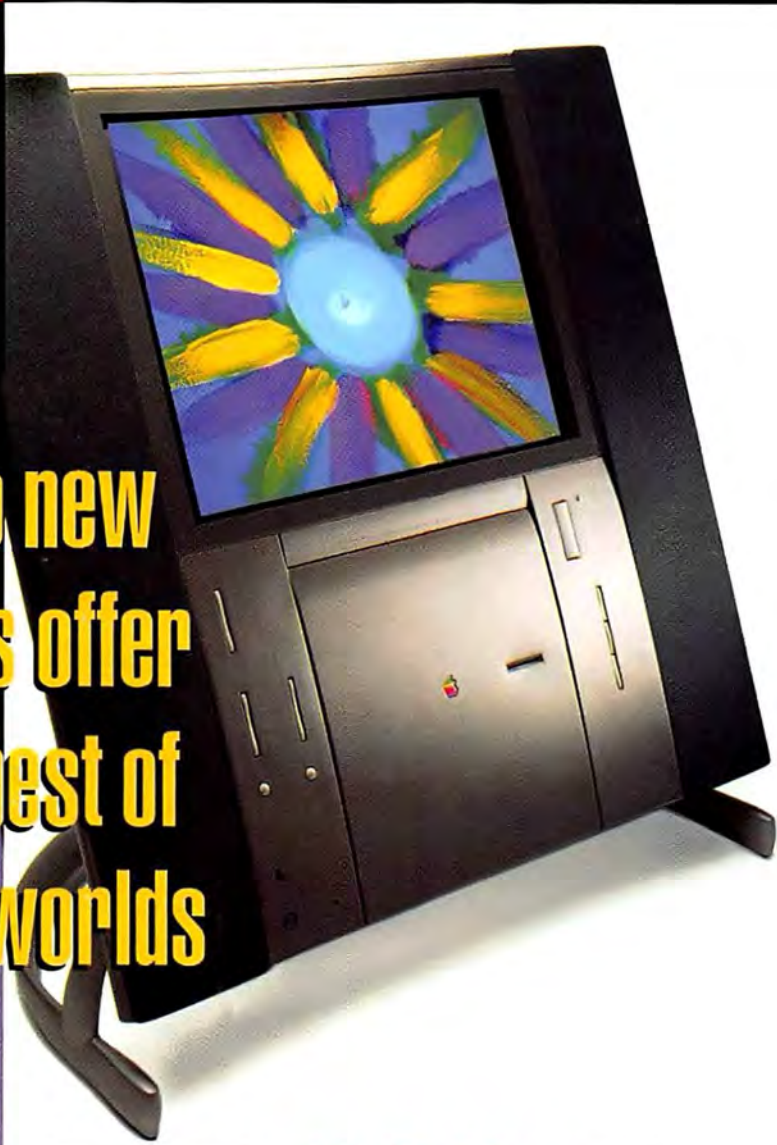
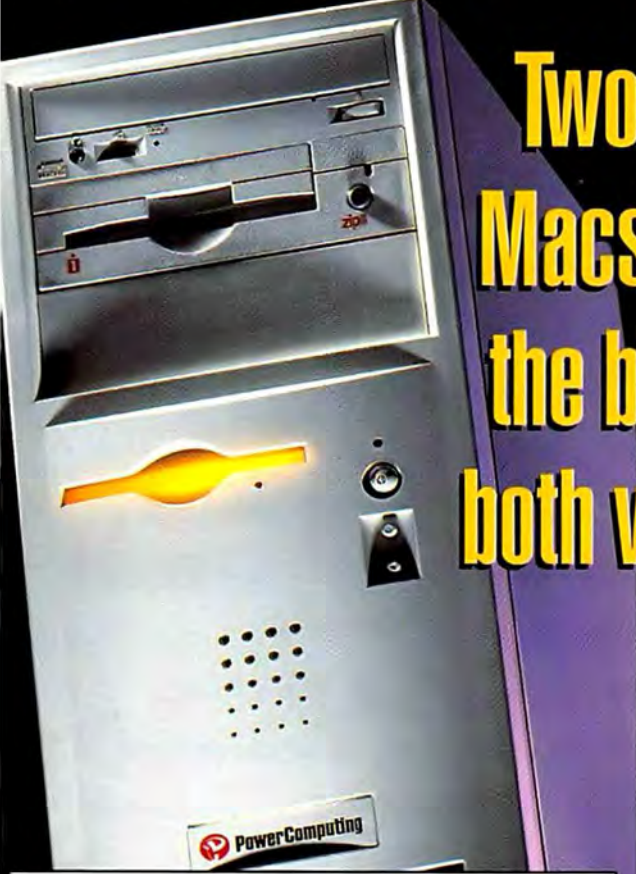


Is E-Mail Dead? How the Internet has changed messaging forever

Mac User

300-MHz
Fast



Two new
Macs offer
the best of
both worlds

Hi-Tech
Flash

\$3.99 US & INTL / \$4.99 CAN


WE'VE GOT GREAT REVIEWS, AND FANTASTIC QUALITY AND A

***Actually, we can't blame it all on the poor guy in forecasting.**


We never expected our growth to exceed Dell, Compaq and Gateway's first years' sales combined.

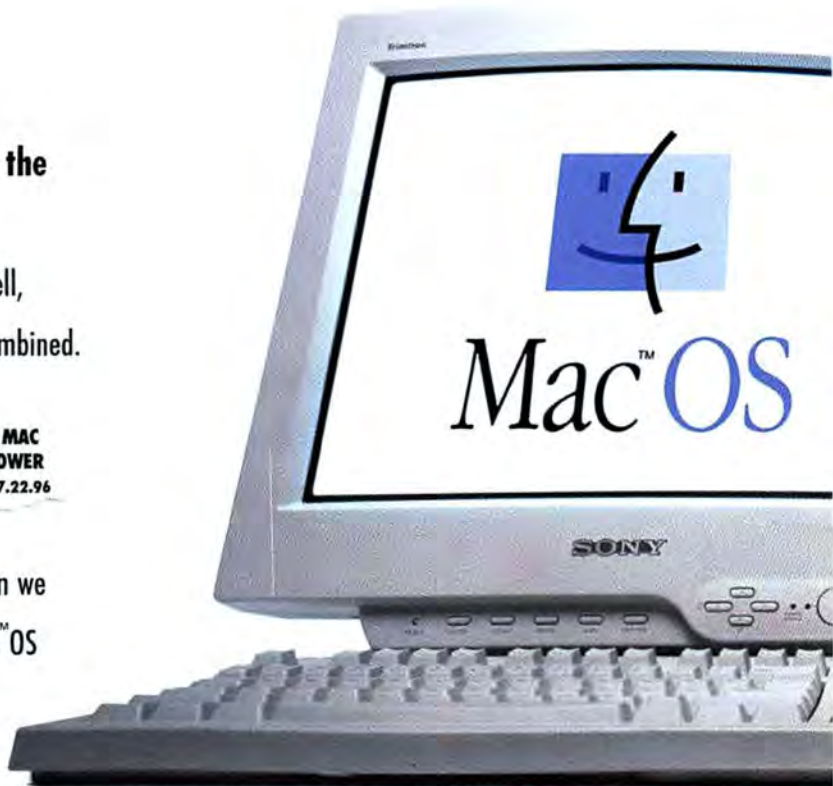
"THE POWERTOWER PRO SERIES SOARS ABOVE ALL MAC RIVALS....MAC POWERUSERS WILL SOON BECOME POWER COMPUTING USERS IN DROVES"—MacWEEK MAGAZINE 7.22.96

We knew we made great products, but when we started getting the best reviews of any Mac™ OS

 system in the industry and offered our systems at the lowest prices, our sales went through the roof.

We've had our share of growing pains, but we've worked hard to iron them out. And you'll see continued steady improvement over the next couple of months. For example, if you order a PowerCenter™ 150MHz or PowerTower™ Pro 225MHz direct from Power Computing you can expect to get

 your system custom configured and exactly the way you want it in a couple of weeks.



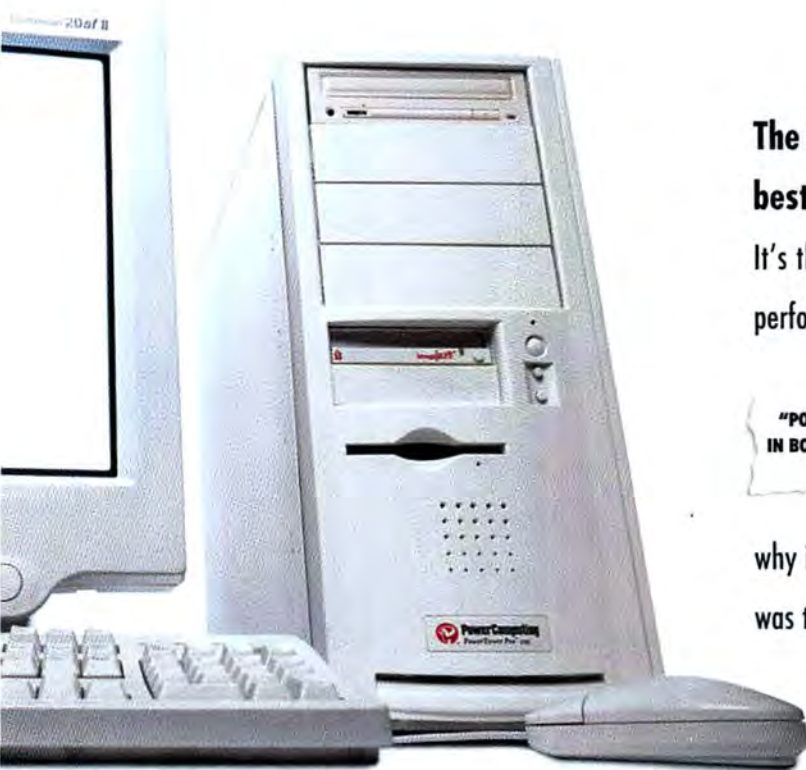
A PowerCenter 604/150 starting at around two grand is an awesome buy.

Especially when you start comparing features and price points to the other 150MHz Mac OS systems on the market. (While you're at it, why not compare it to machines in the PC market



"IF YOU REQUIRE MAXIMUM PERFORMANCE, NO CURRENT APPLE SYSTEM CAN TOUCH THE POWERTOWERS."
— MacWEEK MAGAZINE ♦♦♦♦

WESOME PRICES, KILLER SYSTEMS, BONEHEAD IN FORECASTING.*



The PowerTower Pro 225 is simply the best computer investment you can make.

It's the fastest, most expandable and highest-overall performing Mac OS system you can buy. That's probably

"POWER COMPUTING HAS THE CLEAR AND UNDISPUTED EDGE OVER APPLE IN BOTH PRICE & PERFORMANCE. YOU WANT A POWERTOWER PRO."

— MacUser MAGAZINE SEPT '96

why it received "Best of Show" at MacWorld Expo and

was the first machine in over three years to

receive the coveted Five Mice from



MacUser magazine. (FYI: Our PowerBase™ line was the second).

Give Power Computing a call and let one of our sales consultants help you **MW ★★★★★** custom configure your next system.

In the meantime, everyone at Power Computing sincerely thanks you for your continued patience and the overwhelming support. And whatever you do, never stop fighting back for the Mac.

and get a glimpse of why the Mac is making a comeback). Our PowerCenter has everything you need in a mid-range system, including the upgradeability you

◆◆◆◆ need to ensure that it won't be sitting in a MacWeek closet next to a IICX acting as a print server a year from now.

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

— MacUser MAGAZINE JULY, 1996 I.A.B.S.



PowerComputing

CIRCLE 24 ON READER SERVICE CARD

GUESS WHICH ONE IS BACK ORDERED?



POWER COMPUTING POWERCENTER™ 150

POWERPC™ 604 PROCESSOR

150MHZ

512K LEVEL 2 CACHE

2 MB VRAM ONBOARD VIDEO (UPGRADEABLE TO 4MB)

2 GB HARD DRIVE

24 MB RAM

8X CD-ROM DRIVE

15" POWER COMPUTING MULTIMEDIA MONITOR W/SPEAKERS

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

512K LEVEL 2 CACHE

2 MB PCI VIDEO CARD

1.2 GB HARD DRIVE

16 MB RAM

8X CD-ROM DRIVE

\$2999



PowerComputing

POWERTOWER PRO: THE FASTEST, MOST EXPANDABLE MAC OS SYSTEM

PowerTower Pro 225e Starter 225MHz PowerPC 604e Processor

- 16 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 20sfil S1795

\$4995

PowerTower Pro 200e Starter 200MHz PowerPC 604e Processor

- 16 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
- Extended Keyboard and Mouse
- Add Miro Motion JPEG Video I/O Card for \$495

\$4495

PowerTower Pro 180e Starter 180MHz PowerPC 604e Processor

- 16 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
- Extended Keyboard and Mouse
- Add Miro Motion JPEG Video I/O Card for \$495

\$4195

POWERCENTER: THE MOST AFFORDABLE 604s YOU CAN BUY

PowerCenter 166 Starter 166 MHz PowerPC 604 Processor

- 16 MB RAM (512 MB Max)
- 2 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
- Mini-tower Enclosure
- Add Iomega Zip 100MB Drive for \$145
- Add Power 17" Display (vis. 16.2) for \$695
- Add Miro Motion JPEG Video Card for \$495

\$2395 UPGRADE TO 180MHZ FOR \$400 MORE.

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 \$159

\$2095 NEW LOW PRICE

PowerCenter 132 Starter 132MHz 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 28.8 Modem & Internet Kit \$159
- Add Power 15" (vis. 14.2) Display for \$379

\$1895 NEW LOW PRICE

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. 16.2) 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 \$159

\$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. 14.2) Display for \$379

\$1495

Configure it any way you want it.

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 \$159
- MACROMEDIA BUNDLE \$795
- 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.

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

Is it Art Yet?



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



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

CONTENTS

NEWS

QuickTime VR, QuickDraw 3D, QuickTime Conferencing Download spanking-new versions today. / **First Looks** Microsoft Internet Explorer 3.0, HP LaserJet 5Si Mopier. / **PowerBook 5300** Laptops for the disabled. / 19

EXCLUSIVE: Breaking the Speed Barrier We test the first 300-MHz PowerPC 603e Mac prototype. What we found may surprise you. / 26

Online Ten top downloads, MacUser AOL-chat calendar, Reading Mouse, and more. / 28



COLUMNS

Letters Practical PowerBooks. / 13

Pamela Pliffner The Mac's multiple personalities. / 17

Andy Ihnatko Another one bites the dust. / 218

How to Reach Us / 8

Product Index / 171

Advertiser Index / 176

Marketplace / 186



On the cover / Meet two machines that will challenge your assumptions about what the Mac OS platform is capable of.

Cover photo / left, Jim Karageorge; right, Giampiero Benvenuti

Screen image / Conceptual backgrounds by Digital Stock

REVIEWS



Apple Performa 6360CD and UMAX SuperMac C600/240 The home market heats up with two new systems that are faster and cheaper. / 31



Pinnacle Micro Apex 4.6 GB Who cares if it's a year late? This removable-cartridge screamer is simply the fastest optical drive we've ever tested. / 34

DiskWorks 3.0 Test and tune your drive with this innovative disk toolkit that even supports RAID's. / 36

Fractal Design Detailer Next-generation 3-D tool lets you paint directly on 3-D objects. / 39

Mariner Write 1.3 New low-end word-processing entry meets basic needs while offering a spunky feature set. / 40



Datadesk TrackBoard, Gyration GyroPoint Desk, Logitech Cordless MouseMan, Logitech TrackMan Live!, and Port Presentation System These pointers are smarter than the average mouse — and they may be a smart option for you. / 42

Extensis PhotoTools This plug-in collection has something to offer all Photoshop users — pros and novices alike. / 44

ChitChat Exchange sound, pictures, and text over your AppleTalk network with this real-time online-conferencing program. / 46

Now Startup Manager 7.0.1 Stand-alone extensions/conflict-management product gives Conflict Catcher a run for the money. / 46

MovieStar Add sound, animation, and QuickTime movies to your personal home page with this easy-to-use basic video-editing package. / 49

PM->QXP Document-conversion utility seamlessly converts Adobe PageMaker layouts into QuarkXPress documents. / 51




Tektronix Phaser 350 Just because color laser printers never quite lived up to their hype doesn't mean you can't add high-speed, high-quality color printing to your office arsenal. / 52

SPECIAL PREVIEW

SOUND + VISION:
**THE 20TH-ANNIVERSARY
MACINTOSH**



 Get a sneak peek at the Macintosh of the future. From the best sound system ever to ship in a computer to its sleek styling and flexible design, this limited-edition Macintosh is the one we've been waiting for.
By Andrew Gore / 56

FEATURES

The Spirit of 7.6

The Mac OS 7.6 is no revolution. But we're happy it's here. The good news: Apple's Mac OS 7.6 is evidence that the company is committed to its OS component-release schedule. The bad news: It doesn't include everything we'd like to have seen — and it's a far cry from the sorely needed OS overhaul.

By Henry Bortman / 63

Web Animator's Toolbox

Which tools you use to spice up your Web site depends on what technology (animated GIF, QuickTime, plug-ins, Java) you employ. Join us for a tour of the power toolbox that will help you get your Web site ready for prime time.

By Lynda Weinman / 70

Is E-Mail Dead?

If not dead, the LAN-based, feature-rich e-mail we know and love is in a very deep coma. We check for vital signs. By Stephen Howard / 83

Low-Cost Color Scanners: Quality for Less



Whether you're a DTP pro looking for a sub-\$1,000 bargain or a home user with a \$500 budget limit, you can find a scanner that will produce impressive output among the 17 we tested. By Roman Loyola / 88

DEPARTMENTS

DESKTOP MEDIA

Polishing Your Page Got the basics of HTML? These tips will take your Web page to the next level. / 101

Graphics How-To Use layers to salvage your image's tone, color, or contrast. / 106

Expert Tips Getting ready for the Be juggernaut. / 108

NETWORKING

Choosing Your Internet Partner

Internet on-ramps are not all created equal. Here's how to find one that meets your needs. / 117

Net Traveler The handyperson's guide to Do It Yourself. / 123

HANDS ON

Foolproof File Enclosures Make sure your file attachments reach their destination. / 125



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

PERSONAL MAC

Game Gears Get a glimpse of what the future holds for all software. Games are leading the way. / 137

The Two Dads The kids tell it like it really is. / 140

The Game Room Blast your way through the final stage in the Marathon series. / 141



MacUser (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Company, L.P., 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 Canada: Add \$16 per year to the U.S. rates 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 80322-6986. Periodicals postage paid at New York, NY 10016, and at other mailing offices. Printed in the USA.

DRAW

like no other CAD

"This drawing—5 hours—
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

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 Coins**

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-Mothers

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**

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**

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**

Vice President, Managing Director, Ziff-Davis Magazine

Network **Joe Gillespie**

Executive Director, Ziff-Davis Magazine Network

Alicia Saribalis

Marketing Director, Ziff-Davis Magazine Network

Michael Perkowski

Directors, Ziff-Davis Magazine Network **Ken Beach,**

Michael Bird, Jeff Bruce, Kelly Lowman,

Melinda Maginn, 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, L.P. All rights reserved: reproduction in whole or in part without permission is prohibited. MacUser is a registered trademark of Ziff-Davis Publishing Company, L.P. MacUser is an independent journal, not affiliated in any way with Apple Computer, Inc.

What the heck is this?



A DuoScan®, they tell you. A desktop scanner with two loading areas? A two-bed scanner? Yes, they say. So you can load transparencies while you scan reflective art. And with a dedicated bed for each, you can get better scans from both. Then you look at the dynamic range. And you look at the resolution. And the speed. And then you know exactly what it is. It's something that's going to make your life a lot easier.

Agfa Division, Bayer Corporation, 100 Challenger Rd., Ridgefield Park, NJ 07660. Call us at 1-800-685-4271 ext. 5644, or fax 508-583-0711. In Canada, please call 1-800-268-1331, ext. 4032, or fax 416-241-5409.

The following AgfaType™ fonts are used in this ad: Frutiger, Sabon and ITC Zapf Dingbats.

AGFA and the Agfa rhombus are registered trademarks of Agfa-Gevaert AG. DuoScan is a registered trademark and TwinPlate Technology, FotoTune, FotoFlavor and AgfaType are trademarks of Agfa-Gevaert N.V. Photoshop is a trademark of Adobe Systems Inc., which may be registered in some jurisdictions.



▲ The new Agfa DuoScan with TwinPlate™ Technology. Exclusive dual scanning bed design for increased accuracy and productivity. 36-bit scanning of up to legal size for reflective, letter size for transmissive. Dynamic range: 3.3D. Resolution: 2000 X 1000 ppi. Line time: 7.7 ms/line, full color. Previews in under 10 seconds. Batch slide holders optional.



▲ Comes complete with full Adobe Photoshop™ 3.0, Agfa FotoTune™ color management and FotoFlavor™ color correction software.

www.agfahome.com

**WHAT DO
YOU SEE?**

AGFA 

The complete picture.

CIRCLE 169 ON READER SERVICE CARD

MacUser

You're already reading it.

WOW! Win this PowerBook and more prizes... see page 66

MacUser NEW! PowerPC PowerBooks



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, L.P., 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, L.P., 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, L.P., 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 Canada: Add \$16 per year to the U.S. rates 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 80322-6986. 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.



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.




Professional software for automatic
high quality image processing

It's not good... ...it is perfect!

We cannot tell you any more because
this \$1999 package is so unbelievable that
no words are strong enough to describe it.
Try it yourself: download a copy of the
professional demo version today from:
<http://www.binuscan.com>



CIRCLE 133 ON READER SERVICE CARD

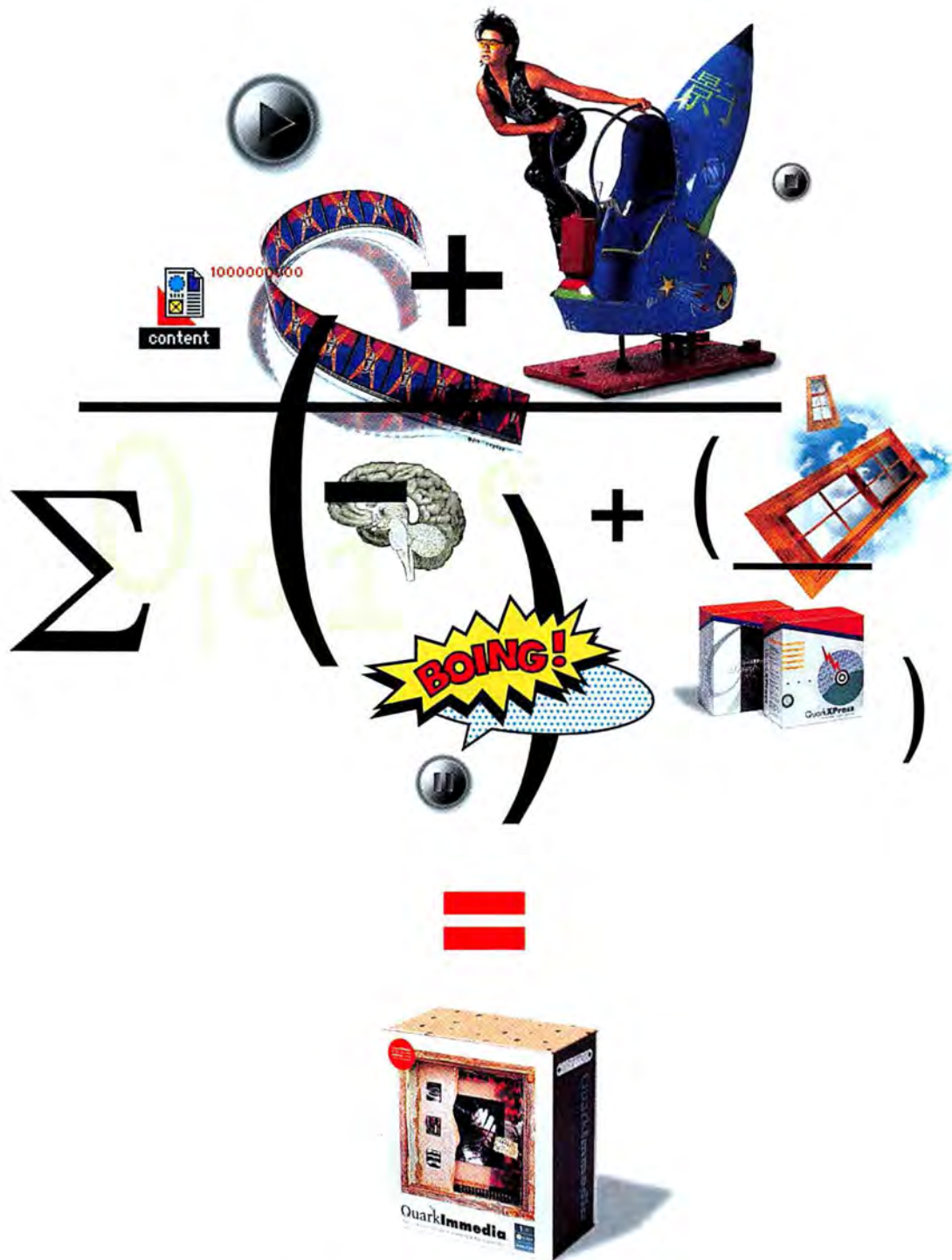
a special version of binuscan is bundled with all the **UMAX** high-end scanners
a special version of binuscan is freely available for every  Pro Master Photo CD



binuscan - International Sales Division
4-6, Av. Prince Héréditaire Albert - MC-98000 MONACO
+377 92 05 37 62 - Fax: +377 92 05 74 63

binuscan, Inc. - US Sales Office
505 5th Avenue - New York, NY. 10017
1 800 881-2352 / 1 212 681-0600 - Fax: 1 212 681-0603

Simplify the equation.



[Quark**Immedia**.]

Multimedia design power without programming? No problem.

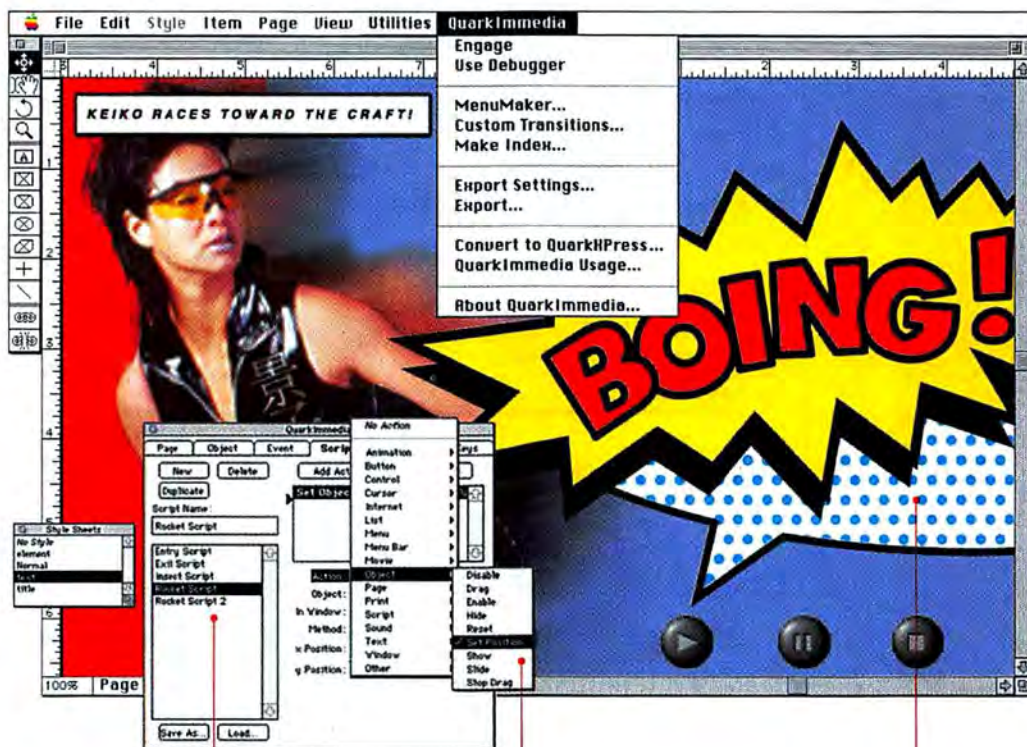
QuarkImmedia™ is proof that multimedia doesn't have to be rocket science.

Take the unparalleled design control and versatility of QuarkXPress™. Add sound, video, animation, and interactivity. Plus Internet functionality,¹ cross-platform compatibility,² and multiple media delivery options.³ Throw in powerful scripting capabilities⁴ and subtract the hassle of

programming, tagging, or coding. Top it off with a host of high-end multimedia authoring features⁵—minus the high-end learning curve. There you have it: QuarkImmedia. Professional design software for multimedia and Internet publishing.

Spend more time figuring out how to make your ideas work, and less time figuring out how to make your software work.

1 The royalty-free QuarkImmedia Viewer works in concert with Netscape Navigator and Microsoft Internet Explorer. 2 View on Mac, Power Mac, or Windows. 3 Reach your audience via CD-ROM, disk, intranet, the Web, and print. 4 Generate complex interactions with menu-driven scripting. 5 Editable anti-aliased type, transitions, streaming audio, intelligent caching, custom cursors, multistate buttons...



Scripting is a point-and-click operation. Simply choose a series of actions from the hundreds available in a pop-up menu.

The Script panel interface changes automatically to display the options available for each action.

A script can be associated with any button, object, or page.

QuarkImmedia. For the interactive imagination.

For a free demo package, give us a call or visit our Web site.

<http://www.quark.com/immedia.htm> 1-800-788-7835 Ext. 3017

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

New
Version 4.0



Mac OS

Accelerated for
Power Macintosh



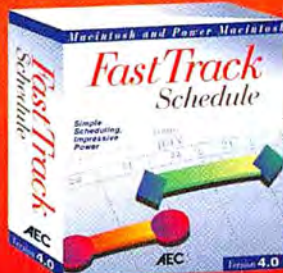
"If you're looking
for a quick and easy
way to create Gantt
charts, this program
might be just the
one for you."

MacUser

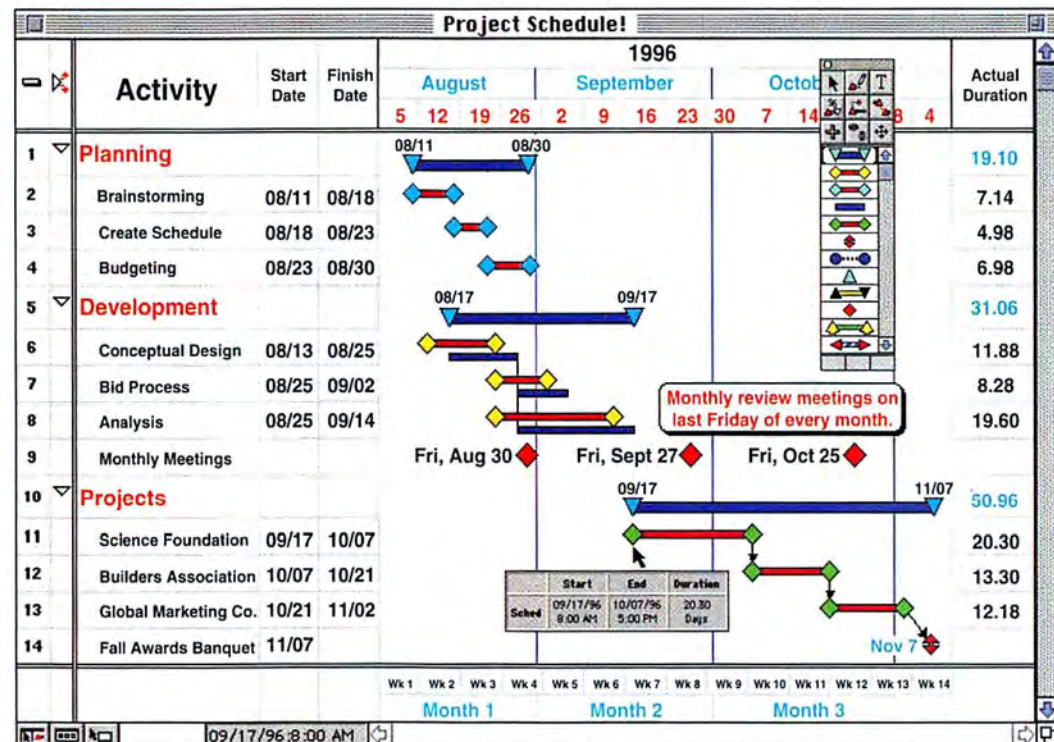


"...An excellent
choice for anyone
whose primary need
is to create precise,
presentation-quality
Gantt charts."

MacWEEK



Project Scheduling Made Easy.



FastTrack ScheduleTM 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.



