNDERSOLD!
ph. 714-974-5551 • fx. 714-279-1690

CIRCLE 177 ON READER SERVICE CARD

Stop Pentium Chip Theft With The CoverLock™
Locks CPU Case/CD ROM/Floppy Drive
• Prevents Pentium processor and memory chip theft
• Secures all internal components
• Universal – Fits most CPU Models
• Locks in CD ROMs
• Optional security cable available to lock down equipment
• Locks available keyed alike, keyed differently, or master keyed
• Lifetime warranty on all components
Quick And Easy To Install!
Suggested Retail Price $29.95
Computer Case Lock (COV-400)
CD Rom Lock (COV-400)
Secure-It
Order now — Call 800-451-7592...
18 Maple Court, East Longmeadow, MA 01028, USA phone 413-525-7039
FAX: 413-525-8807 EMAIL: secure-it@owls.com INTERNET: http://www.secure-it.com
©1996 Secure-It, Inc.

CIRCLE 178 ON READER SERVICE CARD

The easiest way to record your own CDs!
MICRO SYNERGY
A Subsidiary of Innovative Diversified Technologies, Inc.
NEW
4x6x CD-R
4X Write/6X Read
WITH TOAST (MAC) SOFTWARE
EXTERNAL
External Kit includes:
• External 4x6x Drive
• Power & SCSI Cables, Terminator
• Toast Mastering Software
• Manual, Registration Card
• One 74min blank media
$899
INTERNAL
Internal Kit includes:
• Internal 4x6x Drive
• Toast Mastering Software
• Manual, Registration Card
• One 74min blank media
$869
CD Labeling Kit ONLY! $49.99
NEW LOW PRICING
2x4x CD-R
2X Write/4X Read
WITH TOAST (MAC) SOFTWARE
EXTERNAL $409
INTERNAL $359
NEW
2x6x CD-R
2X Write/6X Read
WITH TOAST (MAC) SOFTWARE
EXTERNAL $449
INTERNAL $399
CALL
SCSI CD-ROMS
8X / 10X / 12X
74min CD-R Blank Media
$5.65
Up to 10pc's when you buy a CD-R Drive
$6.99 ea. mailer
PLUG & RECORD
FULL LINE OF WINDOWS NT DUPLICATION SERVERS
• 5 UP DUPLICATION SYSTEM $7999.00
• CUSTOM DUPLICATION SYSTEMS
1-888-877-6777 ask for extension 301
(714) 727-3092 • FAX (714) 727-3565
Price & Availability may change without prior notice

CIRCLE 179 ON READER SERVICE CARD

Apple 180 MP and BayStar Multiple Processors Improve Performance of After Effects and Photoshop

Digital Video Editing

Authorized Value Added Reseller

Ask About Media 100 LE and LX For Delivery in So-Calif.

Media 100QX PCI Power Mac 9500-200-96-2000-8xCD	$12495
Media 100QXC PCI DayStar Genesis 360-128-2000-8xCD	15955
With 8 GB UltraWide Array, 17" Monitor, Ext Keyboard, and Adobe Premiere	
Media 100QX PCI With 8 GB UltraWide Array & Adobe Premiere	6850
Targa2000 PCI Power Mac 7600-132-80-1000-8xCD	10465
Targa2000 PCI Power Mac 9500-200-96-2000-8xCD	12450
Targa2000 PCI Power Mac 9500-180MP-96-2000-8xCD	13500
With 8 GB UltraWide Array, 17" Monitor, Ext Keyboard, and Adobe Premiere	
Targa2000 PCI With 8 GB UltraWide Array and Adobe Premiere	6850

Ask About The New Radius VideoVisionSP Component!

VideoVision PCI Power Mac 9500-200-96-2000-8xCD	12450
VideoVision PCI Power Mac 9500-180MP-96-2000-8xCD	13500
With 8 GB Ultra Array, 17" Monitor, Radius Edit, After Effects, Pipeline VTR	
VideoVision PCI With 8 GB Ultra Array, Edit 2.0, After Effects, VTR	6850
Targa2000 RTX Power Mac 9500-200-96-2000-8xCD	19455
Targa2000 RTX DayStar Genesis 720-128-2000-8xCD	20505
Above With 8 GB UltraWide Array, 17" Monitor, Ext KB, Scitex SphereOUS	22555
Targa2000 RTX With 8 GB UltraWide Array With SphereOUS	13855

Video Disk Arrays

Rack or Tower RAID Storage to 62 MB/sec

8 Bay High Performance 19" Rack Mountable RAID Arrays
Hot Swappable Fans and Load Sharing Power Supplies

16 GB UltraSCSI RAIDrack Dual SCSI Card+Software	$8995
36 GB UltraSCSI RAIDrack Dual SCSI Card+Software	12495
72 GB UltraSCSI RAIDrack Dual SCSI Card+Software	20995
RAIDrack to 144 GB • 7200 RPM UltraSCSI Drives	

UltraSCSI is Here! Digital Video at 300 KB Per Frame

ProMax on Approved List of Media 100, Radius, Truevision, and Scitex

4 GB Wide-40 UltraSCSI w/2940UW+RAID Software	$1895
8 GB Wide-40 UltraSCSI w/2940UW+RAID Software	3395
18 GB Wide-40 UltraSCSI w/2940UW+RAID Software	4595
36 GB Wide-40 UltraSCSI w/2940UW+RAID Software	8795

FC-AL

Centralized Serial Storage Systems For Digital Video

FC-AL Network Loops Allows Multiple PCI Macintosh Workstations 30 Meters Apart to Share Disk Arrays up to 200 MB/sec

36 GB - 2 Stations - 4 - 9 GB Drives - 10 Bay Rack	$22445
90 GB - 2 Station - 10 - 9 GB Drives - 10 Bay Rack	34995
Add'l Drive Modules - 9 GB Add-in Drive Modules	2095
Add'l Workstation - FC-AL Card, Cable, Software	4695

Systems Include Two FC-AL Host Adapters, Two Users Licenses for Data Management Software, Three FC-AL Cables 2.5 Meters Each, and Remus Lite Striping Software. Expandable to More Than 900 GB.

CD-R

Built Around Philips CD-R 2000 and Yamaha 4x Drives

2* and 4* CD-R Systems For Macintosh
Includes Astarte Toast Pro v3.0

External CD-R System 2x4x With Toast Pro v3.0	$745
External CD-R2x+JAZ Philips 2x4x With JAZ	1095
External CD-R4x+JAZ Yamaha 4x4x With JAZ	1495

JAZ Employs Embedded Servo Making it Excellent Source For Writing CD's.

Premium CD-R 74 Media 10 Pack $30 100 Pack $299 ea

Ask About DayStar Genesis & nPower Processors to 720 MHz

ProMax Custom Configures New or Existing Computers For Digital Video Editing or Pre-Press Applications

DAYSTAR

DayStar Genesis 360 & 720
nPower 360+ & 720+ Processors

Power Macintosh Computers:
7600-132-32-1000-8xCD
9500-200-32-2000-8xCD
9500-180MP-32-2000-8xCD
Media 100QX QXC, LE, and LX
VideoVision and SP by Radius
NEW: Radius Thunder 3D Accelerator
Truevision Targa2000+Pro+RTX+DTX
16, 32, 64 MB Memory - DRAM
ATI 4 MB Video Display Cards
15, 17, 20, and 21 Inch Displays
Sony NTSC Studio Monitors

Call us About Configuring Existing Power Macintosh Computers

Adobe

Adobe Premiere
Adobe Photoshop
Adobe After Effects
After Effects Production
Boris Effects
Scitex SphereOUS Software
Slingshot Editing Software
Internal Audio & Scratch Disks
ATTO SiliconExpress MC SCSI
adaptec PowerDomain 2940UW
Remus Software - RAID-0,-1,-4,-5
PipeLine Pro VTR Control
High Performance Backup Systems
Purchase of Apple Product Must be Made Through a Direct VAR Location Only

High Performance Systems Configured to Your Exact Needs With Industry Recognized Technical Support

Pinnacle 4.6 GB Optical Drive

Apex 4.6 GB System with Cartridge $1565 **Media: 4.6 GB 1 Pack** 129 ea • **5 Pack** $629

Sony SDX-300C AIT Backup System

High Speed Fast/Wide SCSI-2 Interface • Optional Adaptec 2940UW SCSI Host Adapter and Cable $295

Sony SDX-300C Backup System With Retrospect Software and AIT Blank Tape - 25 to 50 GB - up to 300 MB/minute $3995

Sony SDX-T3N AIT Blank Tape Cartridge - 25 to 50 GB of Storage Space • **1 Pack** $80 ea • **5 Pack** $400

For More Information Visit Our Web Page: http://www.scsidisk.com

Call 1-800-977-6629 • 7 to 6 M-F Pacific Time • Credit Cards Accepted

We Ship by Federal Express All Over The World and Offer Expert Technical Assistance and Support

proMAX — A Company Operated by ProMax Systems, Inc.

ProMax Technology
16 Technology Drive - #106 • Irvine, California 92618
TEL: 714-727-3917 • SALES: 1-800-977-6629 • FAX 714-727-3546

Prices subject to change without notice. Delivery subject to availability. Trade names and are the property of their respective owners.

CIRCLE 180 ON READER SERVICE CARD

INTELLIGENT MEDIA

Intelligent Media Inc.

Los Angeles's leading High-End System Integrator configures new and existing systems for blazing Digital Video-Animation & Graphics

Digital Video Editing

Media 100 qx 9500/200/64MB RAM/2GB/8X-CD-ROM	$8,449
Media 100 qx Component 9500/200/96MB RAM/ 2GB/ 8X CD-ROM	$9,749
Media 100 qx Component - Daystar Genesis MP 360, 128MB RAM, 8X-CD	$11,799
Media 100 qx Component - Daystar Genesis MP 720+ 128MB RAM/8X-CD	$14,599

All M100 systems bundled with Adobe Premiere and Pipeline Digital ProVTR.
Media 100 LE, LX, XE & XS available in LA & Orange County only.

VideoVision PCI 7600/132-80MB RAM-1GB HD-8X CD-ROM	$6,699
VideoVision PCI 9500/200/64MB RAM/2GB/8X CD-ROM	$7,699
VideoVision SP 9500/200/96MB RAM/ 2GB/ 8X CD-ROM	$9,199

All VS bundled w/Radius Edit, Adobe After Effects
Disk Arrays and Monitors available for all systems. Please call for pricing.

ULTRA SCSI - 40MB/sec Fixed/Removable Disk Arrays

IM 8GB Ultra Array includes Adaptec 2940UW/Remus Striping	$3,199
FWB SledgePro 2 - 17 GB SLPRO2-17400UWDPCI	$5,997
FWB SledgePro 2 - 8 GB 8700-SLPRO 2 -8700 UWDPCI	$3,897
Micronet Data Dock Removable 8/17GB Arrays	Call

High-End Systems

All systems tested and burned-in before shipping.

IM Custom configures and optimizes killer MAC systems.

Daystar Genesis 360+, 400+, 720+ & 800+ Workstations
Power Macintosh 9500/8500/7600 CPUs
UMAX 200/225MHz CPUs
Media 100QX, QXC
Videovision PCI/SP
8, 16, 32, 64MB DIMMs/SIMMs
IMS/ATI Video Cards
NTSC, PAL, RGB Displays
After Effects Production Bundle
Ultimatte Plug-In
Boris Effects
Final Effects/Studio Effects
Pipeline Digital /Addenda - controls VX-1000
ATTO/Adaptec Ultra Wide Controller Cards

Call for Special Educational Pricing
Corporate and Government PO's Welcome
Trade names and trade marks are the property of their respective owners.
Prices subject to change without notice. Delivery subject to availability.

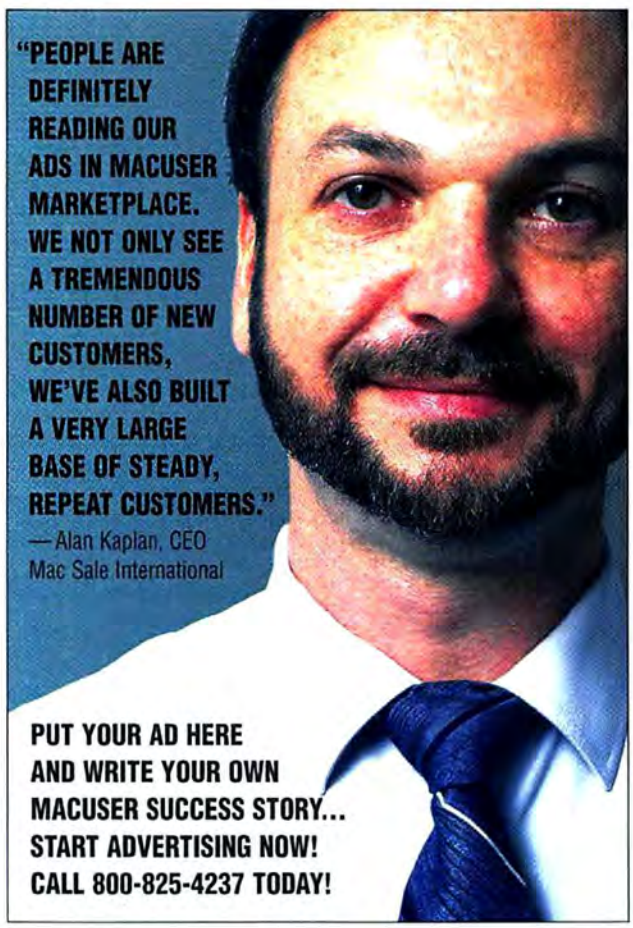
800-DO-MY-MAC

Kodak CD-R Blanks
1 - 10 $7.49ea
Call for quantity discounts

Hours of Operation
8 am to 6 pm M-F PST

Corporate Office
1359 Abbot Kinney Blvd. Suite 201
Venice CA 90291
T 800.DO.MY.MAC F 310.581.8844
E-Mail
info@intelligentmedia.com
Web
http://www.intelligentmedia.com

CIRCLE 181 ON READER SERVICE CARD



Portable Solutions

Charger 1400

VST Technologies is proud to announce our newest line of accessories for the PowerBook® 1400. Once again VST has all the mobile solutions to make your PowerBook truly portable.

1.2 GB Expansion Bay Hard Drives

230 MB Magneto-Optical Drives

For People Who Are Going Places

VST TECHNOLOGIES Incorporated

Contact VST for the full line of products for the PowerBook 1400 Series

125 Nagog Park • Acton, Massachusetts 01720
(508) 263-9700 • Fax (508) 263-9876 • http://www.vsttech.com

Finally! Windows 95 and Macs Share Files and Printers Both Ways

Workgroups and small offices can now operate as efficiently as an enterprise with **PC MACLAN for Windows 95**. Low cost, plug and play installation, Network Neighborhood and long file name support, are just a few of the features that make sharing files, volumes and printers between Macs and PCs a snap.

"For peer-to-peer networking . . . PC MACLAN 6.0 is the only choice."
— Macworld - Nov. '96

Create your own network or complement almost any pre-existing LAN. Sharing information between Windows 95 and Macintosh users is as easy as working off your local hard drive. Print jobs go to the printer of your choice regardless of its location on the network.

NOVEMBER 1996 Macworld STAR Rating ★★★★ 7.5

For ordering or information:
800-862-2526
e-mail: sales@miramarsys.com
Web: www.miramarsys.com

Miramar Systems, Inc.

Visit us at: Sunbelt Computer & Graphics Show Booth #229 — Seybold New York-Booth#132

CIRCLE 184 ON READER SERVICE CARD

BookEndz™ PowerBook™ Docking Stations

Slide in to convert your PowerBook to a complete desktop system, slide out for portability!

Models for 1400, 5300/190, 500, & 100 series

- Eliminates the need for a desktop computer
- Fast, reliable connections every time
- Dock/undock in seconds
- Low cost
- Eliminates cable confusion
- Supports all rear ports
- Adds only 3" to rear of PB when docked

- *Free* NoteBook Enhancements Catalog
- Foreign telephone adapters
- Monitor stands

Orders: 800-682-4987

Pilot Technologies, Inc., Minneapolis MN Tel: (612) 828-6002 Fax: (612) 828-6806
URL: http://www.pilot-tech.com/ Email Address: pilottech@aol.com

CIRCLE 182 ON READER SERVICE CARD

CONNECT Windows® & Windows® 95 to APPLETALK

INSTANT PC TO Mac NETWORKING

PCTalk Personal MACLAN Kit $299

- Share Files and Printers between PCs and Macs in both directions.
- Includes award-winning Miramar PC MACLAN software.
- Plug-and-play solution, available for LocalTalk or Ethernet.

Apex TECHNOLOGY INC.

1-800-767-4858
http://www.apexxtech.com

CIRCLE 185 ON READER SERVICE CARD

Bar Code Solutions

Videx data collection equipment is designed for work on the go. Cast-metal cases protect the products and allow them to work reliably in harsh environments.

Videx Products...Built Tough...Built to Last!

Videx

1105 N.E. Circle Blvd., Corvallis, OR 97330
503-758-0521 • Fax 503-752-5285

Videx, OmniWand, TimeWand, DataWand, and TouchPoint are trademarks of Videx, Inc. 12/96

CIRCLE 183 ON READER SERVICE CARD

A Secret Weapon on CD-ROM

Please do not misuse The Power of Touch

The Power of Touch CD-ROM shows you how to massage and touch. This forbidden CD plays on all Win95, Win3.1, WinNT, Mac, PowerMac and audio CD players. Remember, touch heals and touch hurts. Get in Touch!

Only $44.99, 60 day money back guarantee

Call Now Toll Free: 1-888-THE-CD-ROM

Produced by Das Fischinger Corporation, Santa Cruz, CA
Visit our web site at www.digitilm.com for more information

VISA

2 things our customers say about...

LaserMerge® Electronic Paper New! Version 2.0!

before they buy...

"I can't believe I get all this!"

after they buy...

"I can't believe I got all this!"

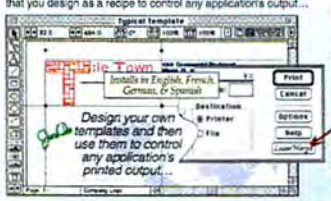
and all for only $40 January Mac Home ♦♦♦½ November MacUser ♦♦♦♦½

it not only replaces over $1,000 worth of software, but it does all this:

- Print 10x Faster
- Create new Paper Sizes & Layouts
- Preview Printing
- Create your own multi-ups
- Booklet/Pamphlets
- Letterheads
- Forms
- Business Cards
- Make Labels
- Control Toner and Ink-Jet Level
- Watermarks
- Cover Pages
- Even/Odd Prints
- Front-to-Back Prints
- PS Level 2 Forms
- Greeting Cards
- Certificates
- 38 Print-Time Text Commands
- Create Bar Codes
- Hi-Res Paper
- Print Logging
- Serialization
- Sign your Letters & Faxes Electronically
- Import EPS/PICT
- Invoices
- Name Plates
- Badges
- Envelopes
- Over 230 ClickBook & Avery Templates
- Print Stamps
- Reduce Network Traffic
- Store Images on the Printer's Disk or in its Memory
- Each layer can be moved, rotated, colorized, clipped, duplicated, & scaled to your design...

For 101 ways to boost the printing power of **any application**, call **(800) 648-6840** or try our demo at **www.mindgate.com**

LaserMerge is a print extension that sits between any application and any printer driver... It uses Electronic Paper Templates that you design as a recipe to control any application's output...



Competitive Upgrade

from ANY Print Utility for only **$40**

30-day money-back guarantee

System 7 required! Works with ANY printer and ANY application, LaserMerge's miracles require only 32K of memory. QuickDraw GX is NOT required!

List Price: Base unit $95 Net. $15-$25/unit
Worldwide: (615) 937-6800
Fax Facts: (615) 937-4636
Fax Orders: (615) 937-6801

Order from us Direct VISA or thru MacWAREHOUSE 800-255-8227 PSA 800-248-0800

MindGate® Technologies, Inc. 164 Oliver Smith Road Flintville, TN 37335-5335

MindGate, LaserMerge, Electronic Paper & their logos are registered trademarks and "This is the Button You Push" is a salesmark of MindGate Technologies, Inc.

CIRCLE 186 ON READER SERVICE CARD

Director 5.0 | Freehand 5.5 | Painter 4.0 | Infini-d 3.5 | Utilities 3.2

Wordperfect

MiniCAD+6

Student-Teacher-School Discounts!!

ArchiCADD 5	$495	Final Draft 3.0	$125	Now Utilities 6.5	$59
AutoCAD R12	$189	Fontographer 4.1	$159	OmniPage Pro 6	$249
Claris Works 4.0	$99	Japan.Language	$125	Quickeyes 3.01	$84
Coda Finale 3.7	$249	Kai's Power Tools	$78	Ram Doubler 2.0	$54
Code Warrior 9	$128	KPT Bryce 2.0	$78	SAM 4.0	$59
Conflict Catcher	$59	Live Picture 2.5	$468	SoftWindows 3.0	$228
DeclI/SounEdit	$249	Mathematica	$145	Studio Pro 1.75	$429
FileMaker Pro 3	$129	MiniTab Rel. 11	$249	The Black Box	$75

SOFTWARE PLUS Software Plus Academic Inc. 377 Route 17 South #116 Hasbrouck Heights, NJ 07604 Tel:201-288-7441 Fax:201-288-7442

*Purchase Orders are accepted from schools
*Most orders are shipped next same day
*Call for 1000's of more titles!
Web Address: http://www.softplus.com

Orders (800)261-8524 Call for Adobe & Microsoft Products!!

ARS NOVA • (206) 889-0927 • (800) 445-4866 • FAX (206) 889-0359 • www.ars-nova.com

IDT PROUDLY UNVEILS ITS NEW enhanced INTERNET SERVICE

InternetPlus™

24/7 TECH SUPPORT | FREE NET2PHONE™ | FREE INDIVIDUAL™ | FREE 2AM™ GAMES

for only **$19.95**

IDT's InternetPlus is for people who are ready to use the Net for all it's worth without having to stop, slow down and get frisked by some online service. **If you're ready for InternetPlus call us any time of the day or night.**

(800) 792-8438

ENJOY A FREE MONTH OF UNLIMITED LONG DISTANCE AND INTERNATIONAL PHONE CALLS!

Get combined InternetPlus and IDT's deep-discount long distance phone service. You'll save a bundle compared to AT&T, MCI or Sprint. PLUS you'll get a rebate check for a full month of calls. (There's no limit). For complete details speak to an IDT customer service associate.

INTERNETPLUS

6090 ©1996 IDT CORP. IDT IS A TRADEMARK OF IDT CORP. ALL OTHER TRADEMARKS ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS.

Full Color Business Cards & More

Direct From Your Computer Files, from NoNEG PRESS

Real Offset Printing • Super Premium Card Stock • Professional Look and Feel

FREE File Trapping • 2540 dpi. & 200 line-screen • **SATISFACTION GUARANTEED**

No. of Different Sets	750 CARD SETS SHIPPED WITHIN 5 Days	10 Days
1-2	$99	$69
3-4	$89	$59
5-6	$79	$49
7+	$69	$39

FREE Samples & Info, Call **1-800-369-5706**

Internet: http://www.business-card.com

CIRCLE 187 ON READER SERVICE CARD

$19.95/mo Web Site FOR RENT

FOR RENT - WEB SITE in great location near Internet backbone, 20 MB of disk space, free CGI and FTP utilities, secure guarded community. Only $19.95 per month with $59.00 set-up. Sites going fast **CALL 1-888-WEB-1995 NOW!**

Digiscape COMMUNICATIONS

1-888-932-1995

e-mail: sales@digiscape.net

http://www.digiscape.net

CIRCLE 188 ON READER SERVICE CARD

Bar Coding

For PC's and Macintosh
- Bar Code Readers
- Portable Readers
- Radio Frequency Readers
- PostScript Bar Code Fonts

■ DIRECT FROM MANUFACTURER
■ 30 DAY $ BACK GUARANTEE
■ FREE "800" TECH SUPPORT
■ IMMEDIATE SHIPPING

800-345-4220

WORTHINGTON DATA SOLUTIONS

BAR CODE PRO™

0 12345 67890 5

Create EPS graphics for your desktop publishing application. Call for free demo disk and information you'll need to make an intelligent purchase for Mac or Windows.

SYNEX

800.619.0299
718.499.6293
Or fax
718.768.3997

CIRCLE 222 ON READER SERVICE CARD

MEMORY

SIMMS

72pin • 60ns • 2k

4 MB.....$19
8 MB.....$29
16 MB.....$75
32 MB.....$149

DIMMS

168pin • 60ns • 2k

8 MB.....$45
16 MB.....$79
32 MB.....$165
64 MB.....$329

SIMM 30pin 2k/70/60ns

1MB.....$15
2MB.....$22
4MB.....$27
16MB.....$129

POWERBOOK RAM
500/5300/190/2300

4 MB . . . . . $ 4 9
8 MB . . . . . $ 8 9
16 MB . . . . . $ 1 3 9
32 MB . . . . . $ 2 4 9
48 MB . . . . . $ 3 9 9

L2 CACHE

256k - 61/71/81..$25
256k - 72/75/85....$49
512k - 72/75/85...$99

VRAM

1MB DIMM 72/75/85 $29
256k SIMM 61/71/81 $15
512k SIMM 61/71/81 $25

HIGHEST QUALITY GUARANTEED!

LOWEST PRICES GUARANTEED!

30 DAY MONEY BACK GUARANTEE

FASTEST SERVICE!

EXPERT TECHNICAL & INSTALLATION ASSISTANCE

WE WILL BEAT ANY PRICE!

SOURCE COMPUTING

CALL/LOGIN FOR LATEST PRICING!