Flexibility

- Timescales from Hours to Fiscal Years
- Link Options
- 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



Ease of Use

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



Power

- Scheduled, Revised & Actual Dates
- Custom Work Calendar
- Filters & Sorts
- 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

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

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

Practical PowerBooks, Please

MUCH ADO HAS BEEN MADE about the PowerBook 1400's highly desirable features, such as BookCovers, and Apple's failure to keep up with the "speed" of the market ("Road Test: The Apple PowerBook 1400," December '96, page 70). Yet, there has been almost no dialogue on the absence of what really makes a portable *portable* — the modem. There isn't one for the 1400, and what is available was designed for the 5300. Consequently, there's not much press about dial-in functionality.

I'm a Fed, and before I can buy a new anything, I have to justify the purchase and detail its specifications to a cadre of government buyers. One of the main characteristics of a laptop is that it have dial-in-communications capabilities (in other words, a modem). Since none of the literature on the 1400 speaks to dial-in or modem capabilities, I'm having a hard time with this justification.

Rod Gossman
via the Internet

/ The 1400 can use any Hayes-compatible PC Card modem. By not including a modem, Apple gives you the freedom to choose from dozens of inexpensive modems, which will probably save you money over what a bundled modem would cost. / AG

A CD-ROM DRIVE? It's about time. An 11.3-inch screen? Why not 12.1? Fashionable covers? Yawn. Apple and IBM used to be at the top of the laptop food chain. It's sad to see that while IBM continues to innovate, Apple has decided to decorate. Apple, please make me a machine I want and need. I've got work to do.

John Flores
jflores@jfininteractive.com

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.

Dare to Buy a PB 5300?

IN YOUR REPORT on Apple's new PowerBook 1400, you said the 5300 crashed with various apps. Because I'm considering buying a reworked 5300, I contacted Apple to see if these problems had been addressed. Company reps had no information on application problems specific to the 5300 and thought you may have been referring to problems these apps had on all PowerPC platforms.

Apple did mention the logic-board "freezing" problem in the 5300, which has apparently been remedied in reworked models. Were the problems you mentioned caused by the logic board and/or some generic PowerPC problem or by some problem that's *specific* to the 5300?

Stephen McAinsh
stephen@colquhoun.co.uk

/ Application crashing on the 5300 series has been extensively documented, and no, the problem has nothing to do with running on a PowerPC (if that were the problem, Photoshop wouldn't run on any shipping Mac). Crashing has generally been caused by either bugs in the logic board or bugs in the version of the OS the 5300 uses. Apple claims to have resolved both these problems. However, we continue to see application crashing with several 5300 machines in our labs, all of which have been "reworked." There certainly are 5300 systems out there that function just fine. However, if you plan to buy one of these reworked systems, all we can say is, caveat emptor. / AG

Grow Up, America

YOU IGNORE THE REAL issues about online security ("Protecting Kids and Free Speech," December '96, page 147). You said that if you're a worried parent or just a concerned surfer, you have a stake in how kids surf. Well, I'm a 12-year-old Internet addict, and I'm furious that you didn't mention that WE, the under-19 population, have a say in anything. I'm so



Open Folder

Volvo used to tout the safety of its cars with ads that showed one of its models looking very much like a crushed soda can (the car's rear end and hood were both crumpled in, but its cab was thoroughly unmoled). After MacUser Editor Andrew Gore compared Apple's PowerBook 1400 to a Volvo by saying that both are solid and reliable but "not likely to set young hearts racing," several readers proceeded to give his head and rear end the same treatment as the impact-absorption zones on that Volvo in the ads. These readers asserted that the Volvo 850 Turbo is the fastest, safest, most reliable, and sexiest ride on either side of the Atlantic and stopped just short of suggesting that the Caped Crusader himself toss aside the keys to the Batmobile and visit Gotham Motors for a deal on a Swedish wagon. This apparently ain't your soccer mom's Volvo.

Soccer moms who are neither turbocharged speed queens nor mobile computer users nor technophiles of any shade are nonetheless encouraged to hit the Infobahn and visit Peggy Goldman's MacMom Web site, which aims to help mothers, grandmothers, and all analog women digitize their digs and their daily doings. Peggy preaches the Mac gospel, offers household tips, and provides links to other helpful sites. To pay Peggy a call, point your browser to http://home.earthlink.net/~sq_peg/macmom/.

Mac users looking for more-terrestrial destinations will get no help from the American Automobile Association (AAA). David C. Williams brought to our attention (as well as to that of AAA's CEO, Donald R. Gagnon) that AAA's Map'n'Go software is compatible only with Windows. Williams pointed out that there are 53 million Mac users in the world and that AAA's offering of such software only to Windows users was akin to AAA providing services "solely to owners of Big Three autos." Take it from our own Andy Gore, Mr. Gagnon. If you don't appease these Mac-based motorheads, you'll need the jaws of life just to pry that comb out of your back pocket.

angry that I'm actually trembling slightly as I type this.

Having something forbidden to a child, or an adult even, makes them covet it all the more. No program, no law, no bill can keep something from a determined child who knows how to use the Net. The only way to keep children out of "danger" is to educate them on a subject and give them alternatives.

You failed to mention that Cyber Patrol and other such programs blocked out the White House's whole site because it contained the word *couple* (pertaining to Hillary and Bill). It makes you wonder what IDIOT thought the word *couple* was too promiscuous for small eyes and ears! In that rating system, almost ALL of Disney's movies would be blocked for content. My GOSH! They're KISSING! That's TOO EXTREME for young eyes!

Sheesh, when will you adults learn? Ironic, isn't it, that all this started with the White House and now it's blocked? They also block words such as *breast* and names of drugs, hate groups, racial slurs, and many more things pertaining to such subjects. What of the child doing research on alcoholism, breast cancer, drug addiction, racial tension, or other similar topics? Aww, too bad. Really, if a child is intelligent enough to utilize the Internet, they are intelligent enough to know what is offensive to them.

Please do a little more research on your subject before delving in and saying things you don't know much about. While you're at it, check out my Web site, Kids On the Internet, at <http://www.the-hermes.net/~ljh/>.

Loyal customer and outraged kid,

Amy Hoy
ljh@the-hermes.net

I Well said, Amy. I was viewing Cyber Patrol and its ilk as tolerable alternatives to draconian measures such as the Communications Decency Act. Thanks for reminding me that tolerable censorship is an oxymoron. Nice site! / MS

Can't See the Forest for the PCs

PAMELA PFIFFNER REALLY needs to pull her head out of the apple core ("Dangerous Minds," December '96, page 21)!

My school district is in the process of switching over from Macs to PCs. Why? Money, and the fact that some very vocal members of the local business community have convinced the school board that Apple is dead or dying. No amount of proselytizing or evangelizing will convince them otherwise.

My high school set up a 22-station Wintel

lab this fall. Each machine runs at 100 MHz, has an 8x CD-ROM drive, a 1-GB hard drive, and 16 MB of RAM. Cost per machine, including monitor and keyboard, was \$1,100. Tough price to beat.

I love my Mac, but my school is convinced beyond a doubt that Apple is history. They control the money, not me. Sure, Macs are easier and more fun to use, but schools adopt a bottom-line approach. PCs are cheaper. End of discussion. I know it hurts, but if Apple doesn't help by offering a similarly equipped, cheap Mac to schools, why should we continue to support the company?

Spence Cutting
Woodland Park, CO

RICK VOGEL ASKS WHY he would want to buy a Mac unless he had lots of extra money to throw around (Letters, December '96, page 14). Look at the big picture, Rick!

The company where I maintain the computer network is presently researching and pricing new PCs to replace a few old 486s. PC pricing is a nightmare. Look at any ad in a PC magazine for a "system," and then call the company to find out what is missing from that system (a high-speed modem, a quality sound card, a reasonable amount of RAM) and how much it will cost you to add what you need.

Next, add in the cost for hours of setup and configuration. I have yet to plug in a new PC, turn it on, and begin using it without major fussing over one thing or another. Add to that the work stoppage from the countless system crashes, freezes, and memory errors that Windows 95 presents our business with on a daily basis.

When I go home and turn on my Mac, it works, every time, all the time. I bought my first Mac five years ago and have had so few problems that I can't even think of anything to list.

I may pay a little less for a PC up front, but adding in the cost of keeping that PC running quickly eats up the difference.

Millie Francis
New York, NY

Dropping the Ball

YOUR REVIEW OF MasterJuggler Pro 2.0 (December '96, page 54) was a bit off the mark.

Your comment that "clicking on the Temporary or In Startup Set buttons doesn't control whether you create a temporary or startup set" is completely wrong! If you had even glanced at the manual, you would know that

these aren't even buttons! They are, instead, a simple icon key showing you what each icon that might appear in the window means. You also missed several key features, including drag-and-drop opening of fonts and sets, drag-and-drop creation of sets, and the best pop-up application menu in the business (for starters). And what about MasterJuggler's rock-solid stability?

Richard J. Sinclair, rjs@maginet.net
Macintosh Independent Consultants Association

Although clever, MasterJuggler's drag-and-drop functions aren't very useful if you routinely switch among multiple font sets. MJ's nonstandard, buttonlike icons are confusing. Font-management utilities rarely pose stability problems, so MJ's crash resistance isn't a big advantage. / KT

John C. Ihnatko?

PLEASE DON'T TAKE THIS the wrong way, but when I read Andy's column in a recent issue, I had to check to make sure it wasn't the work of our old friend John C. Dvorak. Yes, it was that bad.

Please, Andy, I implore you: Tell me what is new, what is cool, how things could be better if you were King, and what I can do that makes my system unique or compatible or just plain silly.

Robert Wiebe
wiebe_robert@credit.ca

The Comeback Mac

WHO AMONG US WOULD have thought that Gil and the boys in Cupertino would've brought back the Mac so quickly? With Apple surprisingly showing quarter gains, Gil gets my vote for CEO of the Year. With Power Computing, UMAX, Motorola, and several others now joining the push for Mac supremacy, Windows-based technology is finally being given a true test. I look forward to the upcoming months.

Gordon Bell
gbell@imscyber.com

Corrections

Due to an editing error, we neglected to mention that we were referring to the Power Mac 9500/120 and 8500/120 when we wrote that the Mac's system bus runs at 40 MHz ("Newer Accelerates Everything," December '96, page 24).

Cosmic Osmo and the Worlds Beyond the Mackerel ("MacUser's 1996 Top 50 CD-ROMs," December '96, page 82) is published by Brøderbund.

The correct toll-free number for Keep It Simple Systems ("PowerBook 1400 Gadgets," December '96, page 78) is 800-327-6882.

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.™

Professional PC bundle also available with full version Adobe Photoshop™, Xerox TextBridge Pro™ '96, NewSoft™, Presto! PageManager™ 1.0, 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



PHOTOTOOLS MAKES PHOTOSHOP SO PRODUCTIVE YOU'LL HAVE PLENTY OF TIME LEFT TO KERN.



Yeah, that's right. PhotoTools lets you do all kinds of killer stuff in Adobe Photoshop in just one step. Like how all the bevels, drop shadows and glows in this ad were done. Even this text block and the ones down there in the cool bevels were done in Adobe Photoshop.



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



Fetch organizes your graphics files into an on-line browsable catalog for quick and easy access, regardless of the application used to create them. Mac.



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 is an indispensable collection of tools that feature color control, object styles, libraries and more. Mac.



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

<http://www.extensis.com>

ORDER PHOTOTOOLS (MAC & WIN)
ONLY \$99.95
1-800-796-9798

Pinch yourself, this isn't a dream (more like a dream-come-true). Thanks to the Extensis PhotoTools collection of plug-ins, the time has finally arrived when you can create and format text in Adobe Photoshop.

We don't mean typing a couple of words, we're talking multiple text blocks, character styles, font sizes, leading, scaling — you know, all the stuff you expect to do with type.

In true Extensis form, we didn't stop at text — we wanted to make everyday Adobe Photoshop effects even easier too. So you can do nifty things like create drop shadows, glows, embosses and bevels in a single step using screen previews and zoom controls. Also, automatically enhance RGB photos with one click and create smart toolbars for quick access to menu commands. It even has an outstanding price (\$99.95) and a 60-day money-back guarantee.

Don't take our word for it, find out for yourself how amazing PhotoTools is. Call 1-800-796-9798 to order your copy or download a free trial from our web site at <http://www.extensis.com>. And quit pinch-ing yourself, you'll get bruises.

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

Extensis





PAMELA PFIFFNER

Split Personality

WHAT DO YOU WANT? That seems like a pretty simple question, but in the Mac market these days, the answer is getting more complicated by the day. There's a battle raging for the hearts, minds, and pocketbooks of Apple's customers, and the winner is going to be whoever best answers the big question: What do Mac users want?

Take a look at our two cover stories this month, and it will be obvious what this confusion about the wishes of Mac buyers has done; the Mac's split personality has never been more apparent. On the one hand, the Mac is struggling to compete with Wintel PCs in terms of cost and performance. On the other, it seeks to rise above the common rabble by maintaining a snooty profile. It's like *The Patty Duke Show*, with the clone manufacturers playing Patty to Apple Computer's Cathy. We liked Patty better, but we secretly wanted to be more like Cathy.

The Swift . . .

In one corner, we have the latest offering from Power Computing, the company that doesn't mind likening itself to a Dead-End Kid, ready to "fight back for Mac." Power's swift 300-MHz prototype represents one direction for the Mac: Attract users by combining industry-standard parts with sophisticated engineering and aggressive pricing. Beat the Wintel platform at its own game, in other words.

This side of the Mac's personality has emerged relatively recently, and Apple itself still seems uncomfortable with it. It was Apple, after all, that let the Mac lag behind Intel-based PCs in both price and performance.

Not that Apple deserves all the blame. Its technology partner Motorola hasn't done much to promote the advantages of the PowerPC chip either. There's no PowerPC marketing program to compete with the ubiquitous "Intel Inside" label that peppers everything from packing boxes to television commercials to T-shirts that champion the cause.

So, as in the early days of the PC market,

the cloners are picking up the slack. And not just Power Computing either, although it's certainly the most vocal about it. The 300-MHz machine we tested for this issue is but one of the high-speed, moderately priced Mac clones we've heard about (Power was just the first to let us go on the record).



Fast, yes, but no one's going to accuse these machines of being overly elegant. Power Computing's boxes are clunky, sharp-edged things. UMAX's SuperMac models, on the other hand, are considerably more attractive, with curves and swoops that suggest more than a passing acquaintance with industrial design. Mac users are accustomed to high design standards, both inside and outside the box. In their quest for speed, though, are they ready to forsake the designer cachet that's synonymous with the Mac?

. . . and the Swank

Apple's swank Spartacus — also known as the 20th-anniversary Macintosh — represents the other side of the Mac's personality, the side we've known all along. Elegant industrial design, flashy features, a supersuave image — and a premium price.

Let me say this right off the bat: When I first saw this machine, I wanted one. Unlike some flashy design prototypes I've seen, this

limited-edition Mac makes sense, from both a design perspective and a usability perspective. Just sitting in front of it made me feel cool. It's more than an executive toy, however. It boasts a powerful processor, a crystal-clear LCD screen, a sophisticated sound system, and a modular keyboard. And the coolness factor multiplies when you learn that only 10,000 will be made.

But is it worth \$9,000 to sit in front of the coolest Mac on the block? I doubt it. What's really the message here?

Once again, Apple is banking on image to sell machines. I'm not suggesting that Spartacus-like machines are the norm at Apple or that Apple sees this as anything more than a promotional gimmick, at least for the time being. But the Spartacus represents the same thinking that resulted in Apple's announcement that it will license its

name to a chain of cybercafés. This may seem like a harmless effort to build brand awareness and attract technohipsters, but is latte-land really where Apple should be expending its energy?

If you ask me, Apple's got a surfeit of image. In fact, I sometimes think it holds the company back. Sure, I'm glad PowerBooks saved the world in *Independence Day*, but that's Hollywood. I think Mac users today would prefer real-life solutions. For some that may be a Spartacus. But faced with buying a \$9,000 Mac for myself or three \$3,000 clones for myself and two of my staff members, I know what I'd do.

Don't get me wrong. There's a market for cool, even more so now that the Internet has become a favorite topic at cocktail parties. But I'd wager that the market for fast and cheap Macs is much bigger. The biggest market of all? Fast, cheap, and cool. And that's very achievable. The questions are, Who will make it, and will you buy it? Let me know. ☐

EVERYONE'S TALKING ABOUT US.

OCTOBER 1996



"The Panasonic PanaSync™ S17 showed excellent color range scores and a bright image."

AUGUST 1996



"This was our favorite monitor."

SEPTEMBER 1996



"Its full three-year warranty, around-the-clock toll-free support, low price, and attractive display quality earn the PanaSync™ S17 a Best Buy."

The PanaSync S17 has been winning a lot of awards lately. And that's because just about everyone who has taken a look at it rates it nearly perfect. The S17 is also backed by the best warranty program in the industry—3-years on parts, labor and the CRT, an On-Site Exchange program during the first year of ownership, and a 24-hour, 7-day-a-week Customer Support Hotline.

**PanaSync™
S17**

To find out more about the PanaSync S17 and our complete line of Panasonic PanaSync Display Monitors, visit our Web-site at www.panasonic.com/alive or call us at 1-800-742-8086, Ext. MN14.



CIRCLE 79 ON READER SERVICE CARD

All product/brand names are trademarks or registered trademarks of their respective holders.

MN14-MACU

NEWS

QuickTime Set to Fast-Forward

New QuickTime Media Layer moves Apple's media technology ahead.

APPLE'S NEWLY REINVIGORATED Interactive Media Group hasn't been resting on its QuickTime laurels — it's been moving forward aggressively with plans to update many components of the QuickTime Media Layer.

QUICKTIME VR. Version 2.0 will — at last — include an API (application programming interface), an addition that will make it far easier for developers to support QuickTime VR, especially in the C-based 3-D engines used by many video games. As a result, the next Doom clone to hit the Mac may well have its reality augmented by QuickTime VR-based photographic panoramas.

Another key advance is QuickTime VR 2.0's ability to integrate other kinds of content into a VR scene. For example, an actor could be filmed in front of a blue screen, with the resulting movie added as an object superimposed over a QuickTime VR panorama — a user could click on the actor to see the movie play. QuickTime movies as well as QuickDraw 3D objects can be added to a QuickTime VR panorama. The ability to zoom in on a QuickTime VR object is also supported in 2.0.



And objects can have *hot spots* — clicking on a VR movie of an engine, for example, could reveal moving pistons and crankshaft.

Unfortunately, QuickTime VR will still require a combination of MPW scripting and HyperCard for

scene creation — although Apple plans to release easier-to-use tools later this spring. The company is also planning to add support by midyear for progressive downloading of VR scenes, a current feature of QuickTime Fast Start. The QuickTime VR 2.0 Authoring Tool Suite will sell for \$395. The Mac version will ship in January, Windows 95 and NT versions in March. For more information on QuickTime VR 2.0, go to <http://quicktimevr.apple.com/>.

QUICKDRAW 3D. Version 1.5 of Apple's popular standard for 3-D data adds support for rendering plug-ins, allowing users to select third-party rendering engines when

displaying 3-D objects. For example, LightWork Design will offer LightWork Classic Renderer, which supports reflections and anti-aliasing, providing a more photo-realistic look.

Version 1.5 also supports surface picking, which will enable applications that support QuickDraw 3D to paint on a 3-D object. Support for trimesh geometry will allow applications to double or triple rendering speed and will increase the speed of QuickDraw 3D hardware accelerators.

To get your copy of QuickDraw 3D 1.5, which should be available by the time you read this, go to <http://quickdraw3d.apple.com/>.

QUICKTIME CONFERRING. Version 1.5 delivers a significant speed increase and now supports audio and even limited videoconferencing over 28.8-kbps modems. If you're using a faster connection, such as ISDN, Apple claims that you will get video throughput of up to 25 frames per second with this version.

To help accelerate its admittedly sluggish acceptance rate, QuickTime Conferencing 1.5 comes with Netscape's CoolTalk for Mac 1.0, which enables a QuickTime Conferencing user to talk with anyone using any videoconferencing software on any platform — as long as it also supports CoolTalk.

QuickTime Conferencing 1.5 should be available for downloading by the time you read this; go to <http://qtc.quicktime.apple.com/>. / ANDREW GORE

FUTURE TECH

Future Version of Mac OS to Run System 7.5 Apps in Virtual Machine

APPLE WILL CREATE a System 7.5 "compatibility box" for its next-generation operating system, sources said. The upshot is that whatever OS replaces Copland may be more compatible with current software than the previous Mac OS 8 design.

The company reportedly has committed to making a so-called virtual machine — software that will run the entire System 7.5 environment — within its new OS. As a result, sources said, system extensions that would have broken under the previously announced Mac OS 8 are likely to work. Apple had earlier told developers that Mac OS 8 would be incompatible with extensions.

Apple already possesses a Mac OS virtual machine. Macintosh Application Environment 3.0, which was announced at Comdex/Fall '96 in November, runs System 7.5 plus most Mac programs

and extensions on UNIX workstations. However, a new virtual machine may not be ready in time for the first release of Apple's future OS. Apple may introduce other technologies first, including enhanced support for Sun Microsystems' platform-independent Java language.

Many elements of Apple's OS plans are not yet set, sources said, but the goal remains a modern OS that Apple can bring to market quickly with preemptive multitasking, protected memory, and symmetric multiprocessing. Apple reportedly is negotiating with Be over whether to adopt some of that company's BeOS technology. Sources said Apple expects to announce its new OS strategy at the San Francisco Macworld Expo in January. Apple declined to comment. / STEPHEN HOWARD AND THE MACWEEK STAFF

NEW & NOTABLE

SOFTWARE

Poser 2. This upgrade to the popular 3-D figure-modeling and -rendering application now lets you animate figures by using keyframes and inverse kinematics. Body parts can be swapped with imported 3-D objects and individually sized. Other bonuses include improved import/export features and a collection of ViewPoint models. \$240; upgrade, \$69. Fractal Design: 800-325-1270 or 408-430-4200; <http://www.fractal.com/>.

Maconomy 2.8. In this new version, this multi-user job-costing/business-management system has improved access controls, allowable-billing controls, and inventory tracking. A new integrated contact-management module lets you track contact history for each job. \$9,500 and up. Maconomy NE: 508-460-8337; <http://inet.uni-c.dk/~maconomy>.

IsoDraw 4.0. More than 50 new features beef up version 4.0 of this vector-based technical-illustration program, including perspective-projection tools, fills, hot spots, and parallel paths. A new API lets programmers create plug-ins, customize menus, and enhance tools. \$3,600; upgrade, \$595. The IsoDraw Company: 408-260-3450; <http://www.isodraw.com/>.

TeamFlow 4.6. This charting- and document-management network software is now cross-platform and Internet-enabled. Five-user network license, \$995; unlimited users, \$4,900; upgrade, \$89 per user. CFM: 800-647-1708 or 617-275-5258; <http://www.teamflow.com/>.

▼ **The Palace.** Choose a character, or *avatar*, to represent you, and wander from room to room in a virtual-chat mansion. Animation, audio files, silly props, and assorted expressions for your avatar enhance this surreal virtual cock-



tail party. Build your own Palace site, and play the host yourself. \$49.95. The Palace: 503-626-7575; <http://www.thepalace.com/>.

Musicshop 2.0. Improvements in version 2.0 of this entry-level MIDI sequencing software include 32 tracks of multichannel recording, a 32-track mixer, and full Open Music System (OMS) support. Other enhancements include real-time editing and support for QuickTime Musical Instruments. \$149.95; upgrade, \$59.95. Opcode Systems: 415-856-3333; <http://www.opcode.com/>. / BROOKE C. WHEELER

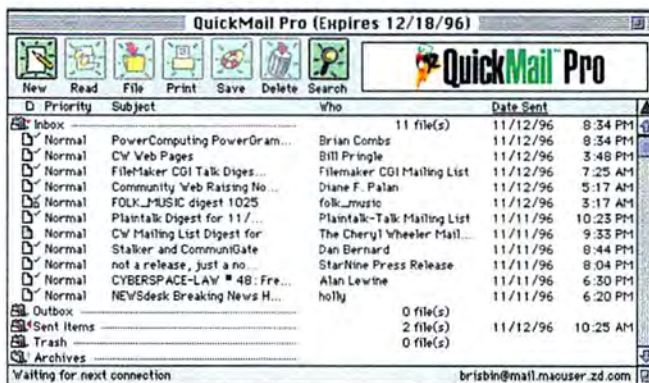
FIRST LOOKS

QuickMail Pro: Familiar Look for Internet Mail

IF THE PLEASANT "ping" of an incoming message or the easy-to-use interface of QuickMail is your idea of e-mail nirvana, you'll probably like QuickMail Pro, CE Software's POP-mail client software. If you're a power user, though, QuickMail Pro may not be up to the standard set by other POP tools.

QuickMail Pro is fundamentally an update of CE Software's familiar LAN-mail application. The address book and preferences dialog box are improved (thank goodness), but everything else looks and feels like the QuickMail of old. Creating, sending, and reading mail are a snap. So is adding a new user to your address book. After you enter a user's name and e-mail address, QuickMail Pro will automatically choose the correct message format and enclosure-encoding method when you select the user's computer type from a pop-up menu — a unique feature that'll be invaluable to e-mail novices.

As attractive as QuickMail Pro seems on the surface, the software suffers from the same limitations as its LAN sibling and doesn't match other POP client software's capabilities. For example, MailManager (which lets you forward, file, and reply to messages automatically) is quite limited: You can



Look familiar? QuickMail Pro's main Internet-mail window is almost identical to that of QuickMail's LAN version.

filter a message according to only one of three criteria. MailManager also copies, rather than moves, filed messages to their intended destination.

New e-mail users and fans of QuickMail may take to QuickMail Pro, but it's doubtful that admirers of Qualcomm's Eudora or Claris E-mailer will want to switch — and MailManager will frustrate even QuickMail diehards. / SHELLY BRISBIN

PROS: Intuitive interface. Supports some Internet Config functions. Fast spelling checker.

CONS: MailManager is severely limited, dialog boxes are modal and heavily layered.

INFO: \$69.95. CE Software: 800-523-7638 or 515-221-1801; <http://www.cesoft.com/>.

Navigator Is Dead; Long Live Navigator

IF YOU THOUGHT the browser war would go on forever, think again. Netscape has announced that it will make Navigator just one small piece of a larger software suite: Netscape Communicator, a suite of communication apps that will take on not only Microsoft Internet Explorer but also groupware products such as IBM's Lotus Notes.

Navigator isn't going away, however. As part of the Communicator suite, version 4.0 will offer support for style sheets, fonts, and precision layout controls that will let HTML authors have unprecedented control over how their pages appear on-screen. Netscape also promises improved support for plug-ins, including the ability to automatically download and install a plug-in when a page requires it.

Other items in Communicator include Messenger, e-mail client software that supports both the POP/SMTP and IMAP protocols and that has an integrated address book, a spelling checker, and filtering capabilities; Collabra, a newsgroup reader designed for intranet discussion areas; Composer, a WYSIWYG HTML editor; and Conference, a teleconferencing application. A "professional edition" of Communicator will add support for group scheduling and shared calendars. Netscape says Communicator will be available for the Mac as well as for Windows and UNIX platforms, but the company has not indicated if some features might not initially make it to the Mac — as with past Netscape software releases. 415-937-3777; <http://home.netscape.com/>. / JASON SNELL

Internet Explorer

3.0: Microsoft's Navigator Killer?

AT FIRST WE JOKED that the original Microsoft Internet Explorer Web browser was merely a lure to help sell Windows 95 to the masses. However, when a Mac version of Internet Explorer 2.0 was released, we rated it higher than Netscape Navigator 2.0 ("Web War," July '96, page 62). Then Netscape introduced Navigator 3.0 — Internet Explorer 2.0 lagged behind it in three key areas: support for frames, JavaScript, and Java. The ability to display frames was added in Internet Explorer 2.1; now version 3.0 adds support for Java and JavaScript. In terms of crash resistance, Internet Explorer's Java support seems to be no worse than that of Navigator 3.0 — which isn't saying much.

Notable in Internet Explorer 3.0, Beta 1, is added support for two new HTML features: cascading style sheets and floating frames. Cascading style sheets allow Web authors to specify fonts, colors, margins, indents, and various other style information for Web pages or entire Web sites. Floating frames let authors embed HTML pages within other HTML pages, just like placing images. Most noticeable in Internet Explorer 3.0 are its customizable tool bars: Drag a hyperlink to a tool bar, and Internet Explorer automatically adds it as a new button.

Although Internet Explorer supports a host of video and audio formats without requiring a plug-in, the beta version we tested couldn't play items on pages designed to use plug-ins. We're also disappointed that file downloads take place in the

browser window itself rather than in a small daughter window, à la Navigator.

On the whole, however, Internet Explorer 3.0 has the potential to leave Navigator 3.0 in the dust. It's small (less than half the size of the Navigator 3.0 application, with less than half the RAM requirements) and fast, was written especially for the Mac OS, and remains compatible with Netscape Navigator while adding support for exciting new HTML features. / JASON SNELL



Microsoft Internet Explorer 3.0 offers a customizable tool bar and support for Java applets.

PROS: Small, fast. Supports Java, new HTML 3.2 features. Customizable tool bar.

CONS: Built-in multimedia support doesn't include support for plug-ins. File-download interface is weak.

INFO: Free. Microsoft: <http://www.microsoft.com/ie/download/>.

Sony Creates the Ultimate DTP Display

YOU MAY NEVER BE SATISFIED with your current monitor again — especially if you're a DTP professional — after you take a look at a display system built around Sony's new superwide 24-inch Trinitron CRT. Sony's GDM-W900, the first monitor based on this new high-resolution "bottle," will be able to display 1,920 x 1,600 pixels in a 16:10 aspect ratio — enough room for QuarkXPress or Adobe PageMaker users to display, side-by-side, two WYSIWYG 8.5-x-11-inch pages with room to spare for control palettes and desktop icons.

In addition to its sheer size, the new tube's innovations include a variable-width aperture grille

(.25 mm in the center and .28 mm at the edges) and a tungsten-impregnated cathode-ray gun that improves focus by doubling the electron beam's density while tightening its width by over 30 percent.

When the GDM-W900 appears in early 1997, expect it to cost around \$5,000 with cable and Mac adapter. That's not cheap, but compare this price with that of Sony's first attempt at a wide-screen desktop monitor, affectionately code-named Shamu, which appeared a few years back — that leviathan weighed in at a cool \$30,000. / RIK MYSLEWSKI

IN BRIEF

Apple Adopts IMAP

APPLE PLANS TO INTEGRATE the fast-growing e-mail standard Internet Mail Access Protocol (IMAP) in future Mac Internet-mail products. IMAP servers provide more control over e-mail by first delivering only mail headers so that users can select which messages to download. Also, the server retains message copies even after download to safeguard against data loss. <http://www.apple.com/>. / BROOKE C. WHEELER

SGI Power Moves to Mac

SILICON GRAPHICS VETERAN Vertigo Technology is bringing Vertigo 3-D software to the Mac in its first move to the desktop market. Based on Pixar's powerful RenderMan technology, Vertigo sports a familiar Mac interface, support for QuickDraw 3D, and seamless movement of scripts between SGI workstations and Macs. \$888. Vertigo Technology: 604-684-2113; <http://www.vertigo3d.com/>. / SCHOLLE SAWYER

Easy Internet Access

PANASONIC AND PROXIMA, using Internet-access technology from Diba, are preparing "information appliances" for release in 1997. Panasonic's LCD-equipped Internet phone will access e-mail and World Wide Web text; Proxima's Internet-enabled projector will connect to the Web for computer-free presentations. <http://www.panasonic.com/>; <http://www.prxm.com/>; <http://www.diba.com/>.

/ BROOKE C. WHEELER

DVD Gets Real

SKEPTICS TAKE NOTE: Digital Versatile Discs (DVDs) are coming soon. Compact-disc manufacturer Kao Infossystems and digital-production house Pacific Coast Sound Works have opened a full-service DVD studio in Hollywood, California, that provides audio and video capture, editing and compression, mastering, replication, packaging, and shipping. Pacific Coast Sound Works can be reached at 800-423-2834 or 213-655-4771. / BROOKE C. WHEELER



NEW & NOTABLE

HARDWARE

Apple Color LaserWriter 12/660 PS. An optimized ROM, 16 MB of additional RAM, and PowerPC-native drivers make the 12/660 PS printer up to 30 percent faster than its predecessor. \$6,000. Apple Computer: 800-776-2333 or 408-996-1010; <http://www.apple.com/>.

Phase One PowerPhase. Capture superhigh-resolution images (up to 7,000 x 7,000 pixels) with this digital-camera back for medium-format cameras. It has light sensitivity equal to ISO 1,600 and flicker-suppression technology that eliminates the need for special studio lights. \$29,990. Phase One: 516-757-0400; <http://www.phaseone.com/>.

Agfa ePhoto 307. This new 24-bit, point-and-shoot, digital color camera lets you capture and store 36 to 72 images in two resolution settings: 640 x 480 pixels for printed documents and 320 x 240 pixels for Web pages, presentations, and e-mail. \$599. Agfa: 800-685-4271 or 508-658-5600; <http://www.agfa.com/>.

Epson PhotoPC 500. Smaller than the original PhotoPC digital camera, the 500 has improved optics, more storage capacity, red-eye reduction, and an optional LCD monitor for preview and playback. \$499. Epson: 800-922-8911 or 310-782-0770; <http://www.epson.com/>.

QMS 2060 Printer Series. These 20-ppm monochrome printers offer up to 1,200-dpi tabloid-sized output and edge-to-edge printing and can duplex-print letter-sized output. \$1,999 to \$5,999. QMS: 800-523-2696 or 334-633-4300; <http://www.qms.com/>.



▲ **In Focus LifePro 220.** This compact portable projector has an 800-x-600-pixel SVGA display, built-in JBL speakers, and a Smart Remote. It supports full-motion video and can project images that range in size from 33 to 250 inches, diagonal. \$7,499. In Focus: 800-294-6400 or 503-685-8888; <http://www.infocus.com/>.

ZBE Satellite. This high-resolution scanner uses movable lights and scanning heads suspended over a platform to scan 3-D objects. It also scans more-traditional materials such as slides and film. \$37,000 to \$42,000. ZBE: 805-564-7891; <http://www.zbe.com/>. / BROOKE C. WHEELER

FIRST LOOKS

Hewlett-Packard LaserJet 5Si Mopier: The Name's Dumb; the Printer's Smart

BEFORE WE APPLAUD the abilities of HP's new multi-talented workgroup printer, we must first flame the name: Mopier (rhymes with *sloppier*, not *dopier*). According to HP, the LaserJet 5Si Mopier does not print, it *mopies* — an unfortunate neologism for making *multiple original prints*. We welcome a device that marries the image quality and convenience of a laser printer with the speed and paper handling of a photocopier, but we feel duty-bound to protest HP's attack on the Queen's English.

Rants aside, our first look at the new LaserJet 5Si Mopier shows that using it can be a cost-effective way of increasing the productivity of a midsized workgroup. As its name implies, the Mopier is built on the solid foundation of a LaserJet 5Si MX, which got four mice in our review in April '96 (page 88). The Mopier shares with the 5Si MX a 600-dpi, 24-ppm engine; outstanding text quality and very good grayscale-image quality on tabloid, letter, and intermediate-sized paper; and the ability to accept print jobs from Mac OS as well as



The LaserJet 5Si Mopier bridges the gap between a workgroup printer and a midvolume photocopier.

PC sources. To the 5Si's two 500-sheet auto-size-sensing paper trays and one 100-sheet multipurpose tray, the Mopier adds a 2,000-sheet tray; a duplexing unit; and — most impressively — five individually addressable output trays, a sixth tray for stapling A4 and letter-sized output, and a seventh standard-output bin.

In our preliminary tests, the Mopier froze once when bombarded by multiple network jobs but generally

obeyed our complex print-handling commands after we decoded its somewhat arcane on-screen interface. Overall, we found the Mopier's ability to duplex-print, sort, and staple moderate-length documents a welcome relief from the long lines at MacUser's overworked photocopier. / RIK MYSLAWSKI

PROS: Excellent range of paper-handling options. Very good image quality. Fast.

CONS: Driver software suffers from clumsy interface. Loud.

INFO: \$9,459. Hewlett-Packard: 800-752-0900; <http://www.hp.com/>.

Rewritable CD-ROMs to Appear Soon

FIVE INDUSTRY HEAVYWEIGHTS recently gave their blessing to a new technology — *CD-ReWritable*, or *CD-RW* — that aims to bridge the gap between current CD and upcoming ultrahigh-capacity DVD (*digital versatile disc*) technologies. Jointly announced by HP, Mitsubishi/Verbatim, Philips, Ricoh, and Sony, the CD-RW physical format (also known as Orange Book III), coupled with the cross-platform UDF (*Universal Disk Format*) 1.5 file format, will let inexpensive CD-RW drives write, read, erase, and rewrite individual files to and from 650-MB phase-change compact discs, directly from the Finder. Expect CD-RW drives to be available in early 1997 for below \$1,000, dropping quickly to sub-\$500 levels as shipments increase; discs should cost under \$25.

There's one major catch: Due to the much lower reflectivity of CD-RW discs, CD-ROM and CD-R drives won't be able to read them. To remedy this, the five-company consortium has endorsed a new drive-design specification, MultiRead, developed by Philips and HP. MultiRead drives will be able to read CD-ROMs and discs written by CD-R and CD-RW drives. Consortium members have pledged that their DVD drives will conform to MultiRead.

CD-RW technology will finally bring Finder-level read/write/rewrite capability to CD-ROM drives, but its life span will likely be limited to the few years before DVD becomes ubiquitous — early in the next millennium. Before then, MultiRead CD-RW drives will likely replace CD-R as well as Panasonic/Toray PD drives. / RIK MYSLAWSKI

NET.CETERA

Web Wandering Reduced

Two new ways to navigate the World Wide Web make surfing more productive.

THE WORLD WIDE WEB is so vast that even the heartiest Web surfer can't be expected to have visited even a fraction of its sites. Search engines and catalogs can be of some help, but which items they identify depends on the whim of the search engine's algorithm or the catalog's category system.

To the rescue come trains and rings, two new navigation systems that make the Web a little more linear, a little more accessible — and a lot more productive. Both of the systems link related pages in sequence, like beads on a necklace. You move between them by clicking on forward or backward buttons that are common to each page.

The Rail (<http://www.therail.com/cgi-bin/station>) uses a railroad metaphor: Clicking on a railroad-track icon moves you between sites. The Rail provides several different *trains*: One of them takes you on a tour of high-tech sites; others lead

through entertainment sites and even children's sites — a great way to have your kids safely surf the Web.

Even more effective is the WebRing system (<http://www.webring.org/>), in which *rings* of sites are based on various subject categories. From the WebRing home page, you can begin exploring any

ring, click through dozens of sites, and eventually end up where you began. Fortunately, there's still some serendipity involved: WebRing's categories are so broad that you'll always find great sites you never knew existed. (A similar concept, the World Wide Web Tour [<http://www.derossi.com/tour/tour.tg>] is the Internet version of a wine tasting: The order of sites has been chosen to provide a mix of the humorous, the serious, and the bizarre. Accessing it is also a great way to find fascinating sites you would never ever look for in a search engine.)

These systems don't benefit just surfers — Webmasters of sites on a train or ring also benefit by attracting visitors who might otherwise have never found their site. All you have to do to join either system (or both — they're not mutually exclusive) is fill out a form at a Rail or WebRing site and add the appropriate links to your Web page. / JASON SNELL



Creative Speed-Bumping

DON'T ATTEMPT TO TELL telecom engineers that telephone and ISDN lines have speed limits — they're bound and determined to cram more and more data into every last bit of bandwidth.

For example, although Farallon's second-generation Netopia ISDN Modem (\$495) boasts a 230-kbps serial port (double that of the original Netopia's 115-kbps port), an ISDN BRI (Basic Rate Interface) maxes out at a mere 128 kbps. However, Farallon exploits the extra port power by using a 4-to-1 compression scheme from Stac Electronics, coupled with Apple's PowerPC-native update to the SerialDMA driver (included in System 7.5.3 Update 2). According to Farallon, any Mac with GeoPort-enabled serial ports (all PowerPC-based systems, all AV Macs, and some Performas) and current system software will benefit from the Netopia ISDN Modem's 230-kbps

serial port. 510-814-5000; <http://www.farallon.com/>.

Similarly, U.S. Robotics (USR) claims that its new x2 technology can trick a standard phone line into carrying a full 56 kbps — with two catches, however: First, both ends of the connection must use x2-compatible equipment from USR. Second, 56-kbps transfers are asymmetric: Although data coming from an Internet service provider or a corporate remote-access server moves at x2 speeds, data sent by the consumer-grade modem — that's yours — moves at traditional V.34 speeds. USR expects to have x2 upgrades available in early 1997 for all Courier V.34 and I Modems as well as for V.34-based Sportster products that are purchased after August 15, 1996. Upgrade pricing has not yet been announced. 800-342-5877 or 847-470-2010; <http://www.usr.com/>.

/ SHELLY BRISBIN

The Geek Beat

INTERNET. Progressive Networks, Netscape, Apple, and approximately 40 other companies have lined up behind a proposed multimedia streaming standard, RTSP (Real-Time Streaming Protocol). Developed by Netscape and Progressive Networks, maker of RealAudio, RTSP defines the connection between streaming-media clients and servers and is making its way through the IETF (Internet Engineering Task Force) standard-ratification process.

Pictorius' new CGI Toolkit is a development environment meant for CGI-application (Common Gateway Interface) authors. The package also includes the company's Web-server software and an HTML editor, all for \$149. 800-927-4847 or 902-492-2880; <http://www.pictorius.com/>.

PageSentry and PageSentry Pro, from Maxum Development, keep tabs on Mac-based Web servers. Version 2.0 adds monitoring of FTP, SMTP (e-mail), DNS, and Telnet services and can notify an administrator or Webmaster of trouble via pager or e-mail. PageSentry (\$149) and PageSentry Pro (\$395) differ in the number of Internet services that can be monitored. 708-830-1113; <http://www.maxum.com/>.

JAVA. ActionLine might be called a WYSIWYG Java editor. ActionLine lets you drag and drop elements into a window to create Java applets that contain animation, scrolling text, or images. The applets can then be incorporated into standard HTML pages, for viewing by Java-enabled browsers. The introductory price is \$99. Interactive Multimedia: 415-948-0745; <http://www.imcinfo.com/>.

CROSS-PLATFORM. Biscom has released Mac client software for its FAXCOM enterprise fax servers. FAXCOM for LAN and FAXCOM for cc:Mail server applications run on Windows NT, Novell NetWare, and other servers. Mac users can send faxes to the server from within their Mac applications. Prices begin at \$495 for a five-user client pack. 800-477-2472 or 508-250-1800; <http://www.biscom.com/>. / SHELLY BRISBIN

NEW & NOTABLE

RESOURCES

FASTedit/LRG. Open Macromedia xRes LRG files directly in Adobe Photoshop. This Photoshop plug-in eliminates file translation and lets you go right to image editing. \$99. Total Integration: 847-776-2377; <http://www.totalint.com/>.
mBED Interactor. Create interactive, streaming multimedia interfaces, called mbedlets, for the Web. Plug-in players for Navigator and Java let Web surfers experience these animated interfaces. Free beta available as of November 1996. mBED: 415-778-0930; <http://www.mbed.com/>.
PictureAlbum. Create digital photo albums with text and audio annotation. You can post



albums on the Web, and a free viewer lets Web surfers browse your images. \$99. Media Minds: 619-453-3133; <http://www.mediaminds.com/>.
LightningDraw Electric. Create Web content for QuickDraw GX-based Electrifier. Tools for drawing, font and color management, and special effects are geared for optimized Web graphics. Free download. Lari Software: 800-933-7303 or 919-968-0701; <http://www.larisoftware.com/>.

Interactive Workshop. Create your own interfaces for working intuitively in Macromedia's Director by changing Lingo scripting to point-and-click. \$179. Multi-Media Publishing: 847-697-0990; <http://www.mediastuff.hollowww.com/>.
Spring Cleaning. This set of eight housekeeping utilities for cleaning up your hard disk includes MacUninstaller, Alias Resolver, Application Slimmer, Prefs Cleaner, and Font Remover. \$69. Aladdin Systems: 800-732-8881 or 408-761-6200; <http://www.aladdinsys.com/>.

The Chat Network. First, use this Java applet to create a chat section on your Web page. Then run that section on EarthWeb's server. You can download the applet, or join chats on other pages, from EarthWeb's Web site. Free beta; final version available in early 1997. EarthWeb: 212-725-6550; <http://chat.earthweb.com/>.
3D-PIX. This gallery of more than 120 stock 3-D images is in low- and high-resolution TIFF and JPEG file formats. \$99. Cause & Effect Productions: 800-962-2998 or 619-578-8332; <http://www.3dpix.com/>. / BROOKE C. WHEELER

PowerBook for the Disabled

Customized PowerBook 5300s with multiple controls find new life as innovative laptops for the disabled.

THE FIRST MAC OS system specifically designed for disabled users will make its debut in March. The Freestyle, from Assistive Technology (ATI), is a touch-screen-equipped tablet and is intended to accommodate people with either physical or learning disabilities.

Built on a PowerBook 5300 motherboard, the Freestyle has dimensions similar to those of the top half of a standard PowerBook (11.5 x 9.75 x 1.875 inches). Instead of having a keyboard and a trackpad, however, the Freestyle supports multiple control options, including voice and touch, and includes ports for switches and joysticks used by those people who cannot manipulate traditional input devices. Designed to fit a standard wheelchair tray, the Freestyle also has screen-magnification software and can be used as a Telecommunications Device for the Deaf (TDD).

Like a standard PowerBook 5300, the Freestyle contains a 100-MHz 603e processor, a 750-MB hard disk, 16 MB of RAM, a PC Card slot, and the usual complement of peripheral ports. The screen is a 10.4-inch active-matrix LCD. Unlike its PowerBook parent, the Freestyle also has a 6x CD-ROM drive and stereo speakers.

Apple's Knowledge Navigator authoring system and GUI, once touted as a potential Finder successor, surfaces in the Freestyle as a customizable

environment that resides atop the Finder. Because it uses pictures to represent the environment and as hot links to applications, it's particularly well suited to the needs of users with learning disabilities. Users can customize the interface to represent their own physical surroundings and can open an application by touching a picture that represents it. The Knowledge Navigator can also be controlled by voice, using Apple's PlainTalk speech recognition, which comes preinstalled.

ATI and frogdesign developed the Freestyle with input from Apple's Disability Solutions group and



will market the system to rehabilitation professionals, occupational therapists, and others who work with disabled clients. The base system is \$4,995, with optional Knowledge Navigator applications available to support users with specific disabilities. 800-793-9337 or 617-731-4900; <http://www.assistivetech.com/>. / SHELLY BRISBIN



THE OFF BEAT

Solar So Good

THAT BIG, GASEOUS BALL up there can give your PowerBook 1400 more energy — slip a PowerCover solar panel into your 1400's BookCover. The panel provides up to 3.3 watts of energy, which can fully recharge the battery in 12 hours. The more direct sunlight, the better. A PowerCover may be just the reason you need to schedule your next business trip in an equatorial paradise. Keep It Simple Systems: 800-327-6882 or 406-442-3359; <http://www.wildwestweb.com/>. / NANCY PETERSON

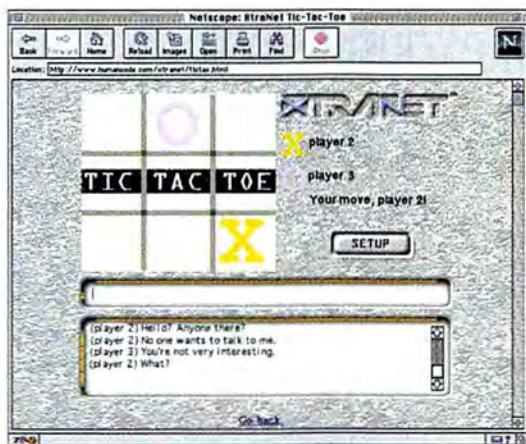
Easy Web Multimedia

XtraNet plug-in for Macromedia's Director eases Web interactivity.

MULTIPLAYER GAMES, Web-savvy CD-ROMs, interactive chat rooms — the Web is about to become a much more multimedia-rich place, thanks to XtraNet, a new \$399 plug-in, or Xtra, for Macromedia's Director. XtraNet lets developers use Lingo (Director's scripting language) to add interactive features to multimedia projects that could previously be developed only by using complex C++ code, and such projects can be made accessible through popular Internet browsers such as Microsoft Internet Explorer and Netscape Navigator.

Royalty-free XtraNet adds support for common Internet protocols such as HTTP, FTP, and SMTP to Director-made projects. Using Director and XtraNet, a developer could, for example, create a CD-ROM that automatically calls a Web site to upload or download new information or could develop a science CD-ROM for students and a teacher to share over an intranet. As the teacher shifted a slide on a virtual microscope, the server would update what the students saw on their screens.

If you're worried about overloading the server, XtraNet can also help by letting users hook up with one another directly. XtraNet includes a special



XtraNet, a new Director Xtra, gives developers the ability to add Internet interactivity to multimedia projects, thus allowing, for example, two people to play this tic-tac-toe game across the Web while talking in a chat box.

protocol that lets gamers meet on the server, disconnect, and then talk directly through their own machines.

To take advantage of XtraNet on the Web, you must download both the XtraNet and Shockwave browser plug-ins. You can find demo games at developer Human Code's Web site (<http://www.humancode.com/>). g/matter: 415-243-0394 or 800-933-6223; <http://www.gmatter.com/>. /SCHOLLE SAWYER

MACINTOSH PRICE INDEX

THE UNITED COMPUTER EXCHANGE index reflects average sales prices of new and used Macs as of November 5, 1996. Prices (other than those for compact models, Performas, and LCs) do not include a monitor or a keyboard. The United Computer Exchange is a national clearinghouse of used microcomputer equipment.

MAC MODEL	NEW	USED
Classic II (4/40)	•	\$275
LC III (4/80)	•	\$225
Performa 5215CD (8/1GB)	•	\$1,200
Performa 6220CD (16/1GB)	•	\$1,100
Ilisi (5/80)	•	\$225
Ilisi (4/80)	•	\$250
Ilifx (4/80)	•	\$300
Quadra 610 (8/160)	•	\$425
Quadra 630 CD (4/250)	•	\$550
Quadra 650 (8/230)	•	\$625
Quadra 800 (8/230)	•	\$850
Quadra 8400 (8/230/CD)	•	\$1,050
Quadra 950 (8/230)	•	\$900
Power Mac 6100/66 (8/350/CD)	•	\$700
Power Mac 7100/80 (8/700/CD)	•	\$950
Power Mac 7200/90 (8/500/CD)	•	\$1,000
Power Mac 7500/100 (16/1GB/CD)	•	\$1,500
Power Mac 8100/100 (16/1GB/CD)	•	\$1,550
Power Mac 8500/120 (16/2GB/CD)	•	\$2,400
Power Mac 9500/132 (16/2GB)	•	\$2,250
PowerBook 165c (4/80)	•	\$775
PowerBook 180 (4/80)	•	\$725
PowerBook 190cs/66 (8/500)	\$1,199	\$1,100
PowerBook 520c (4/160)	•	\$975
PowerBook 540c (4/320)	•	\$1,650
PowerBook 5300cs (8/100)	•	\$1,700
Duo 250 (4/200)	•	\$625
Duo 280c (4/320)	•	\$1,150
Duo 2300c/100 (8/750)	\$1,699	\$1,475
Power Computing Power 100 (16/1GB/CD)	•	\$875
Power Computing PowerWave 604/150 (8/1GB/CD)	•	\$2,000

• = discontinued model

For more pricing information on these and other models, call 800-755-3033 or 770-955-0569 or visit <http://www.uce.com/>. And find it on ZD Net, in Library 1 (Special Reports) of the MacUser Forum (GO ZMC :MACUSER).

CD-ROMS

Country, Jazz, and Monkees Art

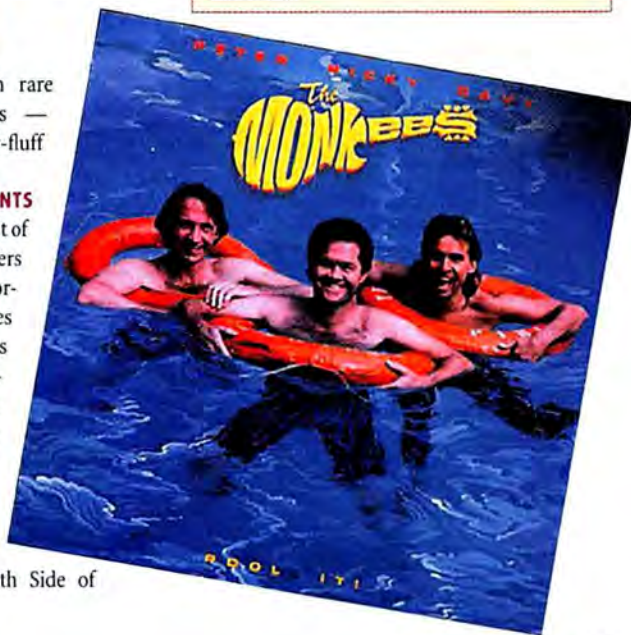
ALL MUSIC FANS SHOULD check out these three new releases, each linked to a corresponding Web site and each from Graphix Zone: 800-828-3838 or 714-833-3838; <http://www.gzone.com/>.

WILLIE: THE LIFE AND MUSIC OF WILLIE NELSON. Don't ask why, but there's now a CD-ROM devoted entirely to Willie Nelson's life and music. For example, did you know that he wrote Patsy Cline's classic "Crazy" and almost sold it for a hundred bucks? Hungry once, Willie? Although his singing voice can be more than irritating, the CD-ROM is full of tidbits tracing the four decades of his career. Thankfully it doesn't take that long to wade through the disc.

UNDER THE COVERS ▶ If you wistfully sigh when you hear the words *Haight Ashbury*, you're sure to puddle up over this exploration of rock-and-roll history as told through album cover art. Crosby Stills & Nash, The Doors, The Monkees, and

others are featured through rare photographs and interviews — including one with country-fluff crooner Dan Fogelberg.

HERBIE HANCOCK PRESENTS LIVING JAZZ. By far the richest of the three titles, Herb's disc offers not only some rare performances by Charlie Parker, Miles Davis, and Coleman Hawkins but also a comprehensive history of America's only true native musical form, jazz. The interface is truly funky — in the best possible sense — and a wonder to experience as you roam from Storyville in New Orleans to the South Side of Chicago. /LAMONT RIDGELL



Breaking the Speed Barrier

MacUser Labs takes an exclusive look at Power's prototype 300-MHz system.



POWER COMPUTING has done it again. The first company to ship a 225-MHz Mac OS system, and then the first to ship a 240-MHz one, has developed a prototype system that hits the 300-MHz mark. 300 MHz! Intel, eat your heart out.

According to IBM and Motorola's PowerPC road map, 300-MHz chips weren't due until the end of 1997; now it looks as if they may arrive as much as a year early. Although we've seen demos of Exponential's 500-MHz X704 chip (see "PowerPC Speeds Increase Exponentially," January '97, page 19), systems based on those chips aren't expected to ship until well into 1997. Part of the delay — the chips themselves are expected to be ready by the end of 1996 — is that chips that fast can't fully flex their muscles with today's logic-board designs. To take advantage of 500-MHz chips, system vendors need to design logic boards with much faster memory buses than are currently available on Mac hardware. To some extent, this is true of 300-MHz processors too, but by pushing one of its existing logic-board designs to the limit, Power has been able to take advantage of the higher clock speed.

Road Test

When *MacUser* heard the news of Power's new system, we couldn't resist the temptation to rush over to Power Computing's Cupertino office and

test a prototype (the system is not yet shipping). And test it we did, with our brand-spanking-new version of MacBench, the industry-standard benchmark suite for measuring the speed of Mac OS systems (see the "Introducing MacBench 4.0" sidebar).

Before you get too excited, we should tell you that the processor in Power's new system isn't a top-of-the-line PowerPC 604e, the chip at the heart of Power's high-end PowerTower and PowerTower Pro systems. Rather, it's a 603e, like those in the company's low-end PowerBase models.

But a 300-MHz 603e is anything but low-end. On MacBench 4.0's Processor test, the PowerCenter 300 (the tentative name for Power's new system) bested what was hitherto the fastest Mac around — the PowerTower Pro 225 — by more than 5 percent (see chart). This system really packs a wallop. And Power plans to outfit it with high-speed graphics hardware and a fast SCSI bus to boot.

It might seem that Power would debut the new chip in models aimed at publishing, video, and multimedia professionals. Not so. The plan is to roll out this new processor in midrange systems for the business market. And they'll come with a price to match. Expect the PowerCenter 300 to enter the market at under \$3,000, rather than in the \$4,000-to-\$5,000 range of the PowerTower Pros. Power also plans to ship the PowerCenter in 240-

MHz 603e and 270-MHz 603e configurations.

Power Computing hopes to demo its new speed demons at Macworld Expo in January and to begin shipping them to customers sometime in the first quarter of 1997.

Speed Racers

To see how these new 240-MHz and 300-MHz systems stacked up (a 270-MHz system wasn't available), we compared them with some of Power's PowerBase, PowerTower, and PowerTower Pro models. The results are an intriguing study in how different aspects of a Mac system's design can affect processor performance — just the type of thing MacBench excels at revealing.

For example, the PowerCenter is based on Apple's Catalyst logic-board design, which is also the basis of the Power Mac 7200/120. But whereas Apple runs the memory bus on the 7200/120 at 40 MHz, Power has pushed its speed to 60 MHz on its new models. That means data can move between the processor and RAM 50 percent quicker, so the processor can be more productive. And that translates to better performance for users.

You can see the impact of memory-bus speed by comparing the PowerCenter 240's Processor Score with that of the PowerBase 240. Both systems employ 240-MHz 603e processors, but the PowerCenter 240 has a 60-MHz bus and the PowerBase 240 has a 40-MHz bus. The faster bus yields a 38-percent speed improvement. (The L2 cache of the PowerCenter 240 we tested is twice as big as the standard PowerBase 240 configuration — 1 MB versus 512K. This also affects processor performance.)

Introducing MacBench 4.0

THIS ISSUE OF *MACUSER* INAUGURATES MACBENCH 4.0, the latest version of our industry-standard Macintosh benchmark suite, developed in conjunction with the Ziff-Davis Benchmark Operation (ZBOp).

Like previous versions, MacBench 4.0 lets you easily measure the speed of the processor/RAM, FPU, disk, graphics, and CD-ROM subsystems of Mac OS systems. But there are key changes in MacBench 4.0:

SCORES. Like MacBench 3.0, this release produces results normalized to those of a baseline machine. But to keep up with the changing market landscape and to accommodate a new publishing-graphics test, we added a 2-MB VRAM card to the last version's Power Mac 6100/60 baseline machine. Scores are set to 100 rather than 10 as in the past. Because of the many differences between MacBench 4.0 and 3.0, there's no valid way to compare the scores of the two versions, which the different scoring systems should help emphasize.

GRAPHICS TEST. MacBench 4.0's main graphics tests — both regular and publishing — use a new ZBOp technology, playback. Proprietary ZBOp tools let developers record the QuickDraw calls a series of applications made and then

play them back. The result is that when you run MacBench 4.0's graphics tests, what you see looks as if the actual applications are running.

VIDEO TESTS. The new full-motion-video tests in MacBench 4.0 involve any video hardware and drivers plus the codec. They include clips for the CinePak and Motion JPEG-A codecs as well as an uncompressed clip and the ability to run a clip of your own. You can run two tests for each clip: The Maximum Frame Rate test plays the movie as quickly as possible without sound. The Percent Frames Played test plays the clip with sound at the correct speed and records what percentage of the frames the system was actually able to play.

CD-ROM TEST. MacBench 4.0 also includes an improved CD-ROM-playback test that is more like running typical CD-ROM applications. One consequence of this change is that the test is much less sensitive to CD-ROM caching than MacBench 3.0's CD-ROM Mix test.

You can check all the tests out by getting your own copy of the benchmark suite. To request a CD-ROM, send \$5 (\$6 Canada; \$7 international) to Ziff-Davis Benchmark Operation, 1001 Aviation Parkway, Suite 400, Morrisville, NC 27560, Attn.: Distribution Coordinator. Or download an abbreviated version from <http://www.zdbop.com/>. / MARK L. VAN NAME AND BILL CATCHINGS



PHOTOGRAPHY / JIM KARAGEORGE

You can see a similar bus-speed effect if you compare the Processor scores of the PowerTower 180e and the PowerTower Pro 180. Both use the same processor, a 180-MHz PowerPC 604e. However, the PowerTower 180e, like the PowerCenter 240 and 300, is based on the Catalyst architecture and also has a 60-MHz memory bus. Ironically, the PowerTower Pro, which is based on Apple's high-end Tsunami logic-board architecture (on which the Power Mac 9500 is also based), is limited to a 50-MHz bus. (Actually Power pushes it just a hair past 50 MHz; the PowerTower Pro 180 has a 51.4-MHz memory bus.) The result: The PowerTower 180e out-runs the PowerTower Pro 180, by about 6 percent.

As Power puts the final touches on its new PowerCenter

models and gets closer to shipping them, we'll bring you a more complete report on their capabilities. In the meantime, if you'd like to see a full set of MacBench 4.0 scores for systems currently

shipping from Apple, Motorola, Power, and UMAX, we invite you to take a look at our updated online CPU Report Cards at <http://www.zdnet.com/macuser/cpu.html>. / HENRY BORTMAN



TAKING THE LEAD / a Power prototype passes its peers

Using our new MacBench 4.0 Processor test, we found that the prototype PowerCenter 300 we tested edged out the PowerTower Pro 225, the previous holder of the Fastest Mac OS System title, by more than 5 percent. MacBench 4.0 scores are relative to those of an Apple Power Macintosh 6100/60, which scores 100 on all MacBench 4.0 tests. This baseline system contains a PowerPC 601 processor running at 60 MHz, a 30-MHz memory bus, and no L2 cache.

	POWERPC-PROCESSOR TYPE	PROCESSOR CLOCK SPEED	MEMORY-BUS SPEED	INSTALLED L2 CACHE	MACBENCH 4.0 PROCESSOR SCORE
PowerCenter 240 (prototype)	603e	240 MHz	60.0 MHz	1 MB	426
PowerCenter 300 (prototype)	603e	300 MHz	60.0 MHz	1 MB	485
REFERENCE SYSTEMS					
PowerBase 240	603e	240 MHz	40.0 MHz	256K	308
PowerTower 180e	604e	180 MHz	60.0 MHz	1 MB	438
PowerTower 200e	604e	200 MHz	57.1 MHz	1 MB	456
PowerTower Pro 180	604e	180 MHz	51.4 MHz	1 MB	415
PowerTower 200	604e	200 MHz	50.0 MHz	1 MB	451
PowerTower Pro 225	604e	225 MHz	45.0 MHz	1 MB	461

■ Best performer in test

SCORE BETTER

ONLINE

HEARD ON THE NET

"You know the 'Shutdown' DA, which Apple includes with System 7.5? Make a copy, and put it in 'Startup Items' in your System folder."

— A cruel prank from Ben Running's Mac Hacks page (<http://www.skidmore.edu/~brunning/machacks.html>)

Mouse Improvement

GOOD INTERFACE DESIGN and ease of use have always been Mac hallmarks, but even Apple doesn't have all the answers. Several OS enhancements have been conceived by shareware authors; in fact, Apple's own Find File started life as *MacUser's* utility of the month Find Pro III. Good shareware can make the Mac experience much easier and more efficient, as these low-cost items prove:



Richard C. Cardona's \$5 **Click, there it is!** (🐱🐱🐱) keeps you from having to navigate your folder hierarchy from within Open and Save dialog boxes. Once you've installed the extension, clicking on any open Finder window automatically displays that folder's contents in the dialog box.

St. Clair Software's \$25 **Default Folder** ▼ (🐱🐱🐱) adds a pop-up menu of recently visited folders to your file dialog boxes, along with several other



useful dialog-box enhancements. Trevden Sherzell's \$5 **Snap-To** (🐱🐱🐱) automatically repositions your cursor over the default button

every time you open a dialog box.

If you have a large monitor and keep a lot of Finder windows open simultaneously, Jouko Pakkanen's free **TitlePop** (🐱🐱🐱) may be just what you're looking for. It adds a pull-down menu to the title bar of each open Finder window, allowing you to bring forward any other open Finder window or currently running application.



And if you're tired of mousing across a 21-inch monitor to reach the other side of a Finder window's scroll bar, try Edward Voas's \$10 **DoubleScroll** (🐱🐱🐱), which puts up and down arrows on both ends of scroll bars.



Left-out lefties and cursor cravers can try Mike Stith's free **Lefty Cursor** (🐱🐱🐱) or Wilhelm Plotz's free **CursorAnimator** (🐱🐱🐱), each of which provides left-handed cursors — the arrow points to the *right*. CursorAnimator does a whole lot more than this, including letting you replace any of the standard system-software cursors (arrow, watch, text, crosshair, and plus) with static or cool animated cursors. (Download these files from <http://www.zdnet.com/macuser/0297.html#online>.) / JODI NAAS

MACUSER UTILITY OF THE MONTH

The Reading Rodent Returns

MACUSER'S TALKING MOUSE was such a popular utility — at last count, over 30,000 people had downloaded it — that we've brought it back for more. This month's free *MacUser* utility is Reading Mouse, which reads to you, using Apple's PlainTalk technology, from text you paste or drag and drop from other Mac applications. A customizable animated character reads anything you give it and even highlights your text word by word or line by line as it reads, a great

tool for people just learning to read, people with vision problems, or people who simply want to lean back and let someone else do the reading for once.