(800) 900-4599

Voice 954/725-9777 • Fax 954/725-9977
http://www.sourcecomp.com

VISA MasterCard FedEx Federal Express NOVUS

GOVERNMENT & EDUCATIONAL INSTITUTION NET POs WELCOME!

NO CREDIT CARD SURCHARGES!

PRICES SUBJECT TO CHANGE W/OUT NOTICE

LIFETIME WARRANTY

CIRCLE 221 ON READER SERVICE CARD

Powerbook Memory Specialists!

MEMORY

Guaranteed Lowest Prices • Lifetime Warranty

Now Selling Printers!

• 168 Pin DIMMS
8/16/32/64 MB $49/79/172/339

• 72 Pin SIMMS
4/8/16/32 MB $19/38/79/165

• 30 Pin SIMMS
1/2/4/16 MB $9/19/32/105

• PowerBook Memory
1400 CALL
5300/500/190
8/16/24/32 MB $85/139/200/264
160/180/180C/160C
4/6/8/10 MB $115/135/220/279
ALL DUOs CALL

HEWLETT PACKARD

Best Prices!

• Memory for All Printers

VRAM 856K	$12	CACHE 256k DIMM	$59
1MB	$32	512K DIMM	$129
2MB	$108	1MB DIMM	$249

Eritech International Inc.

800-808-6242

4551 San Fernando RD #110, Glendale, CA 91204
818-244-6242 818-500-7699
http://www.eritech.com

We accept P.O.'s from government, schools & qualified firms.

CIRCLE 223 ON READER SERVICE CARD

Graphics Plus "Memory for the masses"

30 pin SIMMs
1/2/4 - $12/19/29

72 pin SIMMs
4/8/16/32 - $25/39/91/185

168 pin DIMMs
8/16/32/64 - $49/89/189/369

PB 500 series
8/16/32 - $89/139/265

PB 5300/190 series
8/16/32/48 - $89/145/275/409

800-393-9667

All Memory modules come with a manufacturers lifetime warranty. Prices subject to change. Please call for current pricing.

CIRCLE 224 ON READER SERVICE CARD

RAM CHEAP!

THE FINEST QUALITY WITH
•LIFETIME WARRANTY•

PowerComputing

YOUR MAC ANSWER FOR...
7200•7600•8500•9500
MONITORS • SOFTWARE
MODEMS • PRINTERS
ALL STORAGE DEVICES

FIBER CANYON

1.800.844.8356
http:\\www. myhomepage.net\~fibercanyon

CIRCLE 225 ON READER SERVICE CARD

best prices on merchandise & shipping!

AR COMPUTING

Call or visit our web site for more products

1-800-832-8802
603 W. 13th St, Ste. 1-h Austin,Tx 78701 M-S 8-7 cst

VISA • Mastercard • Wire • Prepay • APO's
NO SURCHARGE FOR CREDIT CARDS

lifetime warranty! **memory** top quality!

6ons 2K	SIMM 72pin	DIMM 168pin	PowerBook 5300/190/500
4 mb	$ 22		all items are new!
8 mb	$ 39	$ 49	$89
16 mb	$ 77	$ 83	$137
32 mb	$157	$167	$267
64 mb	Scall	$337	

NEW!

L2 Cache (256K)		Powerbk1400	
61/71/8100	$33	8 mb	$ 87
72/76/8500	$70	16 mb	$137
30pin SIMM 4mb	$27	32 mb	$197

Call for latest best price & EDO DIMMs

PRICES SUBJECT TO CHANGE
SHIPPING $5 UP TO 5 LBS.
http://www.io.com/arcomp

CIRCLE 226 ON READER SERVICE CARD

HAVE YOU HEARD THE BUZZ...?

Build Your Own PowerMac Clone and SAVE !!!

3160 603e/160MHz...$ 899
3200 603e/200MHz...$1,099
4200 604e/200MHz...$1,499

Infiniti Series

Motorola PowerPC Processor
Motorola PowerPC Motherboard
Mini-Tower Case
(4)3.5" & (3)5.25" Drive Bays
3.5" 1.44MB Floppy Drive
3 EDO DIMM memory slots
5 PCI slots
VRAM slot upgradable to 4MB
SVGA monitor port
Level 2 Cache upgradable to 512K
SCSI & E-IDE Bus (HD & CD ROM)
ADB & PS2 port (for KB & Mouse)
2 Serial Ports (AppleTalk)
Built-in LocalTalk
16-bit sound in and out
Upgradable to multiple processors
110v to 230v Switching Powersupply
1 year warranty
Optional extended warranty
FREE System 7.6 upgrade
ISO 9000 quality certified
Optional internal Zip or Jazz Drive

NOW SHIPPING!

Processor Upgrade Cards

604/150.....$399
Dual 604/300mp.....$999
604e/200.....$979
Dual 604e/400mp.....$1799
(7500/7600/8500/9500/Clones)
Single/Dual/Triple/Quad
PCI processor cards ...CALL
Single/Dual (604/604e)
PDS processor cards...CALL
(6100/7100/8100/Clones)

3160 Smart Bundle...$1399

16MB EDO DRAM
1.3 Gb Hard Drive 8x CD-Rom Drive
2MB VRAM
Keyboard and Mouse
Mini-Tower Case

3200 Performance Bundle...$1999

16MB RAM
2.5 GB Hard Drive
8xCD
4MB VRAM
Keyboard and Mouse
256K Cache
Mini-Tower Case

4200 Pro Bundle...$2449

24MB RAM
2.5 GB Hard Drive
8xCD
2MB VRAM
Keyboard and Mouse
512K Cache
Mini-Tower Case

4200 Elite Bundle...$2998

32MB RAM
2.5 GB Hard Drive
8xCD
Keyboard and Mouse
4MB VRAM
Yamaha Speakers
512K Cache
33.6 Fax/Modem
Mini-Tower Case

POWERtools
computer corporation
800-891-4307
Tel: 512-891-0646
Fax: 512-476-6399
Email: Sales@pwrtools.com
www.pwrtools.com

CALL for our GREAT prices on thousands of Mac related products
POWERTOOLS...THE POWER TO DESTROY YOUR ENEMIES

CIRCLE 227 ON READER SERVICE CARD

OUR GOAL IS TO BEAT OUR COMPETITOR'S PRICES
CALL US LAST FOR A SPECIAL DISCOUNT!

M E M O R Y

30 PINS
1MB
2MB
4MB

72 PINS
4MB 32MB
8MB 64MB
16MB

168 PIN DIMMS
4MB 32MB
8MB 64MB
16MB 128MB

VIDEO RAM
256K SIMMs/DIMMs
512K SIMMs/DIMMs

CACHE CARD
256K SIMMs 1&2MB DIMMS
512K SIMMs

POWERBOOK MEMORY
ALL SERIES AVAILABLE

PRINTER MEMORY
MAJOR BRANDS AVAILBALE

LIFETIME WARRANTY ON MEMORIES

ACCELERATORS
DAYSTAR, SONNET, NEWER

1-800-427-2021

HBR ENTERPRISES

11628 SANTA MONICA BLVD. #201 LA. CA. 90025
M-F 7:30AM - 6PM SAT 10AM - 3PM
FAX 1-310-826-2573
INTERNATION. 1-310-826-3363
TERMS: VISA, MC., AMX., DISCOVER, PRE-PAID, C.O.D & APPROVED P.O.s
http://www.dnm.com/hbr/
RETURN ITEMS ARE SUBJECT TO APPROVAL AND RESTOCK. FEE. PRICES SUBJECT TO CHANGE

MEMORY

VISA/MC/AMEX No Surcharge

BEST PRICES!

PowerBook 1400 Memory—$Call

MAC Solutions

DIMMS		PwrBook 500/5300		Storage Specials	
8mb	$ 40	8mb	$ 85	Iomega Zip	$ 180
16mb	$ 70	16mb	$ 135	LaCie Jaz	$ 450
32mb	$ 155	24mb	$ 210	Seagate 1080	$ 299
64mb	$ 325	32mb	$ 265	Quantum 2 gig	$ 399
72 Pin SIMMS		**30 Pin SIMMS**		**Cache/VRAM**	
4mb	$ 22	1mb	$ 15	61/71/81 256k	$ 35
8mb	$ 32	2mb	$ 18	72/85 256k	$ 70
16mb	$ 72	4mb	$ 28	72/85 512k	$ 90
32mb	$ 152	16mb	$ 99	1 mb VRAM	$ 38

All prices are subject to change. Limited to stock on hand.

WE BUY, SELL & TRADE MACS! CALL (800)80-WE-BUY

1416 Wilshire, Santa Monica, CA 90403
TEL: (310) 394-0001 FAX: (310) 394-7744
visit our web site! http://www.macsolutions.com
University and School P.O.'s welcome

MAC Solutions

(800)809-3289

CIRCLE 228 ON READER SERVICE CARD

BUY • SELL • TRADE
MEMORY
WE CAN BEAT ANY PRINTED PRICE IN THIS MAGAZINE WE CAN PAY HIGHER THAN ANY ONE FOR YOUR OLD or BROKEN MEMORY
Life Time Warranty on All Parts
1•800•4•MEMORY
MEMORYBUY@AOL.COM

CIRCLE 229 ON READER SERVICE CARD

FOCUS
SAVE BIG!
Newer TECHNOLOGY
UMAX SCANNERS
MAC MEMORY
LIFETIME GUARANTEE
EDO Memory Available
DMS
Data Memory Systems, Inc.
24 Keewaydin Drive
Salem, NH 03079
Tel: 603-898-7750
Fax: 603-898-6585
Web Page: www.datamem.com
MEMORY EXPANSION MADE SIMMple
Open 'Til 10pm
SIMMs - DIMMs - VRAM - CACHE - CPUs - FPUs - PowerBook Memory
University, Government & Corporate P.O.s w/ Approved Credit
800-662-7466

MICRO EXCHANGE™ Since 1985
800-284-9296
Visit us on the web at http://www.mmanet.com/microexc
The World's Source for Renewed Computers!

NOTEBOOKS
PowerBook 145, 8/80 ..... $299
PowerBook 160, 12/120, 14.4 Fax ... $429
PowerBook 165, 12/160, 14.4 Fax ... $459
PowerBook 520C, 20/240, 19.2 Fax. $1,099
PowerBook 5300C, 40/750, 24Bit.. $2,499

PRINTERS
StyleWriter (SPECIAL) $99
StyleWriter II $169
LaserWriter IINT $299
Epson ES600C Scanner, Photoshop ... $349

The Lowest Prices on Pre-Owned PowerBooks!

We Buy New & Used MACs!
(also AST, Compaq, Dell, IBM & Packard Bell)
Fax your list to (972) 488-3248

DESKTOPS
Mac LC, 6/40 ..... $139
Mac LCII, 8/40 ..... $199
Mac IICI, 4/80 ..... $199
Centris 610, 12/230 ..... $399
Quadra 650, 12/230 ..... $459
PowerMac 6100/60, 16/250 ..... $549
PowerMac 7100/66, 16/250 ..... $649
14" Color Monitors ..... from $199
Call for a list of products from Apple, AST, Compaq, Dell, IBM & Packard Bell

BUY • SELL • RENT • SERVICE • SYSTEMS • PARTS • PERIPHERALS
All items are represented as used and/or reconditioned & come with a 90-day warranty unless otherwise noted (extended warranties available), items/prices subject to availability & change without notice. Tax/shipping not included. Not responsible for typographical errors. Systems do not include monitors or keyboards unless otherwise noted. Logos, brands, & trade names are reg. trademarks of their respective companies. Visa/Mastercard & COD accepted. Government, Education & Corporate Purchase orders welcome. © 1996 Micro Exchange Corp., 682 Passaic Ave., Nutley, NJ 07110 (201) 284-1200. MU0397

CIRCLE 230 ON READER SERVICE CARD

Design, Print and Apply CD Labels for $79.95
That's NEATO!
1 Create your own artwork On Your Computer with NEATO Templates.
2 Print on Any Laser Printer using NEATO pressure sensitive labels.
3 Using the NEATO Label Device, apply labels...PERFECTLY EVERY TIME!
Kit Includes:
• The NEATO CD Label Applicator • 100 Labels
• DesignExpress Labels™ Software for Windows
• NEATO Label Design Templates for MAC and PC
NEATO™ 250 Dodge Ave • East Haven, CT 06512
800-984-9800 • 203-466-5170 • Fax 203-466-5178
Europe: +44 (0)990 561571 • Fax +44 (0)181 932 0480
See us at: http://www.neato.com

CIRCLE 231 ON READER SERVICE CARD

On the Web at http://www.macsales.com
OtherWorldComputing
Serving the Mac Universe Since 1988
800-275-4576
ORDER TOLL FREE TODAY
No Credit Card Surcharge!
Order Today Launch Tomorrow

New PowerMacs
7200/120 8/1.2GB/CD NEW! $1899
7200DOS/120 16/1200/CD/Pentium 100 ..... $2699
7600/132 16/1.2GB/CD $2799
8500/132 16/1.2GB/CD $2899
8500/150 16/2GB/CD $3299
9500/132 16/1.2GB/CD ..... "$2799
9500/150 32/2GB/CD ..... "$4199
** INCLUDES 2MB ATI VIDEO CARD
CALL FOR CUSTOM CONFIGS, PBOOKS & PC COMPATABLES

PowerMac Performas
6400/180 16/1.6GB/8X $2199
6400/200 16/2.4GB/8X/12 CACHE $2499

PowerMac Acceleration
OWC Rocket Accelerator
84Mhz for PMac 6100s, 7100/66, Performa 61xx $49.95

SIMMS 72 PIN
4mb 70ns $25
8mb 60ns/70ns $45
16mb 60ns/70ns $89
32mb 60ns/70ns $175

DIMMS 60ns
8mb $55
16mb $89
32mb $189
64mb $369

30 PIN SIMMS 80ns
1mb $9 2mb $22 4mb $35

BUY MEMORY NOW!

VRAM
PMac 72/75/76/8500 1mb $59
PMac 9500 2mb ATI $159

CACHE
PMac 72/75/7600, 8500 256k $99 512k $159
PMac 6100/7100, 8100 256k $59

WOW!

OWC HARD DRIVES
CAPACITY	INTERNAL	EXTERNAL
Quantum 540MB	$149	$199
Quantum 850MB	$179	$229
Quantum 1280MB	$269	$319
Quantum 2.2GB 8.5MS	$489	$539
Quantum 4.3GB 8.6MS	$799	$849
Other Quantum Hard Drives	$CALL	
Seagate and Micropolis Drives	$CALL	

Call for IDE internals for PowerBook & Performas
30-Day Money Back Guarantee on All Hard Drives. SYSTEM 7.1 INSTALLED & 30MB OF SOFTWARE. EXTERNAL VERSION HAVE PLATINUM CASE W/ DUAL SCSI PORTS. PUSH-BUTTON SCSI ID & 40WATT POWER.

OWC Rocket BoosterBundle
84Mhz Rocket Plus 256k L2 Cache Card for PMac 61/71/8100's ONLY $99
AfterBurner604
168Mhz Accelerator for 604 Macs & Compatibles ONLY $59.95

Other World Computing
224 West Judd Street
Woodstock, IL 60098
International: (815) 338-8685
Fax: (815) 338-4332
Prices and specifications subject to change w/o notice. 15% restocking fee on returned merchandise unless otherwise noted.

CIRCLE 232 ON READER SERVICE CARD

Mac-In-Stock
proudly announces...
www.macinstock.com
That's: www.macinstock.com
Register for free prizes!
BOOKMARK US NOW AND CHECK OFTEN!!
Tel 954-784-1234
954-784-1232 Fax

CIRCLE 233 ON READER SERVICE CARD

GRIFFIN TECHNOLOGY

MONITOR SOLUTIONS

http://www.nashville.net/~griffin

- **MAC SYNC ADAPTER** sync on green circuitry allows almost all SuperMac, Radius, RasterOps, E-Machines and most other monitors to be used with PowerMac, PCI cards, and AV models.
- **MAC RES ADAPTER** universal resolution adapter selects the proper resolution for your monitor and allows on-the-fly resolution switching.
- **MAC II SERIES** allows all multisync monitors, including Apple Multiple Scan 14 and 15 models to be used with the IIci, IIsi & Mac II built in video.
- **MAC TO VGA** universal Mac to PC adapter connects any PC monitor to your Mac.

VISA MC DISC — Dealer and quantity pricing available.

Tel 615/255-0990 • Fax 615/255-8040 • Grifcom@aol.com

POWERMAC	
7200/120 8/500/CD	$1899
7200/120 16/1.2 GIG	CALL
7600/13216/1GIG	CALL
8500/13216/1GIG/CD	CALL
9500	CALL
PRINTERS	
LWRITER 12/640	CALL
HP 4ML	$599
HP 5MP	$999
HP 1600 C/PS	CALL
HP 4MV	$2799
STYLEWRITER 2400	CALL
STYLEWRITER 1500	CALL
STYLEWRITER 2500	$399
POWERBOOK	
190 8/500	$1099
190cs 8/500	$1499
5300 8/500	$1299
5300CS/100	CALL
5300C/100	CALL
5300CE/100	CALL
UMAX / SUPERMAC	
S90L	CALL
S900D	CALL
SCANNERS	
MICROTEK SCANNERS	CALL
UMAX S12	$895
POWERLOOK	$1899
POWERLOOK II	$3349
HP SCANJET 4C	$969
ES1200/PRO	$1175
AFGA ARCUS II	$1899
RADIUS	
APPLE 1710AV	$1049
APPLE 1705	$779
CPD 17SF2	$799
PRECISION 17"	CALL
PRECISION. 21"	$2299
THUNDER COL.	CALL
CPD 15SF	CALL
NEC	
NEC 17XV	$779
NEC 17XP	CALL
NEC 21XE	$1899
NEC 21XP	$2199

COMPUTER REVELATIONS

1 800 275-9924
in NY 516 737-0800

331E DANTE COURT HOLBROOK NY 11741 FAX 516 737-0923

NEW & USED BOUGHT & SOLD
Ask about our EXTENDED WARRANTY
ALL APPLE PARTS & ACCESSORIES IN STOCK
Rentals / Service available in NYC area

We Carry A Full Line Of Performas

APPLE SUPERDRIVE Internal with xchange $149

CIRCLE 234 ON READER SERVICE CARD

SHOPPERS MARKET

1-800-607-2325
VISA, MASTERCARD, AMEX, DISCOVER ACCEPTED.
SALES (310) 842-3700
FAX (310) 842-8130
"The Intelligent Choice" 10875 Washington Blvd., Culver City, CA 90232

PERFORMA 6400 16/1.6 GB CD **$1349**

POWERMAC 7600/120 16/1.2 gig CD ***$1299**

POWERBOOK 1400CS 16/750 CD **$2899**

PERFORMA		
5215	8/1 GBCD	*999
5320	8/1 GBCD	1499
6200	8/1 GB CD	*749
6220	16/1 GB TV	*849
6290	8/1.2 GB CD 28.8	*799
6300	16/1.2 GB CD 28.8	*849
6320	16/1.2 GIG CD TV	*999
6360	16/1.2 GB CD	1199
6400/180	16/1.6 CD	1349
6400/200	16/2.0 CD	1699

POWERBOOKS		
1400CS	12/750	2399
1400CS W CD	12/750	2899
1400C W CD	16/1GB	3599
5300CE/117	32/1GIG	CALL
5300C/100	16/750	CALL
5300CS/100	8/500	CALL
5300/100	8/500	CALL
DUO 2300C	20/1GIG/M	1999
190CS	8/500	CALL
150	8/240	CALL
520/520C/540C		CALL

VIDEO CARDS	
THUNDER IV GX 1600	599
VIDEOVISION STUDIO 2.5	1099
TARGA 2000 PCI	2599
TARGA 2000 RTX	7199
#9 IMAGINE 128 8 MB	1099
TWIN TURBO 128 8 MB	599
MEDIA 100	CALL

SOFTWARE	
ADOBE PHOTOSHOP	399
ADOBE ILLUSTRATOR	275
ADOBE PAGEMAKER	395
MACROMEDIA FREEHAND	299
MICROSOFT OFFICE	375
QUARK EXPRESS	649
MACROMEDIA DIRECTOR	599
" DIRECTOR STUDIO	879

SCANNERS	
UMAX VISTA S12 PRO	749
UMAX POWERLOOK II	1899
MIRAGE D16L	5599
AGFA ARCUS II	1749
NIKON SUPER COOLSCAN	1899

POWERMAC 9500/132 16/2GB CD ***$1899**

POWERMAC 8500/180 32/2GB CD **$2999**

PERFORMA 6300 16/1.2 GB CD ***$849**

STYLEWRITER COLOR 2400 ***$169**

GLOBAL VILLAGE POWERPORT MERCURY 19.2 F/M PB 500S **$99**

GLOBAL VILLAGE POWERPORT GOLD 14.4 F/M PCMCIA **$59**

RADIUS MULTIVIEW 21 **$1299**

* REMANUFACTURED PRODUCT WITH WARRANTY

POWERMAC		
7200/12016/1.2GB8XCD		1249
7200/120 DOS COMP		1799
7500/100 16/1GB CD		*1199
7600/120 16/1.2GB CD		*1299
7600/132 16/1.2GB CD		*1699
8500/120 16/1GB CD		*1599
8500/132 16/1.2GB CD		1899
8500/150 16/2GB CD		2299
9500/120 16/1GB CD		*1699
9500/150 16/2GB CD		2799
9500/200 32/2GB CD		3499

UMAX COMPUTER PRODUCTS		
J700 180	16/2 GBCD	2449
S900L200	32/2 GB CD	3349
S900L225	32/2 GB CD	3795
C500/160	16/1.2 GB	1099
C600/240	24/2.1GB	1849

STORAGE	
IBM 2GB SCSI 3.5	339
QUANTUM ATLAS 4.3GB	829
QUANTUM 9GB SCSI 3.5	1599
SEAGATE 9GB SCSI 3.5	1999
JAZ 1GB 1/5PACK CT	85/425
JAZ 1GB INT/EXT	399/439
RCD, OPTICAL, DAT	CALL

MONITORS	
APPLE 14"/15AV	*249/449
APPLE 1710/1710AV	799/899
APPLE 20" MULITSCAN	1699
SONY 200SX/200SF	649/739
SUPERMAC 21 TXL	*1089
RADIUS PRESSVIEW 21T	*1699
PIVOT 17" .26	899
NEC XV15/XV17+	449/7279
RASTEROPS SUPERSCAN MC21	1649

TOSHIBA		
420 CDS	8/810 CD	1799
410 CDT	8/810GB CD	1999
420 CDT	8/1.3GB CD	2399
500 CDT	16/1.3G CD	3599
720 CDT	16/1.3G CD	4999
730 CDT	16/2 GB CD	5599

WE MATCH ! WE BEAT ! WE DEAL !

ALL PRICES ARE CASH/DISCOUNTED AND ARE SUBJECT TO CHANGE WITHOUT NOTICE

CIRCLE 235 ON READER SERVICE CARD

LA's LEADING COMPUTER STORE!

LA COMPUTER CENTER

CALL (800) 689-3933
UNIVERSITY, SCHOOLS, GOV'T & FORTUNE 1000 P.O.'S ACCEPTED!
Call for Quantity Pricing!
INTERNATIONAL ORDERS WELCOME CALL PH. (310) 479-0999
Customer Service (310) 473-2535 FAX (310) 312-9041

POWERMACS

9500/180MP 32/2GB/8xCD w/2MB Ati 2 - 180MHz Processors **$4699**

5260/100	16/800/4xCD	$1399
6100/66	16/500/CD/DOS	$1099*
7100'S		$CALL
7200/75	8/500/4xCD	$899*
7200/90	8/500/4xCD	$999*/1099
7200/120	16/1.2GB/4xCD	$1299
7200/120	16/1.2GB/8xCD	$1349
7200/120/P100	16/1.2GB/8xCD	$1999
7500/100	16/1G/4xCD	$1499/1379*
7600/120	16/1.2GB/4xCD	$1649
7600/132	16/1.2GB/8xCD	$1899
8100/100	8/700	$1499*
8100/110	16/2GB/2xCD	$2099*
8500/120	16/1GB/4xCD	$CALL
8500/132	16/1.2GB/4xCD	$2199
8500/150	16/2GB/8xCD	$2499
8500/180	32/2GB/8xCD	$2899
9500/132	16/2GB/4xCD	$2299*
9500/150	16/2GB/4xCD	$3299
9500/180MP	32/2GB/8xCD	$4699
9500/200	32/2GB/8xCD	$3699

WorkGroup Servers CALL
9150/120 Call For Closeout Pricing

APPLE MONITORS

14" MultiScan	$249*/289
15" MultiScan	$399/349
15"AV MultiScan	$459
1705 17" MultiScan	$699
1710 17" MultiScan	$899
1710AV 17" MultiScan	$949
20" MultiScan	$1199*/1699
RADIUS SuperMatch 21TXL	$CALL
RADIUS PressView 21SR	$3299
SONY 15SF2 15"	$449
SONY 17SE2 17"	$999
SONY 100SX/100SF	$CALL
SONY 300SFII	$CALL
SONY 200SF 17"	$759
SONY 20SF2 20"	$1569

PRINTERS

LaserWriter Pers 300/320	$499/599
LaserWriter 4/600	$749
LaserWriter Select 610	$CALL
LaserWriter 12/640/PS	$1449
LaserWriter 16/600/PS	$2099
COLOR LW 12/600/PS	$5299
StyleWriter 2200	$299/249*
StyleWriter 2400	$199*
StyleWriter 1500	$249
StyleWriter 1200	$149*
Star Color Printer XJ144MC	$99
HP LaserJet 6MP	$899
HP LaserJet 5M	$1779
HP LaserJet 5M Color	$6999
HP LaserJet 4MV	$2599
HP DeskJet 870Cxi	$499

POWERBOOKS

1400C 133MHz 16/1.1GB/6xCD **$CALL**

NEW SERIES POWERBOOKS

1400C/117	16/1GB/6xCD	$3499
1400CS/117	16/750/6xCD	$2699
1400CS/117	12/750	$2499
5300CE	32/1GB	$3199
5300C	16/750	$2599
5300C	8/500	$2199
5300CS	16/750	$2199
5300CS	8/500	$1799
540C	4/320	$CALL
520C	12/240/MOD	$CALL
520	8/240	$CALL
190CS	8/500	$CALL
190	8/500	$CALL
150	8/250	$799
DUO2300C	8/750/MOD	$1399
DUO2300C	20/1.1GB/MOD	$1699
DUO250	4/200	$699*
DUO250	12/200/MOD	$899*
DUO280C	12/320/MOD	$1199*
DUO280	12/240/MOD	$1099*

PERFORMAS

5215/75	8/1GB/4XCD 15"	$999*
5320/120	16/1GB/4xCD 15"	$1549
6116/66	8/700/2XCD No Mon	$799*
6200/75	8/1GB/4XCD No Mon	$849*
6220/75	16/1GB/4XCD/NoMon	$899*
6300/100	16/1G/4XCD/NoMon	$969*
631/33	8/500/2XCD/NoMon	$749*
6320/120	16/1.2GB/4XCD/TV/No Mon	$1199
6360/120	16/1.2GB/8XCD/No Mon	$1249
6400/180	16/1.6GB/8XCD/No Mon	$1549
6400/200	16/2.4GB/8XCD/No Mon	$1799
6400/200VE	32/2.4GB/8xCD/No Mon	$2099
640/33	12/500/2XCD/DOS	$799*

ACCESSORIES

SCANNERS

AgfaArcus II w/Trans w/Full Photo	$1799
AgfaStudioStar w/Full Photo	$999
AgfaStudioScan IIsi w/LE Photo	$649
AgfaSnapScan w/LE Photo	$399
Umax Vista S6 w/Full Photo	$499
Umax Vista S12 w/Full Photo	$699
Umax Powerlook II	$1799

MODEMS

GlobalVillage Modems

Mercury19.2Kbps for PB500	$129
Teleport Gold II 14.4Kbps	$59
Teleport Platinum 33.6Kbps	$189
Powerport Gold 14.4Kbps PCMCIA	$99
Powerport Plat. 28.8Kbps PCMCIA	$299
Powport Plat. Pro 28.8+Enet	$449

Business Leasing Leaders
Lowest Rates, Fastest Approval

Visit Us At Our Web Site http://www.lacc.com
24Hrs A Day -- On-Line Catalog & Ordering

GET 4 YEAR ON SITE WARRANTY!