Written by Robert McNally, Reading Mouse is available, as of December 30, exclusively from *MacUser's* homes on CompuServe (GO ZMC:MACUSER), on the Web (<http://www.zdnet.com/macuser/software/>), and on America Online (keyword MACUSER).



ONLINE POLL

Q. It's really easy to copy computer software — but it's also illegal. Do you use pirated software? If you do, how much of your software library wasn't obtained legally?



To participate in *MacUser's* online polls, go to <http://www.zdnet.com/macuser/poll.html>.

MACUSER AOL-CHAT CALENDAR

DATE	TIME	EVENT
January 14	8 P.M. EST	Cover Story: Fast New CPUs
January 30	8 P.M. EST	Help Folder with Bob and Chris: Your Mac questions answered

All events will take place on America Online at keyword CCLIVE. Times and guests are subject to change. For up-to-date event information and locations, check out keyword MACUSER or <http://www.zdnet.com/zdi/talk/talkcal.html>.

MACUSER ONLINE

Web: <http://www.macuser.com>

AOL: keyword MACUSER

CompuServe: GO ZMC:MACUSER

Send letters to the editor to letters@macuser.com.

To subscribe to the *MacUser* Web bulletin, e-mail macuserweb@macuser.com, using the subject *subscribe*.

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

pilot™
The one touch organizer

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>.

*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

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.

How to Improve Your OCR Accuracy and Save Big \$\$\$

Caere Corporation (NASDAQ: CAER) recently announced an upgrade that makes the OmniPage Pro optical character recognition (OCR) engine software available for an estimated street price of only \$129. This is an inexpensive way for scanner users to step up to fully-featured OCR products (including those bundled with flatbed and edge-feed products) can upgrade to the full version of OmniPage Pro at \$129.

OmniPage Pro has a separate upgrade package available through Computer City, Egghead, and Best Buy. Since the vast majority of Caere OCR, most scanner users are eligible to upgrade at this price.

The large number of scanner manufacturers that bundle Caere OCR (Microtek, Canon, Plustek, Umax, Nikon, Agfa, Logitech, Reliance, etc.) are eligible for the upgrade.

The upgrade program includes OmniPage Pro 6.0 (Windows 3.1 and 7.0 (Windows 95), which offer all the capabilities of the bundled software for extended functionality. Most notable among them are high-contrast "zoning" and preprocessing of scanned images, verification of the Page technology, and the retention of the original page formatting, which as OCR training and deferred processing capabilities.

The Changing OCR Market: In the not so distant past, OCR required expensive and OCR software that was often difficult to use and provided. These issues were frustrating and limited the use of OCR to high-volume vertical markets. The use of desktop OCR was limited to the "early adopters."

"Today, several trends are contributing to the widespread use of OCR," said Chad Kinzelberg, Caere's vice president of marketing. "The program is another major factor that will promote the use of OCR. As more and more occasional OCR user will find Caere software more attractive because it is so cost-effective."

Analysts following the OCR market agree that OCR use is on the rise and industry trends promoting its mainstream adoption:

Higher Customer Awareness: An increased number of computer users are becoming more aware of the time and money saving benefits it provides.

Higher Scanner Penetration: Scanners prices have dropped drastically in the last few years with many flatbed gray-scale scanners available for under \$500. Also, attractive, new scanner form factors (such as the small-footprint sheet-fed scanners) and multifunction devices have entered the market.

Increased OCR Accuracy: OCR developers have developed high accuracy OCR technology for increased output. The greatest improvement has been made on degraded and hard to read documents.

Improve Your OCR and Save Big \$\$\$

Higher Scanner Penetration:

Scanner prices have dropped drastically in the last few years with many flatbed gray-scale scanners available for under \$500. Also, attractive, new scanner form factors (such as the small-footprint sheet-fed scanners) and multifunction devices have entered the market.



Low cost scanners entering the market have helped push OCR use to a new level.

Increased OCR Accuracy:

OCR developers have developed high accuracy OCR technology for increased output. The greatest improvement has been made on degraded and hard to read documents.

Pricing and Availability:

OmniPage Pro 7.0 (Windows and Mac) and WordScan Plus 4.0 (Windows) upgrade packages are immediately available at major resellers for an estimated street price of \$129.

The Company:

Caere Corporation, with U.S. headquarters in Los Gatos, Calif. and European headquarters, Caere GmbH, in Munich, Germany, is a leader in OCR technology and desktop document management products. Caere has recently expanded its product line of OCR

continued on next page

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.



www.caere.com

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.



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



*Suggested price US\$—subject to change. Void in US & Canada only. Caere, the Caere logo and OmniPage Pro are registered trademarks and AutoOCR Toolbar is a trademark of Caere Corporation. © 1994. All other names are the property of their respective holders.

CIRCLE 99 ON READER SERVICE CARD

REVIEWS

Mac OS Systems

**Apple Performa
6360CD**



**UMAX SuperMac
C600/240**



Home-system rivalries heat up,
and users stand to win.



THE ACTION HAS SHIFTED on the

Mac OS battlefield. After months of one-upmanship on the high ground, with the introduction of ever faster systems based on the top-of-the-line PowerPC 604e chip, competition is heating up on another plain — the home market. Two new systems based on chips in the less powerful (and less expensive) PowerPC 603e family appeared in time to vie for holiday-shopping dollars, and both make compelling choices: Apple's latest Performa system, the monitorless 6360CD, runs at 160 MHz and appeals to the pocketbook with a great software bundle and an attractive price (\$1,499 estimated street). The SuperMac C600/240 minitower (\$2,295 list), meanwhile, offers impressive speed at 240 MHz plus expandability and lots of hardware extras in UMAX's first home-oriented system — and what may be its first winning system design.

The Performa 6360CD and the SuperMac C600/240 share many features that make them good, solid systems for home use: Both ship with 8x CD-ROM drives, built-in 28.8-kbps data modems (with 14.4-kbps fax capability), and speakerphone/answering-machine software. Both come with 1 MB of video RAM on the motherboard, to deliver built-in video support for thousands of colors at a resolution of 600 x 400 pixels (or 256 colors at 832 x 624 pixels). Both come with starter software for instant connections to the Internet (the Performa via Apple's Internet Connection Kit,

The Apple Performa 6360CD desktop system and the UMAX SuperMac C600/240 minitower.

the SuperMac via Earthlink Network Total Access). And both come with generous software bundles that include ClarisWorks; Intuit's Quicken Special Edition; calendar and contact-manager programs; Web-authoring software; and reference programs, including an interactive atlas and Grolier Multimedia Encyclopedia.

What Sets Them Apart

With the Performa 6360CD, Apple wisely decoupled the computer from a bundled (or built-in) monitor, to allow better comparison of its systems against rival clones. Viewed in this light, the 6360CD stacks up respectably against its competitors. Its 160-MHz PowerPC 603e processor won't break any speed records, but with its included 16 MB of RAM and a 1.2-GB Quantum IDE hard-disk drive, it runs basic home-productivity software and office-productivity programs easily, with respectable snappiness. Still, it's no match for the SuperMac system: With its 240-MHz processor, 24 MB of RAM, and 2.1-GB IBM IDE hard drive, it beat the 6360CD's scores by at least 50 percent on all our speed tests except those of storage subsystems —

the hard-disk drive and CD-ROM tests. And it won the storage tests as well, albeit by a smaller margin.

The Performa 6360CD and the SuperMac C600/240 bested Apple's low-end business-class system, the PowerPC 601-based Power Mac 7200/120, on our processor test. The 7200 admittedly is showing its age, and fire-sale prices (nearly as low as that of the Performa 6360CD) imply that it may be nearing obsolescence. Still, the test results suggest that these home machines might capably double as affordable office systems.

Room to Grow

The Performa 6360CD offers various expansion options, and installing them is a cinch, due to the slide-out tray that houses the logic board and internal peripherals. Unfortunately, though, most of the add-ons come only from Apple, so you can't shop around for the best

deal. Proprietary accessories include a hobby-quality video-capture card, the Apple Video System (\$109), which installs into a Performa multimedia slot; two accessories for the Video System — a TV/radio tuner (\$149) and Avid

REVIEWS RATING KEY

★★★★★	OUTSTANDING
★★★★	VERY GOOD
★★★	ACCEPTABLE
★★	POOR
★	SERIOUSLY FLAWED
●	DANGEROUS

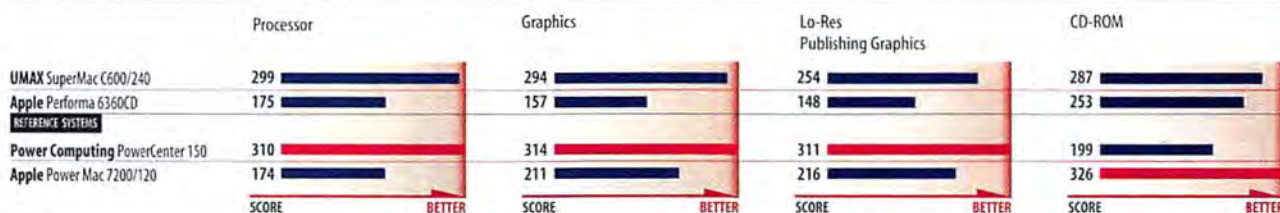


BATTLE ON THE HOME FRONT / new consumer systems square off

To size up the new home systems from Apple and UMAX, we ran them through the portions of our new MacBench 4.0 test suite that best reflect typical home usage. The Lo-Res Publishing Graphics test was performed at a resolution of 640 x 480 pixels, with a setting of 256 colors. MacBench 4.0 scores are relative

to those of an Apple Power Macintosh 6100/60 with a 2-MB VRAM upgrade, which is assigned a score of 100. (For more information on MacBench 4.0, see the "Introducing MacBench 4.0" sidebar in "Clone Watch Special Report: Breaking the Speed Barrier" in this issue's News section.)

MACBENCH 4.0 SCORES



Cinema video-editing software (\$459 expected); and a 256K Level 2 cache option. (The SuperMac C600/240 comes standard with a 256K L2 cache.)

The C600/240's closest competitor in terms of processing speed is the Power Computing PowerBase 240, which, like the C600, is based on a 240-MHz PowerPC 603e chip. The PowerBase system, which we awarded five mice in our October '96 issue ("Special Report: Systems for Home and Office Scream Past 200 MHz," page 41), differs from the C600/240 in two important ways. The PowerBase's graphics subsystem is faster than the C600's, because it uses a video controller chip that's newer and speedier than the Valkyrie chip found on the C600 motherboard (and on the Performa 6360CD board as well). And the PowerBase 240's hard-disk drive, an older-generation 5.25-inch Quantum Bigfoot SCSI drive, is slower than the IDE drive in the SuperMac system.

The Performa 6360CD has a single PCI slot, which holds only 6-inch cards. Its lack of support for full-sized (12-inch) cards seriously limits enhancement options.

The SuperMac C600/240 offers many more expansion options than the Performa, with three PCI slots that accept full-sized cards. These slots are mounted on a riser card that sits parallel to the motherboard with its slots facing downward. This setup positions the cards upside-down, with no real support underneath. Although we had no problem installing a card in one of these slots, we found ourselves wondering whether cards in this batlike posture

might work themselves loose over time.

Beyond expansion cards, the SuperMac C600/240 offers an L2-cache expansion slot — which ships filled with a 256K DIMM and is upgradable to as much as 1 MB. This marks a welcome break from UMAX's practice with earlier systems of soldering (often inadequate) L2 caches to the motherboard, making it impossible to upgrade. The main processor is also upgradable, although not by the standard means previously adopted by Apple, Power Computing, and DayStar Digital. In place of the standard processor-daughtercard slot used by its competitors, UMAX has opted for a design that essentially calls for removal and replacement of just the main processor chip. This processor-upgrade design strikes us as troublesome: There's practically no chance you'll be able to choose among multiple vendors for C600 upgrade chips — UMAX will be the only source.

Bundles of Difference

We've come to expect loads of extra software from Performa systems, and the 6360CD doesn't disappoint. In addition to the items

that both it and the SuperMac C600/240 include, it comes with more than a dozen other titles, among them a variety of children's educational programs (such as Edmark's excellent Thinkin' Things Collection 2 and Brøderbund's fine The Amazing Writing Machine); Surfwatch, for limiting access to adult Internet content; two clip-art collections; electronic dictionaries for kids and adults; and Adobe's PhotoDeluxe image-editing program.

The SuperMac C600/240 falls short of Apple's software bonanza, but it makes up for it with a few hardware extras. The computer comes with a pair of multimedia speakers and also includes a Jabra Headphone, a combination earphone/microphone you can use for hands-free telephone conversations. These additions won't benefit everyone equally, but both are potentially useful additions to a home-office system.

The Bottom Line

The Apple Performa 6360CD, with its generous software bundle, is a good value at \$1,499. Its limited expansion capabilities and relatively slow (and nonreplaceable) processor limit its flexibility, however. The UMAX SuperMac C600/240 is a speedy home system with a hefty bundle of its own that makes a very attractive package. Although three PCI slots make its expandability better than that of the Performa, the C600/240's unorthodox processor-replacement scheme makes upgrading something of an unknown quantity.

/ Jim Shatz-Akin

Apple Performa 6360CD, \$1,499 (estimated street). **Company:** Apple Computer, Cupertino, CA; 800-950-5382 or 408-996-1010; <http://www.apple.com/>. **Reader Service:** Circle #401.

UMAX SuperMac C600/240, \$2,295 (list). **Company:** UMAX Computing, Fremont, CA; 800-232-8629 or 510-226-6886; <http://www.supermac.com/>. **Reader Service:** Circle #402.

WHAT'S THE DIFFERENCE, ANYWAY?

	APPLE PERFORMA 6360CD	UMAX SUPERMAC C600/240
Price	\$1,499 (estimated street)	\$2,295 (list)
Processor speed	160 MHz	240 MHz
Bus speed	40 MHz	40 MHz
Installed RAM	16 MB	24 MB
L2 cache	none	256K
PCI slots	1	3
Hard-disk capacity	1.2 GB	2.1 GB
CD-ROM speed	8x	8x

This drive's capacity is unlimited.

(The offer, however, is not.)



While technology is making the world smaller, it's also making your applications and files larger.

The perfect situation for the EZFlyer™ 230MB. Since it's an actual hard drive, it's faster than most removables. Which

means you can run applications straight

off the 230. Plus, you can keep adding cartridges,

giving you the flexibility of unlimited capacity.

SyQuest Apparently, space is no longer the final frontier.

© 1996 SyQuest Technology

\$55 MAIL IN
REBATE.

Purchase a SyQuest® EZFlyer™ 230 drive by Jan. 31, 1997, and receive a \$55 mail-in rebate. Use this card as a rebate coupon. For each SyQuest® drive you purchase, you must include the following items: This rebate coupon. Original sales receipt, dated Nov. 1 through Jan. 31, 1997. No photocopies. Completed registration card included with the drive. UPC label from box. Serial number from box. Self addressed, stamped envelope.

Mail To:
\$55.00 Rebate c/o D&L Services, Inc.
P.O. Box 1508
Delaware, OH 43015

Only 2 rebates per household. Please allow 8-10 weeks for rebate fulfillment. Must be postmarked within 30 days of purchase and received by 3/15/97. Void where taxed, prohibited or restricted by law. Not to be used in conjunction with any other offer.

MU-2/97

AVAILABLE AT COMPU\$A, BEST BUY, COMPUTER CITY, EGGHEAD, OTHER LEADING RETAILERS AND MAIL ORDER COMPANIES.

1-800-245-2278 OR www.syquest.com

CIRCLE 30 ON READER SERVICE CARD

Pinnacle Micro Apex 4.6 GB



Fastest, highest-capacity optical drive ever.



IT'S BEEN NEARLY two years since Pinnacle heralded the Apex 4.6 GB with boasts that it would be the first magneto-optical drive as fast as a fixed-platter hard-disk drive. Well, the Apex has finally shipped — albeit in extremely limited quantities — and our testing indicates that the 5.25-inch cartridge drive lives up to that claim — to an extent. It is the fastest optical drive we've ever tested, and it is as fast as some older-generation hard-disk drives, at least on some tasks. The Apex 4.6 GB also offers an innovative front-panel drive-status readout — but the drive and its still-scarce cartridges come at a premium price.

Apex optical cartridges (\$169 list) have the highest capacity of any cartridges currently available, 2.2 GB per side, formatted. They are not industry-standard, and Pinnacle Micro is the only source for them. The Apex can also read, write, and format 2.6-GB cartridges (1.3 GB per side), the current standard. It operates in much the same way as previous 5.25-inch optical drives, with motorized disk insertion and ejection. It connects to your computer via an included 25-pin SCSI-to-SCSI-2 cable and is internally terminated. You select the SCSI ID with a standard back-panel switch, and your selection is displayed on the front LCD panel when the drive is powered up. That's handy, but it would be helpful to be able to switch the ID from the front panel as well.

The front-panel display also reports

whether write verification is on or off. It defaults to on, which ensures data integrity at the expense of speed. Even in this state, the Apex is faster than the Power Mac 6100/60's hard-disk drive. Turning write verification off, which poses a minor data-loss risk, boosts the speed of the Apex about 15 percent.

With write verification off, the Apex's speed does indeed rival that of older-model hard drives. Its score of 116 on our MacBench 4.0 Disk test indicates that the Apex is about 16 percent faster than the 250-MB internal Quantum hard drive that originally shipped in the Power Mac 6100/60. (The 6100/60 is used as MacBench 4.0's baseline system and is assigned a score of 100 on all tests). The Apex fares less well on our Publishing Disk test,



The Pinnacle
Micro Apex 4.6 GB drive has an unusual case; for some, it will be an acquired taste.

which mimics data transfers performed by image-editing and desktop-publishing applications. But even though it can't match the hard-drive's speed on the Publishing Disk test, it outscores the previous speed champ among 5.25-inch optical drives — Pinnacle Micro's Vertex 2.6 GB (with write verification off) — by 25 percent.

The Apex is speedy enough to use as a

startup drive, and we had no problem booting and running word-processing and spreadsheet programs from an Apex cartridge. The only noticeable difference between running the programs from an internal hard drive was the mildly annoying chattering sound the Apex makes when its cartridge is spun up. Despite that minor distraction, the Apex's speed was truly impressive.

Media: Mixed

Our experience with Apex media was mixed: One side of the cartridge Pinnacle Micro supplied us was defective and could not be formatted. We were able to set up and test the drive by using the cartridge's good side and the supplied Pinnacle Formatter utility. A full

low-level format took an agonizing hour.

Pinnacle Formatter was easy to use and proved smart enough to distinguish between systems with and without SCSI Manager 4.3, which enables Mac OS systems to recognize volumes that have a capacity greater than 2 GB. On SCSI Manager 4.3-equipped systems, the utility's Auto Format feature creates a single volume of 2.2 GB. On non-4.3 systems, it partitions each cartridge into a 2-GB volume and a 200-MB volume.

The Bottom Line

The Pinnacle Micro Apex 4.6 GB offers capacity and speed previously unheard of among optical drives — in its write-verification-off configuration. It gets the nod for bulk archiving and can even serve as a backup boot drive. / Jim Shatz-Akin

Pinnacle Micro Apex 4.6 GB, \$1,995 (list). Company: Pinnacle Micro, Colorado Springs, CO; 800-553-7070 or 714-789-3000; <http://www.pinnaclemicro.com/>.
Reader Service: Circle #403.



FASTEST OPTICAL DRIVE YET / Apex rivals hard drives

The Pinnacle Micro Apex 4.6 GB drive handily beats its predecessor, the Vertex 2.6 GB, which is speedy for an optical drive, on our MacBench 4.0 disk tests. Its score of more than 100 on the Disk test indicates that it is faster than the internal hard drive in a Power Macintosh 6100/60. MacBench 4.0 scores are relative to those of a Power Mac 6100/60 with a 250-MB internal Quantum hard drive, which is assigned a score of 100 on all tests.



What the **NEW XCLAIM VR LOOKS LIKE** to the competition.

2D Graphics Acceleration

QuickDraw 3D Acceleration

QuickTime Capture

Mac2TV Video Out

QuickTime Acceleration

Turn your PCI Mac into an amazing graphics and multimedia monster with the **ATI XCLAIM™ VR**. The only graphics upgrade with five must-have functions built right in. You get **QuickDraw 3D Acceleration** for richly textured 3D rendered at blinding speed for amazing gaming action and incredible VRML Web browsing. **Mac2TV Video Out** that lets you plug your Mac right into your big screen television for in-your-face, arcade-style game playing and riveting business presentations. There's **2D Graphics Acceleration** for up to 16.7 million brilliant colors. Screen resolutions up to 1152x870. Plus **QuickTime Capture** that captures frames and QuickTime™ movies from your VCR or camcorder for use in your other applications. And **QuickTime Acceleration** for the first truly usable full screen, full-motion QuickTime playback. It's just \$269*. Call 905 882-2600 (press 2 for faxback). Or check out all the details at www.atitech.ca. **ATI XCLAIM™ VR** is available at Computer City, MacWAREHOUSE and Mac Zone.



NOW YOU SEE IT.™
CIRCLE 20 ON READER SERVICE CARD



© ATI Technologies Inc., 1996. ATI, XCLAIM and NOW YOU SEE IT are trademarks and/or registered trademarks of ATI Technologies Inc. All other company and/or product names are trademarks and/or registered trademarks of their respective manufacturers. *Based on US suggested retail price of 2MB version at time of printing. Dealer may sell for less.

DiskWorks 3.0



All-purpose disk tool manages RAID, single drives.

WITH DISKWORKS 3.0, MicroNet Technology attempts to deliver the universal hard-disk tool set. It just may have succeeded: Although sometimes a bit tricky to navigate, the PowerPC-only DiskWorks provides the disk-formatting tools, SCSI-mode-page-tweaking capabilities, and support for RAID levels 0 and 1 of FWB's RAID Toolkit (\$299 list). DiskWorks rolls in some nifty disk-optimization software and delivers the whole package at a comparable price.

When you launch it, DiskWorks polls all SCSI buses for devices and displays available devices as icons in a grid: SCSI channels (up to 6 of them) are represented as horizontal rows, and SCSI IDs (as many as 15 per channel) are represented in columns. This arrangement is easy to understand, but we were annoyed by the window you must use to view the grid: Its width can expand only in increments of 192 pixels, so you can't maximize it to make the most of your monitor's real estate.

To test, tune, or format a drive, you click on its icon in the grid and then select one of four labeled buttons: Auto Setup (which automatically creates a single HFS partition on the drive), Mount/Unmount, Analyze (which, somewhat confusingly, also accesses the tuning module), or Erase.

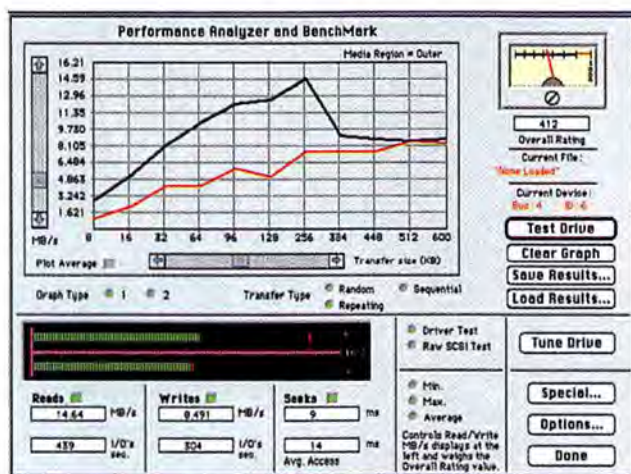
Creating an array is similarly simple: You use a marquee-style tool to create a box around adjacent drives in the grid — either within the same channel or spanning two channels. This procedure invokes a dialog box that gives you access to DiskWorks' robust disk-partitioning capability: You click on icons to choose among normal HFS partitions, RAID 0 (striped) partitions, and RAID

1 (mirrored) partitions. You can specify that both disks make up a single volume or, using simple drag-and-drop, designate different partitions on the array as HFS, RAID 0, or RAID 1. The partitioning tools can even turn a formerly mirrored RAID 1 partition back into a normal HFS partition in the (unlikely) event that one of your mirrored drives fails.

Large-site managers will love DiskWorks' copying utility, which allows one SCSI volume to be simultaneously copied to as many as six devices: When these devices are each connected to their own SCSI host adapter, copying happens asynchronously in parallel — in other words, really fast.

Tools for Tuning

DiskWorks comes with a comprehensive performance analyzer that measures seek time,



DiskWorks' performance analyzer and drive-tuner module allows you to measure and view your drives' speed in several ways.

data throughput at various block sizes, and I/O per second. You are able to isolate particular block sizes for observation and even confine testing to the inner, middle, or outer zones of a disk.

In addition to providing direct access to SCSI-mode-page settings, DiskWorks features a tuning module that automatically tweaks SCSI mode pages (hardware-configuration settings for parameters such as write verification, disk-block sizes, and cache controls). You can optimize disks by using preconfigured profile settings MicroNet provides or use DiskWorks' autotuning function to make your own custom profile. The tuning module has four degrees of precision: The coarsest setting provides a tune-up that takes a few minutes, and the finest setting begins a session that can take several hours — even days, depending

on the SCSI-mode-page permutations the drive supports. Once you've tuned a drive, you can save its optimized settings and apply them to other drives of the same type.

DiskWorks' tuner works on drives formatted by any vendor's drivers. But MicroNet's DiskWorks driver contains a profiler that logs the number of I/O transactions of various block-size ranges. You can use the driver for a while, extract its transaction-log data, and then use it to tell the tuner what block sizes to optimize for.

MicroNet says DiskWorks' tuning module yields maximum benefit when you're tuning arrays — particularly arrays set up across disparate drives. (Such arrangements are rare in our experience, but it's easy to imagine the need for one if a drive gives out during a critical project.) We found the tuner's value to be marginal at best on single drives, even at the highest degree of precision: We were able to improve MacBench 3.0 disk-test scores by 2 or 3 percent on an Iomega Jaz drive but gained nothing whatsoever on a pair of randomly chosen hard drives — an APS drive based on a Micropolis 2-GB mechanism and a Micro-Tech Blue drive built around a Seagate 3.4-GB mechanism. The picture didn't improve any when we raised the drives' potential throughput by hooking them up to Fast SCSI-2 host adapters. The drives' scores *did* improve on the faster bus, but tuned and untuned results scaled equally — and were virtually identical even when the drive was tuned for a variety of transfer sizes.

DiskWorks' tuning effectiveness is no doubt dependent on how many SCSI mode pages the drive you're tuning supports. The speed improvement you'll see also depends on how efficiently the drive's original driver was adjusted for the kind of work you do.

We're not saying that DiskWorks isn't able to improve drive speed significantly, but we weren't able to substantiate MicroNet's claims of up to 30-percent improvement in single-drive speed.

The Bottom Line

If you need a robust disk formatter and RAID 0 or 1 capabilities or are bent on squeezing every iota of speed from your hard drives, DiskWorks — and a little patience — may be just the prescription for you. / Jeff Pittelkau and Jim Shatz-Akin

DiskWorks 3.0.7, \$299 (list). **Company:** MicroNet Technology, Irvine, CA; 714-463-6100; <http://www.micronet.com/>. **Reader Service:** Circle #404.

FREE Black ink's free,
so it practically
obsoletes your b&w laser.

5¢ A typical color page.
Call for print samples.

6 PPM Twice as fast as
any competitor's
desktop color laser.

600DPI Color capable.
Any text.
Cover. Transparency.

15 Backed by 15 years
of award-winning
color expertise.

Brilliant performance. Breakthrough price.

It's the new Phaser® 350. The most affordable, economical and fastest laser-class color printer to hit the market. [Check the reviews.] You'll applaud its brilliant color matching, media flexibility, and image quality. Account groups will cheer its incredible speed, low cost per color print [typically 5¢], and vivid presentation overheads. It fully supports PC/Mac environments. [Getting any ideas?] Call for a dramatic print sample. Tektronix sells more workgroup color printers than anyone.

Call 800/835-6100, Ext. 1359. <http://www.tek.com/CPad?1359>

Tektronix



Phaser 140



Phaser 240



Phaser 440



Phaser 350



Phaser 550



Phaser 480X



Phaser 300X

CIRCLE 124 ON READER SERVICE CARD

SHOULD MINICAD 6 BE YOUR CAD SOLUTION?

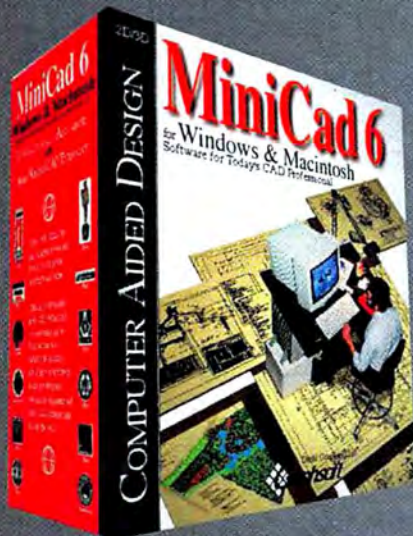
1996
Macworld
WORLD CLASS AWARD
WINNER

- ◆ 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.



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.



Fractal Design Detailer



Paint directly on the surfaces of digital 3-D objects.

FOR DIGITAL-3-D ARTISTS, creating 2-D texture maps and aligning them with the surfaces to which they will be applied is typically tricky, counterintuitive, and frustrating. It's a bit like painting a large decal while imagining how it will look when you place it on a plastic-model kit — with the additional complexity of 3-D geometries to worry about. Fractal Design Detailer simplifies this process by letting you paint *directly* onto a 3-D object with the same "natural media" tools that have made Fractal Design Painter famous. Although we ran into some rough spots, Detailer is a valiant (if imperfect) attempt to define the state of the art in the growing 3-D-software arena.

You start working in Detailer by defining (or importing) a 3-D shape. Detailer can create some basic 3-D primitives, such as spheres, cubes, and cones, but it's primarily designed to be used on 3-D geometry files created in other programs and saved in DXF or 3DMF format. We had a few difficulties importing files into Detailer: DXF files from auto•des•sys' form•Z opened successfully only if models were saved as 3-D polygons; polylines and lines crashed Detailer. Less severe bugs arose with DXF files generated by Specular's Infini-D and even Fractal's own Ray Dream Designer, which ships in a bundle with Detailer. This incompatibility detracts from an otherwise outstanding bundle.

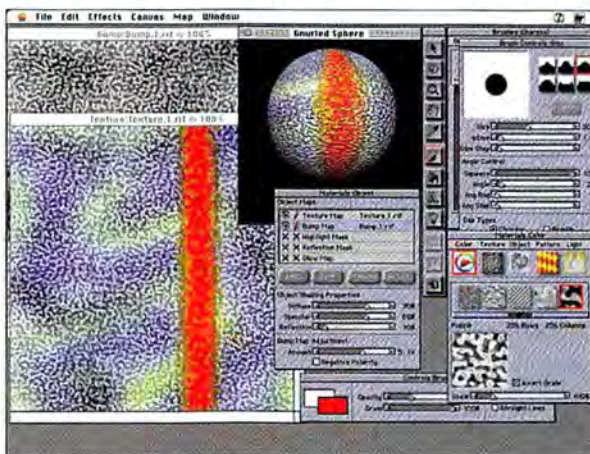
Detailer preserves links between imported 3-D objects and their image maps and can even smooth the surface normals of DXF files, but it discards any object hierarchies designated in the 3-D source program. This necessitates the unwieldy strategy of first creating 3-D objects in your modeling program, bringing them into Detailer for texture-map creation, and then placing the results back in the 3-D animation/rendering program for parent/child linkage and animation.

Once your 3-D object is in Detailer, you create a new texture map and specify the way in which the texture is to be "wrapped" around the object — cylindrical; spherical; or the critical "implicit," which conforms the texture

to the shape of the target object. You also assign a surface type (color, reflection, bump, glow, or highlight) and start painting your texture. Detailer allows you to paint directly on a 3-D shape and also presents you with a window for more-traditional 2-D-texture-map editing. The 2-D and 3-D views are linked, so edits made in one appear instantly in the other.

Detailer includes most of the comprehensive Fractal Design Painter tool set and shares Painter's familiar (if often overly dense) interface. In fact, Detailer is basically identical to Painter in its painting functionality and includes such advanced Painter features as masks, floaters, and the Image Hose.

In a welcome innovation, Detailer lets you import Photoshop files complete with mul-



Fractal Design Detailer lets you use natural-media tools to paint directly on 3-D objects.

iple layers — a capability surprisingly not available in any other 3-D program for the Mac. You can also export textures created in Detailer as layered Photoshop documents (or any of numerous other popular image-file types). This gives designers a wealth of new possibilities in texture-map creation: They can use third-party Photoshop plug-ins to enhance textures generated in Detailer, and they can easily correct texture-alignment or -positioning problems by shifting layers in Photoshop.

Detailer's Model window, which displays the 3-D model to which surfaces and textures are being applied, can display a model in wireframe form or with Goraud or Phong shading. Detailer is also one of the few Mac 3-D applications that uses depth cueing in its wireframe models — a model's wire frame gets darker the farther the model is from the camera, an incredibly useful feature we'd love to see in other mainstream 3-D applications. Any number of lights can be added to the Model

window to better illuminate the 3-D object, and this extra illumination is very useful in previewing reflection maps, bump maps, and surface highlights.

In an interesting twist, Detailer lets you overlay a 3-D object's mesh onto a 2-D page (in the 2-D painting window), so you can size and position the object for placement on the page. This is handy for 2-D artists who want to put 3-D objects in their work, and 3-D artists will enjoy using it to create still scenes in which a model has surface features that differ from its main texture: It's easy to layer a "glass" cockpit over a "metal" airplane, for example.

The Dark Dimension

Detailer's multiple-undo capability (up to 32 levels) is welcome — as far as it goes. It applies only to painting functions; model manipulations — including changes in mapping options, lighting parameters, and 3-D-model positioning — can't be undone. Also, Detailer hogs memory: You need at least 20 MB of RAM to run the program comfortably and even more to increase the size of the 3-D-model window. Detailer allows you to export files directly from Ray Dream Designer into

Detailer format. This ability is enabled by an included Designer plug-in that proved incompatible with the higher-end Ray Dream Studio, a surprising flaw.

An in-depth discussion of importing Detailer-generated textures into third-party 3-D-modeling and -rendering software is conspicuously absent from Detailer's manual.

The Bottom Line

Fractal Design Detailer is an exciting development for any creative or production artist working with 3-D. Having Painter's powerful tools in 3-D space is downright amazing, but Fractal is going to have to improve DXF support, and possibly even provide direct support for other native 3-D file formats, before Detailer becomes a must-have tool for many 3-D artists. / David Biedny and Nathan Moody

Fractal Design Detailer 1.0, \$299 (list). **Company:** Fractal Design, Scotts Valley, CA; 800-297-2665 or 408-430-4000; <http://www.fractal.com/>. **Reader Service:** Circle #406.

Mariner Write 1.3



New word processor proves feisty and nimble as well as affordable.

THERE'S A PLACE FOR feature-laden, heavy-duty word-processing software with all the bells and whistles money can buy, but for a sizable number of Mac users, that place is anywhere but their desktop. If you're among those who believe that small is beautiful and that more is less — Mariner Write, a new entry to the ranks of Mac word processors, may be the answer to your prayers.

For starters, it occupies only about 875K of disk space, consumes less than 2 MB of memory, and lists for a mere \$69.95. On the basis of those statistics alone, Mariner Write will immediately impress some onlookers. But the program offers more than just its minimalist stats. It's a low-end word processor with a surprising amount of spunk.

Mariner Write's interface is simple and uncluttered: A single tool bar provides access to the most-common formatting and file commands (which can also generally be accessed via menus and keyboard command equivalents). The bar also sports a status field that displays information about interface elements — pop-up menus, buttons, and so on — as you move your cursor over them.

Big-League Text Tools

As you'd expect, Mariner Write offers basic text-editing features, but it also throws in some capabilities usually seen only in high-end word processors. For example, in addition to giving you standard text-selection methods, the program lets you Shift-highlight discontinuous blocks of text — a capability previously available only in Nisus Writer (\$295 list). You can use Macintosh Drag and Drop to move or copy text, a capability Microsoft Word, for one, does not match. There are also tools that let you have page numbers and dates inserted automatically (either as text or as auto-updating fields) without working your way through multiple formatting dialog boxes.

Mariner Write lets you include headers, footers, and footnotes (but not endnotes) in your documents. You create each of these in a special editing window, but all are visible on the page when Page Layout View is selected.

As in other word processors, this page-layout view displays pages with their margins, headers, and footers. A draft mode called Standard View, which shows only body text, is also available. The program is fast enough that keeping a document in layout mode doesn't degrade speed substantially.

The text-formatting features of Mariner Write include style sheets and the standard capabilities found in any word processor, such as control of type style, size, fonts, kerning, and widows/orphans. Style sheets apply to paragraphs only (the program offers no character styles) and can be exported from one document to another. Mariner Write styles can include based-on and next-style information, so updating a family of related styles and formats

around. Irregular text wrap is not supported. Graphics can be hidden in a document to accelerate screen redraw.

Miscellaneous other features make Mariner Write appealing to a variety of users who have special requirements. If you're a PowerBook user, you'll appreciate the setting that minimizes disk accesses and creates an extrabold cursor. If you're in a production setting, you may be glad that Mariner Write is AppleScript-able. Multilanguage users will appreciate Mariner Write's support for WorldScript, including Kanji and right-to-left word processing.

Mariner Write lets you undo up to ten of your last actions. Through the use of Macintosh Easy Open and DataViz filters, you

can open and save in several key word-processing formats: Microsoft Word 4.0 through 6.0, Microsoft Word for Windows 6.0, ClarisWorks 1.0 through 4.0, WordPerfect (Macintosh only) 2.0 through 3.5, and WriteNow 3.0 through 4.0.

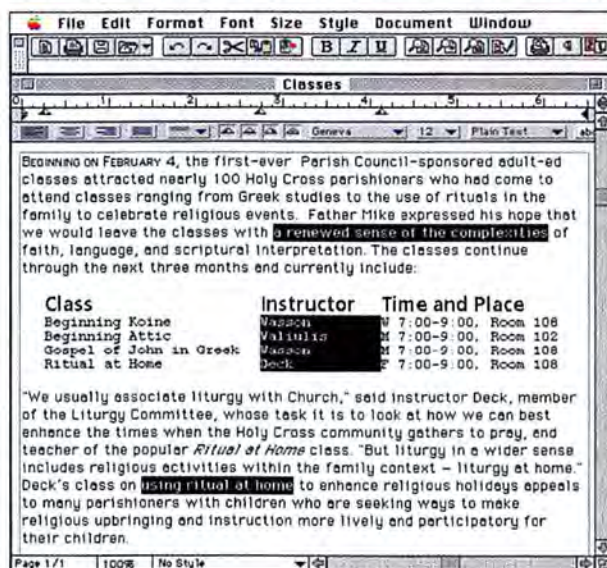
Keeping software compact does entail some sacrifices. In the case of Mariner Write, you'll currently have to do without mail-merge, tables, endnotes, bookmarks, and outlines. Mariner Software plans to add mail-merge, a table editor, and endnotes in the near future.

Some advanced features, such as outlining and text wrap around irregular objects, will probably never appear. The company seems to want to avoid creeping featuritis and program bloat at all costs. It's an admirable goal we hope it sticks to.

The Bottom Line

Mariner Write is an application worth treasuring. It meets low-end word-processing needs with an admirable set of capabilities and is a snap to learn and use. You can download a free software demo of Mariner Write at the company's Web site. If you test-drive it for a week, you may never go back to Microsoft Word. / Gregory Wasson

Mariner Write 1.3, \$69.95 (list). **Company:** Mariner Software, LaGrange, KY; 502-222-6695; <http://www.marinersoft.com/>. **Reader Service:** Circle #407.



Discontiguous text selection is one of several big-league word-processing features found in the low-cost Mariner Write.

is easy and automatic. The program does distinguish between superscript/subscript and superior/inferior text. The last pair not only raises or lowers text from the baseline but it also makes it a smaller point size — a thoughtful touch.

A bit less intelligent is Mariner Write's handling of multiple-column pages. You can create multiple columns, but the column setting applies to the entire document — you can't break a document into sections with various column settings.

Mariner Write lacks a drawing module — which is fine, given the lameness of most word-processor drawing tools — but it does import graphics in EPS, PICT, JPEG, or GIF formats. Imported graphics can be in-line (so they flow with paragraphs) or objects that float in rectangular windows that text wraps

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†



prodigyinternet™

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.

Mouse Replacements

Datadesk TrackBoard ★★

Logitech Cordless MouseMan ★★½

Gyration GyroPoint Desk ★½

Logitech TrackMan Live! ★★½

Port Presentation System ★★½

A few pointers on picking a pointing device.

AS IT WENT WITH THE FORD Model T, so it goes with the classic one-button Apple mouse. When your original pointer finally clicks its last or a basic mouse won't do anymore, consider one of a new flavor of input devices. With perks such as programmable buttons, remote-control capability, or specialized designs, these pointers are smarter than the average mouse — and they may be right for you.

We test-drove five pointers, each offering a range of options not found in a standard Apple mouse, and weighed their strengths and weaknesses: Datadesk's TrackBoard is a small-footprint trackball/keyboard combination. Logitech's Cordless MouseMan is a mouse that replaces the traditional cable with radio waves. Gyration's GyroPoint Desk is a mouse that operates in the traditional desktop mode or, turned on its side, as a handheld pointer. TrackMan Live!, also from Logitech, is a remote control that uses radio signals. And Port's Presentation System is an infrared remote control with presentation software.

Datadesk TrackBoard

The all-in-one TrackBoard from Datadesk is a less expensive replacement for both keyboard and mouse, although it does require some trade-offs. Smaller than Apple's Extended Keyboard, it shares that model's basic layout but replaces the right-side numeric keypad with a built-in trackball that eliminates the need for a mouse (and mousepad).

The trackball is about the diameter of a golf ball — bigger than the original PowerBook

trackballs but smaller than most stand-alone desktop trackballs. We found it acceptably responsive but not especially smooth. The trackball offers two preprogrammed buttons: The left performs single clicks; the right, double clicks; both together, click lock. No extra software is required but no custom macros are possible either.

To save keyboard space, Datadesk did away with a few seldom used keys (such as Help and Home) and mapped them to other keys. You activate them with combinations of the Control, Option, and Command keys. Keys with nonstandard extra functions are coded with candy-colored caps; replacement gray keys are included in case you don't like the originals.

Datadesk offers a separate numeric keypad, the \$50 NumPad. The NumPad plus TrackBoard is roughly the same length as an Apple Extended Keyboard, but adding a NumPad to the TrackBoard erases much of its price advantage: the TrackBoard's street price is roughly \$100; with the NumPad, its price approaches that of the Apple Extended Keyboard (\$175 list) plus mouse (roughly \$30). Those with scant desk space may still want to consider the TrackBoard, but if you need a numeric keypad, stick with Apple's original.

Logitech Cordless MouseMan

Logitech's Cordless MouseMan replaces that pesky mouse cord with radio signals, by means of a receiver that plugs into your keyboard's ADB port. The pointer itself is an excellent three-button mouse, with smooth rolling and tracking and an ergonomic shape that will feel more comfortable than a conventional mouse's shape to most users. The mouse, which requires two AAA batteries, can be used up to 6 feet away from the receiver.

Logitech's MouseKey software, which installs a simple control panel, lets you program the Cordless MouseMan's three buttons to any arrangement of single click, double click, and click lock. You can also adjust sensitivity, tracking speed, click speed, and the like. Overall, the MouseMan is an excellent

general-purpose mouse and is especially well suited for conference-room use, where users may want to share the computer controls.

Gyration GyroPoint Desk

The GyroPoint Desk, from Gyration, has two aims: providing a good desktop mouse and offering a pointer that works well in a presentation setting. Unfortunately, it's a great idea in an awkward package. The GyroPoint serves as a fine desktop mouse — with smooth, sensitive tracking and a comfortable egg-shaped design — and it also works in midair, using a nine-foot cord and a built-in gyroscopic mechanism that translates your free-space hand movements into cursor movements.

This is fine in principle, but in practice, there are too many problems: The superlong cord gets in the way, and the gyro also takes some getting used to, so you can't just hand it to any visitor in your conference room. Worse, the GyroPoint's inner mechanism needs to be restabilized for four seconds when it stops responding correctly to your movements — a real flow stopper in presentations. The GyroPoint is fun for Web surfing while leaning back in your chair but is ultimately unnecessary.

Remotely Appealing

For presentations in which you need more-controlled remote access to your computer or laptop, the Presentation System, from Port, and TrackMan Live!, from Logitech, both offer appealing options. Both have small receivers that plug directly into your keyboard's ADB port, and both have sleek, lightweight handheld units.

Like Logitech's Cordless MouseMan, the



From left, TrackBoard and NumPad, by Datadesk; GyroPoint Desk, by Gyration; and TrackMan Live!, by Logitech.

TrackMan Live! uses a radio signal to communicate between the remote and the receiver; Port's Mind Path Remote Control uses infrared light. Of the two technologies, the radio system in TrackMan Live! is more reliable. The Port system uses diffuse infrared light, which means — in theory — that it, like radio, should be able to bounce off walls or ceilings to get around objects. In fact, however, you can be up to 45 feet away from the receiver but must aim the remote carefully and accurately or your signal won't reach its target.

The Port handheld unit has five programmable buttons that call up presentation effects, a circular rubber disc that moves the cursor joystick-style, and a forward/back button for slide-show-style presentations. Port's Presentation F/X software offers a host of impressive effects, but you'll need to practice plenty before they become automatic. What's more, the software generated spurious "out of memory" errors.

The TrackMan Live!'s setup is similar to that of the Cordless MouseMan: Both run from a plug-in radio receiver, and both use the same MouseKey software to program key macros.

The TrackMan Live! hand unit lets you stand up to 30 feet away from your computer and is simpler than the Port device, with just three programmable buttons and a trackball. The trackball is smooth and responsive but very small, and it induces trackball-thumb soreness after extended use.

The Bottom Line

New ideas nudge the basic one-button mouse out of the picture, but snazzy new features can give additional usability *and* extra headaches. Some options showcase definite improvements, but before you spend the money, take a test drive and decide what you must have and what you can do without. / Brooke C. Wheeler

Datadesk TrackBoard, \$99.95; **NumPad**, \$49.95 (estimated street). **Company:** Datadesk, Bainbridge Island, WA; 800-994-6788 or 206-842-5480; <http://www.datadesk1.com/datadesk>. **Reader Service:** Circle #408.

Gyration GyroPoint Desk, \$69.99 (list). **Company:** Gyration, Saratoga, CA; 800-316-5432 or 408-255-3016; <http://www.gyropoint.com/>. **Reader Service:** Circle #409.

Logitech Cordless MouseMan, \$70; **Logitech TrackMan Live!**, \$150 (estimated street). **Company:** Logitech, Fremont, CA; 800-231-7717 or 510-795-8500; <http://www.logitech.com/>. **Reader Service:** Circle #410.

Port Presentation System, \$129 (estimated street). **Company:** Port, Norwalk, CT; 800-350-7678 or 203-852-1102; <http://www.portinc.com/>. **Reader Service:** Circle #411.

The Monitor that Shows You the Whole Enchilada.



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 pdcalif@aol.com for the whole story.



800-858-7744 Ext. 25

<http://www.portrait.com>



PCI GRAPHICS CARDS

In the April issue, MacUser tests, reviews and mouse-rates 4- and 8-MB PCI graphics cards using the new and improved MacBench 4.0 graphics test, the industry standard for Macintosh benchmark testing. The experts in MacUser Labs will measure graphics-display speed and QuickTime-video playback acceleration. If you're a publishing professional or business guru who demands speed and higher resolution, then read MacUser to help you make your card-buying decision.

DIRECT-TO-PRESS

If you want to learn more about the most intriguing and burning topic in the print industry, then read the April issue of MacUser when the editors examine the direct-to-press process. Find out the pros and cons of doing direct-to-press, what kind of projects direct-to-press is good for, and how to prepare your files for it. There is also an overview of the different kinds of presses that can accommodate direct-to-press.

COLOR MANAGEMENT

This April in the Graphics How-To section, MacUser looks at how to use a colorimeter device for creating accurate color previews in order to make better design decisions. If you're a graphic designer, desktop publisher or pre-press professional, this report will definitely enhance your image.

APRIL AD CLOSE:

TUESDAY

JANUARY 21, 1997

Extensis PhotoTools



Add-on Photoshop tools benefit pros, novices alike.

FROM GREENHORNS TO GUNSLINGERS who can perform complex channel operations in their sleep, all Photoshop users will find something for them in Extensis PhotoTools, a new set of extensions for Adobe Photoshop. The package consists of eight Photoshop plug-ins: PhotoBars, which places preconfigured or custom tool palettes on the screen whenever you launch Photoshop; PhotoType, an excellent set of tools for adding type to Photoshop images; Intellihance Lite, a pared-down version of Extensis' Intellihance plug-in, for automatically correcting image problems; PhotoTips, a flash-card tutorial on Photoshop tricks and techniques; and four effects modules — PhotoBevel, PhotoEmboss, PhotoGlow, and PhotoShadow — that let you apply and interactively adjust bevel, emboss, glow, and shadow effects, respectively. All the PhotoTools plug-ins share a simple and elegant interface.

PhotoTools' most obvious feature, PhotoTips, is also its least essential: In its default mode, the application presents you with a different Photoshop-usage tip every time you launch it. We found this behavior annoying and quickly disabled it, but the Tips library, in which the same topics are listed alphabetically, serves as a handy help tool.

PhotoBars lets you create multiple custom tool bars and palettes with buttons for common Photoshop and PhotoTools commands. A menu containing a list of commands lets you build palettes manually by attaching any commands on Photoshop's menus to buttons. You can also use the SmartBar option, which "watches" you as you work and builds a set of buttons for all the commands you use. One of PhotoBars' handiest features is its ability to turn any Finder folder into a pull-down icon, which we found very handy for streamlining access to project files. The chief drawback of PhotoBars is the clutter that can arise when tool bars are added to Photoshop's own palette-heavy interface. Judicious use of PhotoBars may enable you to reduce palette count by consolidating tools from several Photoshop palettes into one master tool bar. We wish the PhotoBars floating palettes, like Photoshop's own, could be collapsed to a

smaller size, but they can only be hidden altogether or docked to any edge of your screen.

Intellihance Lite is a simplified version of Extensis' Intellihance 2.0 plug-in. Unlike the full Intellihance, it works only on RGB images and lacks scriptability. Like the full Intellihance, it boils down to a few simple menu choices the often confusing process of cleaning up bad scans. You select choices from pop-up menus to adjust contrast, brightness, saturation, sharpness, and despeckling and let Intellihance Lite quickly spiff up your images. Like the other PhotoTools tools, Intellihance lets you name and save favorite settings for quick retrieval.

PhotoType, which provides much-needed improvement over Photoshop's rudimentary text-handling abilities, is the module that will make seasoned Photoshop users want to buy PhotoTools. It lets you enter text in a Photoshop layer, which you can view superimposed over your main image. Even better, you can track, kern, and resize type just as if you were working in QuarkXPress: Extensis has faithfully duplicated all of Quark's keyboard commands for type formatting. Once you've experienced the speed and ease of formatting type with PhotoType, you'll never want to go back to a Photoshop type dialog box again. PhotoType's screen redraw is a bit sluggish with anti-aliased type turned on, but you can easily temporarily disable this feature.

PhotoTools' other plug-ins — PhotoBevel, PhotoEmboss, PhotoGlow, and PhotoShadow — create the effects for which they're named. Each plug-in has a large preview window that reduces these often complicated effects to a

few simple choices, letting you pick from predefined types of bevels, for example, and then use sliders to determine the size, contrast, and sharpness of the effect, along with foreground and background colors, lighting angle, and so on. On-screen previews show you exactly how your effect will look when you apply it.

An extracool touch PhotoTools shares with The Black Box 2.0, from Alien Skin, is that it can apply effects onto transparent areas of Photoshop layers, so you can easily create floating, embossed, or shadowed type in its own repositionable layer and let Photoshop blend the bevel into the background image. PhotoTools' effects modules are similar in function to those found in The Black Box, which lacks anything comparable to PhotoBars, PhotoTips, PhotoType, or Intellihance Lite. But even considering the effects modules only, PhotoTools' preview windows edge out The Black Box's: PhotoTools' windows are large, resizable, and zoomable, whereas The Black Box's are cramped and unwieldy.

The Bottom Line

Whether you're a Photoshop beginner or veteran, PhotoTools will let you churn out surprisingly sophisticated effects with a minimum of effort. PhotoTools avoids the flashy effects and Baroque interfaces of other, more expensive plug-in collections, yet, with its carefully designed feature set, offers more value for day-to-day use. / Eric Taub

Extensis PhotoTools 1.0, \$100 (estimated street).
Company: Extensis, Portland, OR; 800-796-9798 or 503-274-2020; <http://www.extensis.com/>. **Reader Service:** Circle #413.



The PhotoBars plug-in in Extensis PhotoTools lets you add custom floating command palettes to Adobe Photoshop.

Go through life
with less baggage.



Introducing the MessagePad 130 with Newton 2.0.

The farther we go, it seems,
the more we're asked to bring with us. The
names and numbers of clients past and present.

Dates, times, and notes from countless meetings. Not to
mention a way to get your e-mail.

The new Apple® MessagePad® 130 was designed to lighten your load by
making it easier than ever to schedule work, take notes, send and receive
e-mails and faxes — or hop on the Internet — from wherever you happen to
be. Even in the dark, thanks
to its backlit screen.

<http://www.info.apple.com>

The Newton 2.0 operating system: learn less, do more. The
award-winning Newton® 2.0 provides a surprisingly familiar way of working that encapsu-
lates all you do now in a simpler, more concise form. Instead of loading you with complex
commands, Newton works the way you do. It even reads your handwriting.

Dozens of new and well-known applications, such as Now Contact, ACT!, Quicken,
CompuServe, Meeting Maker, and Eudora Pro, are available for Newton, with more coming.
Making it easy to transfer information to
and from your PC.



Pick up a MessagePad and get going! So put down whatever you're
doing, and go see the Apple MessagePad 130 at your nearest dealer. Or get our
faxback information kit, with details on the complete line of MessagePad products
and the latest software. See just how little you have to carry, to have it all.

**To get your information kit, visit our Web site or
call Apple today!**

<http://www.info.apple.com/newton/>
1 800 364-0766, ext. 1026



ChitChat



An effort to milk productivity from online chats proves futile.

CHITCHAT, A BASIC UTILITY from Mainstay Software, has a simple, if questionable, goal: It provides an ad hoc conferencing arrangement that allows you and networked cohorts to "talk" together — either figuratively, using text chat (and retaining a transcript), or literally, via voice transmission. It even allows you to exchange simple pictures during the conference.

ChitChat enables users to run an unlimited number of chat rooms (conferences), in which sounds and pictures as well as text can be exchanged. With the ChitChat server software running on any Mac, two or more users can start a conference, using the ChitChat client software. Unfortunately, the program runs only on Mac OS systems on AppleTalk networks, which limits its usefulness.

Just as in an AOL chat room, you type your comments in a two-line box and press the

Return key to send the text to all conference participants. Sending a picture is as simple as clicking on the picture button in the conference window's tool bar and dragging a PICT file into the Graphic window. (ChitChat doesn't support other graphic formats.) To speak, you click on the Push to Talk button and speak into your microphone — you can adjust the quality of the outgoing sound to suit your connection: Ethernet, LocalTalk, or modem.

We were disappointed that ChitChat lacks the ability to transfer files. Although plenty of other applications exist for moving files from place to place, we feel that ChitChat would be

a more useful business tool if participants could exchange files during conferences.

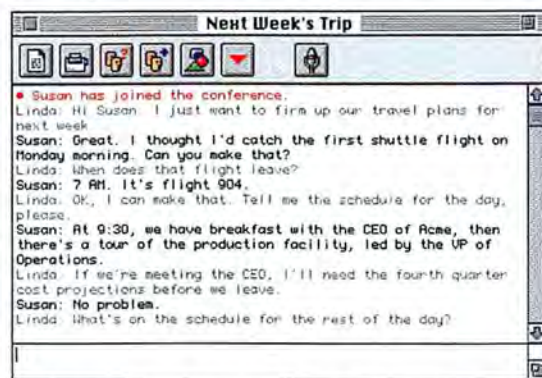
ChitChat is speedy. We found that sound was clear over an Ethernet network. ChitChat was also impressively fast at displaying a small picture to everyone in a conference, even when we used it over a 14.4-kbps ARA modem connection (employing ARA is the only way to use ChitChat via modem).

The Bottom Line

As a program that works only on LAN-based Macs, ChitChat is a bit limited and offers little value for the money. If you have a network, you

probably already have an e-mail system such as CE Software's QuickMail or a collaboration tool such as Farallon's Timbuktu, each of which lets you create instant chat conferences. And, of course, there's the telephone or the real thing, the watercooler.

/ Carolyn Bickford and Shelly Brisbin



You can view, save, or print ChitChat transcripts from the main chat window or send PICT images with a mouse click.

ChitChat 1.0, 5-user server software with client software, \$99 (list).
Company: Mainstay, Camarillo, CA; 805-484-9400; <http://www.mstay.com/>. **Reader Service:** Circle #414.

Now Startup Manager 7.0.1



Extensions-management utility now corrals plug-ins as well.

THE FIRST REAL COMPETITION against Casady & Greene's popular Conflict Catcher (\$55 estimated street) in the title fight for best extensions manager is Now Startup Manager (NSM). Originally available only as part of the Now Utilities suite (\$89.95 list) — and still included in that excellent collection — NSM has been revved up and spun off into a stand-alone product. This new version manages extension conflicts as thoroughly as Conflict Catcher and also manages increasingly prevalent plug-ins such as those for Adobe Photoshop and Netscape Navigator. Unfortunately, concerns about reliability may keep Now's product from winning Conflict Catcher's title just yet.

NSM manages the bewildering number of extensions, control panels, and Startup Folder items found on nearly every Mac, and — like

Conflict Catcher — it isolates and resolves conflicts among them through a trial-and-error process conducted over a series of system restarts. Also like Conflict Catcher, NSM lets you enable or disable startup files, modify their loading order, choose whether to display startup icons, create links between symbiotic files, and create startup-file groups.

NSM also lets you create a system profile, increase the system heap, view information about each startup file and its purpose, create multiple startup sets, and manage fonts. NSM's best feature — what really sets it apart from Conflict Catcher — is its handy ability to activate and deactivate not only startup files but also plug-ins for Adobe Photoshop, Adobe Illustrator, and Netscape Navigator.

Although NSM does offer something more than Conflict Catcher, it also lacks several of its best features. For instance, NSM doesn't let you stop a conflict-isolation test and save it for later resolution. NSM also doesn't have Conflict Catcher's password-security feature.

NSM shows great promise, but it's not as stable as Conflict Catcher. We encountered problems (all ultimately solved) with NSM on two out of the three Macs we tested it on. Now Software has squashed known bugs with a

quick, free update, but some problems, such as incompatibilities with RAM Doubler 2.0, still persist on some Macs.

The Bottom Line

Even though NSM is innovative, we're sticking with the more reliable Conflict Catcher for now. You can decide for yourself, since Now Software's Web site has a free, fully functional demo of Now Startup Manager. / Gregory Wasson

Now Startup Manager 7.0.1, \$55 (estimated street).
Company: Now Software, Portland, OR; 800-237-2078 or 503-274-2800; <http://www.nowutilities.com/>.
Reader Service: Circle #415.



Manage plug-ins and other startup files with Now Software's pumped-up Now Startup Manager.

Think of it as a box of crayons.

From the 23rd century.



PHOTO QUALITY

Color and detail so accurate your output's always picture perfect.

The future is looking bright. Brilliant, actually, with the new

CALL 1 800 GO EPSON
ASK FOR OPERATOR 3010

EPSON® Stylus® Color 500 ink jet printer.

Imagine. 720 x 720 dpi for true Photo Quality color. Laser-quality black text. Dazzling color printing at fast print speeds

on virtually any paper. And simple start-up with our Easy Setup software. With our free award-winning



(loaded with full-version Adobe and Sierra software), you can create striking presentations and reports for work. Or birthday cards and banners for fun. All with a two-year warranty for just \$289 (not bad, since the Color Pak's worth up to \$299 alone). Visit us at www.epson.com for even more reasons why the EPSON Stylus Color 500 is truly ahead of the competition. And ahead of its time.



LASER QUALITY up.

Black text that won't break up—even when it's blown up. See?



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

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.

For more information on how you can protect your productivity, call 1-800-982-9983 for your free white paper on mobile computing.

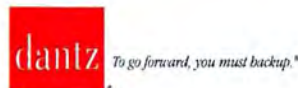
Because even if your computer checks out, your data is always checked in.



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."



If you're not on a network, we still have you covered with our single user version, Retrospect® 3.0.



©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 G, Orinda, CA 94563. Phone: 510.253.3000. Fax: 510.253.9099. Internet: info@dantz.com, support@dantz.com, www.dantz.com.

CIRCLE 28 ON READER SERVICE CARD

MovieStar



Basic video-editing program will appeal to hobbyists but not pros.

MIXING AND MATCHING sound, animations, movies, and text for multimedia delivery on Web pages or videotape is made easy with MovieStar, from Intelligence at Large. Its simple controls lack the precision required for professional-quality output, but MovieStar is well suited for home or classroom use.

MovieStar lets you prepare and combine sound, still images, animations, and QuickTime movies for delivery over the Web or for output to videotape. The program makes it easy to create basic animations, which you can export as MIME, QuickTime, or animated-GIF files. MovieStar also offers basic software video- and audio-capture capabilities.

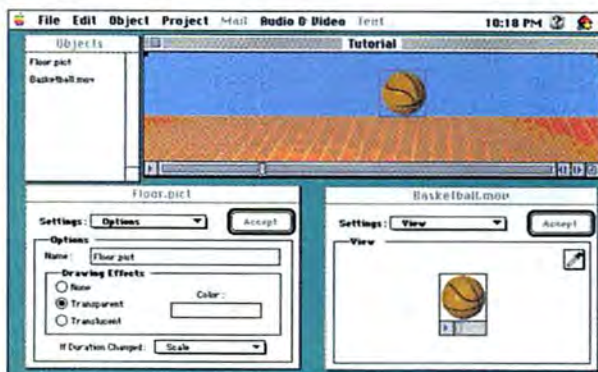
As you build a multimedia project, you view its elements as a series of superimposed layers, all visible simultaneously. You position elements within the project by dragging them or double-clicking to invoke settings dialog

boxes that let you specify their size and position.

The program ships with a freely distributable Netscape Navigator plug-in that allows projects generated in MovieStar to begin playing on-screen before they're fully downloaded.

To build an animation, you issue the Animate command and then drag a media object across the screen along the path you want it to follow in your animation. MovieStar records its movement and animates it. Although this drag-and-animate method is extremely easy, it is hard to control your dragging speed and direction, so you often get uneven animation.

One of MovieStar's best features is the application's ability to add anti-aliased text to any project, to quickly add impressive-looking titles or rolling credits to a movie. In addition, MovieStar lets you insert transitions between scenes. The latter are useful but limited to basic fades, zooms, and wipes. Apart from its aesthetic limitations, we found



MovieStar's Project window is used for building and viewing multimedia projects; settings windows for each element in a project let you specify size and behavior characteristics.

MovieStar 1.5 a bit unstable, with bugs in the text-scrolling, object-depth, and movie-output functions.

The Bottom Line

MovieStar's tools are easy to use. They're not precise enough for QuickTime professionals, but they're well suited to hobbyists, teachers, and students. / David Biedny and Nathan Moody

MovieStar 1.5, downloaded from the IAL Web site, \$89.95; boxed package, \$149 (list). **Company:** Intelligence at Large, Philadelphia, PA; 800-425-7638 or 215-387-6002; <http://www.ialsoft.com/>. **Reader Service:** Circle #416.



Now

Triple Your Memory And Forget Those Splitting Headaches.



Now it's easy to triple your memory with software and without the headache of tearing your Mac apart. New RAM Doubler™ 2 is the improved version of RAM Doubler, one of the highest-rated and best-selling Mac utilities ever with more than one million sold. RAM Doubler 2 is faster, offers flexible memory settings and keeps those memory hungry apps at bay. RAM Doubler 2 lets you run more programs at once, work faster and work smarter. Get the most out of your Mac with new RAM Doubler 2.



1-800-571-7558 or www.connectix.com



Triple Your Memory With New RAM Doubler 2

© 1996 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA • (415) 571-5100 • Fax (415) 571-5195 • E-mail info@connectix.com
RAM Doubler is a trademark of Connectix Corp. All other trademarks are the property of their respective holders.

The Best Software for Business and Pleasure

3 Ways to Make 1997 a Better Year!



SpellCatcher™

Write with confidence - anywhere!
(Formerly Thunder 7™)

Become the word smith
you need to be!

- Spell Checker—Both interactive (works right along with you!) and batch checking
- Comprehensive Thesaurus
- Glossary—Reads your shorthand, i.e. "vty" becomes "Very truly yours" automatically
- Keystroke-saver guards against crashes and power failures



SPREADSHEET™

A better model for seeing
your numbers

- Drag and Drop all your calculations
- Visual formulas, see and understand your work
- Allows you to sort on fields of data
- Enter your numbers in any of over 40 templates for business, home, classroom, or lab and get immediate answers for your problems
- Handles date and time calculations

*Version 2 of Let's Keep It Simple Spreadsheet™



Origami

The Secret Life of Paper™

Enter a magical, interactive world
and unlock the secrets of a
1,000-year-old art form!
You'll be spellbound!