DHI Product Plus

FedEx

OPEN MON-SAT, VISIT OUR SHOWROOM!

CIRCLE 236 ON READER SERVICE CARD

The Lowest Finance Rate Available

FREE Software SuperBundle & No Payments for 90 Days

Software SuperBundle - Save money & time
Adobe Premiere, Illustrator, PageMaker, Photoshop, Claris FileMaker Pro. , Omni page Professional , DOS Mounter 95 Free w/Lease

ALL APPLE, DAYSTAR GENESIS, UMAX, POWER COMPUTING , MOTOROLA — 180MHZ, 200MHZ, 225 MHZ SYSTEM AVAILABLE
CALL FOR THE LATEST PRICE.

$0 DOWN!
$379
PER MONTH

- PowerPC 9500/225MHZ or PowerTower Pro 225MHZ
- Internal 8x CD-ROM
- **272MB RAM**
- 2.2GB internal AV hard drive
- Extended keyboard

$1619 • **SONY 20SFII 20",1280 x 1024 Color monitor**
- IMS Twin Turbo Graphic accelerator card, 1280x1024, w/8MB

$1725 • **Agfa Arcus II w/ Trans, 36-bit color**

$999 • **External combo drive combo w/Jaz drive ,Quantum 540 ,SQ270MB**

$179 • **GCC Elite 600ET 600dpi, printer w/one cartridge and two connectors**
- Active SCSI terminator
- One 25/50 SCSI cable, five 50/50 cables

$149 • **UPS Battery Back-Up**
- Image Solutions Extended Services

Power Macintosh 9500/225 Ultimate Graphics Workstation

DSC Jaz $449

$199! Photoshop

$249! Live Picture

$199! Illustrator

Get DOS Mounter 95 for $29 with any drive purchase!

$29!

DOSMounter95

$127! w/Rebate

Ext. H/D, DAT Tape,MO, SyQ & CDR Devices

(Minus $50 for Internal Drive)

		Ext.Turbo	
Quantum 540MB/750MB	$189/$239	+$49	
HP / IBM 1.0/1.2GB	$289	$309	Sale
IBM/HP 2.1GB	**$425**	**$449**	
Quantum 2.1GB	**$449**	**$489**	
Quantum 3.2GB Fireball	**$549**	**$589**	
Quantum 4.3GB Atlas	**$879**	**$939**	
Seagate 1GB	**$339**	**$379**	
Seagate 2.1GB	**$499**	**$549**	
Seagate 4.3GB - Barracuda IV	**$1059**	**$1149**	
Micropolis/Seagate 9.0GB Elite	**$1749/1919**	**+$8**	Sale
SONY SDT-5000 8-15GB DAT Dr.	**$849**	**$1049**	
ExtraByte 5GB Tape Dr.	**$1199**	**$1249**	
DLT Tape Ext. Drive 30GB/40GB	**$2899/$4899**	**+$99**	
SyQuest 270/200MB Ext. Drive	$299/369	+$25	Sale
SyQuest F713S/ F7230	**$129/$285**	**+$25**	
650MB M.O. Dr.	**$699**	**$749**	
1.3GB M.O. Drive	**$999**	**$1089**	
Tahiti 1.3GB /2.6GB M.O. Dr.	**$1499/$1999**	**+$99**	
650 MB M.O. Drive	**$599**	**$649**	
Fujitsu 230 MB M.O. Drive	**$469**	**$499**	Sale
FWB/SONY CDR w/ Toast	**$549**	**$599**	
JVC CDR 4X/2X w/Toast	$589	$649	
Yamaha CDR 4X/2X w/Toast	$689	$749	
Yamaha CDR 4X/4X w/Toast	$989	$1079	

Ext. Jaz/Zip & DiskArrays	**Ext.**	**Turbo**	
IOMega Zip ext. Dr. w/Cart.	$127*	$165	Sale
Jaz ext. Dr. w/ Cart.	**$449/$469**	**+$25**	
Jaz + CDR ext. Dr w/SW	**$1099**	**$1149**	
4GB F&W DiskArray	$1949	$2039	
8GB F&W DiskArray	$2539	$2649	
16GB F&W DiskArray	$5349	$5399	
24GB F&W DiskArray	$6949	$7169	
REMUS DiskArray	$212	$239	
FWB JackHammer- PCI	$379	$399	

Printer - Laser & InkJet

Apple Color LaserWriter	**$5189**
GCC XL 608, 11x17 8ppm	$2289
GCC XL 616, 11X17 16ppm	$2329
GCC XL 1208, 11X17	$4139
Epson Stylus Color Pro XL	**$1645**

Software Specials - MAC & Win.

Adobe Photoshop 3.0.5/4.0	**$199/$579**	
Adobe PhotoShop LE	**$99**	
Adobe Illustrator 5.5/6.0	$199/$299	Sale
Adobe PageMaker V6.0	$189	
Adobe Premiere 1.0.1/4.2	**$149/$479**	
Adobe PageMill V1.0	**$84**	
Caere OmniPage Direct/Pro.	$39/$99	
DOS Mounter '95	**$49/$29**	Sale
Dantz Retrospect II 3.0	**$99**	
HSC Live Picture 2.0/2.5	**$249/$389**	
Kai's Power Tools 2.1/3.0	$39/$111	
Bryce 2.0	$169	
Vector Effects 1.0	$109	
Astarte CDR Toast S/W	**$99**	Sale
Microsoft Office 4.2.1	**$249**	
Claris FileMaker Pro	**$99**	Sale
Quark Express V 3.32	**$639**	
FWB H/D or CD-Disk Tool K.	**$29**	Sale
DeBabelizer Toolbox v1.6	**$245**	

Scanner

Epson 1000C/1200C	**$569/$919**
Relisys 2412/9624T	$359/ $899
Microtek E3/E6/SMIII	**$295/$519/$1425**
UMAX S6/S12 Pro	**$305/$755**
UMAX Transpancy	**$349**
Agfa StudioStar / Arcus II	$775/$1725
Nikon CoolScan / Super	$1149/$1879

SONY CD-ROM Recorder FWB w/ Toast Software

$549! FWB 2x WRITE

128MB! $9.99!

UMAX S900/225 Internet Publishing Station

- **SuperMac S900/225MHZ**
- **144 MB RAM**
- 4MB VRAM Graphics Card
- Internal 6.7x CD-ROM
- Apple 2.0GB internal hard drive
- Extended keyboard

$0 DOWN!
$189
PER MONTH
$6.30 A DAY!

$749 • **Sony 17 sfII multisync monitor**
- Microtek ScanMaker E3, 300 x 600 dpi, scanner
- Iomega Jaz drive

$369 • **Apple Color StyleWriter 2500 (w/ toner cartridge and two AppleTalk connectors**
- ISDN digital modem
- Adobe PageMill
- Extended Services

System Bundle w/17" monitor, XKeyboard, Mouse

	Buy!	Lease!
PowerTower Pro/225 16/2GB/CD	$5599	$119
PowerTower/180 16/2GB/8XCD	$3949	$86
PM9500/200 32/2GB/8xCD	$4699	$105
PM9500/180MP 32/2GB/8xCD	$6299	$144
PM9500/120 16/1.0GB/CD	$2999	$66
PM8500/180 32/2GB/8XCD	$4299	$96
PM8500/132 16/1.0GB/CD	$2999	$66
PF6400CD/200 16/2.6GB/CD/28.8	$2599	$59
PM7600/132 16/1.2GB/CD	$2899	$63
StarMax 3000DT 16/1.2GB/8XCD	$2299	$49
StarMax 4000DT 16/1.2GB/8XCD	$3299	$72
SuperMac S900 /32/2.1GB/CD	$3899	$85
SuperMac J700 /16/2.1GB/CD	$3499	$76
DayStar MP360/ 2x180MHZ /32/2.2GB/CD (upgradable to 4x 200MHZ)	$6299	$137

FREE ADOBE ILLUSTRATOR WITH ANY SYSTEM PURCHASE

ORIGINAL SYQUEST CARTRIDGES

SyQuest	
270MB	$51
200MB	**$62/$54**
EZ 135	$19
88MB	$41/35
44MB	$38/32

IOMEGA

$12*! w/Rebate

Iomega	
1.0GB Jaz	$94
100MB Zip	**$12***

Optical

DSC 128MB	**$9.99**
DSC 230MB	$13.99
DSC 650MB	**$28.99**
DSC 1.2GB	$38.99
Sony 1.3GB	**$58.99**

Viking Memory

	30 pin	72 pin	168 pin
4MB	$35	$35	-
8MB	**$69**	**$59**	**$59**
16MB	$129	$99	$109
32MB	-	**$199**	**$189**
64MB	-	-	$389

800-352-3420

Fax: 310-782-5974
Email: imagesol@aol.com
http://www.imagesolution.com
385 Van Ness Ave. #110 • Torrance, CA 90501

VISA MasterCard

Order from 6 to 8 weekdays, weekends from 9 to 6.Visit our showroom 9 to 6 weekdays, weekends by appointment.

Prices subject to change without notice. Not responsible for typographical errors. 24 hour replacement limited to products in stock.

Image Solutions

The solution provider for print shops, service bureaus and imaging professionals

PERFORMA

580/68 LCO 40
8/800/CD/14" Built-in/Keyboard
$879

iCN

INNOVATIVE COMPUTER & NETWORKING INC.

DUO2300 UPGRADE KIT

From Duo 200 to Duo 2300 (PPC 603e, 100Mhz)
$895

POWERMACS

9500

200Mhz	32/2GB/CD	$3899
180Mhz MP	32/2GB/CD	$4899
150Mhz	16/2GB/CD	$2999
150Mhz	0/0/CD	$2489
132Mhz	16/2G/CD*	$2199
120Mhz	16/1G/CD*	$2199

8500

180Mhz	32/2GB/CD	$2899
180Mhz	16/2GB/CD*	$2749
150Mhz	16/2G/CD	$2495
120/132Mhz	16/1G/CD*	$1990/2199

7600

132Mhz	16/12G/CD	$1799
120Mhz	16/1.2GB/CD	$1695

7200

120Mhz	16/1.2GB/CD/12 Cache	$1349
120Mhz	16/1.2GB/CD/DOS Compatible	$1999

8100, 7100, 6100 CALL

UPGRADES

WITH ORIGINAL APPLE LOGIC BOARD & PARTS

950, 900 to Workgroup Server 9150/120	$1550
8100s to 8500/120/132/150	$1300-1550-1880
Quadra 840AV, 800 to 8500/120/132/150	$1590-2090-2290
120/132MHz 604 Processor (8500 & 9500) to 150 MHz 604 Processor	$895-795
7200/75-90Mhz to 7200/120	$550-450
7200 to 7600/120/132	$1290-1490
7500 to 7600/120/132	$395-595
7100 to 7200/120	$695
630 to 6200/75 - 6300/100	$495-795
Powerbook 500 Series Processor Card to PowerPC 100Mhz Processor	$479
8100/80, 8150/80 to 8100/100-110	$890-990
Centris, Quadra 610, 660 to 6100 & Q650 to 7100	CALL

QUADRAS

Q950 16/0*	$799
Q840AV 0/0*	$779
Q800 8/0*	$690
Q650 8/0*	$679

SOFTWARE

ADOBE Photoshop v3.0.5	$459
ADOBE Illustrator v6.0	$359
ADOBE After Effect LE/Production	$625-1729
MACROMIDIA FreeHand v2.0	$399
FRACTAL DESIGN Painter v4.0	$349
QUARKXPRESS v3.2.1	$659

CALL FOR PRICES ON OTHER TITLES

LOWEST PRICES ON
WORKGROUP/NETWORK SERVERS
6150, 7250, 8550, 9550, 500 & 700

MOTOROLA

STAR MAX	3000/200 32/2.5/BX CD/256K	$1979
STAR MAX	3000/160 16/1.2G/BX CD/256K	$1579
STAR MAX	4000/200 32/2.5/BX CD/512K	$2999
STAR MAX	4000/160 16/1.2 G/BX CD/512K	$2199

CALL FOR PRICES ON OTHER MODELS

UMAX

SUPER MAC	S900/200 604E/32/2.1HD/CD	$3499
SUPER MAC	S900/150 16/2GB/CD/12B TB	$3179
SUPER MAC	J700/180 24/2.1GB/CD/IMS	$2899
SUPER MAC	C600/240 24/2.1GB/CD/28.8M	$2179

CALL FOR PRICES ON OTHER MODELS

PRE-OWNED POWERBOOKS

145	8/120/Modem	$429
160	12/120/Modem	$599
165	12/120/Modem	$639

POWERBOOKS

1400cs	117Mhz12/750	$2399
1400cs	117Mhz16/750CD	$2799
1400c	117Mhz16/750CD	$3449
5300ce	32/1.1GB	$3299
5300c	8/500	$2289
5300cs	8/500	$1899
PB190cs	8/500	$1399
Duo2300c	20/1GB/Mod	$1799
520-520c	Available	CALL
540-540c	Available	CALL

SCANNERS

AGFA Arcus II Transp/Full Photoshop	$1749
AGFA StudioScan IIsi Photo. LE	$649
UMAX Vista S6E Full Photoshop	$599
UMAX Vista S12 Full Photoshop	$699
UMAX Powerlook II Transp/Full Photo.	$1799
EPSON ES-1200C Pro Full Photo.	$1099
EPSON ES-1000C 3200x3200 dpi	$599
NIKON Coolscan 35mm, 2700dpi	$1149
MICROTEK ScanMaker E3 300dpi	$349
MICROTEK ScanMaker E6 600dpi	$549
	$1379
VISIONEER PaperPort-VX	$299

CALL FOR PRICES ON OTHER MODELS

Prices Subject to Change Without Notice • Call for Latest Prices
All Prices reflect 3% Cash Discount • * : Refurbished

(310) 445-6600
FAX: (310) 445-6611
FAX TOLL FREE FROM JAPAN: 00-31-114211
2045-B S. Barrington Ave, LA, CA 90025

APPLE PARTS

8x-CD-ROM	Apple	$235
9500/8500	Logic Board	$895-799
150/132/120Mhz	604 Processors	$899-499-299
200/180Mhz	604e Processors	$1595-975
Q840AV	Logic Board	$489
Q800	Logic Board	$449
1.44	Floppy Drive	$125

PERFORMAS

LC580	8/800/14" Built-in/KB	$879
5260/75	16/1GB/CD/15" Built-in Mon/KB	$1389
6320/120	16/1GB/CD/28.8 Mod/KB	$1259
6360/160	16/1.2GB/CD/28.8 Mod/KB	$1299
6400/180	16/1.6GB/8x CD/L2 Cache/28.8 Mod/KB	$1629
6400/200	16/2.4GB/8x CD/L2 Cache/28.8 Mod/KB	$1849

CALL FOR PRICES ON OTHER MODELS

MONITORS

APPLE 15" Multi	$359
APPLE 15" AV Multi	$499
APPLE 1705	$629
APPLE 1710Vision	$799
APPLE 1710AV	$899
APPLE 20" Multi	$1599
NEC XV15+/XV17+	$469-769
NEC M500/M700	$479-779
NEC XP17/XP21	$999-1929
RADIUS PressView 17SR/21SR	$1899-3099
RASTEROPS MC20 20" Color New	$1379
SONY 15 SF2/17 SF2	$449-769
SONY 17 SE2/20 SE2	$999-1869
VIEWSONIC 17GA/PT770	$649-779
VIEWSONIC PB10/PB115	$1699-1869

CALL FOR PRICES ON OTHER MODELS

PRINTERS

APPLE LaserWriter 12/640		$1469
APPLE LW 4/600		$789
APPLE Color 12/660		$5390
APPLE SW 2500		$379
APPLE SW 2400		$299
GCC XL600B	600dpi/8ppm/11.7x20	$2369
GCC XL800B	800dpi/8ppm/11.7x20/Ethernet	$2899
GCC XL616	600dpi/16ppm/11.7x20/Ethernet	$2549
GCC XL1200B	1200dpi/8ppm/11.7x20/Ethrnt	$3890
HP DESKJET 340CM	Portable Color	$349
HP LASER JET 4MV		$2699
HP LASER JET 5M		$1695
HP LASER JET 5MP		$979
EPSON STYLUS COLOR PRO XL	Wide 720dpi	$1679
EPSON STYLUS COLOR PRO	720dpi	$379

CALL FOR PRICES ON OTHER MODELS

iCN On-Line
http://www.icni.com
E-mail: icn@icni.com

HAWKE

BUSINESS SYSTEMS
A Division of the CPS Service Group
Flemington, NJ 08822
Fax - (908) 782-7027
(800) 875-2610
EMail - MacHawke@AOL.Com

Buy - Sell - Trade - Repair
Macintosh Computers and Peripherals

Mac IISi 5/80 W/ Ext Kyb	
Hi Res Color Monitor & Mouse	$549.00
Mac IICi 8/160, w/Cache, Ext Kyb	
Hi Res Color Monitor & Mouse	$649.00
Mac Se 4/40 FDHD w/K&M	$325.00
Classic 4/40 w/K&M	$349.00
Classic II 4/80 w/K&M	$449.00
Mac Se/30 5/80 w/K&M	$449.00

Powerbook 140 Powerbook 170
Powerbook 160 Powerbook 180
Duo 230

6 Month Parts & Labor Warranty

Refrb Apple 800k floppy	$39.00
Refrb Apple 1.44 floppy(w/t)	$89.00
New GV Gold (14.4) Modem	$89.00
Quadra 900 Power Supply	$199.00
Replacement Cases: Plus -> Quadra	
Convert 2.5" HD to Std SCSI	$19.00

CIRCLE 238 ON READER SERVICE CARD

SAVE on RECONDITIONED MACS and PERIPHERALS

- We're Mac specialists.
- High-quality, reliable reconditioned equipment.
- Exclusive 6-month warranty.
- Compare and save.
- Buy with confidence.

1-800-281-3661

Faxback: 615-860-0109 (24-hrs)
E-mail: DataTecRem@aol.com
Visit our Web Site:
http://www.datatech-rmkt.com

DataTech Remarketing, Inc.
471 Myatt Dr., Madison, TN 37115
615-860-4422 • Fax 615-860-0204

CIRCLE 239 ON READER SERVICE CARD

MacNet

The Macintosh Authority

we beat any price advertised in this magazine!

Special Offer
Performa 5320
16/1.2GB/28.8
Software Bundle
$1,559.

SPECIAL OFFER
Power Mac 8500/150MHz
16/1.2gb/CD
$2,699.

Apple Power Macs

7200[120] 16/1.2/8xCD	$1,449.00
7600[132] 16/1.2GB/8XCD	$2,099.00
8500[180] 32/2GB/8XCD	$3,449.00
9500[150] 16/2GB/CD	$2,899.00
9500[200] 32/2GB/8XCD	$3,899.00
7250[120] 16/1.2GB/CD/Server	$1,799.00

Apple Performas

6360[120] 16/1.2GB/CD/28.8M	$1,399.00

Motorola Computers

ADT3160[160]/16M/1.2G/CD/28.8	$1,498.
ADT3200[200]/16M/1.2G/CD/28.8	$1,990.
ADT4160[166]/16MB/1.2GB/CD/	$2,199.
AMT4200[200]/32MB/2.5GB/CD/	$2,699.

Media

	Drive	Cartridge
ZIP 100MB	$135.00	$14.00
JAZ 1.0GB	$369.00	$95.00
EZ135MB	$109.00	$22.00
EZ Flyer 230MB	$259.00	$27.00

Monitors/Printers

Apple 15" AV (New)	$459.00
Color StyleWriter 2500	$329.00
LaserWriter 4/600	$789.00
LaserWriter 12/640	$1,439.00

1-800-404-9976

FedEx · VISA · DISCOVER · Cards · MasterCard

OUR PRICES ARE CASH DISCOUNTED PRICES SUBJECT TO CHANGE WITHOUT NOTICE

COMPUTER REVELATIONS

1 800 275-9924
in NY 516 737-0800
331E DANTE COURT HOLBROOK NY 11741 FAX 516 737-0923

NEW & USED BOUGHT & SELL
Ask about our EXTENDED WARRANTY
ALL APPLE PARTS & ACCESSORIES IN STOCK
Rentals / Service available in NYC area

POWERMAC	
7200/120 8/500/CD	$1899
7200/120 16/1.2 GIG	CALL
7600/13216/1GIG	CALL
8500/13216/1GIG/CD	CALL
9500	CALL
PRINTERS	
LWRITER 12/640	CALL
HP 4ML	$599
HP 5MP	$999
HP 1600 C/PS	CALL
HP 4MV	$2799
STYLEWRITER 2400	CALL
STYLEWRITER 1500	CALL
STYLEWRITER 2500	$399
POWERBOOK	
190 8/500	$1099
190cs 8/500	$1499
5300 8/500	$1299
5300CS/100	CALL
5300C/100	CALL
5300CE/100	CALL
UMAX / SUPERMAC	
S90L	CALL
S900D	CALL
SCANNERS	
MICROTEK SCANNERS	CALL
UMAX S12	$895
POWERLOOK	$1899
POWERLOOK II	$3349
HP SCANJET 4C	$969
ES1200/PRO	$1175
AFGA ARCUS II	$1899
RADIUS	
APPLE 1710AV	$1049
APPLE 1705	$779
CPD 17SF2	$799
PRECISION 17"	CALL
PRECISION 21"	$2299
THUNDER COL.	CALL
CPD 15SF	CALL
NEC	
NEC 17XV	$779
NEC 17XP	CALL
NEC 21XE	$1899
NEC 21XP	$2199

We Carry A Full Line Of Performas

APPLE SUPERDRIVE
Internal with xchange $149

CIRCLE 240 ON READER SERVICE CARD

LATEST Mac S·A·L·E INTERNATIONAL SPECIALS

* COMPLETE USED SYSTEM SPECIALS *

Lowest Prices Ever!!