- 12 beautiful Origami projects with step-by-step folding instructions plus QuickTime™ full motion video/movies
- The world's only electronic Origami gallery with over 150 works of art. Meet the masters!
- Origami history and paper-making lessons
- Free Origami paper in each package—start your first project today!

From the Publishers of the Award Winning

Conflict Catcher 3

The Industry Standard for Startup File Management



Your New Year's Resolutions!
Courtesy of Casady & Greene

Sales & Information:
1-800-359-4920 • 1-408-484-9228
FAX: 1-800-359-4264 • 1-408-484-9218
Internet: sales@casadyg.com



www.casadyg.com

PM->QXP



Near-automatic page conversion from within QuarkXPress.

IF YOU SWITCH page-layout programs from Adobe PageMaker to QuarkXPress, you have to worry about more than retraining. In order to update or reuse PageMaker documents, you have to either continue supporting PageMaker or lay out your documents all over again in QuarkXPress. Now there's some relief, in the form of Markzware's \$99 PM->QXP, an XTension that can import nearly all PageMaker documents, with layout intact, into QuarkXPress.

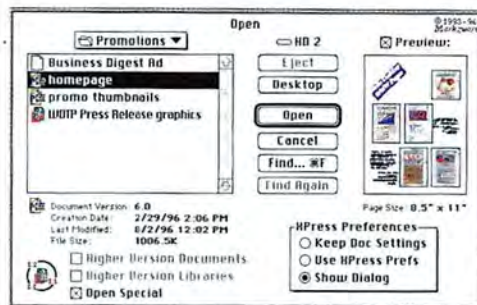
Once you've installed PM->QXP, you'll see PageMaker documents (created with versions 4.2, 5.x, or 6.x) in QuarkXPress' Open dialog box and can convert them to QuarkXPress simply by clicking on the Open button. You can even convert PageMaker templates, complete with master page layouts.

The time it takes to convert a PageMaker layout to its QuarkXPress equivalent depends

on the size and complexity of your document, but PM->QXP was impressively fast in our tests. For instance, converting a single-page, three-column layout containing text and images took little more than a minute on a Power Mac 9500/132. PM->QXP automatically places PageMaker's free-form text containers and images into QuarkXPress' text and picture boxes. Fonts, text formatting, style sheets, and even image-cropping and -resizing settings are all maintained.

With PageMaker-to-QuarkXPress conversions in other utilities, graphics embedded in PageMaker files are often deleted or moved without link creation. PM->QXP handles this situation elegantly, by extracting embedded images, saving them in a Source folder, and reestablishing the links.

Not every conversion is perfect. PM->QXP couldn't convert images that had been placed into rectangle, ellipse, or polygon picture boxes by use of PageMaker's Mask feature. The XTension extracted such images and placed the picture boxes over them, leaving us to cut and paste or reimport the images. PM->QXP exports your PageMaker-generated tables of contents and indexes into QuarkXPress, but these will not update to reflect any changes



Converting Adobe PageMaker documents to QuarkXPress format with PM->QXP is as simple as clicking on the Open button.

resulting from slight differences in spacing between the QuarkXPress and PageMaker files. This can lead to inaccurate page numbering in your tables of contents or indexes.

The Bottom Line

Although not flawless, PM->QXP converts documents quite adroitly. With most conversions, the required tweaking is minimal — and the time it will save you is well worth the price. / William Harrel

PM->QXP 4.3, \$99 (list). Company: Markzware, Santa Ana, CA; 800-300-3532 or 714-756-5135; <http://www.markzware.com/home.html>. Reader Service: Circle #417.

Now

You Can Answer Your Mother's Prayer.
Appear Nightly In Her Living Room
In Living Color.



Introducing Connectix Color QuickCam™, the camera and software that lets you use your computer in fun ways at home, business and on the net. Send personalized cards. Add images to business reports. Videoconference with additional software. Spiff up your web site. Get Color QuickCam for under \$200*. Just plug it in, install the software and start taking brilliant color pictures and video on your computer.



1-800-571-7555 or www.connectix.com
*Estimated retail price after 130 rebate



Now You Can With Color QuickCam
For Mac and Windows platforms. Available wherever computer products are sold.

© 1996 Connectix Corporation. 2033 Campus Drive, San Mateo, CA 94403 USA • 415-571-3100 • FAX: 415-571-0195 • EMAIL: info@connectix.com. QuickCam is a trademark of Connectix Corporation. All other trademarks are the property of their respective holders.

Tektronix Phaser 350



Solid-ink office printer rivals color laser printers.



WITH THE PHASER 350, its latest solid-ink printer, Tektronix aims to offer print quality and speed that match those of color laser printers — but at a much lower cost. The Phaser 350 succeeds in being economical: Its \$3,495 base price is roughly half what you'd pay for a new color laser printer, and even the \$5,495 expanded configuration compares favorably to laser printers in terms of price. And two factors combine to keep the per-page cost low as well: The Phaser 350's solid ink is suitable for nearly any porous media, so you can use it with inexpensive copier paper, and the 350 comes with a lifetime supply of free black ink. When you order three boxes of ColorStix (cyan, magenta, and yellow), for \$99 plus shipping, you get a fourth box of black ColorStix free. If you order black only, you'll pay a \$15 shipping fee.

The Phaser 350's output quality is generally comparable to that of color laser printers as well, and on color pages with heavy coverage, the Phaser 350 matches color laser printers' speed. But for bread-and-butter office documents — pages with black text — the Phaser 350 can't crank pages out as fast as a laser printer. What's more, the Phaser 350's solid-ink technology makes double-sided printing impossible, which limits printing flexibility.

The Phaser 350 offers an admirably simple three-step setup: Slide a maintenance tray (which lasts for 12,500 prints and costs \$195 to replace) into the front of the printer; add crayonlike wax ColorStix to the top-loading

cyan-, magenta-, yellow-, and black-ink compartments; and add paper to the 200-sheet paper tray. This is far simpler to manage than the toner, developer, and transfer drums that must be stocked for color laser printers.

The 350's solid-ink technology is unique among office printers: It melts ColorStix and sprays ink onto a rotating drum that transfers the latent image onto paper. Using this technology, the 350 can print on just about any porous media and can output full-color documents at current desktop-color-laser speeds.

The 350 comes in two configurations. The standard configuration, with 300-x-300-dpi resolution, has 8 MB of RAM and 17 fonts, is powered by an AMD 29040 32-MHz RISC



The Tektronix Phaser 350's solid-ink technology sets it apart from other office printers.

chip, and includes Adobe PostScript Level 2; this configuration lacks a Mac network connection (it doesn't even have a LocalTalk port). To use it, you must tack a minimum of \$495 onto the price for an Ethernet adapter card. More realistically, you can get the expanded configuration, which adds \$2,000 to the 350's base price and includes an Ethernet card and an extra 16 MB of RAM and has 600-x-300-dpi output capability — along with new abilities such as job pipelining and the ability to let you check the first print of a multicopy job.

We tested the 350 in its expanded configuration and put it through our standard battery of printer tests. Test after test, the printer performed reliably. We tested how fast the print engine was by printing a 20-page text document. The 350 came very close to matching its rated engine speed, 4 pages per minute, in Standard, 300-x-300-dpi mode — a good default setting for balancing output speed and quality. Fast mode, with a resolution of approximately 300 x 200 dpi, yielded over 5 ppm but rendered text noticeably jaggy.

On color documents with heavy page coverage, such as presentation slides, the 350 matched laser-printer speed and its output was vibrant. Even in Enhanced, 600-x-300-dpi mode, the text seemed to be more jaggy than that of a 600-dpi laser printer, however.

A final comparison of Phaser 350 output with that of color laser printers: Because the output is wax on paper, it is possible to scratch pigment off a page printed by a Phaser 350. But we handled the output samples a lot and found them to be *almost* as durable as color laser prints.

The Bottom Line

The Tektronix Phaser 350 offers some attractive features, such as plain-paper printing, easy setup and maintenance, and a low per-page cost. It's great for on-demand printing of mostly color documents without a monetary penalty for printing in monochrome. But as for fitting into the workgroup-printer category, it lacks the ability to print on both sides of media and its speed falls short of laser printers' when printing text pages. / Tony Bojorquez

Tektronix Phaser 350, \$5,495 (list) for expanded configuration. **Company:** Tektronix, Beaverton, OR; 800-835-6100 or 503-682-7377; <http://www.tektronix.com/>. **Reader Service:** Circle #418.



APPROACHING LASER-PRINTER SPEED / solid-ink printer rivals color laser printers

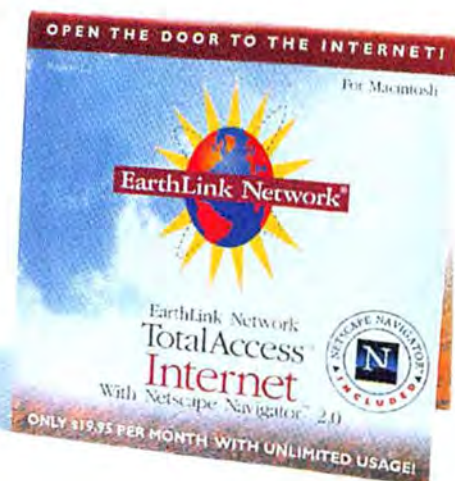
We timed the Tektronix Phaser 350 printing a 20-page Microsoft Word text document, a 4-page Word newsletter with color graphics, a PowerPoint slide (on paper and on transparency), and a QuarkXPress layout. We compared the

results with those of an Apple Color LaserWriter. The Phaser 350 ran at 300 dpi and the Apple printer at 600 dpi. Even doubling the Phaser times to compensate for the difference in resolution, the Phaser 350 fared well on all but the text tests.

	WORD (TEXT ONLY)	WORD (COLOR GRAPHICS)	POWERPOINT (PAPER)	POWERPOINT (TRANSPARENCY)	QUARKXPRESS PAGE
Tektronix Phaser 350 (300 dpi)	5:13	0:55	1:53	1:49	1:24
REFERENCE PRINTER					
Apple Color LaserWriter (600 dpi)	2:56	3:02	5:30	3:33	4:08
	MINUTES	MINUTES	MINUTES	MINUTES	MINUTES
	SLOWER	SLOWER	SLOWER	SLOWER	SLOWER

■ Best performer in each test

Internet for Macintosh.
Install disks. Double click.



It's that simple.



The coolest, easiest Internet access on Earth.

Every account includes E-mail and a free 2 meg Web site.

Call now for your EarthLink Network TotalAccess™
software with **Netscape Navigator™ 2.0**.

1-800-395-8425



Internet access in over 290 cities in the U.S. and Canada. Software for MACINTOSH, WINDOWS, WINDOWS 95, featuring Netscape Navigator 2.0. EarthLink Network is one of the largest Web space providers in the U.S. and also provides ISDN, Frame Relay, T1 and other Internet services. **There is a one-time set-up fee of \$25.00. Prices for Canada are different.*



EarthLink Network, Inc. 3100 New York Drive, Pasadena, CA 91107 Fax: 818-296-2470
Info via email: info@earthlink.net Live human via email: sales@earthlink.net Visit our Web site at <http://www.earthlink.net>

Copyright © 1996 EarthLink Network, Inc. All Rights Reserved. Trademarks are property of their respective owners. Netscape Communications, Netscape Navigator and the Netscape Communications logo are trademarks of Netscape Communications Corporation. © 1996 PhotoDisc.

CIRCLE 90 ON READER SERVICE CARD

**Sony
Picture Quality**

Super Fine Pitch™
Trinitron® CRT

Multiscan®
Technology

Accurate Focus
Corner to Corner

Sony Engineering

Vertically Flat Screen

Higher Resolutions
& Refresh Rates

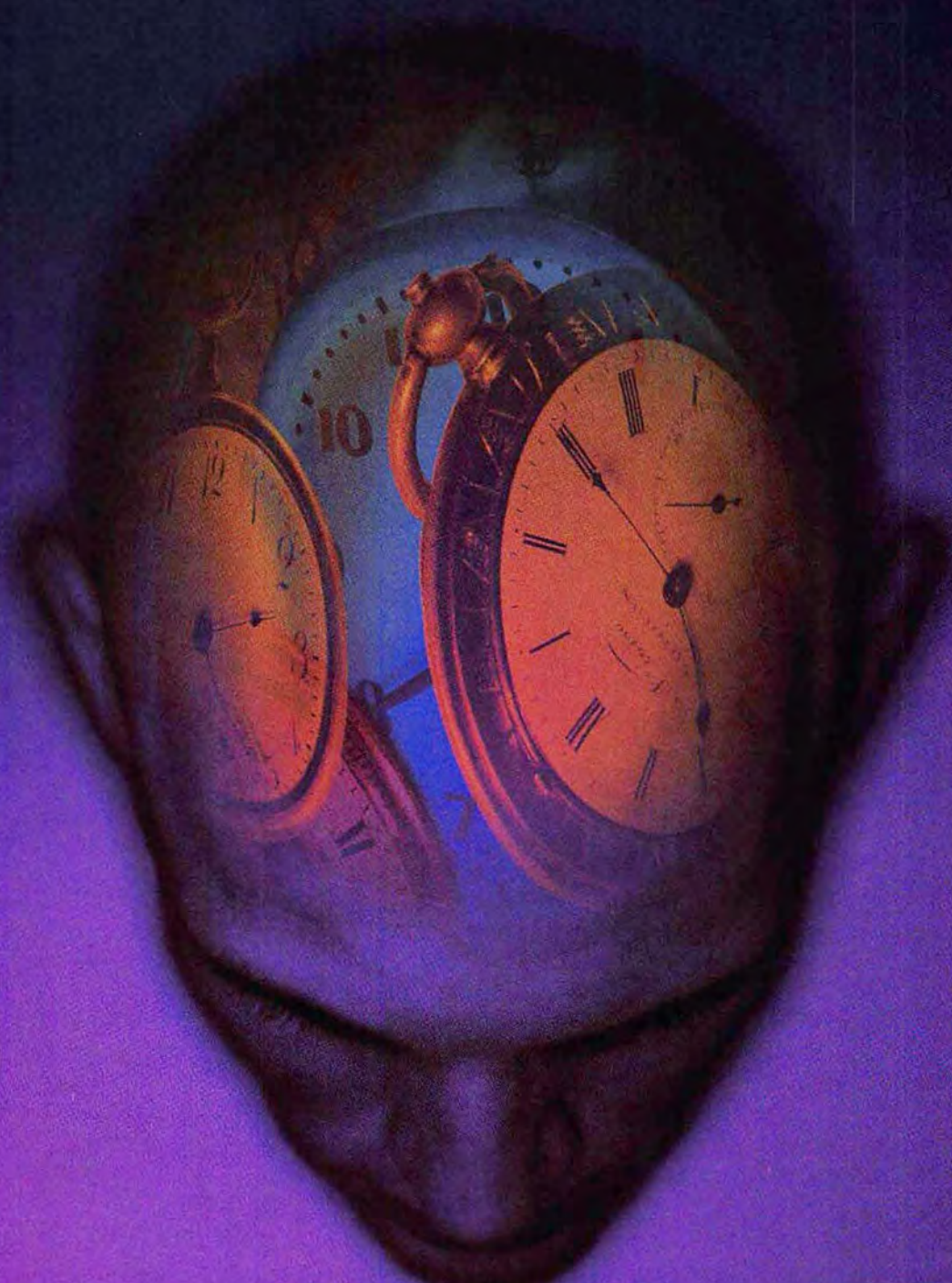
Digital On-Screen
Controls

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.

Trinitron

Multiscan 300sf



SONY



Display your productivity

Displays by Sony. Accurate focus corner to corner.
A cleaner, crisper picture. Vivid, precise color.
Your display is where your work gets done.
Don't you deserve a Sony?

www.sony.com/technology

SONY

SOUND + VISION



PHOTOGRAPHY / GIAMPIERO BENVENUTI

THE 20TH-ANNIVERSARY MACINTOSH

APPLE SCULPTS ITS SWANK NEW VISION FOR THE FUTURE OF THE MACINTOSH.

IMAGINE FOR A MOMENT THAT YOU HAD THE CHANCE TO DESIGN THE ULTIMATE MACINTOSH. What would it look like? What features would it have? How would it be similar to the Mac OS systems available today, and, more important, how would it be different?

In the last year, we've seen self-proclaimed experts attempt to tackle these questions, with results that have often bordered on the bizarre. During that time, and for years before it, Apple has quietly labored on its own vision of the ultimate expression of Mac OS technology — a computer-industry X-Car and a work of art in high-tech plastic and metal alloy, intended to celebrate two decades of innovation and to help define where we go from here.

We were recently allowed to take the 20th-anniversary Macintosh, now just months from completion, into our labs for a thorough examination. What we found may well require the invention of a few new superlatives.

BY ANDREW GORE



IN ORDER TO GIVE its 20th-anniversary Mac such a dramatically sleek and slim look, Apple borrowed technology from its PowerBook line: A bright, sharp 12.1-inch active-matrix display offers users 800-x-600-pixel resolution and 24-bit color at a fraction of the depth of a CRT-based screen. Despite its thin chassis, the Spartacus still offers all the options of a well-equipped desktop Mac, including two serial ports, an ADB port, a SCSI port, audio-in and -out, coax hookups for TV and FM cable connections, and a floppy-disk drive.

SIGHT

Code-named Spartacus (at press time, Apple had not decided what the actual name of the machine would be), the 20th-anniversary Macintosh is the descendent of a long line of conceptual prototypes that some inside Apple nicknamed designer Macs. Unlike most shipping Mac systems, designer Macs are first and foremost an expression of the industrial-design engineer's craft.

So it comes as no surprise that the Spartacus makes one heck of a strong visual impression. From the color-coordinated bronze and brown panels to its Bang & Olufsen-inspired slightly curved chassis, the Spartacus

IF THE DEVIL IS IN THE DETAILS, then the Spartacus is a devilishly clever Macintosh. Everything — from a removable cable guide that helps keep unruly wires behind the machine where they belong, to the side-mounted CD-ROM drive — adds to the “they thought of everything” impression you get when using the machine. But because the machine’s thin chassis requires a specially designed, ultrathin drive, the Spartacus will most likely ship with only a quad-speed mechanism.



looks more like something that belongs in a modern-art museum, or on a *Star Trek* set, than in a computer store. Using technology borrowed from both the PowerBook and the Power Mac lines, Apple has managed to create a Macintosh with a razor-thin profile, dramatic curves, and vast surfaces.

One of the key components to achieving this look is the 12.1-inch active-matrix display, offering 800-x-600-pixel resolution and 24-bit color. Because the Spartacus does not need to concern itself with conserving power, the screen's backlighting is cranked up far beyond what a PowerBook display normally produces, making the screen the brightest, sharpest flat-panel display we've tested. Another component that helps preserve the Spartacus' trim figure is the CD-ROM drive, which is mounted so that the top of the drive faces the user, instead of the front as on most Mac systems. The overall effect is as if Apple had taken the guts of a PowerBook; folded them flat; and then mounted them in a flat, rigid case.

The Spartacus' look isn't just borne of clever integration of existing technologies. It is also the result of no-expense-spared craftsmanship. An example is the curved metal base that operates as both stand and gimbals for the machine's chassis. In order to get a stand that was thin as well as strong enough to hold the weight of the machine, Apple had to have it molded in a factory that specializes in high-tech metal fabrication.

Even the keyboard offers a little extra flare and a clever tweak. Based on a PowerBook design, the keyboard offers leather palm rests with a trackpad in the center. However, unlike a PowerBook's, the trackpad is removable and can be placed on either side of the keyboard, like a mouse. A small compartment under the keyboard holds a leather pad that fits in the slot vacated by the trackpad.



ANYONE WHO HAS USED A POWERBOOK will recognize where Apple got the Spartacus' keyboard. Just like those built into a PowerBook 5300 or 1400, the Spartacus' keyboard sports the standard key set plus a row of reduced-size function keys (sorry, no numeric keypad). It does, however, add a couple of twists: It sports a swank leather palm rest, and the trackpad can be removed and placed on either side of the keyboard, just like a mouse. The keyboard is designed to slide under the computer's chassis when not in use.

SOUND

One of the dominant features of the Spartacus is the two fabric speaker grilles that run the length of the machine. These grilles mask one of the most sophisticated sound systems ever put into a computer system.

Designed by Bose, the two speakers, which offer maximum output of 3 watts per channel, are supplemented by a 7-watt subwoofer about the size of a small dog. Even the subwoofer, which also doubles as the Spartacus' power supply, sports a curvy design, especially around the air dams on the top and base of the unit.

The speaker system is based on Bose's Acoustimass technology and produces tremendously fat sound. Don't be fooled by the relatively low output wattage — in our tests, the speakers were more than powerful enough to fill a large loft with sound.

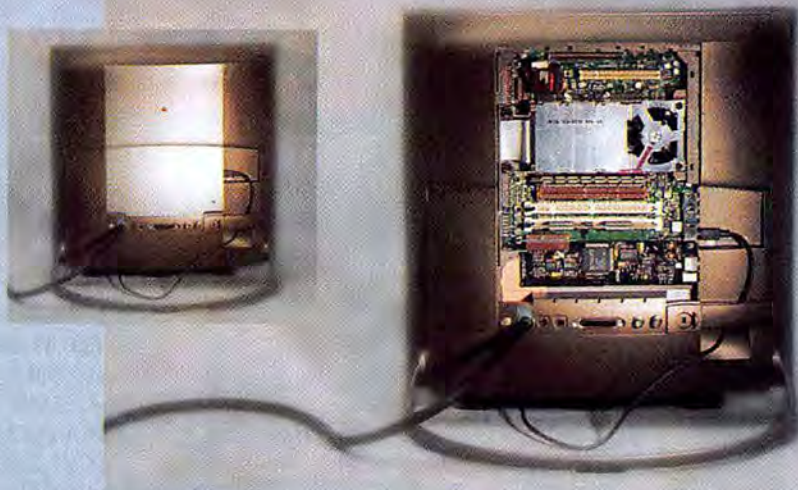
Software in the Spartacus automatically balances sound levels for optimum effect and can also, in combination with Apple's SoundSprocket technology, be used to set the listening angle, creating a rich stereo envelope around the user. The gestalt of all this sound technology is a computer-based stereo that can go toe-to-toe with a moderately priced audiophile system.

STRUCTURE

If a cool chassis and hot sound is all the Spartacus had to offer, buyers could save a bundle and just buy a Bang & Olufsen CD system. However, the Spartacus' clever, functional design is more than skin-deep.

The Spartacus is based on a later generation of the Alchemy logic board, the same one used in the Power Mac 6400. It is capable of using all the expansion options currently available for Apple's entry-level PCI Macs, including the video-in and Ethernet cards (the Spartacus will

LOOKING MORE LIKE a high-tech laundry hamper than a sophisticated speaker component, the Spartacus' subwoofer puts out 7 watts of bass that really fills out the sound generated by the two 3-watt speakers mounted on either side of the chassis. The entire sound system, specially designed by Bose for the Spartacus, incorporates some of the most advanced sound components the company produces. The subwoofer also doubles as the Spartacus' power supply.



A LITTLE PRESSURE on two catches, and the Spartacus' back panel lifts right off to expose the most easily accessible logic board Apple has ever put in a Mac. The slots, from top to bottom, include a 7-inch PCI slot, a communications slot, RAM slots, and an AV slot. Users can also easily access the machine's 2-GB internal Enhanced IDE drive. Apple will include with all Spartacus systems a second back panel with the extra space necessary to accommodate either an Ethernet or a PCI card.

not come equipped with onboard Ethernet or an AV card). However, the Spartacus logic board does differ in two key ways from the Alchemy board: It offers 2 MB of video RAM, as opposed to 1 MB, and it has a 50-MHz, instead of a 40-MHz, processor bus. The difference in VRAM is what makes it possible for the Spartacus to offer 24-bit color at 800 x 600 pixels (because it uses a flat-panel display, screen resolution is fixed). The difference in bus speed allows the Spartacus to run the same processor as the 6400 but with a lower clock-rate multiplier, thus noticeably increasing overall speed (for more on the effect of bus speed on system speed, see "Breaking the Speed Barrier" in this issue's News section).

The system we tested used a 200-MHz PowerPC 603e with a 256K Level 2 cache, although Apple said that it will likely incorporate a faster processor by the time the Spartacus ships, in June. Even with the slower CPU, the Spartacus' performance was very snappy, no doubt due to the faster bus and the L2 cache. It also included a 2-GB Enhanced IDE hard drive.

Although this all sounds nice, the really cool thing about the Spartacus' internal structure is how accessible everything is. You remove the machine's back panel by depressing two small catches at the bottom and lifting up. Once

the panel is off, everything is right in front of you: RAM slots (standard 32 MB of RAM, expandable to 128 MB), an AV slot for a video-in card, a communications slot for Ethernet (the Spartacus will include a 33.6-kbps GeoPort modem pod), and a 7-inch PCI-card slot. To add either Ethernet or a PCI card, users will need to swap the flat back


panel with one that has a small hump, to make room for the cards. Both back panels will come with the machine.

Also included in the basic package are built-in TV and FM tuners; the Spartacus will also include 3-D-hardware acceleration onboard, making it a home entertainment center that just happens to have a Mac inside.

THE BOTTOM LINE

At approximately \$9,000, the Spartacus is not going to be for everyone. That's just as well, because Apple plans to build only 10,000 of these machines and will likely offer them only in the U.S., the U.K., Japan, France, and Germany. People looking to buy the Spartacus will need to either go to one of the select few dealers authorized to carry it (according to Apple, only longtime Apple-only dealers and certain key vertical-market VARs will get to offer the Spartacus) or order it from a special Web site.

When people finally get their hand-built, limited-edition Mac, it will come with concierge service — Apple will send someone to the buyer's home or office to set up the machine, install any add-ons and software, and give them an introduction. As to how those lucky few will feel about their new computer: If the reactions the Spartacus got around our office are any indication, it will quickly become their most treasured possession.

As to what the Spartacus means for rank-and-file Mac users, a lot will depend on how well Apple and its clone vendors learn the lessons it has to teach. If future Macs start to offer better sound, more-serviceable designs, more-creative chassis, and a unique flair that can't be had on any Intel-based PC, then the Spartacus could prove to be the most important Mac Apple ever ships. 

Andrew Gore is the editor of *MacUser*.



RELATED INTERNET SITES

• **Apple Computer**
The home page of Apple Computer, where you can find information on Apple hardware and software.

GO TO <http://www.zdnet.com/macuser/0297.html#spartacus>

BOOKMARK

INTRODUCING MOTOROLA® STARMAX™

THE QUALITY OF MOTOROLA. THE POWER OF MAC® OS.

StarMax 3000/180

MAC OS-COMPATIBLE DESKTOP PERSONAL COMPUTER

- ✓ 180MHz PowerPC 603e
- ✓ 16MB RAM (EXP. TO 160MB)
- ✓ 1.2GB INT. HARD DRIVE
- ✓ 28.8Kbps EXT. FAX/MODEM
- ✓ 8X CD-ROM DRIVE

\$1599!

Includes
**MEGA
BUNDLE**
of popular software
and CD titles!

Motorola, creator of the PowerPC chip, has set a new standard for 100% Macintosh®-compatible performance...

Introducing the new Motorola StarMax™ series of desktop and mini-tower systems, featuring a state-of-the-art motherboard design and a lightning-fast hard drive – both exclusive to Motorola. With speeds of up to 240MHz, you'll race through all your graphics and publishing applications faster than you ever dreamed possible!

The Motorola StarMax series brings you industry-leading PowerPC performance, legendary quality, and the best service and support warranty in the business.

All at a price you can't afford to miss!



**Includes
28.8 Modem!**



Leading the way with
Mac OS-compatible
personal computers.



Mac OS



MOTOROLA

Computer Group

THE STARMAX FAMILY OF MAC OS PERSONAL COMPUTERS.

The affordable StarMax 3000 series features a high-performance PowerPC 603e processor, plus up to 32MB RAM, a hard drive with up to 2.5GB of storage, an 8x CD-ROM, 1MB VRAM, and 256K Level 2 cache. You even get a blazing-fast Motorola 28.8 data/fax modem!

The top-of-the-line StarMax 4000 series is based on the PowerPC 604e processor – proven in industry benchmarks to be 50% faster than the 603e processor running at the same speed.

The StarMax 3000 and 4000 series are available in two



configurations: a desktop system with three PCI expansion slots and three drive bays, or – the ultimate in expandability – a mini-tower with five PCI expansion slots and five drive bays!

Plus, only Motorola gives you five worry-free years of exclusive Motorola-Branded service and support. Your comprehensive warranty includes 90-day "up and running" telephone support, and unmatched on-site service the next business day for your first year – you can even upgrade your warranty to get same-day on-site service for five full years!

PERSONAL COMPUTERS.

THE PERFORMANCE OF POWERPC™



MOTOROLA STARMAX 3000 MAC OS DESKTOP

- 180MHz PowerPC 603e Processor
- 16 MB RAM [Exp. to 160MB]
- Internal 1.2 GB Hard Drive
- Internal 8X CD-ROM Drive
- 256K Level 2 Cache
- 1 MB VRAM [Exp. to 4MB]
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- External 28.8Kbps Fax/Modem
- 3 PCI Expansion Slots
- Two ext. drive bays, 1 internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$1599.

Ask for item CPU 0538
Monitor sold separately.



MOTOROLA STARMAX 3000 MAC OS DESKTOP

- 200MHz PowerPC 603e Processor
- 16 MB RAM [Exp. to 160MB]
- Internal 1.2 GB Hard Drive
- Internal 8X CD-ROM Drive
- 256K Level 2 Cache
- 1 MB VRAM [Exp. to 4MB]
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- External 28.8Kbps Fax/Modem
- 3 PCI Expansion Slots
- Two ext. drive bays, 1 internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$1999.

Ask for item CPU 0449
Monitor sold separately.



MOTOROLA STARMAX 3000 MAC OS MINI TOWER

- 180MHz PowerPC 603e Processor
- 32 MB RAM [Exp. to 160MB]
- Internal 2.5 GB Hard Drive
- Internal 8X CD-ROM Drive
- 256K Level 2 Cache
- 1 MB VRAM [Exp. to 4MB]
- Stereo 16-Bit Sound I/O
- External 28.8Kbps Fax/Modem
- 5 PCI Expansion Slots
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$1899.

Ask for item CPU 0537
Monitor sold separately.

STARMAX 3000/200
Mac OS mini-tower system

\$2199.

Ask for item CPU 0450
Monitor sold separately.



MOTOROLA STARMAX 3000 MAC OS MINI TOWER

- 240MHz PowerPC 603e Processor
- 32 MB RAM [Exp. to 160MB]
- Internal 2.5 GB Hard Drive
- Internal 8X CD-ROM Drive
- 512K Level 2 Cache
- 4 MB VRAM
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- External 28.8Kbps Fax/Modem
- 5 PCI Expansion Slots
- Three ext. drive bays, Two internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$2799.

Ask for item CPU 0548
Monitor sold separately.



MOTOROLA STARMAX 4000 MAC OS DESKTOP

- 160MHz PowerPC 604e Processor
- 16 MB RAM [Exp. to 160MB]
- Internal 1.2 GB Hard Drive
- Internal 8X CD-ROM Drive
- 512K Level 2 Cache
- 2 MB VRAM [Exp. to 4MB]
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- 3 PCI Expansion Slots
- Two ext. drive bays, 1 internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$2299.

Ask for item CPU 0451
Monitor sold separately.



MOTOROLA STARMAX 4000 MAC OS DESKTOP

- 200MHz PowerPC 604e Processor
- 16 MB RAM [Exp. to 160MB]
- Internal 1.2 GB Hard Drive
- Internal 8X CD-ROM Drive
- 512K Level 2 Cache
- 2 MB VRAM [Exp. to 4MB]
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- 3 PCI Expansion Slots
- Two ext. drive bays, 1 internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$2999.

Ask for item CPU 0453
Monitor sold separately.



MOTOROLA STARMAX 4000 MAC OS MINI TOWER

- 160MHz PowerPC 604e Processor
- 32 MB RAM [Exp. to 160MB]
- Internal 2.5 GB Hard Drive
- Internal 8X CD-ROM Drive
- 512K Level 2 Cache
- 2 MB VRAM [Exp. to 4MB]
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- 5 PCI Expansion Slots
- Three ext. drive bays, Two internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$2899.

Ask for item CPU 0452
Monitor sold separately.