Mac IIsi 5/80
Complete Color System
W/Apple Color Monitor & Kbd
$399.00

Mac IIcx 4/80
Complete Color System
W/Apple Color Monitor & Kbd
$375.00

Mac SE 4/40
Complete System (800K)
W/Built-in Monitor & Kbd
$229.00

Upgrade Specials Available

*USED/*REFURBISHED* Desktop CPU's

Mac Plus No Kbd or Mouse		$99.00
Mac SE (800K)	2/80	$199.00
Mac II	4/40	$129.00
Mac II CX	4/80	$179.00
Mac IIX	4/80	$179.00
Mac IIFX	4/80	$249.00
Mac LC	4/40	$169.00
Mac LC II	4/80	$199.00
Mac IISI	5/80	$229.00
Mac IICI	4/80	$249.00
Mac IIVX	5/80/CD	$449.00
Mac Portable	1/40	$249.00
Centris 650	8/500/CD	$599.00
LC 630	8/500/CD/DOS	$899.00
Quadra 650	8/500/CD	$699.00
Quadra 700	4/230	$549.00
Quadra 800	8/500/CD	$849.00
Quadra 900	16/500	$949.00
Quadra 950	8/500	$999.00
WGServer 80	16/1GB/DAT	$1599.00
Performa 200	4/80	$349.00
Performa 460	4/230	$299.00
Performa 476	4/160	$499.00
Performa 600	5/80/CD	$449.00

(Performa's Are CPU Only)

Printers

LaserWriter IINT	$499.00
Personal LaserWriter NTR	$549.00
Laser Select 300	$299.00
*Personal Laser 320	$449.00
LaserWriter 4/600	$549.00
LaserWriter Pro 630	$999.00
LaserWriter Pro 810	$1499.00

* NEW *

Apple 14" RGB Display	$379.00
Apple 16" RGB Display	$729.00
Work Group Server 60 8/500/CD with AppleShare	$899.00
Work Group Server 80 8/500 with AppleShare	$1099.00
Sejin Ext. II Keyboard	$55.00

HP ScanJet IIcx Flatbed Color Scanner

Includes: Adobe PhotoShop LE & OCR Software

New

$199.00

400X400 dpi Optical Resolution
1600X1600 dpi Enhanced Resolution
1 Pass Color 24-bit(16.7 million colors)
SCSI / 8.5" X 14" Scanning Area

Used

PowerBook 160 4/120

68030 25MHz, Gray Scale

$499.00

PowerBook 165 4/120

68030 33MHz, Gray Scale

$549.00

•Add 8MB Ram & 14.4 Modem
For Only - $100.00

* NEW *

StyleWriter 1200
$159.00

Color StyleWriter 1500
$249.00

* USED *

Color StyleWriter 2200 or 2400
$159.00

*USED/*REFURBISHED* PowerBooks

PB 170	4/80	$529.00
PB 180	4/80	$699.00
PB 180C	4/120	$999.00
Duo 210	4/80	$349.00
Duo 230	4/80	$399.00
Duo 280	4/240	$699.00
Duo 280C	4/320	$999.00
Duo Dock		$249.00
Duo Dock II		$379.00
Duo Floppy Adapter		$59.00
Duo Battery Recharger		$35.00
PB Battery Recharger		$35.00
PB Int. Fax/Data Mdm		$25.00
PB 14.4 Express Mdm		$79.00

Monitors

Apple 13" RGB Display	$225.00
Apple 14" Color Display	$299.00
*Apple 14" MultiScan	$225.00
Apple 14" AV Display	$325.00
Apple 16" RGB Display	$649.00
Apple 17" MultiScan	$799.00
Apple 1710 AV Display	$799.00
Apple 20" MultiScan	$1399.00
*Performa Plus Display	$250.00
Apple Two Page Mono	$479.00

Accessories

Mac IISI NuBus Adapter	$39.00
Apple OneScanner	$249.00
Apple Ext. 1.4MB Floppy	$85.00
Apple PowerCD Drive	$59.00
Apple Ext. II Keyboard	$75.00
Absolute Battery with Recharger Combo (140-180C)	$69.00

* NEW *

•Apple CD-300i Plus•
2X Speed Tray Loading Int. CD-Rom Drive
ONLY - $59.00

•Personal LaserWriter• NTR Logic Board
With Trade-In ONLY **$79.00**

We Now Feature A Huge Inventory Of Parts For All Apple Product And Also Offer Extended Warranties
Visit Our Web Site At: www.getnet.com/macsale Or E-Mail Us At: macsale@getnet.com

Limited Quantities/Prices subject to change
Prices represent a Discount - off Full Price
Returns at discretion of Mgmt/15% Restocking fee

1-800-729-7031

1150 W. Alameda Dr, Suite 1 & 2
Tempe, AZ 85282
(602) 858-0900 / Fax: (602) 858-0811

WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT

MICRO OUTLET

800 • 801 • 4MAC

Micro Outlet Phone: 310-533-0496 Fax: 310-533-0501 Business Hours: Monday-Friday 7:00 am to 7:00 pm pst, Saturday 8:00 am to 2:00 pm pst
2785 Pacific Coast Highway #178 Torrance, CA • 90505
Business or Personal Leasing Available

CDR/JAZ COMBO W/4X CDR TOAST & 1 JAZZ CART **$1289**

Syquest 200mb Cartridges **$65**

Iomega Jazz **$469**

Quantum Tempest
1.2GB $267
2.1GB $375
3.2GB $368

Extended Warranty

POWERMACS

8500/200	32/2GB/8XCD/L2	$ 4050
8500/180	MP 32/2GB/8XCD/L2	5125
8500/150	0/0/8XCD/L2	2599
8500/150	16/2GB/8XCD/L2	3025
8500/180	32/2GB/8XCD/L2	3275
8500/150	16/2GB/8XCD/L2	2650
8500/150	16/1.2GB/8XCD/L2	2715
8500/150	16/2GB/4XCD/L2	2549
8500/132	16/1.2GB/4XCD/L2	2200
8500/132	16/2GB/4XCD/L2	2300
7600/132	16/2GB/8XCD/L2	2099
7600/132	16/1.2GB/8XCD/L2	1875
7600/120	16/1.2GB/4XCD/L2	1745
7200/120	16/1.2GB/8XCD/L2	1400
7200/120	16/1.2GB/8XCD/DOS/L2	2050

WORK GROUP SERVERS

6150/66	16/1.2GB/CD/Int	$ 1805
7250/120	16/1.2GB/CD/As	2500
7250/120	16/2GB/CD/As	2650
8550/132	24/2GB/CD/Dat/As	5275
8550/200	32/2GB/CD/Dat/As	5700
500/132	32/2GB/CD/Dat/Unix	8895
700/150	32/1GB/CD/UNIX	9940
700/150	48/4GB/CD/Dat/Unix	12300

UMAX SUPERMAC

J700/150	16/2GB/8.7CD/KEY/VCard	$ 2575
J700/180	24/2GB/8.7CD/KEY/VCard	2849
S900/225	32/2GB/8.0CD/KEY/VCard	3858
S900/200	32/2GB/8.0CD/KEY/VCard	3498
S900/150	32/2GB/8.0CD/KEY/VCard	3159

POWERBOOKS

190cs	8/500	$ 1499
5300CS	8/500	1875
5300CS	16/750	2345
5300C	8/500	2295
5300C	16/750	2725
5300CE	32/1GB	3485
DU02300C	8/750/14.4 Mod	1449
DU02300C	20/750MB/14.4 Mod	Call
DU02300C	20/1.1GB/14.4 Mod	1849
1400C	16/1GB/6XCD	3699
1400CS	16/750MB/6XCD	2879
1400CS	12/750MB	2479

PERFORMAS

6320/120	16/1.2GB/CD/Kbd/28.8	$ 1185
6320/120	16/1.2GB/CD/15"/Kbd/28.8	1545
6320/120	16/1.2GB/CD/15"/Kbd/28.8/TV	1645
6360/180	16/1.2GB/8XCD/Kbd/28.8	1445
6400/180	16/1.2GB/8XCD/Kbd/28.8	1675
6400/200	16/1.2GB/8XCD/Kbd/28.8	1899

CD ROMS

Apple	600 I Internal CD	$ 85
Apple	600 E External CD	150
Philips	CDD-200 CD Rec. Ext.	1089
Yamaha	100E CD Rec. Ext.	999
Sony	2x CD Rec. Ext.	1069
Plan. Mic.	1000 2x CD Rec Ext.	599

DOS CARDS

Apple	8100 Series	$ 149
Apple	Pentium 100	746/988

MEMORY

4MB	30 Pin Simm	$ 55
16MB	30 Pin Simm	155
4MB	72 Pin Simm	29
8MB	72 Pin Simm	39
16MB	72 Pin Simm	79
32MB	72 Pin Simm	179
8MB	Duo 2300 Simm	79
16MB	Duo 2300 Simm	149
20MB	Duo 2300 Simm	199
36MB	Duo 2300 Simm	349
48MB	Duo 2300 Simm	469
8MB	PB5300/190 Simm	79
16MB	PB5300/190 Simm	144
32MB	PB5300/190 Simm	169
8MB	168 Pin Dimm	45
16MB	168 Pin Dimm	79
32MB	168 Pin Dimm	169
64MB	168 Pin Dimm	329

VRAM

1MB	7200,7500,7600,8500 Series	$ 35
1MB	6100,7100,8100 Series	79
2MB	ATI VRam Card-9500 Series	159

CACHE CARDS

256K	Performa 6400 Series	$ 110
256K	L2 Dimm, 7200-8500 Series	79
256K	L2 Dimm, 9500 Series	139
512K	L2 Dimm, 7200-9500 Series	129

MONITORS

Apple	Multiscan 14"	$ 295
Apple	Multiscan 15"	409
Apple	Multiscan 15" AV	465
Apple	Multiscan 1705	649
Apple	Multiscan 1710	849
Apple	Multiscan 1710AV	939
Apple	Multiscan 20"	1599
Hitachi	All Models	Call
Mitsubishi	All Models	Call
NEC	All Models	Call
Radius	All Models	Call
Sony	All Models	Call
Viewsonic	All Models	Call

PRINTERS

Apple	StyleWriter 1500	$ 245
Apple	StyleWriter 2400(R)	230
Apple	StyleWriter 2500	359
Apple	LaserWriter 4/600	729
Apple	LaserWriter 12/640	1445
Apple	LW 12/600PS/Color	5188
Epson	Stylus Color 500	270
Epson	Stylus Color 1500	879
Epson	Stylus Pro XL	1699
HP	DeskJet Series	Call
HP	LaserJet 6MP	888
HP	DeskJet 755cm Plotter	1749

MESSAGE PADS

Apple	Newton Message Pad 130	$ 799

SCANNERS

AGFA	Arcus II	$ 1745
AGFA	StudioScan IIsi	825
AGFA	StudioStar FV	949
AGFA	StudioStar LE	799
Epson	Action Scanner II	360
Epson	ES-1000C	550
Epson	Express. 636 Artist	1228
Epson	Express. 636 Exec.	821
Umax	VistaSGE ProMac	525
Umax	VistaS12 MacDix.	895
Umax	Powerlook II	1869
Visioneer	Paperport VX	280
Visioneer	Paperport	99

REMOVABLE EXT. HARD DRIVES

Iomega	Zip 100 MB & Cartridge	$ 179
Iomega	Jazz 1 GB Original & Cart.	469
Iomega	Jazz 1 GB Generic & Cart.	439
Syquest	EZ 135 MB & Cartridge	139
Syquest	EZ 130 MB & Cartridge	285

HARD DISK DRIVES

		INT.	EXT.
IBM	2.1 GB Ultrastar	$ 349	$ 419
IBM	4 .0 GB Ultrastar	985	1079
Quantum	1.2 GB Tempest	269	329
Quantum	2.1 GB Tempest	379	439
Quantum	3.2 GB Tempest	465	529
Quantum	2.1 GB Atlas	549	629
Quantum	4.3 GB Atlas	875	949
Seagate	2.4 GB ST32155N	499	575
Seagate	9.0 GB ST19171N	2049	2149

MAGNETO-OPTICAL DRIVES

Fujitsu	230 MB Dynamo Ext.	$ 489
Fujitsu	640 MB Dynamo Int.	549
Fujitsu	640 MB Dynamo Ext.	659
Olympus	230 MB PowerMo Ext.	485
Olympus	2.6 GB PowerMo Ext.	1799
Pinn. Micro	2.6 GB Vertex Ext.	1499

SOFTWARE/KEYBOARDS SPECIALS

Adobe	Illustrator v8.0	$ 329
Adobe	Pagemaker v6.0	389
Adobe	Photoshop v3.0.5	399
Adobe	Premier v4.2	487
Adobe	After FX v3.1	609
Quark	XPress v3.3.2	840
Adobe	Illustrator 6.0	329
Adobe	Photoshop 3.0.5	389
Adobe	Pagemaker 6.0	389
Apple	Design Keyboard	75
Apple	Extended Keyboard II	135
Radius	Extended Keyboard	49

VIDEO DISPLAY CARDS

TrueVision	Targa 2000	$ 3749
TrueVision	Targa 2000 (Pro)	4299
ATI	Exclaim 2mb Videocard	269
ATI	Exclaim 4mb Videocard	389
IMS	Twin Turbo 4mb V-card	488
IMS	Twin Turbo 8mb V-card	755

REMOVABLE CARTRIDGES

Syquest	200MB or 270MB	$ 65
Syquest EZ	135MB / 230MB	19/25
Iomega	100MB / 1GB	15/89
Nomai	200MB	56

Due to publication time advertising prices may vary. All prices includes cash discounts. Not responsible for typographical errors. Shipping and service fees are non-refundable. No sales tax outside of CA. All returns subject to 15% restocking charge. All returns must have an authorization number (R.M.A.)

Email: sales@microoutlet.com
Visit us on the World Wide Web at: http://www.microoutlet.com
C.O.D. / P.O.

CIRCLE 241 ON READER SERVICE CARD

BIG MAC

1-800-761-1999

POWERMAC'S

9500/200M 0/0/8xCD	3000
9500/200MP 128/2GB/CD	4450
8500/180 32/2GB/8xCD	3295
9500/150 16/2GB/CD	3195
9500/132 16/1GB/CD	2595
9500/120 16/1GB/CD	2395
8500/150 16/2GB/CD	2595
8500/150 48/2GB/CD	2850
8500/150 144/4GB/CD/JAZZ	CALL
8500/132 80/2GB/CD	3195
8500/132 16/1GB/CD	2395
8500/120 16/1GB/CD	2095
7600/132 16/1GB/8xCD	1899
7600/120 16/1GB/CD	1799
7600/120 32/2GB/CD	2150
7200/120 16/1GB/CD	1399
7250/120 16/1GB/CD	1750
8550/200 32/2/CD/AS	5595

POWERBOOKS

5300CE	32/1.2GB	3750
5300C	8/500	2595
5300C	16/750	3189
DU02300C	20/1.2/MOD	2295
190CS	8/500	1495
1400CS	12/750	2750
1400C	16/1G/6xCD	3899

PERFORMA

6400/200	16/2.5GB/8xCD	1950
6400/180	16/1.6GB/8xCD	1695
6320/120	16/1GB/CD/TV/V	1895
6360/160	16/1.2GB/8xCD	1450
Power Computing		Call
Umax Computers		Call
Motorola Computer		Call

1831 Pontius Ave., Los Angeles, CA 90025
Tel: (310) 235-1780 • Fax: (310) 235-1790
Toll Free: (800) 761-1999

CIRCLE 242 ON READER SERVICE CARD

Infinity Micro

Apple UMAX HEWLETT PACKARD GCC TECHNOLOGIES Seagate radius DAYSTAR

Lease or Buy • One stop shopping for all your software & hardware needs!

800 • 589 • 1234

POWERMACS

6100/66 8/500CD	995.
6100/66 8/500/DOS	1095.
7100/80 8/700 CD	1295.
8100/100 8/700	1845.
8100/100 16/16/CD	1995.
8100/100AV 16/16/CD	1995.
8100/110 16/2G/CD	2295.
7200/120 16/1G/8XCD	1295.
7200/120 16/1.2/4CD	1345.
7500/100 16/16/CD	1295.
7600/120 16/16/CD	1695.
7600/132 16/1.2/CD	1995.
8500/120 16/16/CD	1845.
8500/132 16/16/CD	2195.
8500/150 16/2G/4CD	2595.
8500/180 32/2G/CD	2995.
9500/120 16/16/CD	1995.
9500/132 16/16/CD	2095.
9500/150 32/2G/CD	2795.
9500/200 32/2G/CD	3795.
9500/180MP 32/2G/CD	5495.

SCANNERS

Epson scanners	CALL
PowerLook II	1795.
Agfa Arcus II	1745.
StudioScan IISi	745.

POWERBOOKS

5300CE 32/1GIG	3195.
Duo 2300c 8/750/MDM	1495.
5300C 8/500	2345.
5300CS 16/750 P.B.	2349.
5300CS 8/500 14.4	1895.
5300 8/500 FAX	1395.
150 8/240 ONYL	675.
520 8/240 $89.	995.
520C 20/240/19.2	1495.
1400CS 12/750	2545.
1400CS 16/750/6CD	2945.
1400C 16/1.2/6XCD	3695.

PERFORMAS

6400/180 16/1.2/CD	1345.
6400/200 16/1.2/CD	1795.
6300 16/1G/CD/28.8	995.
6320 16/1G/CD/TV	1095.
6220TV 16/1G/CD	895.
6290 8/1GIG/CD	745.
6116 8/700/CD/14"	1095.
5260 16/800/CD	1295.
5320 16/1.2/CD	1345.
580 8/800/CD	995.
640 Dos 12/500/CD	895.

MONITORS

Apple 14" Multiscan	249.
Apple 15" Multiscan(R)	299.
Apple 17" Multiscan(R)	695.
Apple 1705/1710	645./795.
Apple 20" Multiscan	1295.
PrecisionColor 17	645.
MAGNAVOX 20" Multiscan	849.
ViewSonic PT810 21"	1795.
PressView 17 SR	CALL
Intellicolor 20e	1295.
SuperMatch21TXL	1295.
PressView21T	1695.
Sony 15SFII/200SFII	445/785
Sony 17se2/20sf2	995/1575

VIDEO CARDS

Thunder30-1152	795.
Thunder30-1600	1145.
Thunder Clr./30-1152	1399.
Targa 2000N	2195.
TruVision RTX-1000	695.
Targa 2000Pci	2695.
# 9 Imagine 128	689.
IMS Twin.T. 128/8mb	695.

PRINTERS

StyleWriter 1200	149.
StyleWriter 1500	249.
StyleWriter 2500	299.
StyleWriter 2200	269.
StyleWriter 2400	199.
Laser Select 300	445.
Personal Laser 320	545.
Laserwriter 4/600	695.
Laserwriter 360	1195
Laserwriter 16/600	2085
LaserW. 12/660PS	5395.

GCC TECHNOLOGIES

Elite 600 Ether.	1149.
XL608 600 dpi	CALL.
XL808 800dpi	2795.
XL616 600dpi	2595.
XL1208 1200	3895.

SPECIALS

PENTIUM100MHZ	895.
Cetris 610 rebus	39.
Magnavox 20" $ 895.00 7250/120 server $1499.	

•Prices Subject to change without notice!•

"Custom Configuration Specialists" 2289 Westwood Bl. LA, CA. 90064 tel 310•470•9426 fax 310•470•4956

CIRCLE 243 ON READER SERVICE CARD

VL PROMAC, Inc.

8001 NW36th St. Ste. 105, Miami, Fl 33166
Tel: 1-800-829-4857 Fax: (305)593-8921

PowerMacs	
7600/132 16/1.2gb/8xCD	$2179
7200/120 16/1.2gb/8xCD/PC comp	$2299
7200/120 16/1.2gb/8xCD	$1519
8500/150 16/2gb/4xCD	$2949
8500/150 16/1.2gb/8xCD	$2829
8500/180 32/2gb/8xCD	$3579
8500/132/16/1.2GB/4xCD	$2695
9500/200 32/2GB/8xCD/L2	$3995
9500/180 MP 32/2GB/8xCD/L2	$4869
Performas	
5320 16/1.2gb/CD/15" Mon/28.8	$1749
6320 16/1.2gb/CD/15" Mon	$1749
6400 16/1.6gb/8xCD/28.8	$1819
Printers	
Laserwriter 12/640	$1489
Stylewriter 2500	$369
Umax	
Vista S6E Photodeluxe Mac	$339
Vista S612 Photoshop Full Mac	$779
PowerLook II Advanced Mac/PC	$1999

PowerBooks	
5300ce/117 32/1GB	$3949
5300cs 16/750	$2649
5300c 8/500	$2595
5300Mono 8/500	$1589
Servers	
AWS 8500/132	$3963
AWS 7250/120	$1779
AWS 7250/120 Internet	$1149
AWS 8550/132 Appshr	$4329
AWS 8550/132 Dat	$4439
Drives	

Syquest 2000 For Mac	INT	EXT
1.2 GB	269	330
2.1 GB	434	499
4.3 GB	849	919

STOP LOOK AT OUR GREAT PRICES!!!!

We also sell used, PowerComputer, Umax, and more!
Credit card 3% surcharge (prices subject to change)
International calls welcome (305)593-9221

CIRCLE 244 ON READER SERVICE CARD

MAC LOGIC BOARD UPGRADES

Put some new zing in your Mac with a logic board upgrade from Shreve Systems!

Quadra 800 to PowerMac 8100
Logic Board Upgrade

STARTING AT **$599** with exchange

PowerPC™

Quadra 660AV to PowerMac 6100
Logic Board Upgrade

PowerPC™ STARTING AT **$399** with exchange

Quadra 650 to PowerMac 7100
Logic Board Upgrade

PowerPC™ STARTING AT **$499** with exchange

only working boards accepted for exchanges

Power Macintosh 9500/120

- 120-MHz PowerPC 604
- 16MB of RAM
- 1GB hard drive
- 4X internal CD-ROM
- built-in Ethernet
- 12 DIMM sockets

Brand New!

PowerPC™

NEW $1999

Power Macintosh 7500/100

- 100-MHz PowerPC 601+
- 16MB of RAM
- 1GB hard drive
- 4X internal CD-ROM
- built-in AV
- Ethernet

Brand New!

PowerPC™

NEW $1599

Apple Performa 6300/100

- 100-MHz PowerPC 603e
- 16MB of RAM
- 1.2GB hard drive
- 4X internal CD-ROM
- built-in LocalTalk
- 15" Apple Multiscan
- AppleDesign keyboard
- internal 14.4 modem

PowerPC™

RECONDITIONED $1599

AppleVision 1710AV Display

The AppleVision 1710Av display provides a completely integrated multimedia solution for business, education and desktop publishing professionals. It features a 17" Trinitron picture tube (16.1" diag. viewable image size), a .26mm dot pitch, resolutions up to 1,280 x 1,024 pixels, and an antiglare and antistatic screen. Plus it has software controls for user settings and geometry, CD-quality speakers and a voice-recognition capable microphone.

reconditioned $749

AppleVision 1710

Offers a range of resolution modes up to 1,280 x 1,024 pixels. Features next-generation Trinitron picture tube. (16.1" diagonal viewable image size)

reconditioned $599

Apple TV Video System

Now you can watch TV or videos on your Macintosh Performa 630, 640, 5200, 6200 or 6300 series. Features a cable-ready TV tuner that lets you watch up to 181 channels on your Mac. The system also includes a video card that lets you connect your camcorder, VCR or laser-disc player to your Macintosh. You can capture the images as "stills" or movie clips.

DEMO UNITS $149

Power Macintosh HPV Card

This is the original Power Macintosh HPV (high-performance video) card. The PowerMac 7100 HPV card comes with 1MB VRAM upgradable to 2MB, 8100 HPV card comes with 2MB VRAM upgradable to 4MB. Each model has 4 VRAM SIMM sockets. For 6100 owners either model can be mounted in the 6100's PDS slot via a PDS adapter ($100 additional).

1MB HPV Card (upgradable to 2MB)
DEMO UNITS $179

2MB HPV Card (upgradable to 4MB)
DEMO UNITS $249

Power Macintosh AV Card

With the Power Macintosh AV Card you add sophisticated audio/visual capabilities to your PowerMacintosh system. After installation, your PowerMac 6100, 7100 or 8100 will include all the features of a Power Macintosh AV-equipped computer. The AV card allows you to view and capture video images on your computer by connecting a TV or VCR. You record video from your computer's monitor onto videotape by connecting the appropriate video equipment. *$100 requires PDS adapter

2MB AV Card
DEMO UNITS $349

PowerPort Mercury for PowerBook 500 series

GlobalFax software included. Features data transfer speeds of 19.2Kbps and fax speeds of 14.4Kbps.

NEW UNITS $199

**$20 Instant Rebate if purchased with a PowerBook 520*

Portable StyleWriter 2200

$229

14.4 Global Village Internal Modem

NOW ONLY **$29**

AMERICA Online

15 FREE Hours included

for Performa 630, 640, 5200, 6200, 6300 series
**modem hardware only*

QuickTake 150

Capture 32 standard-quality images or 16 high-quality images. Includes closeup lens.

reconditioned $399

Macintosh *Quadra 950*

- 33-MHz 68040 processor
- 8MB of RAM
- 500MB hard drive
- 1MB VRAM
- 5 NuBus expansion slots
- 16 SIMM sockets
- 3 internal hard drive bays

NEW UNITS $1199

E-MACHINES

DOUBLECOLOR SX

- Accelerated 8-bit video
- Hardware Pan & Zoom
- Virtual Screens

INCLUDES SOFTWARE

Brand New

Up to 832X624
FOR NUBUS-BASED MACS

$129

Power Supplies

800/840/8100 series

Original Factory Item!

NEW!

$199

SuperDrives 1.44MB

NEW!

$129 AND UP

Macintosh CPUs

LC550 4/160	$599.
LC580 8/800/4XCD NEW	$1249.
LC580 8/500/CD refurbished	$1049.
Performa 635 4/250/CD	$799.
Performa 637 8/250/CD	$849.
Performa 6200 8/1GB/CD	$1099.
Centris 650 4/0	$649.
Quadra 660av 4/0	$599.
Quadra 840av 0/0	$999.
Quadra 800 8/0	$899.
Quadra 950 8/500 NEW	$1199.
PowerMac 7500/100 16/1.2GB/CD	$1449.
PowerMac 7500/100 16/1.2GB/CD NEW	$1599.
PowerMac 9500/132 16/2GB/CD	$2499.
WGS 8150/80 8/500/AppleShare	$1499.
WGS 8150/110 16/1GB/CD/DAT/AShare	$2899.
WGS 9150/80 16/1GB NEW	$1699.

More Logic Board Upgrades

Personal NT to NTR printer upgrade	exch. $99
LaserWriter IINT/NTX to IIf	exch. $399 NT/299 NTX
Mac II or IIx to IIfx	exch. $299
LCIII to Quadra 605	exch. $449
Centris 610 to Quadra 660av	exch. $199
Quadra 800 to Quadra 840av	exch. $299
Quadra 950 to PowerMac 9500/120	exch. $1999
IIvx or IIci to Centris 650	exch. $299
Performa 630 to PowerMac 6200	exch. $699
Performa 630 to PowerMac 6300	exch. $999

NuBus Adapters/DOS Cards

Quadra 660AV NuBus Adapter	$49.
Quadra 610 Nubus Adapter	$49.
630-series DOS card	$299.

Apple OneScanner	$279.
Apple Color OneScanner 600/27	$549.
UMAX UC840 Scanner NEW	$499.
Epson ES-600C NEW	$549.

Video Cards

E-Machines DoubleColor SX 8-bit NEW	$129.
RasterOps 24MX NEW	$249.
SuperMac PDQ 8*24	$349.
7100/8100 series AV Card	$349.
6100 series AV Card with adapter	$449.
PowerMac HPV VRAM Card (2MB VRAM)	$249.

Monitors

Apple 14" AV NEW	$349.
Apple MultiScan 17"	$599.
Apple 15" MultiScan	$329.
Radius PrecisionColor Display/20e	$1299.
Hewlett-Packard 17" with card	$649.
Hewlett-Packard 20" with card	$899.

Printers

Apple StyleWriter 1200	$159.
Apple Personal LaserWriter LS	$299.
Apple Personal LaserWriter 300	$299.
Apple LaserWriter Select 310	$449.
Apple LaserWriter Select 300 NEW	$379.
Apple Personal LaserWriter NTR	$549.
Apple LaserWriter IINT	$599.
Apple LaserWriter IINTX	$749.
Apple LaserWriter Pro 630	$1199.
Apple Color Printer NEW	$699.
HP DeskWriter 310 NEW	$199.
Hewlett-Packard DeskWriter	$199.
Hewlett-Packard DeskWriter C	$229.
Hewlett-Packard DeskWriter 550c	$229.

Laser toner cartridges sold separately

PowerBooks

PowerBook 170 4/80	$799.
PowerBook 520 4/240 NEW	$1099.
PowerBook 160 4/80	$699.
PowerBook 150 4/240 NEW	$699.

SHREVE Systems

http://www.shrevesystems.com

1•800•227•3971

• ALL CREDIT CARDS STRICTLY VERIFIED •

FAX (318) 424.9771 • Technical Support (318) 424.7987
Customer Service (318) 424.9791 • Purchasing/Information (318) 424.9791
1200 Marshall Street • Shreveport, Louisiana 71101

Products are refurbished unless indicated as "new". Prices reflect a 2% cash discount and are subject to change without notice. Non-defective returns are subject to a 15% restocking fee.

Trinitron™ Super Sale

17" Std.-res. Trinitron (R) 285.00
17" Hi-res. Trinitron (R) 325.00
PowerSync Res. Adaptor (N) 35.00
Apple 14" MS Multi-Scan (R) ... 265.00
CPUs (*BEST POWERCOMPUTING PRICES!*)
Mac SE 4/160 w/Ext. Kybd (U) . 145.00
Mac IIcx 4/160 (U) 145.00
Mac IIci 4/160 (U) 245.00
P6205 8/1GB w/14"MS Mtr (R) 1299.00

Check out our 80 page Online Catalog!
http://www.poweron-line.com

4x CD-ROM Drives (N) 85.00
StyleWriter 2400 (R) 189.00
28.8 modems (N) 92.00
HP Desk Jet 855C(R) 399.00
Int. 160 MB Hard Drives (N) 65.00
1.44 FDHD, (NEW).... 89.00

POWER ON
COMPUTER SERVICES
(800) 673-6227
(916) 652-1880 • (916) 652-1881 FAX

CIRCLE 246 ON READER SERVICE CARD

DFI

20" Sony Color
BLOWOUT MODEL!

Model GDM1960 SuperFine Pitch Trinitron Tube .30 DP
■ 1 Year Warranty
1024 x 768 Refurbished.
■ Tilt Swivel Base
Only $699!

We also carry 17" Sony Monitors as low as $325

Call for Details **800·390·7020**
181 Salem Street, Malden, MA 02148

CIRCLE 247 ON READER SERVICE CARD

COMPU AMERICA
"The Computer Specialist"

1800-533-9005
HTTP://WWW.COMPU-AMERICA.COM
EMAIL US AT COMPAMER@ARTNET.NET
(310) 446-1771 FAX Bids
(310) 475-7744
10435 Santa Monica Blvd LA, CA 90025
We are open on Saturday!
Come and see our HUGE showroom! We ship WORLDWIDE!
We accept Government, Fortune 1000, and University P.O.'s.

PowerComputing PowerTower Pro 225e	PowerComputing PowerTower Pro 200e	PowerComputing PowerCenter 604/150	PowerComputing PowerCenter 604/120
225MHz 604e Full Tower 16/2G/8XCD/8MB VRAM 1MB CACHE, KEYBOARD	200MHz 604e Mini Tower 16/2G/8XCD/8MB VRAM 1MB CACHE, KEYBOARD	150MHz 604 Low Profile 16/1G/4XCD/1MB VRAM 512k CACHE, KEYBOARD	120MHz 604 Desktop 16/1G/4XCD/1MB VRAM 512k CACHE, KEYBOARD
$3899 ONE YEAR ON SITE WARRANTY. REFURBISHED BY POWERCOMPUTING.	**$3499** ONE YEAR ON SITE WARRANTY. REFURBISHED BY POWERCOMPUTING.	**$1599** ONE YEAR ON SITE WARRANTY. REFURBISHED BY POWERCOMPUTING.	**$1199** ONE YEAR ON SITE WARRANTY. REFURBISHED BY POWERCOMPUTING.

POWERMAC

7200/75	8/500/CD	899*
7200/90	8/500/CD	999*
7200/120	16/1.2G/8XCD	1349
7200/120	16/1.2G/4XCD/PEN	1899
7200/120	16/1.2G/8XCD/PEN	1999
7500/100	16/1GIG/CD	1499/1379*
7600/120	16/1.2G/4XCD	1649
7600/132	16/1.2G/CD	1899
8500/120	16/1GIG/CD	CALL
8500/132	16/1.2GIG/CD	2199
8500/150	16/2GIG/CD	2499
8500/150	16/2GIG/8XCD	2599
8500/180	16/2GIG/CD	2899
9500/120	16/1GIG/CD	2199/1999*
9500/132	16/1GIG/CD/V	2399/2199*
9500/132	16/2GIG/CD	2299*
9500/150	16/2GIG/CD/VID	3099
9500/200	32/2G/CD	3699
9500/180M	32/2GIG/8XCD	CALL
6100/66	16/500/CD/DOS	999*
8100/100	8/700	1499*
8100/110	16/2GIG/CD	2099*

UMAX

S900D/150/0/8CD/NO VID		2499
S900L/150	16/2GIG/CD/2VID	2999
S900L/180	32/2GIG/CD/4VID	3299
S900L/200	32/2GIG/CD/4VID	3499
S900L/225	32/2GIG/CD/8VID	3899
S900 180MP	32/2.1/8XCD	4399
J700L /150	16/2.1/8XCD	2599
J700L /180	24/2.1/8XCD	2899
C500 /160	16/1.2/CD	1297
VISTA S6E Photo Shop LE		299
VISTA S6 FULL PHOTO		499
VISTA S12 PHOTOSHOP LE		599
VISTA S12 MAC PRO II		679

POWERBOOKS

1400C/133	16/1GIG/CD	CALL
1400C/117	16/1GIG/CD	CALL
1400CS/117	16/1.2/CD	CALL
1400CS/117	12/750	CALL
5300CE/117	32/1GIG	3199
5300C/100	16/750	2599
5300C/100	8/500	2199
5300CS/100	16/750	2199
5300CS/100	8/500	1799
5300/100	8/500	1399
190CS/66	8/500	CALL
190/66	8/500	899
DUO 2300C20/1.2GB/14.4		1799
DUO 2300C8/750		1499

Apple Printers

SW 1200/2400		149*/199*
SW 2200		379
SW 1500/2500		229/299/249*
Apple Personal Laser 320		599
Apple LaserWriter Select 360		1199
Apple LaserWriter 4/600PS		749
Apple LaserWriter 12/640/PS		1449
Apple LaserWriter 12/600PSC		5299
Apple LaserWriter 12/660PSC		5299
Apple LaserWriter 16/600PS		2099
5M color	10ppm color Laser	6999
5SIMX	24PPM LASER	3799
5M	12ppm 600dpi laser	1779
6MP	PS 600DPI Laser	899
4MV	11x17 Laser	2399
DeskWriter	680c INKJET	299
Deskjet	870CXI INKJET	499
Deskjet	870CSE	499
EPSON	STYLUS PRO II	399
EPSON	STYLUS COLOR PRO	499
EPSON	STYLUS COLOR PRO XL	1679

PERFORMAS

6400/200V	32/2.4/8XCD	2099
6400/200	16/2.4/8XCD	1799
6400/180	16/1GIG/8XCD	1549
6320/120	16/1GIG/CD	1199
6300/100	16/1.2G/CD	969*
6360/160	16/1GIG/8XCD	1249
6290/100	8/1.2GB/CD	899*
6220/75	16/1GIG/CD/TV	899*
6205/75	8/1GIG/CD	849*
6200/75	8/1GIG/CD	849*
6116/66	8/700/CD	799*
640DOS	12/500/CD/DOS	799*
5260/100	16/800/CD	1399
5320/120	16/1.2/4XCD/15"	1549
5200/75	8/800/CD	1099*
631/66	8/500/CD	699*

APPLE Monitors

Apple MS 14"	289/249*
Apple MS 15"	399/349*
Apple 1705 17"	699
Apple 1710AV / 1710	949/899
Apple Multiscan 20"	1699/1199*

SONY Monitors

Sony 100SX /100SF	CALL/CALL
Sony 200SX/200SF	679/779
Sony 300SF	CALL
Sony 20SE2	1899

NEC Monitors

NEC 17XV+	699/599*
NEC M500 15"	499
NEC M700 17"	799
NEC 17XE / 17XP	999/1049
NEC 21XE / 21XP	1699/1899

MacMail

CALL NOW INT'L ORDERS **800-MAC-6844** **www.macmail.com** **LLAME AHORA SE HABLA ESPAÑOL**

• SONY • DAYSTAR • EPSON • SYQUEST • UMAX • RADIUS
• FARALLON • SUPRA • NEC • MITSUBISH
SUPERMAC • CANON • APPLE • KODAK
• IOMEGA • ASANTE • HEWLETT PACKARD • MICROTECK

MACS

PMAC7200/120•16/1.2G/CD	$1545
PMAC7600/132•16/1.2G/CD	$2240
PMAC8500/150•16/2G/CD	$2998
PMAC8500/150•16/1.2G/CD	$2930
PMAC8500/180•32/2G/CD	$3609
PMAC9500/200•32/2G/CD	$4070
Custom Configurations	.CALL

MEMORY

16MB SIMM 72Pin	$109
32MB SIMM 72Pin	$220
16MB DIMM	$95
32MB DIMM	$199
60MB DIMM	$425

CALL FOR WEEK SPECIALS !

PERFORMAS

6320/120 16/1G/CD Bndl	$1859
6400/180 16/1.6/8xCD	$1859

PRINTERS

Apple SW 1500	$259
Apple SW 2500	$369
AppleLW 4/600	$765
AppleLW 12/640	$1499
AppleLW 16/600	$2115
SCANNERS	Call

MONITORS

Apple Multiscan 14"	$295
Apple MultiScan 15"	$375
Apple Multiscan 1705	$659
Apple Vision 1710	$899
Apple AV 1710	$999
Apple Multiscan 20"	$1798
Sony 20" SF2	$1695
Sony 17" SF2	$785
Rasterops 20"	$1325

•Leasing Plans
•FEDEX•UPS•Etc...
•Prices may change
•Price represent cash discounts

MacMail
www.MacMail.com
800-622-6844
Int'l: 305-639-9646

800-MAC-6844 **e-mail: sales@macmail.com** VISA MASTERCARD COD

CIRCLE 248 ON READER SERVICE CARD

CALL THE MAC EXPERTS!

Providing complete Macintosh solutions for graphics, pre-press, and video professionals

MacUser Labs Says:
A PowerMax Power Play" "Not only do the PowerMax monitors display good-looking images, but (they) are affordably priced!" *and* "Nice price, nice image quality, nice controls – nice monitor!"

FREE with every CPU!*
Canvas 3.5, Comptons Encyclopedia CD, Netscape Navigator, Eudora email and one month free internet access!

*While supplies last

PowerComputing SUPERmac MOTOROLA

•Immediate Delivery •Knowledgeable Sales Staff
•Volume Pricing •All styles of Macs and compatibles!

PowerMax Trinitron™ Monitors

PowerMax Trinitron monitors are designed specifically for the rigorous demands of the Macintosh. They ship complete with Mac-ready cables and adapters, a three year warranty, and our satisfaction guarantee: if the monitor is not just right, we'll replace it for you!

Model PM14T	$319
Model PM15T	$419
Model PM17T	$749
Model PM17TE+	$989
Model PM20T	$1649
Model PM20T+ .25mm Dot pitch!	$1849

Wacom Graphics Tablets

ArtPad II 4x5 w/erasing Ultra Pen	$139
ArtPad II 4x5 w/erasing Ultra Pen w/Dabbler	$159
ArtZ II 6x8 w/erasing Ultra Pen	$309
ArtZ II 6x8 w/erasing Ultra Pen & Painter 4	$579
ArtZ II 12x12 w/erasing Ultra Pen	$439
ArtZ II 12x12 w/erasing Ultra Pen & Painter 4	$689
ArtZ II 12x18 w/erasing Ultra Pen	$699

We carry all Wacom Accessories, Pens and Tablets! There is no one who knows more about Wacom!

We stock at wholesale prices:
•Adobe •Agfa •Alto •Canon •DayStar •Epson •Fargo •GCC •Global Village •Hewlett Packard •Iomega •Kingston •Kodak •LaCie •Mag •Magnavox •Microtek •Mitsubishi •Motorola •NEC •Nikon •Optima •PowerComputing •QMS •Quantum •Radius •Samsung •Seagate •Seiko •StreamLogic •Sony •SyQuest •Tektronix •TrueVision •Umax •US Robotics •Visioneer •Xante

Ask about our Color StyleWriter 2400: Only $199!

We also stock 100s of factory refurbished Apple CPUs starting at under $1000!

PowerComputing Power 100 3 Nubus 8/Gig/CD	$1099
Performa 6360 160 16/1.2/8x CD	$1448
Performa 6400/180 16/1.6 Gig/8x CD	$1699
Performa 6400/200 16/2.4 Gig/8x CD	$1899
PowerMac 7200/120 16/1.2 w/Pentium/8x CD	$2169
PowerMac 7200/120 16 Ram/8x CD	$1211
PowerMac 7500/100 16 Ram/1.2 Gig/4x CD	$1650
PowerMac 7600/120 16 Ram/1.2 Gig/4x CD	$1849
PowerMac 7600/132 16 Ram/8x CD	$1849
PowerMac 8500/150 16 Ram/8x CD	$2549
PowerMac 8500/180 32 Ram/8x CD	$3119
PowerMac 9500/200 32 Ram/8x CD	$Call!
PowerMac 9500/180MP 32/2000/8x CD	$Call!
Powerbook 1400CS 12/750	$2477
Powerbook 1400CS 16/750/CD	$2889
Powerbook 1400C 16/Gig/CD	$3467

Motorola Starmax

Complete 603e-based systems, starting at	$1549
Complete 604e-based systems, starting at	$2149

Power Computing

We stock the complete line- call for details!	$Call!

Umax SuperMac

SuperMac C500 L160 16/1.2/CD/28.8 Modem	$1299*
SuperMac C600 L180 16/1.2/CD/28.8 Modem	$1729
SuperMac C600 L200 16/2 Gig/CD/28.8 Modem	$1939
SuperMac C600 L240 16/2 Gig/CD/28.8 Modem	$2249
SuperMac J700 L150 16/2 Gig/CD	$2699
SuperMac J700 L180 24/2 Gig/CD	$2999
SuperMac S900 L150 16/2 Gig/CD	$3449
SuperMac S900 L200 32/2 Gig/CD	$3699
SuperMac S900 L225 32/2 Gig/CD	$4199
SuperMac S900 L180 W/2 604E Processors	$4499

*After mfgrs. rebate

POWER MAX
Knowledge is Power

HTTP://WWW.Illuminatus.Com/PowerMax
E-Mail: PowerMax @ Europa.com

800-613-2063

Call today for your free PowerMax Catalog!
Local line: (503) 624-1827 • Fax (503) 624-1635
We accept: Purchase Orders • COD s • Credit Cards • We are also leasing experts!
Prices subject to change without notice. Prices reflect cash discount.

CIRCLE 249 ON READER SERVICE CARD

MediaGuide

BUY / SELL / TRADE

We guarantee the BEST prices!

Mac Plus 0/0	$59	SE 4/20	$139
SE/30 4/40	$319	Classic 4/40	$199
Mac II 4/40/Video	$99	LC 2/0	$89
IIcx 5/40/Video	$149	IIsi 1/0	$99
IIci 4/80	$199	IIfx 16/160	$449
Quadra 650 8/250	$649		
Quadra 840AV 16/230/CD	$999		
PB Duo 230 12/120/14.4	$649		
PB 160 12/120/14.4	$599		
Apple 13" RGB	$229	16" RGB	$499
Imagewriter II	$149	Laserwriter	$149
800K floppy	$25	1.44 floppy from	$69

Parts, Accessories, Other CPUs — Call!

Photoshop 3.	$225	Pagemaker 6.	$225
Office 4.2.1	$149	ClarisWorks 3	$39
FileMakerPro 2.1.	$49	Other software	Call

30- and 72-pin SIMMs: BEST PRICES!

TOLL FREE (888)466-2271 M-F 9-6 MST
e-mail: MGSales@MediaGuide.com • Fax (303) 788-0651

CIRCLE 250 ON READER SERVICE CARD

MacBYTE

CALL FOR OUR BACK TO SCHOOL SPECIALS

BUY • SELL • TRADE

CASH FOR MACS

NEW & USED MACS WITH WARRANTIES

FEDEX OVERNIGHT SHIPPING

Visa/MasterCard/Amex/Discover
Diners Club/COD

Local Area On-Site

800-432-2983
4223 Glenco Ave., Suite C200
Marina del Ray, CA 90292
FAX: 310-448-4494
E-MAIL: MacByteCo@aol.com

CIRCLE 251 ON READER SERVICE CARD

MACBASE® USA (800) 951-1230

FAX (310)498-0032
International (310)498-1230
HOURS: 8-6 M thru F 10-2 Sat PST

University, Schools, Gov't, & Fortune 1000 P.Os Accepted

Prices are C.O.D. and subject to change without notice. P.O.s are subject to credit approvals.

Power Macintosh		1400cs/117 12/750	CALL
7200/120 16/1.2GB/8xCD/L2	$1399	1400cs/117 16/750/6XCD	CALL
7200/120 24/1GB/8xCD/PC	$2099	1400c/117 16/1GB/6XCD	CALL
7600/120 16/1.2GB/CD	$1829	5300c 16/750	CALL
7600/132 16/1.2GB/8xCD	$1979	5300ce 32/1.2GB	$3999
8500/132 16/1.2GB/CD	$2289	***Performa***	
8500/150 16/1.2GB/8xCD	$2659	LC 580 8MB/800/KB	$899
8500/150 16/2GB/CD/L2	$2579	631 8/500/CD	$999
8500/180 16/2GB/8xCD/L2	$3299	6200CD 8/1.2GB/CD/Ref	$999
9500/150 16/2GB/CD/VI	$3199	6220 16/1GB/CD VI/TV	$1099
9500/200 32/2GB/8xCD	$3899	6218CD 16/1GB/CD/15*	$1349
9500/180MP 32/2GB/8xCD	$4999	6300 16/1.2GB/CD/15"	$1598
PowerBook		6360CD 16/1.2GB/8xCD	$1419
Duo 2300c 8/750/M	$1559	6400/180 16/1.6GB/CD	$1699
Duo 280c 12/320/M	$1099	6400/200 16/2.4GB/CD	$1939
PB 150 4MB/250	$599	Call Us For Current Pricing	

MEMORY All memory modules are now w/ lifetime warranty

8MB / 16MB DIMM	$69 / $89
32MB / 64MB DIMM	$179/$349
256 / 512 K CACHE	$59/$119
1MB V-RAM	$49
4MB / 8MB SIMM	$49/$59
16MB / 32MB SIMM	$89/$179
4MB / 8MB(PB5300&190)	$69/$99
16/32MB(PB5300&190	$159/$289

UMAX Computer Corporation SUPERmac ASPD

C500/160 16/1.2GB/CD	$1398
C600/180 16/1.2GB/8xCD	$1795
C600/200 16/2.1GB/8xCD	$1995
S900L/200 32/2.1GB/8XCD	$3599
S900L/225 32/2.1GB/CD	$3979
S900/180 32/2.1GB/8xCD	$3298

FedEx. Now On World Wide Web http://www.MacBase.com

CIRCLE 252 ON READER SERVICE CARD

MacMarket
800-905-3034
Fax:818-708-6399 24 Hrs

Mac Market

Call for Your Catalog

APPLE Power Macintosh®

PM 9500/180MP/32MB/2GB/8xCD/2MBVRAM	$4,699	#A1700
PM 9500/200MHz/32MB/2GB/8xCD/2MBVRAM	$3,999	#A1699
PM 9500/150MHz/16MB/2GB/4xCD/2MBVRAM	CALL	#A1662
PM 8500/180MHz/32MB/2GB/8xCD/L2Cache	$3,195	#A1688
PM 8500/150MHz/16MB/1.2GB/8xCD/L2Cache	$2,749	#A1686
PM 7600/132MHz/16MB/1.2GB/8xCD/L2Cache	$1,995	#A1684
PM 7200/120MHz/16MB/1.2GB/8xCD/L2Cache	$1,349	#A1651
Performa 6400/200MHz/16MB/2.4GB/8xCD/	$1,899	#A1189

Powerbook® 1400

PB1400CS/117Mhz 12MB/750	#A1720	$2369
PB1400CS/117MHz 12MB/750	#A1722	$2729
PB1400C/117MHz 12MB/750	#A1724	$3459
PB1400C/133MHz 12MB/750	#A1726	Call

BELL Memory

DIMMS 64BIT•168PIN

8MB	$65	#M1628
16MB	$89	#M1625
32MB	$179	#M1622
64MB	$339	#M1619

SIMMS 32BIT•72PIN

8MB	$65	#M1598
16MB	$89	#M1595
32MB	$179	#M1604

PowerBook® Memory

PB 5300/190		PB 1400	
8MB #M1387	$119	12MB #M1312	$129
16MB #M1390	$159	16MB #M1314	$159
32MB #M1393	$269	24MB #M1316	$269

UMAX® Computer Corporation

SUPERMAC

We have the Lowest Prices Anywhere Guaranteed

S900L/604e 32MB/2.1G-7200rpm/IMS128Mw-8MB	#A1642		$4,295
225MHz MacMarket Instant Rebate*		—$350	$3,945
S900L/DP/2-604e 32MB/2.1G-7200rpm/IMS128Mw/4MB	#A1637		$4,595
180MHz MacMarket Instant Rebate*		—$350	$4,245
S900L/604e 32MB/2.1G/IMS128Mw-4MB	#A1639		$3,795
200MHz MacMarket Instant Rebate*		—$300	$3,495

All units have 8xCD/Keyboard & Mouse(except as noted)

$100 Instant Rebate* on every C600L

240MHz/603e /24MB RAM/2.1GB HD/8xCD/28.8.	#A1649	$2,295
200MHz/603e /16MB RAM/2.1GB HD/8xCD/28.8.	#A1643	$1,995
180MHz/603e /16MB RAM/1.2GB HD/8xCD/28.8.	#A1645	$1,745

*Towards Purchase of any additional items that MacMarket Carries

MOTOROLA StarMax Systems

3160/Dsktp-32MB/1.2GB	$1495	#A1020
3160/Twr-32MB/2.5GB	$1795	#A1022
3200/Dsktp-16MB/1.2GB	$1799	#A1024
3200Twr-32MB/2.5GB	$1919	#A1026
4160Dsktp-16MB/1.2GB	$2059	#A1028
4160Twr-32MB/2.5GB	$2159	#A1030
4200Dsktp-32MB/2.5GB	$2339	#A1032
4200/Twr-16MB/1.2GB	$2499	#A1034

RasterOps Monitors

SuperScan MC611 17"	$919	#M6529
SuperScan MC20"	$1359	#M6525
SuperScan MC801 21"	$1599	#M6527
SuperScan MC801HR	$1899	#M6521

Newer MAXPOWER

200MHz	$919	#A4418
180MHz	$757	#A4416

DIMMS 64BIT 60ns

8MB	$89	#M1448
16MB	$129	#M1451
32MB	$239	#M1454
64MB	$399	#M1457

EPSON

Stylus Color ProXL	$1639	#P3291
Stylus Color Pro	$379	#P3288
Stylus Color 500	$279	#P3399
Expression 636 Prof.	$1789	#S8569

Daughter Card Upgrades for PowerMac® and Umax S900

DAYSTAR DIGITAL UpGrade Boards nPOWER

360+/2-180MHZ604e Proc.	$1,348	#4513
400+/2-200MHZ604e Proc.	CALL	#4514

Genesis MP

360+/2-604e Processors $4,799

180MHz/512K Cache #A1626

We Carry the complete Genesis Line from Daystar®

Nikon

SuperCoolScan	$1849	#S8503
CoolScan II	$1159	#S8500

UMAX

Mirage	CALL	#S8560
PowerLook II	$1829	#S8520
S6E PhotoDeluxe	$299	#S8439
Vista S12 LE	$619	#S8564
Vista S12 Full	$689	#S8565

Hewlett Packard

680c 600x600	$299	#P3465
6MP 600dpi	$899	#P3348
4MV 11x17"	$2649	#P3235
Deskjet 1600CM	$1949	#P3410

Yamaha

CD Recordables w/Toast Software

4 Speed $999 #E7297

AGFA

DuoScan	Call	#S8480
Arcus II	$1729	#S8482
StudioStar Full	$969	#S8496
StudioStar LE	$789	#S8493
SnapScan	$349	#S8492

Polaroid

SprintScan/LE	$709	#S8555
SprintScan/ES	$1469	#S8547
SprintScan+	$1869	#S8550

SONY

100SF Monitor	Call	#M6590
200SF Monitor	$759	#M6584
300SF Monitor	Call	#M6586

All Prices reflect a **Cash** Discount. Any other method is 3% higher. Prices are subject to change without notice. All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#. No Refunds on Labor or Freight Charges. **We accept Visa, MasterCard, Discover & American Express. P.O.s are accepted from U.S. Govt, Schools & Corporations.** Call for Details. Not responsible for typographical errors.