MOTOROLA STARMAX 4000 MAC OS MINI TOWER

- 200MHz PowerPC 604e Processor
- 32 MB RAM [Exp. to 160MB]
- Internal 2.5 GB Hard Drive
- Internal 8X CD-ROM Drive
- 512K Level 2 Cache
- 2 MB VRAM [Exp. to 4MB]
- Supports 14", 15", 17" or 21" Monitors, VGA and SVGA Displays
- Stereo 16-Bit Sound I/O
- 5 PCI Expansion Slots
- Three ext. drive bays, Two internal
- Five-Year Manufacturer's Warranty
- Extended Keyboard and Mouse

\$3199.

Ask for item CPU 0454
Monitor sold separately.



What makes the Motorola StarMax Mac OS computer your best choice?

- ✓ Improved motherboard design for faster Mac OS performance
- ✓ Lightning-fast 1.2 and 2.5GB hard drives
- ✓ Includes 28.8 Fax/Modem and Internet Access Software (3000 Series)
- ✓ 5-Year Motorola-Branded Warranty
- ✓ First year on-site service and support
- ✓ Unsurpassed Motorola quality



MOTOROLA
Computer Group

MacWAREHOUSE

Order toll-free

24 HOURS A DAY, 7 DAYS A WEEK

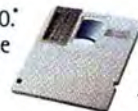
1-800-593-9078

CIRCLE 155 ON READER SERVICE CARD

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 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.



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

Apple's new Mac OS 7.6 release is no revolution in OS software, but it's on time and OpenDoc-ready.

The Spirit of 7.6

MAC OS 7.6, formerly known as Harmony, is no great leap forward for Mac OS software. After more than a year of enticing Apple demos of user-selectable desktop themes, a Finder that can walk and chew gum at the same time, active assistance, and a speedy full-text search engine — plus promises of greater stability and improved performance — Mac OS 7.6 comes as a bit of an anticlimax. It has none of these spiffy new features.

However, as the first release to appear under Apple's new OS strategy of delivering two reference upgrades a year, Mac OS 7.6 does have one thing going for it: It shipped on time. And for that, Apple should be applauded. After all, it takes guts to ship an upgrade with as little to offer as Mac OS 7.6 just to meet a schedule. Seriously. Think about it.

If Apple were still using its old OS-delivery strategy, the new release would not have been available until Java support, one

of its planned features, was ready. That means it would have shipped in February or March rather than in the scheduled month, January. With Apple's new approach, we don't have to wait for the few new OS features that *are* ready to ship. And as for Java, Apple plans to ship it as a stand-alone extension sometime early in 1997. Presumably, it will become a core OS feature in July, when Apple's next reference release (code-named Tempo) is due to ship.

BY HENRY BORTMAN

Apple's new OS-upgrade strategy has other advantages over the old triennial mega-upgrade approach. Many features originally slated for Mac OS 8 were intended to run only on PowerPC-based Macs. These will now be delivered as additions to System 7. And Mac OS 7.6 runs on 68040- and 32-bit-clean 68030-based machines as well. (The IIX, IICX, and SE/30, however, are no longer supported — even if you have MODE32 installed.) An example is the new Finder, with pop-up folder tabs and spring-loaded menus as well as the ability to launch applications, copy files, and empty the Trash all at the same time. It's now a likely candidate for the July Tempo release.

These benefits aside, though, we found one gaping hole in Apple's new OS strategy. At press time, the company still had not articulated a plan for delivering the new modern foundation that was to have been at the heart of Mac OS 8. Although *MacUser* has learned that the Mac OS 8 engineering effort has been refocused to deal solely with the new foundation — the release's other features are being peeled off for inclusion in the semiannual-upgrade program — it remains unclear how or when Apple will deliver the new foundation (see the "Behind the Eight Ball" sidebar). It's also not clear how Apple will manage backward compatibility with existing Mac applications and how developers will make the transition to the new OS core.

A Bird in the Hand

Meanwhile, we've got Mac OS 7.6. And, in addition to some obligatory bug fixes, it does have some noteworthy new features. The most significant is OpenDoc (version 1.1) — Apple's component-software architecture is now included as part of the core OS, rather than as an optional install, as it was with System 7.5.3. [As we went to press, we learned that the Mac OS 7.6 installer will not install OpenDoc on 680x0 machines. Apple found a bug in its Code Fragment Manager for 680x0 machines that can cause crashes and data loss. Because OpenDoc relies on the Code Fragment Manager, Apple decided to play it safe. Whether the bug will be fixed in time to be included in the April Mac OS update was unclear at press time. — Ed.] Cyberdog (version 1.2), Apple's suite of OpenDoc-based Internet components, is also included in 7.6 — its first appearance as part of the retail package. Cyberdog is installed by default, but users can opt not to install it if they prefer (if you're not ready to relegate your Internet activities to Cyberdog, you will have the option of using the Apple Internet Connection Kit, which will be bundled with Mac OS 7.6).

OpenDoc lets users arbitrarily embed independent modules, called parts, within OpenDoc-compatible documents. Parts can perform various functions — for example, you can randomly place an editable chart, a rotatable 3-D image, a QuickTime movie, and a live Web-browser window within a word-processing document by simply dragging the parts into position. You can go even further and include a set of button components that run AppleScript scripts, to control the interaction among the parts (see the "OpenDoc" sidebar for more ideas).

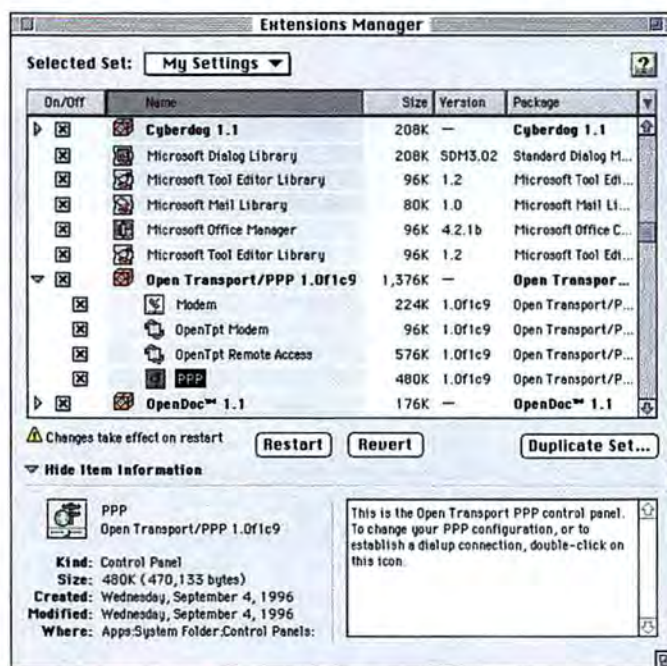
Other major features of Mac OS 7.6 are a new system-software installer; a new Extensions Manager; Open Transport 1.1.1 (a bug-fix update); Open Transport/PPP, for IP dial-up connections; new Apple telecom software that enables GeoPort adapters to support 28.8-kbps connections; LaserWriter 8.4 and Desktop Printing Software 2.0, which together improve printing performance and enhance desktop printing; and QuickTime 2.5, with expanded MPEG and MIDI support. Many of these bits and pieces were previously available separately via the Internet.

First Encounter

When you start installing Mac OS 7.6, the first novelty you'll see is the Installer application itself. Unlike past versions of this utility, the new installer steps you through Apple's recommended pre-installation process, to increase your chances of success. In particular, it gives you the opportunity to upgrade your hard-drive driver software — if you have an Apple disk formatted with Apple's Drive Setup — and it automatically runs Disk First Aid to check your disk for problems before the install. Users' failure to perform these preparatory steps — Apple formerly recommended them in Read Me files, but you know how that goes — was a major cause of unsuccessful system-software upgrading in the past. Apple has also simplified its approach to custom installation and made it easier to tell which optional components are installed by default.

Users will also appreciate the improved look and capabilities of Mac OS 7.6's new Extensions Manager (version 4.0). But don't toss out Conflict Catcher yet: Extensions Manager still won't help you through the reductive process of isolating problem extensions. What it will do is make it easier to get information about the functions of individual extensions and control panels.

We especially liked Extensions Manager's ability to display installed extensions and control panels in various ways. It can display them in the "as Items" view, which lets you see one unified list of everything you have installed, regardless of where it's located. If you opt for "as Folders," you see the contents of the Extensions folder, the Control Panels folder, the System Folder proper, and more, displayed in separate groups. The most useful view is "as Packages," which groups items identified by Apple (in the case of system software) or third parties (in the case of applications and utilities), regardless of



The new Extensions Manager, which lets you view extensions and control panels in a variety of ways, is one of Mac OS 7.6's best features. Shown here is the most useful view, dubbed "as Packages." It groups related items, regardless of their location on your hard disk. At press time, most extensions from third-parties (Microsoft is the example here) did not yet include the information Extensions Manager needs in order to create useful groups.

Behind the Eight Ball / *major Mac OS retrofit long overdue*

WITH THE RELEASE OF HARMONY, Apple has finally managed to deliver a release of the Mac OS on schedule. Moreover, the company's new plan to deliver whatever OS components are ready every six months, with the emphasis on *deliver*, is a welcome departure from its past record of broken promises.

But, as we went to press, nearly three months have passed since Apple first announced that it had canceled Mac OS 8 (Copland) as it was originally conceived. And there's still no word about how the company plans to roll out the new foundation that was to have been the centerpiece of Mac OS 8. That's a big problem.

It's all well and good to add bells and whistles to System 7, but the Mac OS' aging foundation is cracking. It needs seismic retrofitting — badly. Today's

ponderous new data types — animations, movies, 3-D images — put far more strain on the Mac OS than it was originally (15 years ago) designed to handle. The fact is, Apple has created gobs of great multimedia technology for the Mac but the operating system underneath isn't constructed to handle the weight. It's a testament to the rubber bands and paper clips Apple has cleverly applied that the edifice we know as the Mac OS remains intact.

Many of the needed modern OS features were slated to appear in Copland and others in Copland's successor, Gershwin. These features, missing from the current Mac OS, read like the table of contents from a textbook for Operating Systems 101: preemptive multitasking, multithreading, symmetric multiprocessing, true virtual memory, and

protected memory. (For an explanation of these OS features, see "Plan Be," January '97, page 64.)

Due to advances in Windows NT, Microsoft now has just such a modern operating system. Because of Windows NT's features, it is capable of seriously challenging Apple's dominance in high-end publishing and media-content-creation markets. The BeOS, which will shortly be available for PowerPC hardware, is also a potential contender for a share of this lucrative market. In short, if Apple wants to hold onto its lead in this arena — indeed, if the Mac is to remain a healthy platform in any market — the company desperately needs to develop a plan for delivering a new modern Mac OS foundation as well as for articulating its vision to developers and users. And it needs to do so real soon.

their location on your hard disk. This simplifies the task of turning off everything having to do with speech recognition, for example. As third parties begin to take advantage of this new capability (they have to add information to their extensions so that Extensions Manager can accomplish the grouping), Extensions Manager will become an increasingly valuable troubleshooting tool.

Phone Home

A trio of Mac OS 7.6 features enhances the Mac's telecommunications capabilities. Open Transport has been upgraded to version 1.1.1, which fixes several bugs. Also included is the long-awaited Open Transport/PPP, which makes it possible to use Open Transport for dial-up access to the Internet. Users set up PPP connections by using two new control panels.

Apple will also maintain its tradition of supporting yesterday's modem connection speeds just as they're being replaced by today's higher speeds. To wit, the Apple telecom software included as part of Mac OS 7.6 will enable GeoPort modem adapters to connect at 28.8 kbps. That's the good news. The bad news is that many of today's leading telecommunications products support 33.6 kbps.

Completing the trio of telecom offerings is Apple Remote Access Client software (version 2.1), which lets Macs establish AppleTalk dial-up connections to network-based printers and AppleShare servers. ARA has historically been bundled with PowerBooks, but it hasn't been a component of Apple's retail system software. Future versions of ARA are expected to support PPP connections — more efficient than AppleTalk for modem connections — to AppleShare servers.

Printing

In the printing department, Mac OS 7.6 has LaserWriter 8.4 and Desktop Printing Software 2.0, both of which shipped previously only with selected Apple printer products. LaserWriter 8.4, a one-pass driver, offers significant speed improvements over the previous two-pass LaserWriter 8 driver. Its interface is also enhanced, making it easier for users to access the device-specific features of various printers.

Desktop Printing Software 2.0 improves on the drag-and-drop desktop-printing metaphor. It's the first version of desktop-printing software that lets you move desktop-printer icons *off* the desktop and

into any folder. A Control Strip module makes it easier to switch among desktop printers. And it's now possible to choose a printer from directly within the LaserWriter Print dialog box.

The Bottom Line

It's a little too soon to judge the wisdom of Apple's new twice-a-year system-software-upgrade strategy. Mac OS 7.6 was a rush job, designed more to prove that Apple could actually get a system out the door on time than to deliver significant new functionality. But a single success, particularly one that represents organizational more than technical progress, is only the first step. Apple will have to establish a longer track record before it can celebrate.

And then there's the nagging question of value. There's almost nothing in Mac OS 7.6 that users can't continue to download free from the Internet. Sure, there's some advantage to having everything in one place, but is the new release really worth paying for? That, of course, depends on how much money Apple's going to charge, a detail that at press time was not yet finalized.

Hopefully, Apple will be smart enough to realize that if it wants users to buy into its semiannual-release program, it's going to have to price its upgrades commensurately with their value. And frankly, the value of Mac OS 7.6 isn't all that great — we'd like to see Apple sell it at a very low cost, something on the order of \$25 (perhaps a bit more if it's bundled with the Apple Internet Connection Kit).

We'd like to see Apple offer a discount-subscription program. If the company is going to ask users to upgrade twice a year from now on, it would do well to think about what type of financial incentive to offer. Even if subsequent upgrades offer more than Mac OS 7.6 does — and it's likely they will — users are going to suffer sticker shock if they have to pay full price each time Apple rolls out a new OS version.

Meanwhile, you may be wondering whether Mac OS 7.6 is for you. If you like to keep up with the latest and greatest, go for it. If you want to get in on the ground floor with OpenDoc and Cyberdog, this is your chance. But if your system is working just fine the way it is and Apple decides to price the upgrade in the \$99 range, as it has with previous upgrades, you're probably better off waiting. You won't be missing out on much, and if things go according to plan, there'll be a more compelling upgrade six months down the road.

OpenDoc / Apple technology stands apart

APPLE'S OPENDOC component-software technology has been an installation option since Apple began shipping System 7.5.3. But with Mac OS 7.6, it becomes a core part of the Mac OS. And OpenDoc's faithful Internet companion, Cyberdog, gets installed by default.

To date, OpenDoc has been more of a curiosity than a guiding light to what Apple has dubbed "the future of software." But with OpenDoc's inclusion in Mac OS 7.6 and the release of several useful third-party components, called parts, it's time to take notice. OpenDoc is now officially A Big Deal.

OPENDOC 101

OpenDoc components, known as *parts* in OpenDoc lingo (see "OpenDoc Glossary"), are relatively small software modules that can be linked together within OpenDoc-compliant documents, which are known as *containers*. For example, let's say you need to prepare a multimedia presentation. Within your document, you might want to include spreadsheets, 3-D charts, QuickTime movies, and perhaps even a live link to a Web site.

With today's throw-everything-into-one-application approach to software, a presentation-program developer who wants to meet all your needs will have to build explicit support for each of these data types into the application. That's a lot of work. Still, many developers are prepared to do it, because they have no other way of meeting customer needs. The unfortunate result is that many applications have grown to huge proportions, taking up tens of megabytes of disk space and requiring many megabytes of RAM to run (can you say Microsoft Office?).

With the OpenDoc approach, developers can concentrate their efforts on building task-specific application features, such as the ability to create templates and present slide shows, to use our presentation-package example. But it wouldn't be necessary to *also* do all the work of supporting spreadsheets, charts, movies, 3-D images, and Web links. By supporting OpenDoc, developers would enable you to add those functions to a presentation. All you would need to do would be to find the requisite OpenDoc parts and drag them into your presentation document, and — voilà! — OpenDoc would handle them automatically.

Because different functions are broken out into independent parts, users can mix and match parts as they choose, selecting a word-processing part here, a spreadsheet part there,

and a charting part somewhere else. As long as all the parts conform to OpenDoc standards, they should interoperate seamlessly.

You're not convinced? We don't blame you. It might help to know there is an organization, Component Integration Labs (CI Labs), responsible for ensuring that OpenDoc parts behave themselves. CI Labs has developed a test suite for parts — if a part passes the test, it's officially dubbed a Live Object. Live Objects are certified to work properly with each other.

Parts also offer financial advantages to users. Because they're small, they can be sold at lower prices than traditional applications.

KICK-STARTING OPENDOC

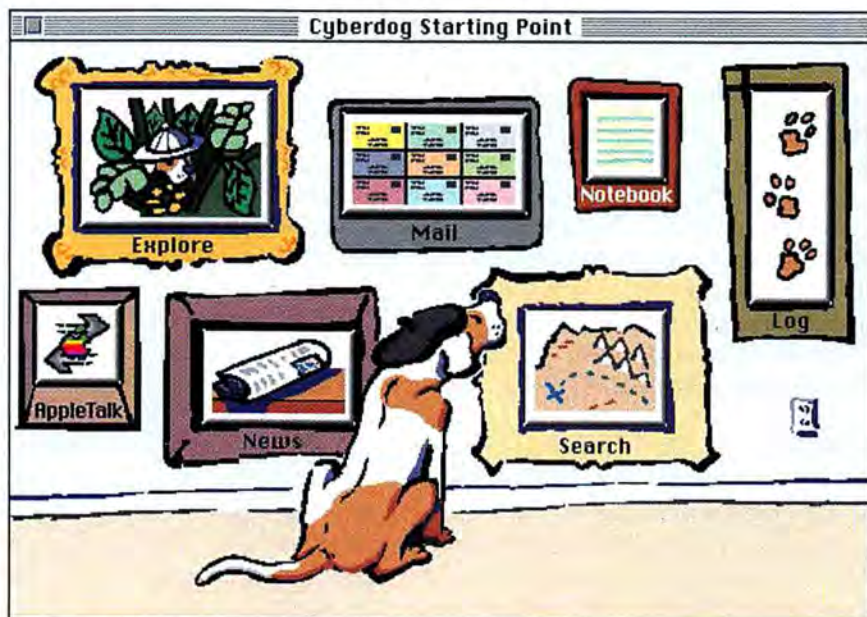
Although Apple has big plans for OpenDoc, including the eventual transformation of the Finder into an OpenDoc container, the company's offerings are for now more modest. To get users going, Apple has included in Mac OS 7.6 a set of basic parts called Apple Live Objects Essentials (see the "Live Objects 101" table).

More interesting is Cyberdog, Apple's collection of Internet parts (see "Walking the Cyberdog," July '96, page 69). Version 1.2 is included in Mac OS 7.6 and installed by default. Although Cyberdog takes an innovative approach to Internet access by letting you embed Web browsers and FTP directories directly within

other documents, it still needs a bit of work before it's ready to replace more-traditional Internet applications.

Perhaps Cyberdog's most serious weaknesses are that its Web-browser part still doesn't support plug-ins and still doesn't support some of the most popular HTML features, such as frames and transparent GIFs. Apple and Netscape have announced that Netscape will develop a Cyberdog-part version of its popular Netscape Navigator browser. Netscape Navigator for Cyberdog will address both of these issues, but neither Apple nor Netscape has committed to a release date. When it finally ships, the Netscape browser part will replace Apple's current Web-browser part as a standard component of Cyberdog.

In the meantime, Apple is working to address its browser part's shortcomings. Expect to see support for more HTML tags in the next version. As for plug-ins, the company has already made available online a beta version of an extension to OpenDoc, Internet Plug-in Viewer, that enables the Cyberdog browser part to correctly display Web sites that require supported plug-ins. This solution has a fascinating twist: Because Internet Plug-in Viewer is OpenDoc-based, it will enable users to embed and run plug-ins from within any OpenDoc document, not just from within Cyberdog-browser windows.



Mac OS 7.6 includes a new Cyberdog Starting Point document. In addition to the log, notebook, Web, search, e-mail, and news functions provided in the original version, the new document includes an alternative to the Chooser for accessing AppleTalk-network-based file servers.

WHAT'S IN A FACE?

Cyberdog 1.2 also addresses interface criticisms voiced by some people about the original, 1.0, release. But in attempting to address them, Apple appears to have traded one problem for another. OpenDoc is document-based, not application-based, so you don't launch OpenDoc applications and then create documents. That's because there are no OpenDoc applications, just part editors and viewers. To create a document, you double-click on the appropriate type of stationery icon.

In keeping with this new approach, Apple replaced the traditional File menu with the Document menu and removed the Quit item from the menu. After all, the logic went, you don't quit documents, you simply close them. But when Apple applied this approach to Cyberdog documents, users complained. They wanted a way to close all their Internet-related documents with a single command. So Apple made an exception for Cyberdog, which actually runs as a separate application — when you open a Cyberdog document, you don't get the standard OpenDoc Document menu, you get the traditional Mac File menu, complete with the Quit command.

The result is rather like a maze. Activate any OpenDoc document *except* a Cyberdog document — even if you're working with a Cyberdog part embedded in some other type of document — and you see the new Document menu. But activate a Cyberdog document — even if you're working with a non-Cyberdog part embedded in that document — and you see the traditional File menu. This is a dubious achievement.

THIRD PARTIES

If the fate of OpenDoc depended entirely on Apple's offerings, it would be in for a rough ride. The real excitement comes from third-party developers. And they're not the developers you're used to. True, ClarisWorks, Corel WordPerfect, and a handful of other well-established applications are being modified to support the embedding of OpenDoc parts. But software giants such as Adobe, Microsoft, and Macromedia have no current plans to support Apple's component technology. Much of what's hot in "partware" is coming from startups such as Digital Harbor and Adrenaline Software. And although the current selection is limited, dozens more parts are just around the corner.

In addition, some vendors, rather than producing parts themselves, are finding innovative ways to use Live Objects to meet new challenges. Addison-Wesley, for example, is creating a group of interactive CD-ROM titles that use Cyberdog to access updates posted on the Internet. The SimCalc Project is creating a set of parts math and science teachers can use to



create interactive lessons demonstrating concepts such as velocity and acceleration. Another vendor, Kantara Development, is offering an extension to OpenDoc, called PartFinder, that automatically connects you to the company's PartBank Web site whenever you open an OpenDoc document that contains a part for which you don't have an editor or viewer installed; from PartBank you can instantly download the needed software.

As parts proliferate, we may soon be faced with having a variety of parts installed that perform similar functions. Fortunately, Apple provides a mechanism — the Editors Setup control panel — that lets you select your default editor for data of a particular type, such as PICT images. Unfortunately, the control panel has a nearly incomprehensible user interface. Apple has assured us that the interface is high on the "to be fixed" list.

CRYSTAL GAZING

Does OpenDoc represent the future of software, or will it be just another Apple technology that flares brightly and then quickly fades to black? From early returns, it's too early to tell. Even if OpenDoc is ultimately successful, expect a long transition period that probably won't be all that smooth. OpenDoc has some serious rough edges. The concept may be good, but the implementation could use some work, particularly in the area of user interface. OpenDoc's UI problems extend far beyond the few issues addressed in this article.

Still, shortcomings aside, OpenDoc is one of the hottest technologies Apple has going. If you haven't tried it yet, we highly recommend a test drive. You might be pleasantly surprised.

OpenDoc Glossary

component: generic term for a software module that performs a specific function and can be linked with other modules within a compound document.

container: document that accepts embedded OpenDoc parts.

container application: traditional application modified to allow OpenDoc parts to be embedded within the documents it creates; not an OpenDoc part and cannot be embedded within other documents.

container part: OpenDoc part that can serve as both a container and an embedded part.

Cyberdog: Apple's collection of OpenDoc parts that performs basic Internet functions.

Live Object: OpenDoc part that is certified by Component Integration (CI) Labs as having passed its suite of OpenDoc-compliance tests (CI Labs doesn't yet have a compliance test suite for container applications, which are therefore not technically considered Live Objects).

OpenDoc: Apple's component-software technology.

part: embedded element of an OpenDoc document that performs a specific function, such as creating a chart or browsing the Web.

part editor: software for editing the contents of OpenDoc parts; part editors are stored in the Editors folder, which the Mac OS 7.6 installer creates automatically in the System Folder.

stationery: icon that serves as a proxy for an OpenDoc part; double-clicking on a stationery icon creates a new document, and dragging a stationery icon into an existing document embeds the part represented by the icon.

viewer: software module that lets you view, but not edit, the contents of OpenDoc parts.

Sum of the Parts

OPENDOC'S CLAIM TO FAME is that it enables you to mix and match Live Objects from different sources, so that you can create custom documents that satisfy your own special requirements. The document shown here demonstrates six

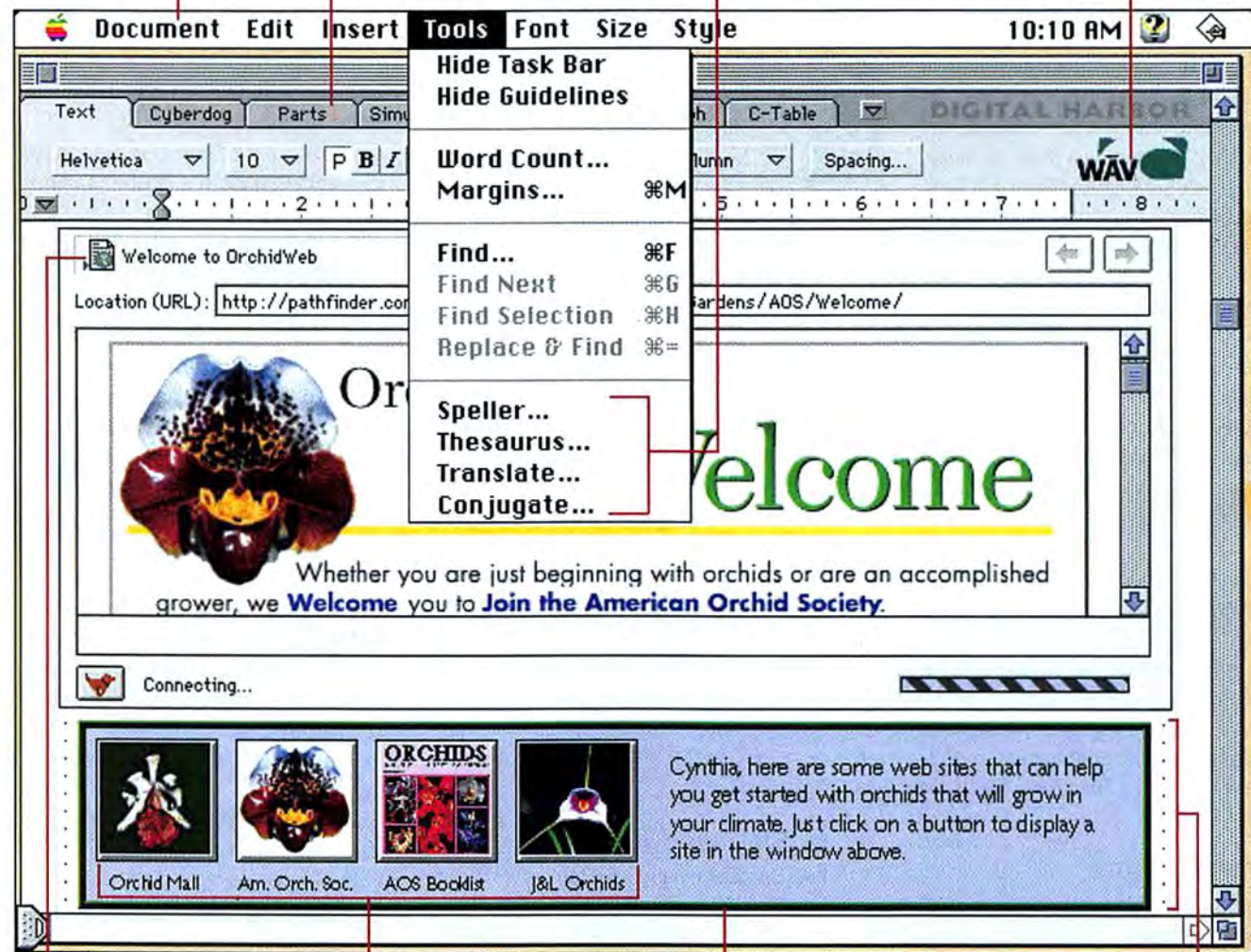
types of Live Objects, all working together. Two of the Live Objects are from Apple, and the remaining four of them are each from a different third-party vendor.

In OpenDoc documents, the File menu is replaced by the Document menu.

Folders in the WAV document's tool bar provide easy access to installed Live Objects.

When SoftLinc's LEXI part is installed, WAV adds spell-checking, thesaurus, language-translation, and verb-conjugation items to its Tools menu.

Digital Harbor's WAV word processor was used to create the container for this OpenDoc document, which here serves simply as a shell for embedding other parts.



This is a Cyberdog Web-browser part we embedded in the WAV document by dragging in the CyberItem (a special Cyberdog icon) that represents the Web page shown here.

These buttons were created with Hutchings Software's Rapid-I Button part. The buttons have been programmed with AppleScript — when you click on one of them, the corresponding Web page appears in the Cyberdog-browser window.

Corda Technologies' C-TextBox part was used to create this colored background and border.







The grid you see on either side of the colored box is a tool from an Apple Draw part, which was used here to align the tops of the box's buttons automatically. The buttons and the colored box are actually embedded within the Apple Draw part, which, in turn, is embedded in the WAV container.

Live Objects 101

THE DEFAULT MAC OS 7.6 INSTALLATION places two sets of basic parts on your hard disk: Apple Live Objects Essentials and Cyberdog Tools.

Apple Live Objects Essentials contains five parts, three of which provide basic functions, such as drawing and audio recording and playback. The other two enable viewing of images — bitmaps (PICT, TIFF, GIF, and JPEG) and QuickDraw 3D objects. You don't interact directly with viewers; when you place an image or 3-D object in an OpenDoc document, the corresponding viewer goes into action behind the scenes, allowing you to see the object on-screen.











The Cyberdog Tools folder contains three parts, which facilitate the creation of Cyberdog-based documents and the inclusion of Internet functionality within any OpenDoc document. Cyberdog also provides some basic viewer capabilities, including support for viewing QuickTime movies.

Part	Function
Apple Live Objects Essentials	
 Apple Audio	Part that enables you to record and play back sounds.
 Apple Button	Part that lets you run scripts, play sounds, convert text to speech (with required extension installed), and launch URLs.
 Apple Draw	Container that lets you do basic drawings, using lines, rectangles/squares, and ovals/circles; create text; group and align objects; and move objects forward and backward.
Cyberdog Tools	
 Cyberdog CyberButton	Part to which you can attach a URL, picture, and text label to create an easy-to-use graphical interface for linking to Web or FTP sites and to newsgroups.
 Cyberdog DocBuilder	Container designed to facilitate construction of custom Internet-capable documents with menus that provide access to e-mail, news, Web browsing, and searching.
 Cyberdog Notebook	Part that enables the storage and organization of CyberItems — icons representing URLs, e-mail addresses, and AppleTalk server volumes.

Parting Shot / OpenDoc Live Objects from third-party companies

AS WITH MOST TECHNOLOGIES Apple integrates into the Mac OS, it's third-party adoption that will make OpenDoc sink or swim. At long last, users have a variety of useful OpenDoc parts and containers with which to begin building custom documents tailored to their individual needs.

In this table, we've listed nearly a dozen Live Objects worth investigating. Many will be available by the time this article appears. In addition, several vendors have announced their intention to convert existing applications into OpenDoc container applications — topping the list of applications are ClarisWorks and WordPerfect.

Product	Company	Description
 Charts	Adrenaline Software	3-D charting that uses QuickDraw 3D to enable on-the-fly rotation of graphs. Bundled with Numbers.
 C-Graph	Corda Technologies	Basic 2-D charting that integrates well with Cyberdog, enabling charting of data from sources on the Net.
 C-Table	Corda Technologies	Flexible tool for creating tables and customizing the format of tabular data.
 C-TextBox	Corda Technologies	Tool for creating and formatting text boxes, lines, and borders.
 LEXI	SoftLinc	Spell-checking, thesaurus, file translation, and verb conjugation.
 Numbers	Adrenaline Software	Full-featured spreadsheet program that can read Excel file format. Bundled with Charts.
 Outliner	Eclipse Services	Outlining that lets you create hierarchical lists of text plus any OpenDoc parts.
 Rapid-I Button	Hutchings Software	Button part that can open CyberItems and files and folders, run AppleScript scripts, and play sounds. Offers a variety of appearance options.
 WAV	Digital Harbor	Innovative word processor well suited for use as a container. Can read Word and WordPerfect file formats.
 WebSquirrel for Cyberdog	Eastgate Systems	Tool for creating easy-to-use visual interfaces for categorizing and accessing Net locations.