We are located at: 6924 CANBY AVE. UNIT #104, RESEDA, CA. 91335

Mon-Fri, 8AM to 6PM (Pacific)

CIRCLE 253 ON READER SERVICE CARD

Que Computers

Buy & Sell

RAM Specials

1x8/2x8	$7.99/$17.99
4/8/16/32 72-pin NEW	
60ns	$25/$45/$89/$189

Used Mac & Peripherals

Performa 6200 8/1gb/CD w/28.8 fax modem, kb & mouse, ref.	$999.95
Perf. 6320/120 16/1.2/CD/28.9	$1699.95
IIsi / IIci Package 5/80, 13"RGB, Ext. KB & mouse	$379 / $399
IIsi / IIci CPUs 5/80	$175 / $195
105 MB SyQuest Drive	$29.95
PowerBook 2xx Battery (New)	$29.95
8MB Upgrade for 2xx/5xx	$99/$69
Global Village Gold II (New)	
14.4kbps external Fax/Modems	$49.95
Apple StyleWriter 1200 (new)	$189.95
LaserWriter IInt/IIntx	$399/$499
13"/14" RGB Monitors	$185/$225
20" SuperMac (Trinitron)	$699.95

Call for pricing on logic boards, power supplies & hard to find items!!

Que Computers 612-623-0903

Mac/PC, New/Used, Buy, Sell, Upgrade

2418 E. Hennepin Ave., Minneapolis, MN 55413

fax 612-623-9155 http://quecomp.com

CIRCLE 255 ON READER SERVICE CARD

Apple II & Macintosh

COMPUTERS • PARTS

EXCHANGE REPAIRS

Specialists in used & reconditioned systems, monitors, printers & parts. Call for a free catalog.

WE BUY MACS!

Offices: 617-778-4600 Fax: 617-778-4848

1-800-274-5343

Pre-Owned Electronics

125 MIDDLESEX TPKE, BEDFORD, MA 01730

CIRCLE 271ON READER SERVICE CARD

DATA MICRO COMPUTER INC.

800•345•1234

TEL (310) 398•3300 • FAX (310) 391•2488

HTTP://WWW.DATAMICRO.COM

DEALERS & INTERNATIONAL SALES WELCOME!

Govt. Univers's & Corp. P.O.'s welcome

Apple | GMS | LM LaserMaster | TOSHIBA RasterOps | GCC Technologies | SuperMac | Hewlett Packard | UMAX radius | IBM

POWERMACS		POWERBOOKS		PERFORMAS	
6100/66 8/500/CD	895	1400C 16/1G/CD	3495	LC 580 8/500	895
6100/DOS 16/500CD	1075	1400CS 16/1G/CD	2885	6116 8/700/CD	995
7100/80 8/700/CD	CALL	1400CS 12/750	2499	5200 8/500 CD	1049
7200/120 16/1G/CD	1445	5300CE 32/1Gig	3250	5215 16/1G/CD	1195
7500/100 16/500CD	1495	5300C 16/750	2775	5260 16/800CD	1475
7600/132 16/1G/CD	1995	5300C 8/500	2275	5320 16/1G/CD"	1749
8100/80 8/250/CD	1495	5300CS 16/750	2275	6200 8/1G/CD	995
8100/110 16/2G/CD	CALL	5300CS 8/500	1875	6220TV/16/1GD	1049
8500/132 16/1G/CD	2249	5300 Mon 8/500	1155	6290 8/1.2/CD	CALL
8500/150 16/2G/CD	2495	190CS 8/500	1295	6300 16/1G/CD	1149
9500/132 16/1G/CD	2295	190 8/500	1280	6360 16/1G/CD	1295
9500/150 16/2G/CD	3150	540C 12/320/M	2145	6400/18016/1.2CD	1495
9500/200 32/2G/CD	3995	520C 4/240	1445	6400/20016/2GCD	1849
		520 4/240	895		

APPLE		RADIUS		SONY		APPLE PRINTERS	
Apple 14"	249	SuperMatch 17"	595			StyleWriter 1200	139
Apple 15"	369	Precision Color 17	735			StyleWriter 1500	229
Apple 17"	695	Intellicolor 20	1299			StyleWriter 2400	249
Apple 20"	1249	Precision Color 21	1495			StyleWriter 2500	269
15" Gray Scale	295	SuperMatch 21TXL	1595			Laser Select 300	469
15" Pivot/Gray Scale	299	Precision View	1995			Laser 360	1269
20" Gray 20GS	695	Sony 17 SF II	795.			Laser 4/600	745
21" Gray 21GS	777	Sony 20 SE II	1875.			Laser 12/640	1495

CIRCLE 254 ON READER SERVICE CARD

USED COMPUTERS

The Computer Exchange

"We match buyers and sellers of used equipment *nationwide.*"

From CLASSIC to POWER PC

Call for More Info

800-304-4639

Ph: 404-898-0700

http://www.compexch.com

205 Armour Drive Atlanta, GA 30324

The United Computer Exchange

... Buy or Sell Any Macintosh Through Us!

800.755.3033

770.612.1205

Visit Our Online Exchange at www.uce.com

CIRCLE 257 ON READER SERVICE CARD

MacGlobal
SYSTEMS AND PERIPHERALS *SALES AND SERVICE

Performas	Powerbooks
410/466/476 Call	160/165/170/180 Call
550 5/10/CD $799	150 4/240 $550
580 5/500 $850	520 4/240 $750
631 8/500 $650	520C 4/240 $1,100
6200 8/gig $1,100	540C 4/320 $1,650

Power Macs	Quadras
7200 8/500 Call	630 4/250 Call
7500 16/500 Call	650/800/840/950 Call
8500 16/500 Call	

Printer		Monitors	
StyLW 1200	$185	14" App.Color+	$235.00
Laser 300	$285	15" App.Multi	$275.00
Laser 320	$450	17" 1705	$685.00
Laser 4-600	Call	20" GS	$550

We Buy! TOP DOLLAR paid for used memory, hard drives and CPUs!
Call us!
Phone: 1-800-722-8864
Fax: [408] 997-1400
MacGlobal
CIRCLE 258 ON READER SERVICE CARD

Creating precision bar codes is as easy as using a font!
PRINTBAR™
BAR CODE FONTS
- Compatible with virtually any Macintosh application.
- Choose from: UPC/EAN/ISBN • Code 39 • Code 128 NEW! • Interleaved 2 of 5 • POSTNET/FIM.
- Many bar code sizes in each font package.
- Money back guarantee on all products.

"This is the best product of its kind, and it's reasonably priced too."
—MacUser review ★★★★½
EXTRA BONUS FREE POSTNET & FIM with any PrintBar Font Purchase
Visit our Web Site at: www.bearrock.com
4140 Mother Lode Dr., Ste. 100, Shingle Springs, CA 95682
PH: 916 672-0244 • FAX 916 672-1103
E-Mail us at: info@bearrock.com

Scanning bar codes is even easier!
BAR CODE READERS AS LOW AS $199!
- Instant or remote data entry from bar codes! Scan information into any software application with a wand, CCD, laser gun, badge slot or magstripe reader.
- Don't waste your money on the wrong kind of bar code reader for your situation.
- Our experienced customer service reps can help you choose the correct reader at the best price!

"...the people at Bear Rock are flat-out experts on the topic of bar codes and produce products of exceptionally high quality."
—Personal Publishing Magazine
Bear Rock TECHNOLOGIES
Bar Code Products That Mean Business
800 232-7625
CIRCLE 259 ON READER SERVICE CARD

POP GIRLS
Illustrations of Wonderful Woman in EPS for all purpose in Ads, Covers, Brochures, Posters, Calendars, Cards and others applications. Ready to use. Easy to modify.
BW.....$ 90.00
Color ...$120.00
Only Mac
COPY & PASTE
4R30-216St COL. FAIRVIEW
TRUJ. ALTO, PR 00976-8223
CIRCLE 260 ON READER SERVICE CARD

DATA RECOVERY IN HOURS.
- Over 10 years of experience with clients worldwide (e.g., Apple, NASA, & FedEx).
- We've recovered more than half-a-million megabytes of Mac data alone.
- You only pay if there's a recovery.
- One-Day turnaround is available.
- Call 24-hours a day.

LAZARUS DATA RECOVERY
Working at the speed of business.
800-341-DATA
415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103
CIRCLE 261 ON READER SERVICE CARD

SO, YOUR HARD DRIVE SPLIT AND TOOK ALL THE DATA WITH IT?
PROFESSIONAL DATA RECOVERY SERVICES.
HARD DRIVES, FLOPPY DRIVES, SYQUEST, EZ-135, ZIP, JAZ, OPTICAL AND BERNOULLI.
ONE-DAY SERVICE AVAILABLE.
COMPETITIVE RATES.
TOTAL RECALL® THE DATA RECOVERY COMPANY™
800-743-0594
2462 WAYNOKA ROAD COLO SPRINGS, CO 80915 • 719-380-1616 • 719-380-7022 • http://www.recalluse.com
CIRCLE 262 ON READER SERVICE CARD

Mouse Pads
Custom Printed
● Your Logo Design
Plastic
● Fast Turnaround
Cloth
● Guaranteed Quality
MicroStore™
800-962-8885
FAX: 507-665-2604
LE SUEUR, MN 56058
Wrist Supports
CIRCLE 263 ON READER SERVICE CARD

MAC REPAIR & UPGRADE
800-622-7977
24 HOUR SERVICE TURNAROUND
LONGER WARRANTY
FREE DIAGNOSTICS
COMPETITIVE PRICE
- Specialize in component repairs
  -Power Mac
  -Power Book
  -Logic boards
- Advance Exchanges

Phone: 408-720-9899
Fax.: 408-720-9459
720 East Evelyn Ave.
Sunnyvale, CA 94086
http://www.dtservice.com
DT&T MACINTOSH SERVICES, INC.
CIRCLE 264 ON READER SERVICE CARD

DATA RECOVERY: 800 440-1904
Seven good reasons to choose DriveSavers:
1. We're the most trusted and respected data recovery specialists
2. 24-hr, onsite and weekend service available
3. Proprietary techniques so advanced we retrieve data others might simply abandon
4. Certified to maintain most drive warranties
5. Over 11 years of data recovery experience
6. Featured by CNN, NextStep, C-Net, and *Forbes*
7. All storage devices; DOS, Win95, WinNT OS/2, Mac OS, UNIX, Sun, SGI, Novell

DRIVESAVERS® DATA RECOVERY
WE CAN SAVE IT!
See us at Comdex – Booth 5741
Call when you need us, or visit DriveSavers at: www.drivesavers.com
400 BEL MARIN KEYS BL., NOVATO, CA 94949, VOICE: 415-382-2000, FAX: 415-883-0780
CIRCLE 265 ON READER SERVICE CARD

Student - Teacher & School Discounts!

WE WILL BEAT ANY ADVERTISED PRICE!!

$649

Authorware Pro 3.5.1

Interactive Authoring

$179

Canvas 5

Illustration & Photo Editing

$129

CodeWarrior 10 Pro

Development Tools

$89

ClarisWorks 4.0.5

All-in-one Program

$799

LightWave 3D 5.0

3D Modeling, Animation & Rendering

$119

Bryce 2.0

3D Creation & Beyond

$249

ElectricImage Student 2.5

Fastest Rendering

$129

FileMaker Pro 3.0

Relational Database

$169

FreeHand 7.0

Tool for Design & Illustration

$249

Infini-D 3.5

3D Animation & Design

101 Dalmatians Animated Story..	$39
1GB Ext Jaz Drive w/Cartridge....	$519
2GB Int Fast SCSI-2 HardDrive....	$549
3D Web Workshop 1.0	$179
3D Website Builder	$99
4D Server 1.5 for	$729
4th Dimension 3.5	$449
Acuris 18 Perfect People	$249
Acuris Clip Model Library	$129
Acuris Textures	$69
Adam Essentials	$99
After Dark 4.0	$39
Agfa Arcus II	$1849
Agfa StudioScan IIsi	$669
Alchemy 3.0	$199
Alias Sketch! 2.0.2	$229
Amapi 2.1	$199
ArchiCad 5.0 Student	$129
Astound 2.0	$99
At Ease 3.0	$29
Authorware Interactive Studio	$1979
AutoCad R12 w/Ame	$199
BackBurner 3.5	$69
Band-In-a-Box 6.0	$69
Blueprint 5	$149
Bravado 1000 w/Premiere	$699
CD-ROM Toolkit 2.0.3	$49
ChemDraw Pro 3.5 Student	$149
ChemOffice Pro 3.5 Student	$299
Chemistry Explorer	$69
Chinese Language Kit 1.1.1	$129
Claris Emailer 1.1	$49
Claris HomePage 2.0	$69
Claris OfficeMail 1.0	$199
Claris Organizer 2.0	$59
Cliff Notes Studyware Statistic	$35
Collage 2.0.1	$69
Color It! 3.2	$39
Color QuickCam	$239
Color Survival Bundle	$169
ColorDrive 1.5.3	$89
Conflict Catcher 3 1.0	$59
CorelDRAW Suite 6	$169
Cricket Graph III 1.5.3	$79
CyberPress 1.0	$129
CyberSound FX Premiere/Deck	$85
Datadesk 5.0	$369
Debabelizer Toolbox 1.6.5	$219
DeltaGraph Pro 4.0	$89
Design Workshop 1.5	$229
DesignCad 2D/3D 3.0.1	$149
Digital Chisel 2.1	$89
Director 5.0.1	$299
Director Multimedia Studio 2.0	$899
Director ToolBox Pro	$99
DiskGuard 1.5	$75
DrawingSlate II 12x12	$209
DrawingSlate II 4x5	$99
Elastic Reality 1.2	$149
ElectricImage Broadcast 2.75	$2395
Empower Pro	$110
Encore 4.1.1	$249
EndLink 2.0	$55
EndNote Plus 2.1	$165
Envelopes Starter Pack	$65
Extreme 3D 2.0	$199
FastTrack Schedule 4.0b	$129
Fetch 1.5	$85
FileGuard 3.0	$119
Final Draft 4.0	$125
FolderBolt Pro 1.0.3	$75
Fontographer 4.1.3	$149
Form Z 2.8.2	CALL
Fractal Dabbler 2.0	$39
Fractal Detailer 1.0	$199
Fractal Expression 1.0	$199
Fractal Painter 4.0	$209
Fractal Poser 2.0	$95
FreeHand Graphics Studio 7.0	$389
FutureSplash Animator	$169
German Power Translator 1.0	$99
Glidepoint Desktop Trackpad	$69
Hard Disk Toolkit 2.01	$109
Hayes Accura 336 Fax/Modem	$155
Helix Express 3.5	$249
HexWrench 1.0	$249
HyperCard 2.3.5	$89
HyperStudio 3.0	$119
IdeaFisher Pro 6.0	$75
Infini-D Production Studio	$379
Infinite Fx	$65
Inspiration 4.1c	$89
Instant Replay 1.0	$75
Internet Connection Kit 1.2	$45
Jag II	$55
Japanese Language Kit 1.2	$129
Java Starter Kit	$69
Jmp 3.1.5	$329
Judson-Rosebush Wildside Bdle	$99
KPT Convolver 1.0	$85
KPT Final Effects 3.0	$349
KPT Final Effects AP 1.0	$105

Visit our Web Site!!
http://iaswww.com/source.html

- **SAME DAY SHIPPING ON MOST ITEMS.
- **ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS & SCHOOLS.
- **SCHOOL PURCHASE ORDERS WELCOME.
- **NO SURCHARGE ON CREDIT CARDS.
- **IBM & MAC PRODUCTS AVAILABLE.
- **Prices and availability subject to change
- **Free AOL Starter Kit while supplies last

The SOFTWARE Source

1-800-831-2940

1750 Brielle Ave, Unit A-2
Ocean, NJ 07712
PHONE (908) 695-2100
FAX (908) 695-9371
E-MAIL: SFTSWS@AOL.COM

CIRCLE 266 ON READER SERVICE CARD

Student - Teacher & School Discounts!

LATEST VERSIONS & FULL PACKAGES

KPT Power Photos 1,2,3, or 4	$85
KPT Vector Effects 1.0	$85
Kai's Power Goo 1.0	$49
Kai's Power Tools 3.0.2	$85
KaleidaGraph 3.0	$89
Kidpix Studio	$35
Killer Transitions	$189
Kodak DC20 Digital Camera	$289
Let's Keep It Simple 1.0	$109
LightningDraw Gx 1.0.3	$99
Logomotion 2.0	$69
M.Y.O.B. 7.0	$49
M.Y.O.B. 7.0 w/Payroll	$90
Mac Academy Tutorial Video	$35
MacDraft 4.2.1	$199
MacLink+ Translator Pro 9.0	$95
MacTrac Deluxe	$65
Maple V 4.0	$599
MathType 3.1	$99
Mathcad 6.0+	$149
Mathematica 3.0 Student	$169
Matlab Student	$99
MediaPaint 1.2	$199
MediaTool Kit 2.1	$399
MeshPaint 3D 1.5	$315
Metaphotos	$149
Micro Grade	$69
Minitab Release 10Xtra	$249
Mouseman Cordless	$69
Mrs. Hart's Water Colors	$99
Nisus Writer 5.0	$99
Now Bundle 3.6	$69
Now Startup Manager 7.0	$49
Now Utilities 6.5	$55
OmniPage Pro 6.0	$329
Opcode MAX 3.0	$249
Opcode Vision 3.0.3	CALL
Overdrive 1.0	$75
Overture 1.2.2	$249
PhotoTools 1.0	$85
Phototone Alphabets	$129
PlugInfinite	$19
Pocohontas Animated Story	$39
Power Fpu	$75
Presenter Professional 3.1.5	$495
Printshop Deluxe 1.1	$55
QX-Tools 2.0	$85
Quickeys 3.5	$85
Raid Toolkit 1.8	$249
Ram Doubler 2.0	$55
Ray Dream Designer 4.1	$95
Ray Dream Studio 4.1	$199
Remote Access Personal Srvr 2.1	$155
SPSS 6.1 Student	$99
Sculpt 3D 4.1	$219
Seiko EZ30 Mac Label Printer	$139
SigmaPlot 5.0	$199
SmartSketch 1.0	$39
SoftPC Professional 3.1	$119
SoftWindows 3.0	$229
Sony Multiscan 17sell Monitor	$979
SoundEdit 16+ Deck II	$249
Speed Doubler 2.0	$55
Spell Catcher 1.5	$49
Stencil It! 1.0	$89
Studio Effects 1.0	$349
Studio VisionPro 3.0.3	CALL
StudioPro 2.0	$549
Stuffit Deluxe 4.0	$69
Stylist 1.0	$85
SuperCard 3.0	$129
SupraExpress 336 External	$139
System 7.5.3 Software	$85
Targa 2000 Pro	$4599
TelePort Platinum 33.6 Ext	$169
Texturescape 2.0	$69
The Big Thesaurus 2.1	$35
Three X Five 2.0	$55
Topdown Flowcharter 4.5	$155
TransJammer Vol 1 or 2	$59
Tree Professional 3.0	$325
Turbo Mouse 5.0	$109
Umax SuperMac S900L/180DP	$4299
Umax Vista-S12 Scanner	$779
Umax Vista-S6E Scanner	$589
Us Robotics Courier V.Eve	$279
Us Robotics Sportster 336	$175
VersaTerm 5.0	$79
Videoshop 3.0	$129
Virex 5.6.5	$49
VirusScan 2.0	$45
Vision 3D 4.0	$99
Visioneer PaperPort Vx	$289
VistaPro 3.0	$69
Wacom Art Z II 12x12	$399
Wacom Art Z II 6x8	$285
Wacom ArtPad II 4x5	$129
Wacom ArtPad II 4x5 w/Dabbler	$149
Walkthrough Pro 2.6	$229
WebAnimator	$79
WebArranger	$65
WebSights Deluxe	$69
XRES 3.0	$199

Artist's Dream Bundle $469

Fractal Painter 4 & Wacom Art Z II 6x8

$249

Coda Finale 3.7

Music Notation

$319

MiniCad 6.0.1

2D/3D Cad & Design

$349

Live Picture 2.5.1

Create & Edit 'Living' Images

$69

Black Box 2.0b

Photoshop Plug-ins

$269

SoftWindows 95

Run Windows 95 on your PowerMac

$125

Boris Effects 2.1

Television Quality 3D Effects

$69

WordPerfect 3.5.1

Word Processing

$649

mTropolis 1.1.1

Multimedia Authoring

Free America Online Starter Kit & 15 Free Hours with every order!

CALL FOR FREE CATALOG!! (800) 831-2940

INCLUDES COMPLETE PRICE LIST & FREE PRODUCT INF..

The SOFTWARE Source

1-800-831-2940

1750 Brielle Ave, Unit A-2
Ocean, NJ 07712
(908) 695-2100
FAX (908) 695-9371
E-MAIL: SFTSWS@AOL.COM

CIRCLE 267 ON READER SERVICE CARD

DUE TO THE FORCES AND EXCITEMENT CREATED BY THESE RIDES YOU MUST BE 18 YEARS OF AGE AND FREE FROM BACK CONDITIONS, INHIBITIONS AND GOVT CONTROL. PLEASE DO NOT FEED OR TAUNT THE EXHIBITS

GET DiRTY ONLINE!

The Ultimate Adult Amusement Park

24 hour live dancers
Free to Members

365 days of video library access • 1000's of ever-changing photos • Back issues of the magazine, chat

GIRLS, GIRLS, GIRLS

1-on-1 video fun, phone interactions and much much more!! Why buy cable? Get DiRTY Online!

www.dirtyonline.com/mac

Video Software for Mac/PC/Unix - 18 years & older

CIRCLE 268 ON READER SERVICE CARD

Brothel.com

EXTREME SEXUAL CONTENT!

The Web's Only On-Line Brothel.

Go ONE-ON-ONE in our LIVE video booth and direct the action. Scan our massive PHONE SEX directory. Shop in our GIFT SHOP, use our RESTROOMS... You have to see it to believe it!!

WWW.BROTHEL.COM

CIRCLE 269 ON READER SERVICE CARD

CHICK PICS

!!!!!!!!!!!!!!!!!!

900·267·7427

Extreme
Intense
Movies

!!!!!!!!!!!!!!!!!!

LIVE BABES

Free Stuff!

www.ics1.com/sexaction

Adults only, 18 years & older

LIVE NUDE WOMEN

ON YOUR MAC

NO SOFTWARE NEEDED

OVER 1000 EROTIC PICTURES TO DONWLOAD

http://www.liveacts.com

18 PLUS

HOT & HEAVY

The Wildest Int'l Adult Web

- Over 50,000 of image files
- 100's of Videoclips
- 1000's of int'l swinger ads
- Private E-Mail and Swinging Forums
- Great interactive Chats
- Huge free Sex Mail

www.hh.nl

www.hotmale.com

Hot Guys Photos
Exciting Gay Videos to download
Int'l free cruising area
Exciting and Rare Videos & Toys
Gay Int'l Guide

100's Hot Movies Online
www.smovie.com

Discover the *Largest Adult Shop* on the Net
www.h2g.com
Toys / CDs / Videos / Magazines

ADULTS OVER 18 YEARS

Beautiful Girls AT YOUR COMMAND

Interactive Live Video Sex

ACTION

NO SOFTWARE NEEDED
LARGEST SCREEN ON THE INTERNET

CHAT • DOWNLOAD FILMS
HOT PHOTOS • STORIES • LIVE
INTERACTIVE • STRIP SHOWS
LEG SHOW • B & D • FETISH

WWW.PLATINUMPRIVATE.COM

1-800-4-PLAY-13

Platinum PRIVATE

CIRCLE 270 ON READER SERVICE CARD

RAW HIDE

Hottest Girls in Dallas Get Erotic For You Live Like You've Never Seen Before!

• FREE samples on NET •
• FREE software • Toll FREE Call •
• One on One *LIVE ENCOUNTERS* •
• Finest Quality Video picture of women that love to show & tell ! •

GET YOUR FREE SOFTWARE
(no registration fee)
Order Line: (214) 658-1505
Download link:
http://www.itslive.com

HAVE 2 GIRLS FOR THE PRICE OF 1 !!
AS AVAILABLE
-Adults Only-

YOU'RE NOT THE ONLY ONE READING THIS AD!
76% OF MACUSER SUBSCRIBERS LOOK AT MARKETPLACE AND ALMOST ALL OF THEM ACT.

- 86% TOOK SOME ACTION.
- 71% BOUGHT A PRODUCT OR SERVICE.
- 45% REFERRED THE INFORMATION TO OTHERS.
- 36% VISITED AN ADVERTISER'S WEB SITE FOR INFORMATION.

ADVERTISE HERE, WHERE MAC BUSINESS BUYERS BUY DIRECT! CALL 800-825-4237 TODAY!

Source: 1996 MacUser Marketplace Subscriber Study

THE BEST PLACE ON THE WEB TO SHOP FOR ANYTHING COMPUTER RELATED

http://www.zdnet.com/marketplace

ZD Marketplace™ ON THE WEB

BUSINESSCARD

MacUser MARKETPLACE

HW:BOARDS/COMPONENTS/CHIPS

MEMORY DEALS!

Nowhere else can you get TechWorks memory for as low as $7/meg. 800 tech support before & after the sale. Our RAM is warranted for a lifetime. Stop paying for Memory mistakes, get the highest quality the first time. All types available. VISA/MC/AMEX

Elephant Memory
1-800-636-6782 bryon@master.net
http://www.master.net/elephant/

CIRCLE 362 ON READER SERVICE CARD

CD-ROM

CD-ROM PRODUCTION SERVICES!
- All formats: Mac, ISO, Hybrid, Mixed Mode
- Premastering, beta testing, or archiving
- Mass Replication available, any quantity
- Personal, Knowledgable Service for 10 Years!
- Certified Apple Developer•low prices/fast delivery

Northeastern Digital Recording
2 Hidden Meadow Ln Southboro MA 01772
508-481-9322 fx:508-624-6437 CDNDR@aol.com

CIRCLE 363 ON READER SERVICE CARD

PERIPHERALS

HEWLETT- PACKARD DEMO PRINTERS
All MacIntosh/Apple Compatible
Laser Printers, DeskWriter Inkjet Printers,
PaintWriter Color Printers
Pen Plotters, DesignJet Inkjet Plotters
http://www.dasher.com/specials/macindex.html

TED DASHER & ASSOCIATES
E-mail sales@dasher.com
(800) 638-4833 Fax (205) 591-1108

CIRCLE 364 ON READER SERVICE CARD

POWER BOOK PRODUCTS

Solar Power For Portables
Recharge or run your PowerBook or Newton w/a KIS Solar System for use w/PowerBook 1xx, 5xx, 5300 & 190 or Newtons! Compute w/out worrying about battery life! Call today to qualify for one of our Special Discounts! http://wildwestweb.com

Keep It Simple Systems
32 S. Ewing, Ste. 330, Helena, MT 59601
(800) 327-6882 ext 24 Fax: (406) 449-8946

MacUser Means Business
MacUser BusinessCard is your most cost-effective, direct way to reach Macintosh Business Buyers.

BusinessCard
Call your representative today!
800-825-4237

BusinessCard – Cost-Effective Sales!
BusinessCard is the most cost-effective way to shake hands with the business buyers who will boost your sales.

BusinessCard
Call your representative today!
800-825-4237.

SOFTWARE:BUSINESS

AutoMenus Pro
Menu enhancement Control Panel that makes menu navigation (especially those pesky hierarchical menus) much easier. What makes AutoMenus Pro so useful is that the menus stay down without the need to hold the mouse down.

Night Light Software
305 Orange Ave, Mtn View, CA 94043
http://www.nlsoftware.com

CIRCLE 368 ON READER SERVICE CARD

GENEALOGY SOFTWARE

REUNION the family tree software
Rated the BEST by MacUser (1,96), MacWorld (6/95) & MHJ (4/95). Easily create large charts w/photo's-they're perfect for family reunions! To order call MacWarehouse(800)255-6227. Free demo on CIS, AOL,(keyword:roots) & Web site:www.leisterpro.com.

LEISTER PRODUCTIONS
P.O. Box 289, Mechanicsburg, PA 17055
tel: (717)697-1378•e-mail: info @LeisterPro.com

CIRCLE 369 ON READER SERVICE CARD

RELIGION

Hieroglyphic Bible Dictionary
- Over 3600 words or phrases in abbreviated Egyptian Hieroglyphics
- Hypercard 2.0 or over required
- Can $33+3 S&H
- Canadian funds only

SVO Software, Inc.
Box 42066 Millbourne P.O.
Edm, AB T6K 4C4 Canada

BIBLE ON DISK or CD-ROM
Full Featured. Fast & Friendly Bible study software. As the leader in Bible study software since 1981 we have continued to listen to our customers & provide them with the tools they need. Call for a FREE catalog. **http://www.brs-inc.com/bible**

BIBLE RESEARCH SYSTEMS
2013 Wells Branch Pkwy #304, Austin, TX 78728
(800) 423-1228 (512) 251-7541

SERVICES:COMPUTER INSURANCE

Insures Your Macs
The COMPUTEROWNERS™ insurance policy repairs or replaces hardware, media and purchased software. Rates as low as $49 a year covers theft, accidents, fire, power surge and more! Call for immediate coverage or info: 1-800-800-1492.

Safeware, The Insurance Agency Inc.
2929 N. High St., PO Box 02211, Columbus, Ohio 43202 1-800-SAFEWARE

CIRCLE 372 ON READER SERVICE CARD

DESKTOP PUBLISHING

Desktop Photo Service Bureau
*Archive to CD-Rom
*Slides as low as $2, AGFA Alto - 16K 4X5, 2 1/4Neg/Pos/B&W *Dye-Sub Prints as low as $10 *Laser Master Big, Color, 1200 dpi Laser, Plates for Offset

MouseWorks Printing & Photography
105 N. Jackson, Athens, TN 37303
Phone: Voice (615)744-7898 Fax (615)745-0233

CIRCLE 373 ON READER SERVICE CARD

DIGITAL OUTPUT

WHOLESALE COLOR PRINTING
Printing brokers & resellers need to know us! 5000 8.5x11 process color sheets printed one side from your disk on 80# Gloss $495 (color proof & film incl.) HIGH QUALITY DIGITAL DRUM SCANS $24ea. Free Catalogs! http://www.lewiscolor.com

LEWIS COLOR LITHOGRAPHERS
30 Joe Kennedy Blvd. Statesboro GA 30458
912-681-6824, Fax 681-8817, 800-346-0371

CIRCLE 374 ON READER SERVICE CARD

DISK DUPLICATION

Edgewater Diskette, Inc. (EDI)
Diskette Duplication - no job too large or too small.
Custom Packaging & Mailing programs.
National Coverage. Competitive pricing.
Call for Quotation or Information.

Edgewater Diskette Inc.
800-767-6851 318-965-9613

CIRCLE 375 ON READER SERVICE CARD

GENERAL

TAX RETURNS PREPARED ONLINE
Smart, Easy, Low cost & Efficient
Guaranteed security & Confidentiality
Experienced professional online advise
All schedules & state returns completed in 24 hrs.
HTTP://www.TaxReturnsUSA.com

CERTIFIED TAX RETURNS, INC.
7040 W. Palmetto Park Rd #325 Boca, FL 33433
Email: Taxes@TaxReturnsUSA.com, 800-680-5870

CIRCLE 376 ON READER SERVICE CARD

University Degree Program On-Line
Bachelor's, Master's & Doctorate degree programs through Distance Learning • Over 40 Accredited, Approved Programs Available. Work & Life Experiences recognized for credit! Transfer Credit accepted! http://www.Barrington.edu

On-Line Campus
Barrington University (800) 533-3378
E-Mail: Barring1@ix.netcom.com

TRAINING

Rent MacAcademy Videos by Mail
Video's the easy way to learn! All major Mac programs available: over 85 different titles, each 2 hours long. A two week rental including S&H, costs less than a dollar a day. Return postage is prepaid. Get a free catalog. Ask about our CD-ROM rentals.

CareerTAPES® Enterprises
PO Box 309 Center Harbor, NH 03226
(603) 253-7470

CIRCLE 378 ON READER SERVICE CARD

VIDEO TRAINING FOR MACS
Clearly explained, easy-to-follow lessons. Covers Mac OS, ClarisWorks wcrd processor and spreadsheet, file management, much more! 400 minutes training on 4 tapes only $89.95. 30-day money back guarantee. Visa/Mastercard.

Scribblers Media, Inc.
1775 N. State St., Girard, OH 44420
800.860.2324 (24 hrs) • www.scribblers.com

CIRCLE 379 ON READER SERVICE CARD

Have You Played It Yet?

THE MOST ADVANCED MAC 3D SHOOT-EM-UP EVER!

Election Eve, 2004 A.D.

A powerful senator is brutally murdered while working late in her Washington D.C. office. Now you must solve the mystery of her death in this action-packed 3D shoot-em-up. Prime Target thrusts you into the most dynamic Mac gaming world ever. Blood splatters on the wall. Glass shatters in your face. And the interactive mystery challenges your intellect as you hunt the senator's killers in Washington's corridors of power.

$34.99

MSRP: ~~$49.99~~

System Requirements: Any PowerMac or compatible with a CD-ROM drive and color monitor.

BATTLE YOUR FRIENDS WITH AWESOME NETWORK GAMES!

Incredibly intense 3D shoot-em-up action.

Weapons recommended when entering the Senate chambers.

A skinhead spills his guts in the National Gallery of Art.

Includes 9 deadly weapons plus a barrage of ruthless killers.

MACSoft®

A GT Interactive Company

2300 Berkshire Lane, Plymouth, MN 55441

Available now from your favorite reseller, or by calling 800-229-2714

Please add $2.95 per order for shipping and handling if ordering by phone.

USE OF TECHNOLOGY LICENSED FROM BUNGIE

Call for a free catalog or visit our website at www.wizworks.com

PERSONALmac

Whether you want to coddle, catch, kill, or cook your fish, your Mac can be your source for fish facts.

By Christopher Breen

Gone Fishin'

I WAS IN A LITTLE TROUBLE. My Uncle Karl had telephoned the previous week to inform me that he and my Auntie Di would be coming to town for a while, and — oh, by the way — he and I would be doing some fishing. Swell. Me — a guy who's never been closer to a fish than the lox piled on top of my bagel — expected to hook a live one out in the bug-choked wilderness.

What was I to do? Probably the same thing you, our fish-loving readers, would do: Turn on the Macintosh. Why? Because the Mac supports a boatload of educational and, more important, *entertaining* fish-related multimedia products.

Floundering About

Karl would know something was fishy if I couldn't tell a gill from a fin or a wrasse from a bass, so I decided to begin my expedition with the **OceanLife** ▶ series (★★★½ for volumes 2 through 4; ★★★★ for volume 5; $49.95 per volume list), from Sumeria (415-904-0800). Its five volumes cover the exotic aquatic life of the Western Pacific, Micronesia, the Hawaiian Islands, Australia's Great Barrier Reef, and the Caribbean — admittedly a cast of characters we're unlikely to see in California. But I was after the hard facts on fish, and no other Mac multimedia product covers the field as thoroughly as OceanLife.

Each volume contains QuickTime footage of the local underwater inhabitants, accompanied by text and narration describing the habits and habitats of the individual species. Volumes 3, 4, and 5 also each include a section describing behaviors, such as schooling, spawning, locomotion, and pairing.

Although all the volumes proved extremely educational, the video on volumes 2 through 4 is a bit jumpy and pixelated. (Volume 1, Western Pacific, was under reconstruction and unavailable for review.) Volume 5, The Caribbean, tops the other volumes, with improved QuickTime footage, a new navigation tool bar, maps containing information on dive shops and sites, and a 3-D rotating fish (shown here) complete with labels identifying such accoutrements as the swim bladder and the vertebral column.

Hoping to further increase my piscine knowledge, I then speared several underwater-themed Photo CD collections. The **Fisheye View** series (★★★½; $49.95 per volume list) — Reef Collection, Coral Collection, and Fish Collection — from Quantum Leap (800-762-2877 or 305-447-0745), carries high-resolution images of a variety of ocean inhabitants. But although many of these pictures (125 to 150 per volume) are breathtakingly beautiful, the accompanying narration — an important element — is far drier than its subject.

Two less successful image collections are **Ocean Magic** and **Aquatic Art** (★★½ for each; $19.95 per volume list), from Gazelle Technologies (800-843-9497 or

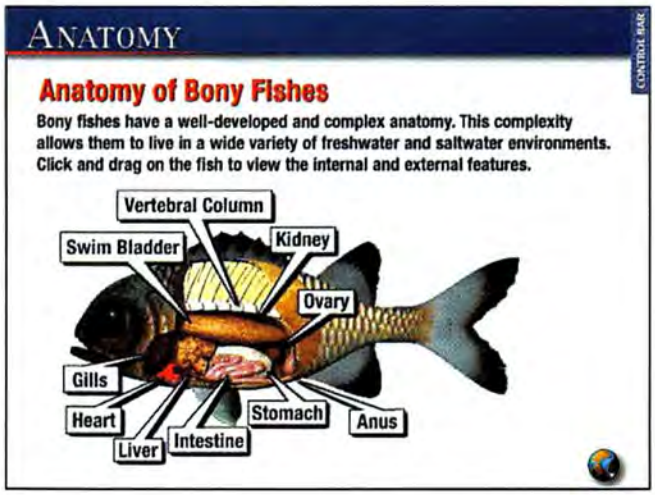


ILLUSTRATION / DAVID RICCERI

water, administer medication, and maintain a certain water temperature unless you want them to become so many lifeless, floating pixels. In contrast, El-Fish is more like an exercise in genetics: Take two fish, mate them, and see what kind of small-fry they produce. Although the El-Fish fish swim more fluidly than those in Aquazone, some drawbacks make El-Fish less appealing. For example, it takes a *long* time to render each of the offspring, and after your wait, you're pretty much left with only a great-looking screen saver. For the true aquarium experience, look to Aquazone.

619-693-4030). Both contain a plethora of fish photographs (not to mention photos of invertebrates, crustaceans, and coral as well), and they're all royalty free (unlike those in the Fisheye View series). But much of the material is repetitive. A better — albeit far more expensive — royalty-free volume is **Undersea Life** ▲ (♦♦♦♦; $249 list), from Digital Stock (800-545-4514 or 619-794-4040). Its 100 gorgeous Photo CD images — which range in resolution from 192 x 128 pixels to 3,072 x 2,048 pixels — include fish, coral, and underwater mammals.

Getting Tanked

Once I had a fairly good idea of what a fish looked like, I decided to find out how our gilled buddies while away their days. And what better way to observe their habits than to set up an electronic aquarium? For this, I had but two choices — **El-Fish** (♦♦♦; $9.95 list), from Maxis (800-336-2947 or 510-933-5630), and **Aquazone** 1.5 (in beta; price to be determined), from 9003inc (800-401-9003 or 416-487-1777).

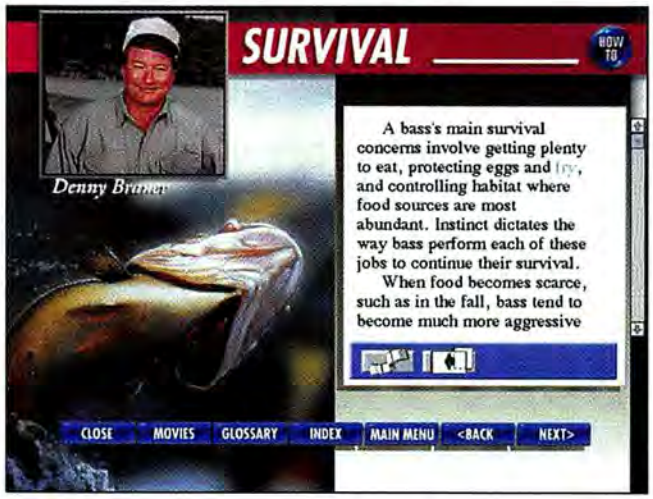
Aquazone is a simulation of a fully functioning aquarium: You must feed your fish, change the

Gone Fishin'

It then hit me that I hadn't a clue what kind of fishing Karl preferred. Since he lives in Iowa, I figured we could pretty much rule out marlin. But was he a fly-guy or a bait-and-tackle man? Best bone up on both.

For the gentle art of fly-fishing, I had a look at **Fly Fishing: Great Rivers of the West** (♦♦♦½; $24.95 list), from IVI Publishing (800-754-1725 or 612-996-6000). It gives you travel and fishing tips, although the fishing lessons aren't extensive. It includes written instruction and QuickTime movies demonstrating such basic techniques as "landing a fish" (pulling it out of the water) and getting the right gear. The main thrust of the program, though, is to take you on a tour of six western rivers — the Deschutes, Green, Henry's Fork, Madison, San Juan, and Yellowstone. It shows you scenic photos of each area and has maps with likely fishing spots. It also gives plenty of travel info, from lists of lodgings to names of fishing guides who can answer all your specific questions once you've reached your fishing destination.

If Karl turned out to be a Bass Master, I figured **Trophy Bass** ▼ (♦♦♦½; $54.95 list), from Sierra On-Line (800-649-4904 or 206-649-9800), would teach me what to do. Although I had a great time reeling in the big boys in the game portion of the program, I was out of my league once I shifted to the instructional side. Less experienced anglers will likely be overwhelmed — there are, for instance, a jillion



lures and colorful doodads that require a fair amount of rummaging around in the CD-ROM to figure out — but anyone with knowledge of bass fishing should find Trophy Bass enjoyable.

Hook, Line, and Dinner

By now, I was feeling pretty confident — that is, until I thought of the following: What if we were to actually catch a fish and Karl wanted to eat it? Even though Aunt Di had cleaned and cooked her share of Karl's victims over the years, I knew she wasn't about to do so on her vacation. Returning to the software pile, I emerged triumphant with a cool new electronic cookbook — ◀ **Williams-Sonoma Guide to Good Cooking** (♦♦♦♦; $39.95 list), from Broderbund (800-521-6263 or 415-382-4400). This disc's 1,000 recipes (137 of which are seafood-related) are searchable (by, for instance, ingredients or caloric content) and beautifully photographed, on — wouldn't you know it — Williams-Sonoma cookware. If I couldn't turn Karl's dead fish into a Creole classic with the help of this CD-ROM, it couldn't be done, by gumbo (see recipe No. 798).

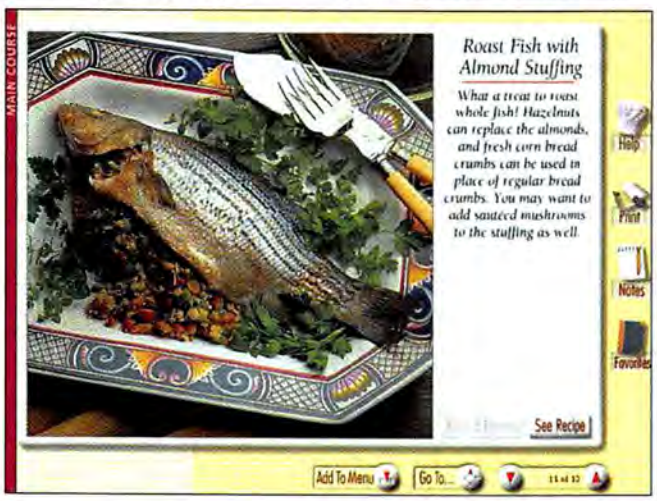
Internet for the Halibut

Finally, I was nearly prepared. To fill in any remaining gaps in my knowledge, I took a stroll around the Web and discovered several swimmingly wonderful sites.

For starters, the Monterey Bay Aquarium — in this author's humble opinion, the greatest aquarium on earth — has an incredible Web site (http://www.mbayaq.org/). At J.P.'s Fishing Page (http://www.geo.mtu.edu/~jsuchosk/fish/fishpage), you'll find links to more fishing sites than you can shake a pole at. To learn about bass, bass, and more bass, check out Bass Anglers Sportsman Society (http://www.outdoors.net/bass/index.html). And finally, aquarium enthusiasts will find useful info at FINS (Fish Information Service; http://www.actwin.com/fish/index.cgi). To take the shortcut to the famed Fish Cam, hold down Control-Option-F in Netscape Navigator.

Here's the Catch

My time with Karl couldn't have been better. He arrived with a nasty cold and, despite my coaxing, refused to budge from his couch and hot-water bottle. We whipped up a batch of fish sticks, flipped the tube on to *Jethro's Wide World of Bass Antics,* and traded stories about The One That Got Away. Now that's *my* kind of fishing.



Occasional scuba diver and MacUser *contributing editor Christopher Breen did not harm any fish in preparing this article.*

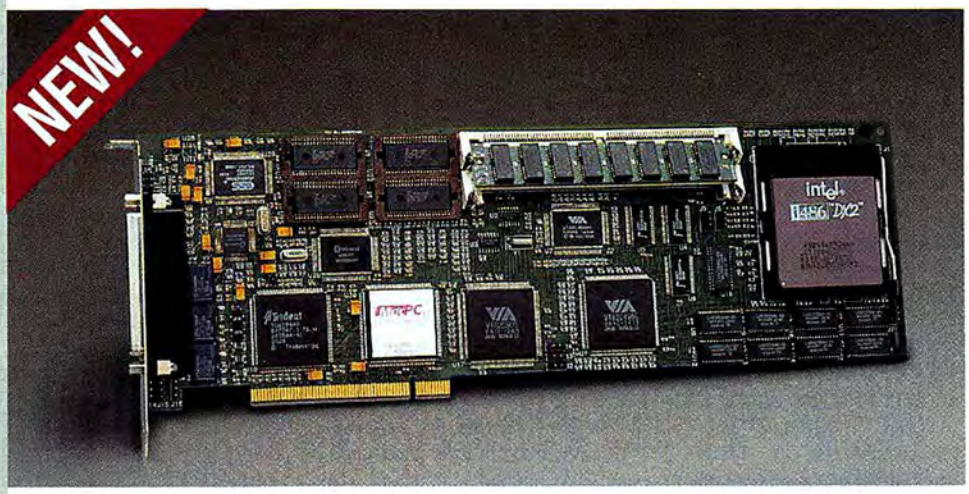
the ULTIMATE MAC PC CARD

$599

Includes DX2/80, 8MB & MS-DOS

Run any PC Game with full 16 bit Sound!

© Oranger Micro, Inc., 1996



OrangePC® 425 Mac PC Card

Put an OrangePC card into your Mac, and it becomes a PC, with your choice of DOS™, Windows® or Windows®95. Ideal for home, education, and small business.

- Runs all PC Games & Programs on your Mac. Includes free networking software.
- Game Port and 16 bit Sound Blaster® In/Out, Serial and Parallel Ports.
- OrangePC runs on all PCI Power Macintoshes.
- OrangePC options include: Windows or Windows 95, 5x86 120Mhz processor.

Available at:

MacPowerhaus (800) 615-3183

And other major Apple® retailers.

Orange Micro inc.

"16 Years of Innovation and Excellence"

CIRCLE **131** ON READER SERVICE CARD

The Game Room

BY ROMAN LOYOLA

BEFORE THERE WERE VIDEO GAMES, there was pinball. And before there were pinball machines, there were board games. This month I look at how well those games work on the Mac, reviewing two pinball simulators and a computerized version of a classic board game.

Pro Pinball

When Starplay Productions released Crystal Caliburn and Loony Labyrinth, it set a precedent in giving a realistic feel to Mac pinball games. The problems with the Starplay games, though, were that the layout of the table wasn't used effectively and the ball looked like it was floating on an invisible layer just above the surface.

After the release of those two games, I didn't see another realistic Mac pinball game — until now. Pro Pinball will satisfy your need for an electronic pinball game that feels like the real thing. Even better, it has an improvement over the Starplay games: The ball actually looks like it's rolling on a surface rather than floating.

Pro Pinball offers lots of items to shoot at, such as two ramps, a couple of spinners, and lots of targets. Its multiball mode adds to the challenge. The balls have good bouncing power, which is useful when a ball's in play on the table. At other times, it's a disadvantage — it's unrealistically hard to control the ball when you're trying to cradle it with a flipper.

The object of Pro Pinball is to complete six missions. With each mission, a different animation appears on the table top. The animations add variety, but they also divide your attention — get too involved in watching the animation, and you can lose your ball. If you want to see the animations, you'll need to practice using your peripheral vision.

I still prefer Crystal Caliburn and Loony Labyrinth, because I like their pace better. But Pro Pinball has great action and excellent sound and, most important, it *feels* like pinball.

3-D Ultra Pinball: Creep Night

Sierra's sequel to 3-D Ultra Pinball doesn't have quite the same realistic feel as Pro Pinball, but that doesn't mean it's not an enjoyable game. The strength of 3-D Ultra Pinball: Creep Night is in its variety of tables and other features.

In Pro Pinball, you have one table to play; Creep Night has three tables from which to choose (shown here). The other big difference is that the tables in Creep Night aren't constructed like traditional pinball tables; instead of being long and vertical, Creep Night's tables stretch across your screen horizontally. They can be divided into a central table and two peripheral ones. Having so much variety on your screen simultaneously adds to this game's replayability.

As you may have guessed by the title, the theme of Creep Night is a haunted house (a cartoonish one). The goal is to close a vortex evil creatures use to travel from the underworld to the earth. There's lots of stuff to shoot at on the tables, and there are also unique features, such as cranes that pick up your ball, wandering targets to shoot at, and a video-game mode you can access if you make the right moves. Unfortunately, the arcadelike game you play in this mode detracts from the overall quality of Creep Night. It's simplistic and feels as though it's been thrown in just for the sake of variety.

You'll need plenty of RAM to play Creep Night — it requires 11 MB, but I had to boost the RAM requirement to 15 MB on my AV Power Mac 7100/66 in order to get the game to run smoothly.

In all, Creep Night is a good video pinball game. Its haunted-house theme is more cute than scary. The game isn't as realistic-feeling as Pro Pinball, and it needs a lot of RAM. It does have some unique features that create an interesting effect — it feels more like a video pinball game than a pinball simulator.

Scrabble

My parents wanted me to take a college-prep vocabulary class in high school. I threw a fit and took the class I wanted to take instead: BASIC programming. Later I found out it was their secret passion to have a son who reigned as the world champion in Scrabble. Maybe they had the right idea. I still haven't used my BASIC knowledge to review games, and this month in particular, I sure wish I knew more words that begin with *j* and end in *u*.

There are plenty of reasons to improve your Scrabble-playing skills by using the electronic version of this familiar game (shown in the background). It has much of the charm of the original and should satisfy Scrabble aficionados.

You can play it on a LAN or over the Internet. Playing against others on a computer may not be the same as huddling around a board, but it does let you play with friends all over the world.

Scrabble has an annoying opening-cut scene that can't be avoided. The music gets tiresome — but you can turn it off. The board is angled on your monitor, which means that letters near the top are smaller than letters at the bottom — it's sometimes hard to see the top ones, as well as the bonus squares, if you're at a distance from your monitor. Scrabble also has some features you can't get from the board-game version — a built-in dictionary to make it convenient to challenge an opponent's words and a hint feature that gives you suggestions for words based on your tiles.

If you're always losing tiles, can't find a worthy opponent, or simply want to play Scrabble over the Internet, you'll find this game a must-have.

Roman Loyola, a MacUser *associate editor and the keeper of The Game Room, is disappointed that his first name is worth only five points.*

GAME POINT

Pro Pinball ★★★½

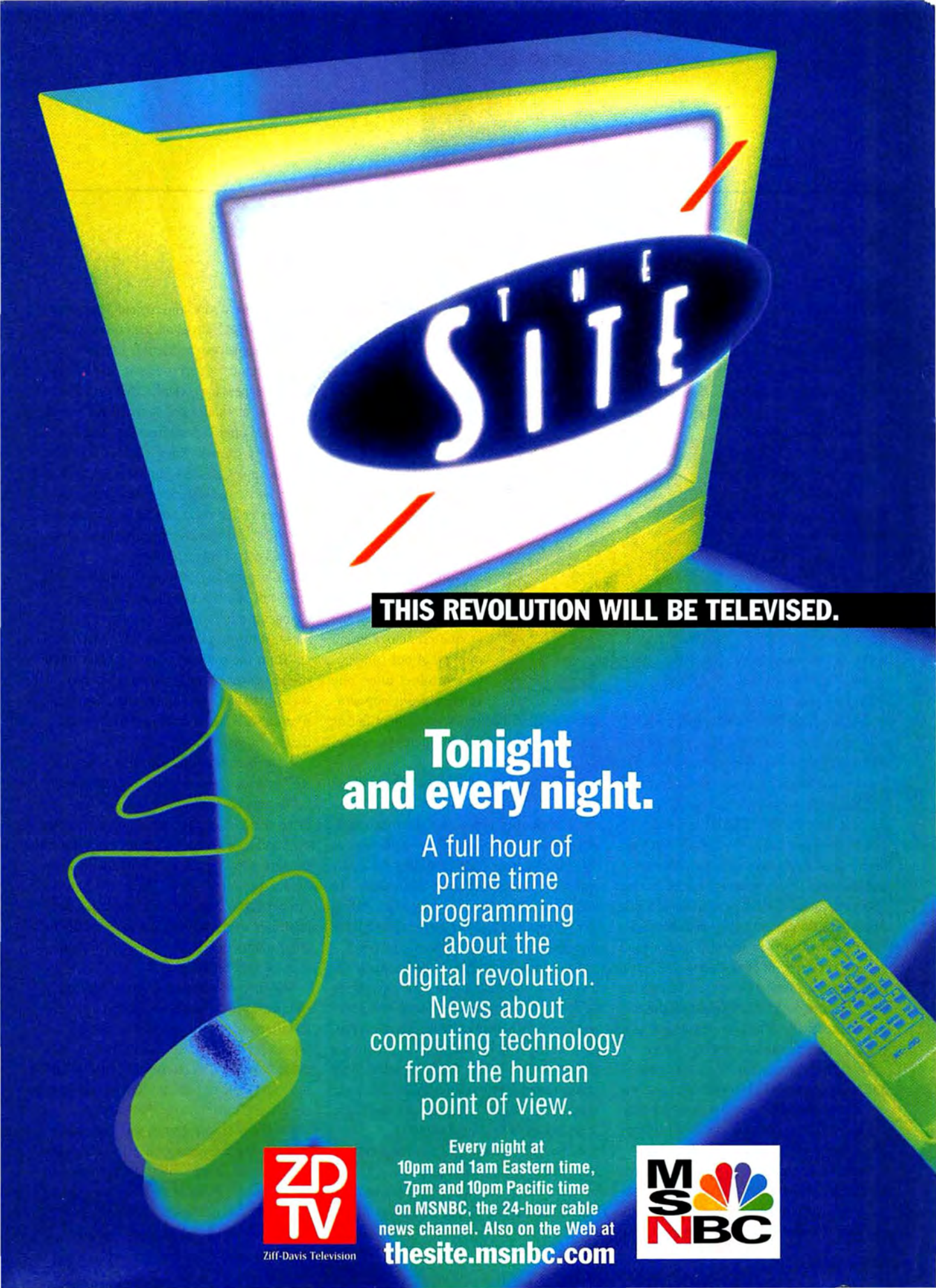
Price: $39.95 (list).
Company: MacPlay, Irvine, CA; 800-462-2752 or 714-553-3530; http://www.macplay.com/.
Reader Service: Circle #420.

3-D Ultra Pinball: Creep Night ★★★

Price: $49.95 (list).
Company: Sierra On-Line, Bellevue, WA; 800-757-7707 or 206-664-4343; http://www.sierra.com/.
Reader Service: Circle #421.

Scrabble ★★★½

Price: $39.95 (list).
Company: Hasbro Interactive, Beverly, MA; 800-638-6927 or 508-921-3700; http://www.scrabble.com/.
Reader Service: Circle #422.


THE SITE
THIS REVOLUTION WILL BE TELEVISED.
Tonight and every night.
A full hour of prime time programming about the digital revolution. News about computing technology from the human point of view.
Every night at 10pm and 1am Eastern time, 7pm and 10pm Pacific time on MSNBC, the 24-hour cable news channel. Also on the Web at thesite.msnbc.com
ZD TV
Ziff-Davis Television
MSNBC

ANDY IHNATKO

Dear Shareholder:

HI! I'M ANDY of Apple Shareholder Relations . . . and I'm taking "time out" from our hectic days of developing advanced Hardware and Software Concepts to bring some good news to you, our Happy Happy Stockholder!

Why "Happy Happy"? Because you're one of the cutting-edge "early adopters" of our breakthrough stockware platform and one "Happy" just won't cover your delight at the news this letter will bring you!

Enclosed is your first-quarter dividend for 1997. Yes, *dividend*. At Apple Shareholder Relations, we have been just as alarmed as you by the "analysis" practiced by certain New York-based "investment advisors" and "financial journals." Far removed from the technology scene here in Silicon Valley, they're hardly qualified to judge the marketability of breakthrough technologies such as NewtonGI, the first truly *Personal* Digital Assistant that can be operated gastrointestinally. Furthermore, we at Apple take extreme umbrage at the *Journal*'s injudicious use of the phrase "Better to invest it in the production of a Bob Hope/Dennis Rodman buddy-cops movie."

But the dividend you now hold in your hand is "proof positive" of their shortsightedness. And please examine it closely . . . surpassing even the most optimistic forecasts of those in the Media, this dividend provides temperature readings in both Fahrenheit and Celsius.

"Yes, Andy," you're saying. "This concrete and highly practical demonstration that my investment in Apple is a sound one has indeed made me Happy. But what about the 'Happy Happy' with which you opened this letter?"

Well, I'm saving the best news for second. We at Apple are never content to sit on our laurels, reaping Shareholder benefits solely from our breakthrough concepts of the past. And so, after months of detailed market research so expensive that you'd be really impressed but, we wish to stress, not so expensive that you might start to look hard at Compaq, we're ready to begin a brand-new Apple venture.

We held extensive focus-group meetings, asking hundreds of qualified consumers to rate over 1,000 proposed products and product lines. And the results, tabulated by an accounting firm not unlike those working for many Fortune 500 companies, conclusively identified one unique technology absent from *all* of our competitors' product lines, one surefire profit opportunity that all of those questioned identified as a product they intended to purchase within the next month: Food.

Yes, we at Apple don't know why we didn't think of it ourselves, either: an enormous chain of themed cybercafes, offering a variety of Food™ and Coffee™ for customers to buy directly from Apple, avoiding the costly and sometimes persnickety VAR channel. In the most strenuous if not legally binding terms, I promise you, our valued Shareholder, that this is a can't-miss opportunity. Why?

1. Location. We will place our first Apple Cafes in Los Angeles and New York City. Owing to the ever increasing number of broadcast- and cable-TV networks creating original programming, it is inevitable that eventually there will be a sitcom featuring attractively unemployed Twentysomethings who hang around our Coffee™ shop all day and night. Translation: *free national publicity.*

2. Hot, hot, hotness! Pick up a People magazine. Inside you'll find photos of top TV comedians such as Dan Aykroyd and John Goodman at The House of Blues; Hollywood megahypersuperstars such as Bruce Willis, Demi Moore, and Arnold Schwarzenegger at Planet Hollywood; supermoguls such as Steven Spielberg and Jeffrey Katzenberg at Dive; fabulous supermodels at The Fashion Cafe. The message is clear: Celebrities *love* to hang out at theme restaurants! And don't think the Coffee™-drinking, star-crazed public doesn't know it! Who *wouldn't* scramble into an Apple Cafe for a glimpse at gold-plated glitter gods? And while they stare goggle-eyed at Sylvester Stallone, Quentin Tarantino, and Harrison Ford, they'll be gulping down $3 cup after $3 cup of Folgers Instant.

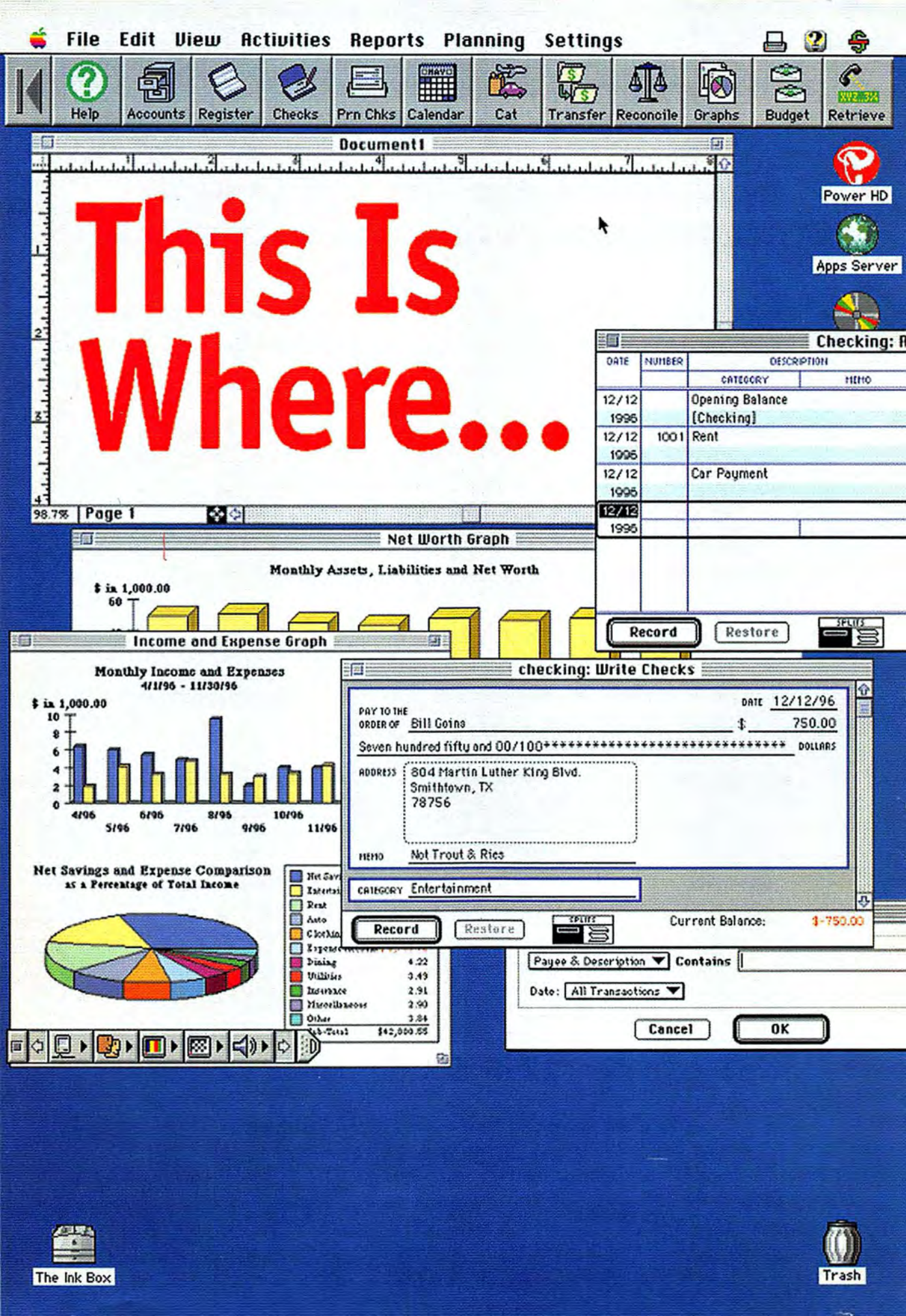
3. *Chemical addiction* has become an ugly phrase of late, but nonetheless the stock exchanges are full of highly profitable companies reaping megabucks for their Shareholders from the pythonlike stranglehold their *completely legal* products have upon the neurochemistry of their quivering customers. And unlike tobacco cravings, caffeine addiction is still fashionable!

4. Furthermore, unlike heroin addicts, Coffee™ addicts are actively and adorably *grateful* to anyone or anything who or that can bring them coffee. Scratch a dog behind its ears, and an hour later, it's bringing you your slippers. Supply a Coffee™ addict with a cup of our patented Ultra-Viscosity Kenyan Jumper Cableccino, and with one hand, she'll hand her waiter a Visa Gold card, while the other points to a $9,200 Power Mac digital-video system on the wall.

The list, we claim, is endless. Our main competition has been making a fortune quarter after quarter by marketing good ideas years after others have already done them to death. Now, we at Apple are pleased to say, it's time for Apple to put this time-tested principle to work for you, our Shareholders.

P.S. The postage meter here at Apple Shareholder Relations seems to be on the fritz again. Please make ten copies of this letter and send a copy to each of the Shareholders on the attached list, first deleting the bit about the first-quarter dividend. We'll pay you back later.

ILLUSTRATION / STEPHEN FOSTER


File Edit View Activities Reports Planning Settings
Help
Accounts
Register
Checks
Prn Chks
Calendar
Cat
Transfer
Reconcile
Graphs
Budget
Retrieve
Document1
This Is Where...
Power HD
Apps Server
98.7%
Page 1
Checking: R
DATE
NUMBER
DESCRIPTION
CATEGORY
MEMO
12/12 1995
Opening Balance
[Checking]
12/12 1995
1001
Rent
12/12 1995
Car Payment
12/12 1995
Record
Restore
SPLITS
Net Worth Graph
Monthly Assets, Liabilities and Net Worth
$ in 1,000.00
60
Income and Expense Graph
Monthly Income and Expenses
4/1/96 - 11/30/96
$ in 1,000.00
10
8
6
4
2
0
4/96
5/96
6/96
7/96
8/96
9/96
10/96
11/96
Net Savings and Expense Comparison
as a Percentage of Total Income
Dining 4.22
Utilities 3.49
Insurance 2.91
Miscellaneous 2.90
Other 3.84
checking: Write Checks
PAY TO THE ORDER OF
Bill Goins
DATE 12/12/96
$ 750.00
Seven hundred fifty and 00/100********** DOLLARS
ADDRESS
804 Martin Luther King Blvd.
Smithtown, TX
78756
MEMO
Not Trout & Rice
CATEGORY
Entertainment
Record
Restore
SPLITS
Current Balance:
1-750.00
Payee & Description
Contains
Date:
All Transactions
Cancel
OK
The Ink Box
Trash

Introducing PowerBase™ from Power Computing. 180, 200, 240MHz Mac™ OS systems starting at just $1,495.

Meet PowerBase. While your kids sleep at night, this is where you will plan their future and chart your dreams. This is where you may write the next great novel or the business plan that changes your life.

PowerBase is a powerful Mac™ system that handles Photoshop™ as easily as Kid Pix,™ edits real video as easily as it runs educational software, and plays the latest 3D games as easily as it surfs the internet and balances your checkbook.

MacUser magazine awarded PowerBase their coveted "five mice" rating and Macworld gave PowerBase their prestigious Editor's Choice Award easily beating out all other 603e-based systems from Apple, Motorola and Umax.

PowerBase is simply the best Mac available for home, school or small business.

PowerComputing

Complete Internet Solution
PowerBase 180, 200, 240MHz
- Upgradeable 180MHz 603e
- 16 MB RAM (160 MB Max)
- 1.2 GB IDE Hard Drive
- 8X CD-ROM Drive
- 256K Level 2 Cache
- 2 MB Accelerated Video (4 MB Max)
- Built-in 3D Video Acceleration
- 3 PCI Expansion Slots
- 14" Color Monitor
- Global Village Platinum 28.8 Modem
- Apple Internet Software Kit
- Extended Keyboard and Mouse
- External Labtec Speaker Set
- $1,000 in Bundled Software

$1955 200MHz Just $2255 240MHz Just $2655

Complete Home Office Bundle
PowerBase 180, 200, 240MHz
- Upgradeable 180MHz 603e
- 32 MB RAM (160 MB Max)
- 1.2 GB IDE Hard Drive
- 8X CD-ROM Drive
- 256K Level 2 Cache
- 2 MB Accelerated Video (4 MB Max)
- Built-in 3D Video Acceleration
- 3 PCI Expansion Slots
- Power 15" Multimedia Display (vis.13.7)
- Microsoft Office 4.2.1 Bundle
- Intuit's Quicken Special Edition
- Extended Keyboard and Mouse
- External Labtec Speaker Set
- $1,000 in Bundled Software

$2265 200MHz Just $2565 240MHz Just $2965

Complete Multimedia/Video Editing System
PowerBase 180, 200, 240MHz
- Upgradeable 180MHz 603e
- 24 MB RAM (160 MB Max)
- 2 GB AV Compatible SCSI Hard Drive
- 8X CD-ROM Drive
- 256K Level 2 Cache
- 2 MB Accelerated Video (4 MB Max)
- Built-in 3D Video Acceleration
- 3 PCI Expansion Slots
- Power 15" Multimedia Display (vis.13.7)
- Digital Video Full Screen Video In/Out
- Adobe Photoshop/Premier LE Software
- Extended Keyboard and Mouse
- External Labtec Speaker Set
- $1,000 in Bundled Software

$2845 200MHz Just $3145 240MHz Just $3545

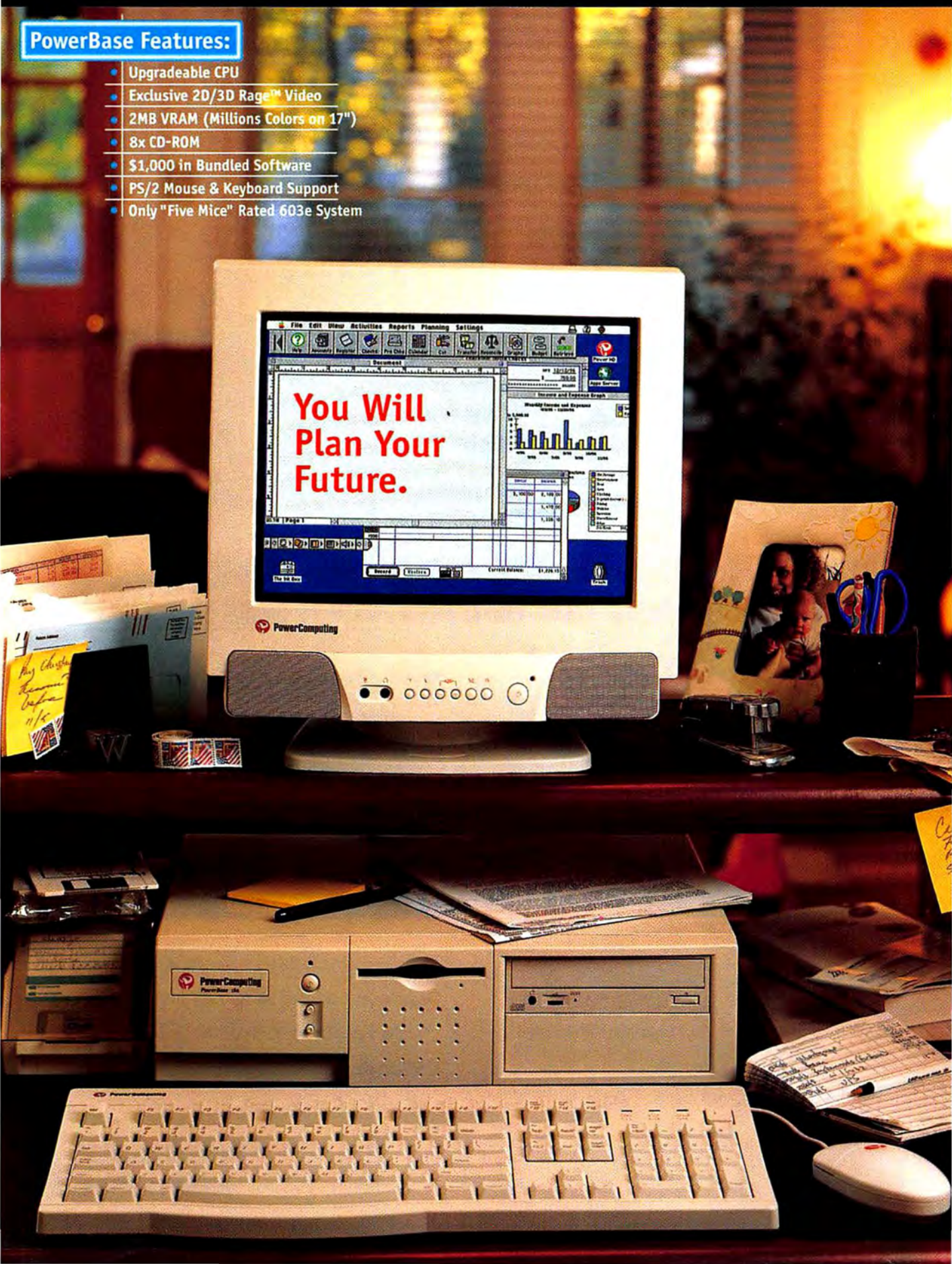
To order, contact a Power Computing Consultant

at 1-800-405-7693

CIRCLE **24** ON READER SERVICE CARD

Mac OS PowerPC MacWeek MacWEEK LABS MW

Apple, Performa, Macintosh and Mac are registered trademarks, and the Mac OS logo is a trademark of Apple Computer, Inc. PowerBase is a registered trademark of Power Computing Corporation. All other brand and/or product names are the property of their respective holders. Prices and specifications are valid in the U.S. only and are subject to change without notice. PowerBase systems feature a 30-day money back guarantee and extended on-site service packages are available.


PowerBase Features:
Upgradeable CPU
Exclusive 2D/3D Rage™ Video
2MB VRAM (Millions Colors on 17")
8x CD-ROM
$1,000 in Bundled Software
PS/2 Mouse & Keyboard Support
Only "Five Mice" Rated 603e System
You Will Plan Your Future.
PowerComputing
PowerComputing

WE'VE RADICALLY REDUCED PRICES AND DELIVERY TIMES.

THIS SYSTEM RENDERS FAST, COPIES FAST, LAUNCHES FAST, ROTATES PHOTOSHOP FILES FAST, AND NOW IT EVEN SHIPS FAST!

No more waiting. Power Computing's backorder is over!

We figured out a few months ago that the best thing we could do to improve our award-winning product line was to substantially increase our manufacturing capacity to meet growing demand and ship more systems faster.

"THE POWERTOWER PRO SERIES SOARS ABOVE ALL MAC RIVALS....MAC POWERUSERS WILL SOON BECOME POWER COMPUTING USERS IN DROVES"— MacWEEK Magazine 7.22.96

**"POWER COMPUTING HAS THE CLEAR AND UNDISPUTED EDGE OVER APPLE IN BOTH PRICE & PERFORMANCE. YOU WANT A POWERTOWER PRO."
— MacUser Magazine SEPT '96**

We've slashed prices on our PowerTower™ Pro series!

But that's not all we've done. We've also lowered prices on our PowerTower Pro series by up to $700.

♦♦♦♦♦ MacWeek

Custom configuration anyway you want it.

MacUser ZD LABS

Finally, you can customize more than just your desktop icons. We build every system exactly to your specs. Need more RAM or a larger hard drive? Want internal RAID or AV options? Not a problem - we'll build and ship it directly to your door. Direct, from the factory, just like Dell and Gateway.

MW

There are other 225MHz systems out there, but the PowerTower Pro is still the best and fastest.

That's probably why the PowerTower Pro was the only 225MHz system nominated for product of the year by the editors of both Macworld and MacUser magazines.

PowerComputing
800-405-7693

Apple, Macintosh and Mac are registered trademarks, and the MacOS logo is a trademark of Apple Computer, Inc. PowerTower and PowerCenter are registered trademarks of Power Computing Corporation. All other brand and/or product names are the property of their respective holders. Prices and specifications are valid in the U.S. only and are subject to change without notice.