TOOL

MAKE YOUR WEB SITE JUMP
TO LIFE WITH ONE OR
MORE OF THESE HANDY
WEB ANIMATION TOOLS.



the WEB

Nothing catches the eye like movement —

especially when it's movement on Web pages, since static Web pages are still more common than those featuring animated images. In the past, the options for creating animation on the Web were few and were daunting for novices. Even many experienced animators were deterred by a new set of rules, standards, terminology, and tools when entering Web territory.

animator's

Today, you can choose from at least a dozen shareware and commercial products designed to help you put everything from simple animated logos to complex interactive animations on the Web. Which of these tools should your toolbox include? And which of the four primary available technologies — animated GIF, QuickTime, plug-ins, and Java — should you use?

B

O

X

Which tools you need depends in part on which technology you choose — a choice that, in turn, depends largely on how simple or complex you want your animation to be. To help you work through these questions, we offer this guide to the available technologies and tools. And we give special attention to features such as compactness of output files, convenience for end viewers, and browser support, all of which can influence whether or not your Web animation finds the audience it seeks.

BY LYNDA WEINMAN

ANIMATED GIFS: SIMPLE AS A FLIP-BOOK

Animated GIFs are simple to make, easy to include in HTML, and effortless for your Web-viewing audience to see. Using them is one of the most elegant approaches to Web animation; they are lacking only in that they cannot include interactivity or sound. For an animated logo or button, however, animated GIFs are a pretty smart option.

The animated GIF, or *GIF89a*, has been in existence since the late '80s. What's new in the past year is that most Web browsers now support the spec for these files, so you can include them in Web pages without worrying about excluding any potential end viewers.

Here's how animated GIFs work: The file format allows for multiple images to be stored inside a single GIF document. When displayed within browser software that recognizes the multiple images, the artwork streams into the Web page in a predetermined sequence, creating a slide-show-style animation. The file format also supports looping (the ability to repeat a sequence of images indefinitely) and timing delays between frames of artwork. In addition, it supports limited masking, meaning animations can be made to appear in irregular shapes and can be transparent.

If you already have a sequence of images you want to animate, you can easily assemble them into an animated GIF with either of two programs: the freeware GifBuilder or BoxTop Software's inexpensive GIFmation. If you need to create a sequence of images from scratch, see the "Starting from Scratch" section; most of the programs described in that section allow you to export in animated-GIF format.

GifBuilder. The winner of *MacUser's* 1996 Shareware Award in the Graphics and Multimedia category (October '96, page 113), Yves Piguet's GifBuilder (available at <http://iawww.epfl.ch/staff/Yves.Piguet/clip2gif-home/GifBuilder.html>) is a handy, easy-to-use resource for everyone from novices to professionals. It lets you import artwork in several basic formats (Photoshop, QuickTime, sequential GIF, and PICT) and save it in animated-GIF format with a simple Save command; if you want, you can also set frame delays, turn transparency on and off, and load custom color palettes. In addition, GifBuilder includes an optimization feature that stores a stationary background and creates transparency wherever overlying frames don't change or alter the background — a technique that is able to shrink file size significantly.

GIFmation. If you want more-sophisticated color and cropping controls, add BoxTop Software's GIFmation to your toolbox. It imports artwork in Photoshop, Photo CD, GIF, JPEG, and TIFF file formats and provides excellent color-reduction (for smaller file sizes) and color-palette-handling capabilities. It also has an eye dropper that helps you remove fringes around transparent edges. In addition, you can reposition artwork within a frame and set transparency on a frame-by-frame basis. Even in the beta version we looked at (the final version is to be released before you read this), the program was easy to use and well documented.

QUICKTIME: MOVIES ON THE WEB

One step up in complexity from animated GIFs are QuickTime movies, which provide sound as well as moving images. Although they don't provide ways for end viewers to interact with the content (other than starting and stopping the movie with playback controls), they're among the easier-to-create options — as with animated GIFs, no programming is needed. You can include QuickTime movies in your Web page by using one of two methods: the old way, which doesn't require

that end viewers have a plug-in, and the new way, which requires a plug-in with most browsers but offers faster, inline playback.

With the older method, end viewers must wait for the file to download before they can play it — and it plays in a separate application rather than being embedded in the browser page. The only special preparation required in this method is *flattening* the QuickTime movie — that is, changing its resource fork so that platforms other than the



DANCER offers unprecedented control over animated type, thanks to its use of QuickDraw GX, but its overly complex interface makes it difficult to use.

Macintosh can play it. You can do this with the Flatten Movie option in Adobe Premiere, or you can use the flattening utility available at <ftp://ftp.ncsa.uiuc.edu/Mosaic/Mac/Related/flattenmoov.hqx>. If you use this method of including QuickTime movies, it's courteous to include a warning of the file size on the Web page where the movie link is, to warn end viewers of potentially long download times.

The newer method, which is supported by all plug-in-capable browsers, allows QuickTime movies to be viewed as inline (intra-browser) elements of a Web page — and they play immediately, with no downloading required. Apple calls this type of QuickTime file a *fast-start* movie. This new method has obvious appeal over the older method, although end viewers' need to download a plug-in to play the movie (except in Navigator 3.0, which includes the plug-in) is a drawback (see the "Browser Plug-Ins" section). This method requires different HTML code than the older method does (see the "From GIFs to Scripts" table) and requires that you first convert your QuickTime movies to the fast-start format. You can perform this conversion easily within QuickTime 2.5 or by using Internet Movie tool, a simple drag-and-drop utility available for free from the QuickTime site: <http://quicktime.apple.com/>. The plug-in necessary to play fast-start movies is also available at this site.

Many tools exist for creating QuickTime content — including several of the animation tools described in the "Starting from Scratch"

section. For putting existing QuickTime content on the Web, however, there's just one tool that's a must-have: Web-Motion.

Web-Motion. If you want to optimize your QuickTime content for Web delivery, Terran Interactive's \$100 Web-Motion (which requires the company's Movie Cleaner Pro product; a bundle of both costs \$270) is a pricey but worthwhile investment. Given five mice by *MacUser* in June '96 (page 52), Movie Cleaner Pro is targeted at those

viewers must first download the plug-in, install it in their browser's plug-ins folder, and restart their browser. Plug-ins do not make for effortless Web surfing; in truth, many people will choose to leave a page that requires a plug-in, rather than endure the bothersome interruption or time-consuming installation process.

Because this technology is only about a year old, many browsers are just beginning to support plug-ins — and that support is some-

First Looks / make your type tango with PaceWorks' Dancer

IF YOU'D LIKE TO MAKE letters come alive in your Web animations, you'll definitely want to take a look at PaceWorks' Dancer, a promising new animation tool expected at press time to be shipping by January. We tested Dancer while it was still in beta, to check out some of its interesting features related to animation on the Web.

The best as well as the worst features of Dancer both spring from its use of QuickDraw GX, which gives Dancer unprecedented control over typeface animation — and some annoying compatibility problems. Thanks to QuickDraw GX, Dancer lets you animate the point size, spacing, and even the bold or italic properties of master font faces, so your words can shift shapes and pop with wild abandon. But QuickDraw GX still has compatibility problems with many printer drivers; it seemed to cause overall havoc with our testing machine (a

Power Mac 8500 with System 7.5.5 and 83 MB of RAM).

The motion-control and sound capabilities of Dancer are impressive. It supports independent layers and motion paths, letting you shape the paths with Bézier-curve points and handles. You can also save libraries of motion paths and animation attributes (such as rotation, color, and size) and reuse them from project to project. As for sound, Dancer's sound-and-image-synchronization tools are notably superior to those of competitors Adobe Premiere and After Effects, letting you see the visual representations of audio waveforms and easily align movement and images to match perfectly. Dancer also offers MIDI and multitrack sound support unparalleled by other animation software.

The good news for Web developers is that Dancer creates animated GIFs and Java applets and supports

GIF transparency and optimization for small file sizes. It's the first program with this set of powerful features to be sensitive to Web authoring needs.

Less impressive, however, are Dancer's interface and output quality. For a Web animation tool, Dancer is very complex to use and not for the dabbler or casual user; we were especially puzzled by an inconvenient interface that required us to click all over the screen in order to get to essential controls and dialog boxes. On the output end, the motion the program generated seemed fine for the Web and for multimedia but was of lower quality than that generated by After Effects, which supports subpixel interpolation for professional-quality motion. Without subpixel interpolation, which mathematically calculates the extra pixels that are needed for incremental motion over a large number of frames, movement tends to

appear jerky and unrefined.

We'll reserve final judgment until we see a shipping copy of Dancer, but for now, our verdict is this: Don't buy it to create animations for broadcast video or film, since the motion isn't smooth enough; but if you want stellar typography and sound-synchronization controls for Web animations — and you want them enough to put up with a frustrating interface and a steep learning curve — give Dancer a whirl.

PROS: Powerful type-animation controls; Web-optimized output.
CONS: Compatibility problems; output not broadcast-quality.
INFO: \$445; PaceWorks, Palo Alto, CA; 415-855-0400; <http://www.paceworks.com/>.

creating movies for CD-ROM authoring; it specializes in making QuickTime-movie compression easy to understand and implement. Web-Motion is a plug-in for Movie Cleaner Pro that optimizes movies for Web delivery. Web-Motion includes Web Expert advice that counsels you on a movie-by-movie basis to help you make wise compression choices, and it lets you preview the results of your decisions. It also creates flattened movies in fast-start format, automatically generates the `<EMBED>` tags for your HTML, and does a great job of helping you through the otherwise confusing process of choosing Web-appropriate data rates and video compression. Easy to learn and use, Web-Motion provides a very convenient way of creating small, fast, and Web-appropriate QuickTime movies.

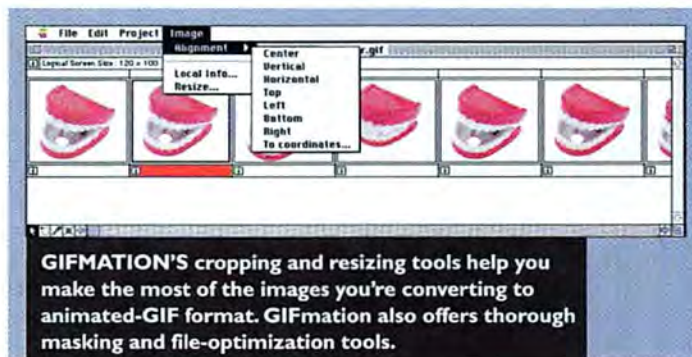
BROWSER PLUG-INS: MORE INTERACTIVITY, MORE HASSLE

If you want more interactivity in your animation than animated GIFs or QuickTime movies can provide but you're not ready for the complexities of Java, you have several alternatives — including putting Macromedia Director presentations on the Web or using a program specifically designed for creating Web animations that can include event-triggered effects. However, these alternatives generally involve proprietary formats that require end viewers to install special software that plugs into their browsers.

In order to play an animation that requires a browser plug-in, end

times unstable and poorly implemented. Plus, since not all browsers support plug-ins, people with older browsers might not be able to see animations that require plug-ins. If you choose an animation format that requires a plug-in, keep in mind that this choice probably excludes a portion of your potential audience. You might consider including a link from which the end viewer can download the plug-in before advancing to a page that requires it. Notifying your audience that you're using a plug-in is a courtesy, as is creating alternative pages for those who won't bother with the plug-in installation process.

There is a method some developers have used to avoid the major drawback of plug-ins, but it involves a step up on the complexity-of-



From GIFs to Scripts / a primer of Web-animation technologies

TECHNOLOGY	BASIC CONCEPT	PROS	CONS
Animated GIFs	Browser software recognizes the multiple images stored in a GIF document and streams them to the page, creating a slide-show-style animation.	Easy to create and view (no programming or plug-ins needed).	Can't include interactivity or sound.
QuickTime	Can work either of two ways: • Old way: <i>Flattened</i> (resource fork altered for cross-platform compatibility) QuickTime-movie file downloads, and helper application pops up to play movie. • New way: New plug-in plays <i>fast-start</i> (flattened and reconfigured) QuickTime movies within the Web page, streaming the data so there's no wait for a download.	Includes sound; existing QuickTime content can be easily converted; older method doesn't require a plug-in; plug-in for newer method comes preinstalled in Netscape Navigator 3.0.	Newer method requires that end viewers download a plug-in (except with Netscape Navigator 3.0); interactivity is limited to movie-playing controls.
Browser Plug-ins	End viewer installs special (downloadable) software in browser's plug-ins folder; browser then uses the software to play animations.	Proprietary formats may be smaller and allow sophisticated features; you can repurpose some existing content (such as Director projects) with product-specific plug-ins.	Many end users won't bother to install plug-ins and won't see the animation; plug-in support from browsers can be buggy.
Java	Programmer uses Java language to create compact, platform-independent programs that download and execute on end viewer's system.	Can create computational, interactive animations; also can be used to create code for installing plug-ins.	Requires substantial programming expertise; still not fully reliable across all platforms and browsers.

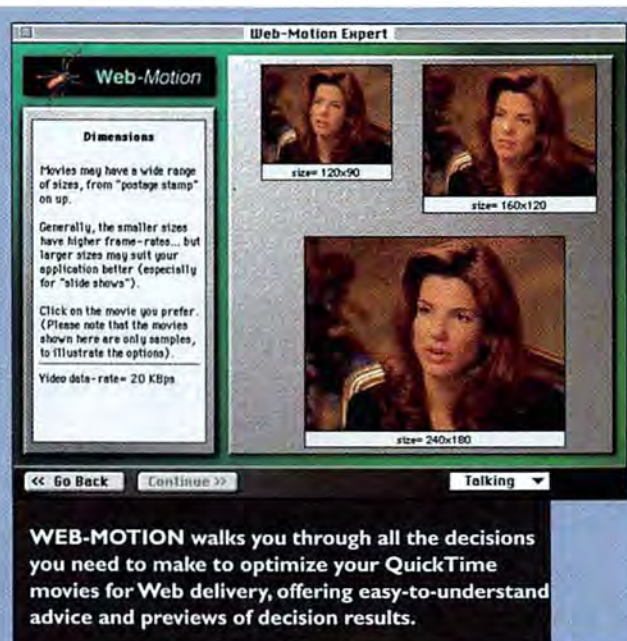
development scale: coding in Java. By creating a Java applet that automatically installs the plug-in software needed to play an animation, you can remove the major impediment for end viewers. However, at press time, Java still seemed to be working better in theory than in practice, with less-than-seamless browser support (see the "Java: Lots of Power, Lots of Programming" section).

Specific animation-oriented products that use browser-plug-in technology include Macromedia's Shockwave and Afterburner (for projects in Macromedia's Director), Totally Hip Software's Sizzler (for streamable animations and sounds), FutureWave Software's FutureSplash Animator (for interactive, vector-based animations), and DeltaPoint's DeltaPoint WebAnimator (for storyboard-style, vector-

based animations). Because the latter two products export to other formats as well as to their own plug-in-dependent formats and because they let you create animations from the ground up, we discuss them in the "Starting from Scratch" section.

Shockwave/Afterburner. If you're experienced with Macromedia's Director and want to use Director projects as the basis for your Web animations, using Shockwave is an obvious way to go. Available for free at <http://www.macromedia.com/shockwave/devtools.html>, Shockwave is the plug-in that enables end viewers to see Director projects (compressed with Macromedia's Afterburner postprocessor, included with Director 5.0 or downloadable for free) on the Web. Lingo, Macromedia's proprietary scripting language, is a capable animation tool; it lets you script interactive presentations that include animation, rollover effects, and streaming sound. However, Lingo has a steep learning curve compared to that of other similarly featured programs. In addition, you can't produce very compact files using Shockwave/Afterburner; most end viewers will have to up the RAM allocation for their browsers in order to look at Shockwave content. Although Shockwave and Afterburner are quite useful for people who are already up to speed on Director, we wouldn't recommend them for people who are not — or for those who want to provide maximum convenience for end viewers, who would be required to download a plug-in and (probably) allocate extra RAM.

Sizzler. If you want to inexpensively and easily turn QuickTime movies or PICS files (sequences of PICT images) into streamable animations with synchronized sound, the freeware Sizzler editor and plug-in can do the job. Once you've saved the files in Sizzler's proprietary format, end viewers with the Sizzler plug-in installed can watch the animations play as they're downloading. Sizzler automatically introduces "interlacing" into the images (which means they look blocky and then come into focus) so that you can see the images as they're downloading. In addition to exporting files in its own format, Sizzler can export animations as Java applets or as ActiveX applets. (ActiveX



TAGGING TIPS

To include animated GIFs in Web pages, you use the standard `<IMG SRC= tag`.

• Old way: Write QuickTime files into HTML with an `<HREF>` tag, making sure that the document has a .mov or .qt extension at the end of the filename, as in the following example: ``.

• New way: Because a plug-in is involved, you use the `<EMBED>` tag to write the file into your HTML document (see "Browser Plug-ins"). There are also other controls you can include in your HTML, such as whether to have play buttons appear and whether to include autoplay or looping functions. For a full list of support tags (and the plug-in you need), go to <http://quicktime.apple.com/>.

Typically, whenever you include content that needs a plug-in, you'll use an `<EMBED>` tag within your HTML. You must always put in the `HEIGHT` and `WIDTH` tags to define the size for any plug-in or Java content on a Web page. The `<NO EMBED>` tag will display alternative content for end viewers who don't have the plug-in installed. The code for including a plug-in-reliant file might look like this:

```
<EMBED="myanimationfile.xxx"HEIGHT="200"WIDTH="200">  
<NO EMBED="alternatecontent.gif"HEIGHT="200"WIDTH="200">
```

Java requires an `<APPLET>` tag in HTML pages. Here's a sample of Java-based code:
`<APPLET="my_first_java_programming_triumph.xxx"HEIGHT="200"WIDTH="200"><NO EMBED="alternatecontent.gif"HEIGHT="200"WIDTH="200">`

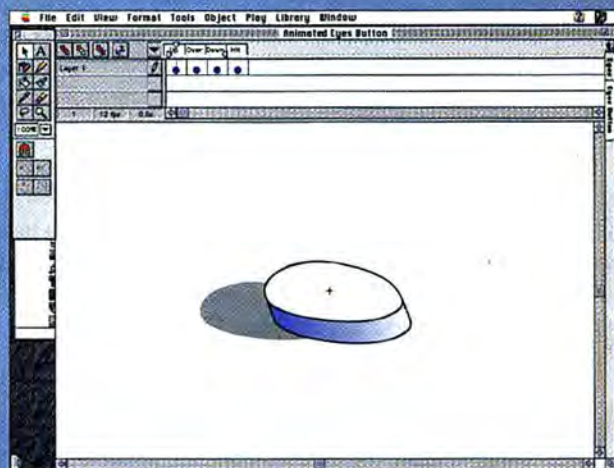
is Microsoft's PC-centric answer to Java — you can create ActiveX applets on a Mac but not view them on one.) However, unless you choose the somewhat iffy Java option (see next section) or the Mac-unfriendly ActiveX, Sizzler animations suffer from being dependent on a plug-in — and a lesser-known plug-in at that, which means end viewers are highly unlikely to have it already installed. And since QuickTime is already streamable, there isn't much need to use Sizzler on QuickTime content unless you want to play around with the sound or intersperse QuickTime with PICS content. Still, Sizzler is easy enough for beginners to learn and the price can't be beat.

JAVA: LOTS OF POWER, LOTS OF PROGRAMMING

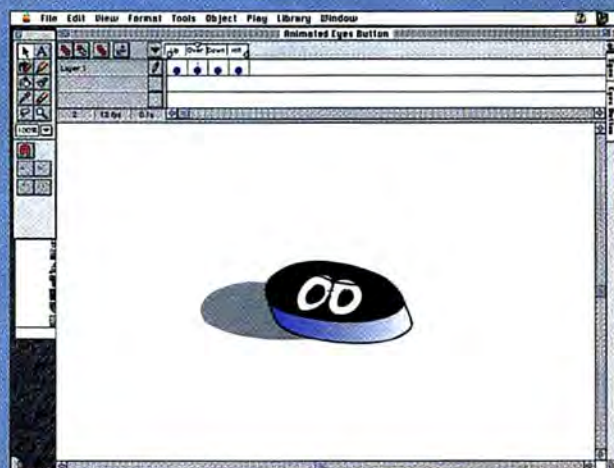
The most powerful and flexible option for creating interactive animations on the Web is also one of the most hyped-up programming languages ever invented. People who would have never before considered learning a programming language are responding to Java's allure in unprecedented numbers. So, what's all the hype about — and is using Java a good animation-delivery approach?

Java's potential benefits are almost as revolutionary as those of the Web itself. Java creates executable miniprograms, called *applets*, that are (at least in theory) platform-independent; compact enough to travel over phone wires; and able to expand on anyone's system regardless of operating system, make, or model — in other words, programs that anyone can run just by clicking on the icons on a browser page. Another major benefit is that the Big Two browsers (Netscape Navigator and Microsoft Internet Explorer) and even some less popular ones support Java without requiring a plug-in. This support means that Java gets high marks for accessibility and compatibility.

Because Java creates custom programs, it has the potential to create computational animation, as opposed to sprite-based animation. In simple English, this means Java applets can calculate a changing curve shape or color on the fly, react in various ways to changeable conditions, and create motion based on external input. With sprite-



A



B



C

FUTURESPLASH ANIMATOR makes it easy to create rollover effects for buttons, letting you define how the button looks in its normal, or up, state (A) and how it looks when the cursor rolls over it (B); you can also define how a button looks when it's clicked on. And the program's proprietary, vector-based format (which requires a browser plug-in) allows the art to rescale perfectly, with on-the-fly anti-aliasing, when end viewers zoom in (C).

based animation, on the other hand, you're limited to creating premade images and displaying them in succession. Clearly, for the right purposes, Java holds great promise as an animation-delivery medium. However, for simple effects, it's probably overkill.


Potential Java adopters should note that the technology is still very young, with implementation problems to be worked out. Many Mac users have reported browser crashes during downloads of Java applets, and the promise of Java as a platform-independent panacea has fallen short of expectations in its current implementation by Microsoft Internet Explorer and Netscape Navigator. Many developers are wary

of adopting Java before the current bugs are ironed out.

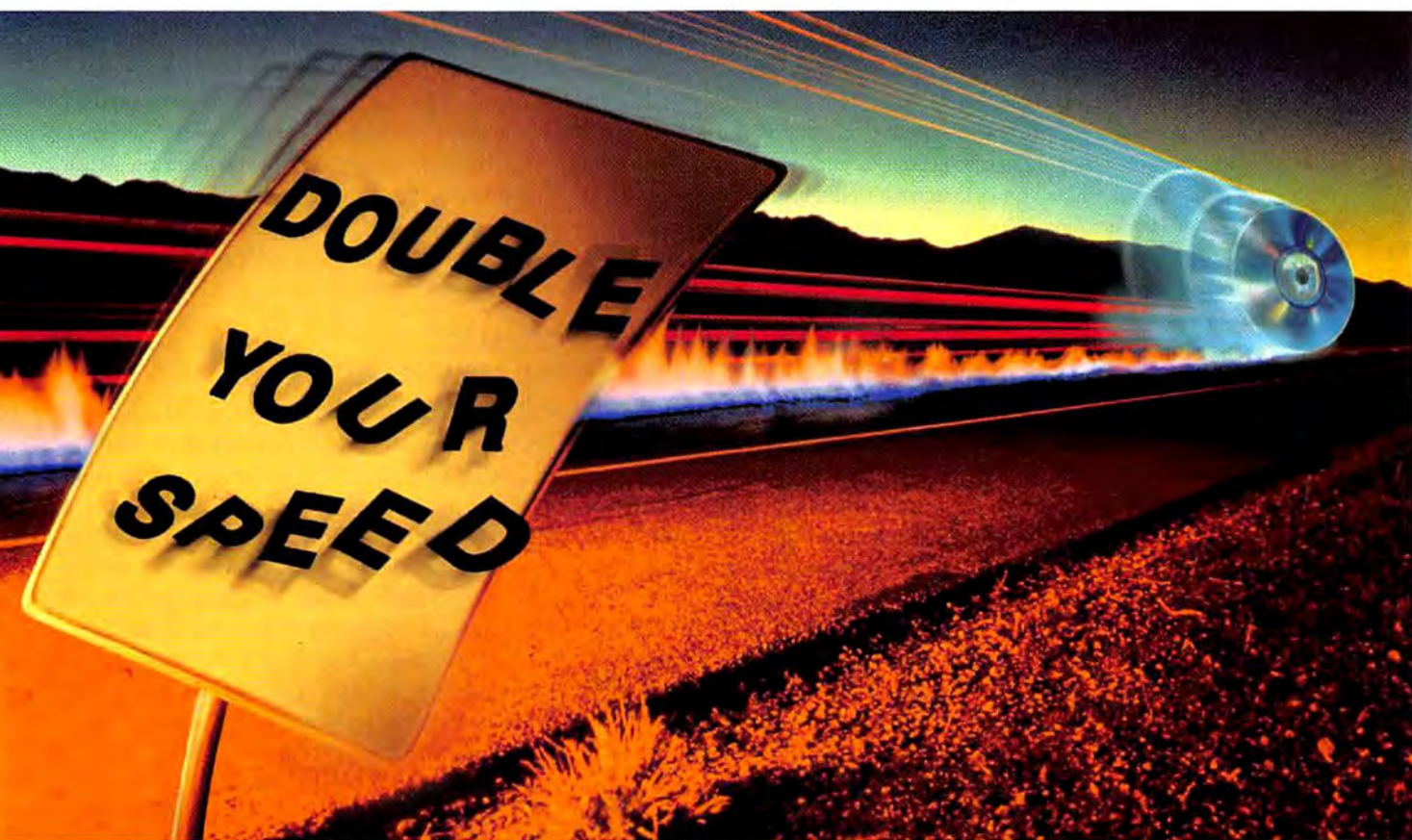
If you're an intrepid pioneer tempted by Java's benefits but wary of the programming required, there are a couple of programs available — WebBurst, from PowerProduction Software, and ActionLine, from Interactive Media — that promise to help you create Java applets within a GUI (graphical user interface), with no coding required. Be forewarned, though, that these programs bring to mind the old adage, "if it sounds too good to be true, it probably is."

WebBurst. Starting from WebBurst's palette of clip art or art you import in PICT or GIF format (text and sound in the AIFF or SND

Web-Animation Tools / something for everybody

RATING	PRODUCT	PRICE	DESCRIPTION	PROS	CONS
ANIMATED-GIF TOOLS					
★★★★	GifBuilder	free	Conversion/optimization tool that imports artwork and exports animated GIFs. Lets you work with color and transparency, set frame delays, and optimize output file sizes.	No cost; easy to use; optimization capabilities can shrink files sizes significantly.	none
	Gifmation	\$49 list	Conversion/fine-tuning tool that imports artwork and lets you fine-tune it with sophisticated color-preview and cropping controls.	Easy to use; offers handy, high-end color and cropping controls.	none
QUICKTIME TOOLS					
★★★★	Web-Motion	\$100 or \$270* list	A plug-in for Movie Cleaner Pro (QuickTime compression software) that optimizes QuickTime movies for Web delivery.	Expert advice helps you through the confusing process of choosing Web-appropriate data rates and video compression; creates small, fast, Web-appropriate content.	Somewhat high price of bundle with Movie Cleaner Pro.
BROWSER PLUG-INS (SPECIALIZED)					
★★★	Shockwave/Afterburner	free	Shockwave is the browser plug-in end viewers need in order to see projects created in Macromedia's Director on the Web (after they've been postprocessed with Afterburner).	Simplifies repurposing of Director content for the Web; Director's scripting language can create interactive animations with rollover effects and streaming sound; no cost.	Steep learning curve if you're not experienced in Director scripting; creates fairly large files that require lots of RAM to view; browser plug-in needed to view animations in proprietary format.
★★★	Sizzler	free	Tool for turning QuickTime and PICS content into streamable animations with synchronized sound.	No cost; easy to use; streamable animations don't take download time.	Browser plug-in needed to view animations in proprietary format.
JAVA-APPLET-CREATION TOOLS					
★★★	ActionLine	\$299 list	GUI-based Java-applet creation tool oriented toward creating slide-show-type animations without programming.	Lets you create Java applets without programming; offers fairly easy ways to set up effects such as transitions and wipes.	Difficult, nonintuitive interface; nonprofessional-looking results; Java applets still not fully reliable across multiple platforms and browsers.
★★★	WebBurst	\$299 list	GUI-based Java-applet-creation tool oriented toward creating interactive buttons and setting up conditional interactivity. Includes a palette of clip art.	Lets you create Java applets without programming; creates small files, meaning shorter download times.	Steep learning curve; Java applets still not fully reliable across multiple platforms and browsers.
GENERAL-PURPOSE ANIMATION TOOLS					
★★★	DeltaPoint WebAnimator	\$99 list	Animation-creating tool oriented toward business-style slide shows.	Proprietary, vector-based .wan format means files are small and fast-downloading.	Storyboard format is limiting; browser plug-in needed for viewing animations in proprietary format.
★★★★	Future-Splash Animator	\$250 est. st.	Animation-creating tool suited to professional Web-site designers who want a distinctive, anti-aliased, vector-based look.	Lets you create animations with rollover effects, multiple moving objects; proprietary, vector-based .spl format is small, fast, and scalable.	Browser plug-in needed for viewing animations in proprietary format.
★★★	3D Web Workshop	\$249 or \$399* list	Bundle of two existing products (LogoMotion and TextureScape) with a Web clip-art collection and (optionally) Adobe's PageMill for Web-page creation. Lets you create animated logos, buttons, and so on.	Useful, Web-savvy combo for creating 3-D art and animations.	Lacks integrated documentation (simply documents individual products).
★★★★	WebPainter	\$100 list	Painting tool for creating cel-style character animation.	Easy to use; very useful for learning animation principles in general and cel-style animation in particular.	Lacks some sophisticated animation features, such as timelines and motion controls.

*Requires Movie Cleaner Pro as well; bundle of Web-Motion and Movie Cleaner Pro costs \$270. †The \$399 version includes Adobe PageMill.



Using breakthrough LIMDOW® technology, Maxell brings you super-fast direct OverWrite Magneto Optical Disks.

LIMDOW (Light Intensity Modulation Direct OverWrite) technology boosts writing speeds by up to 100% over current Magneto Optical (MO) disks. That's because it requires only a single pass to rewrite new data to a disk—eliminating the need for erasing.

Now you can transfer data at an impressive 4.0 MB/second, and still have the security and convenience of a removable media with random access. Maxell's line of direct OverWrite MO disks are ideal for data storage, document imaging, file management, and multimedia applications.

On top of doubling your speed, Maxell's LIMDOW disks offer you the highest capacities available—640 MB on a 3.5-inch disk and 2.6 GB on a 5.25-inch disk. Plus, they'll be there for you down the road with durability rated at 1,000,000 rewrite cycles and an archival life of over 30 years! Look for LIMDOW capable drives from Nikon, Fujitsu, Hitachi, Pinnacle Micro, Most, Mitsubishi Chemical, Konica, and others.



Check out Maxell's entire line of data storage solutions. Whether you use floppies, cartridges, cassettes, CDs, optical disks or laser servo disks, you can count on Maxell's quality. Plus, Maxell products are backed by a lifetime warranty.

Put the "pedal to the metal" with the blazing rewrite speeds of Maxell's direct OverWrite MO disks. Got questions? Call our tech support center, or get our FREE product brochure by calling 1-888-2-Maxell (262-9355). Check out our Website at www.maxell.com



maxell
Commercial Products Group

Technology for the next generation.

Maxell Corp. of America, 22-08 Route 208, Fair Lawn, New Jersey 07410
Maxell Canada, 111 Staffern Drive, Concord, Ontario, Canada L4K 2R2 • (905) 669-8107
CIRCLE 22 ON READER SERVICE CARD

format are also importable), you can set up animations; interactive buttons; and interactivity based on "if," "less than," and "greater than" conditions. Instead of flipping through individual frames of animation, WebBurst puts whatever artwork you create into a matrix and pans across it (imagine a camera sweeping along a filmstrip), and this makes for shorter download times than what would be needed for lots of individual animation objects. In addition to writing finished Java applets, the software also saves animated GIFs and the AU sound-file format — although we're not sure why anyone would want to use a tool this complex to create GIF or AU content. The interface is pretty overwhelming, and even though the program saves you the hassle of having to learn Java from scratch, it still isn't at all easy to learn or use.

ActionLine. Similar to WebBurst in its promise of letting you create Java applets without programming, ActionLine also made us wonder if the end results were worth the bother involved. The product comes in three components: an editor (with which you create Java applets), a viewer (with which you preview the applets), and a Java viewer (which gets stored with the final applets on your Web server). The editor imports image and sound files in various formats (PICT, JPEG, GIF, Photo CD, AIFF, and AU) and lets you set up effects such as transitions and wipes, color transitions, and changeable images (such as what you might use in a rollover effect) without much effort. But the creation process is rather unintuitive: You build your presentation with

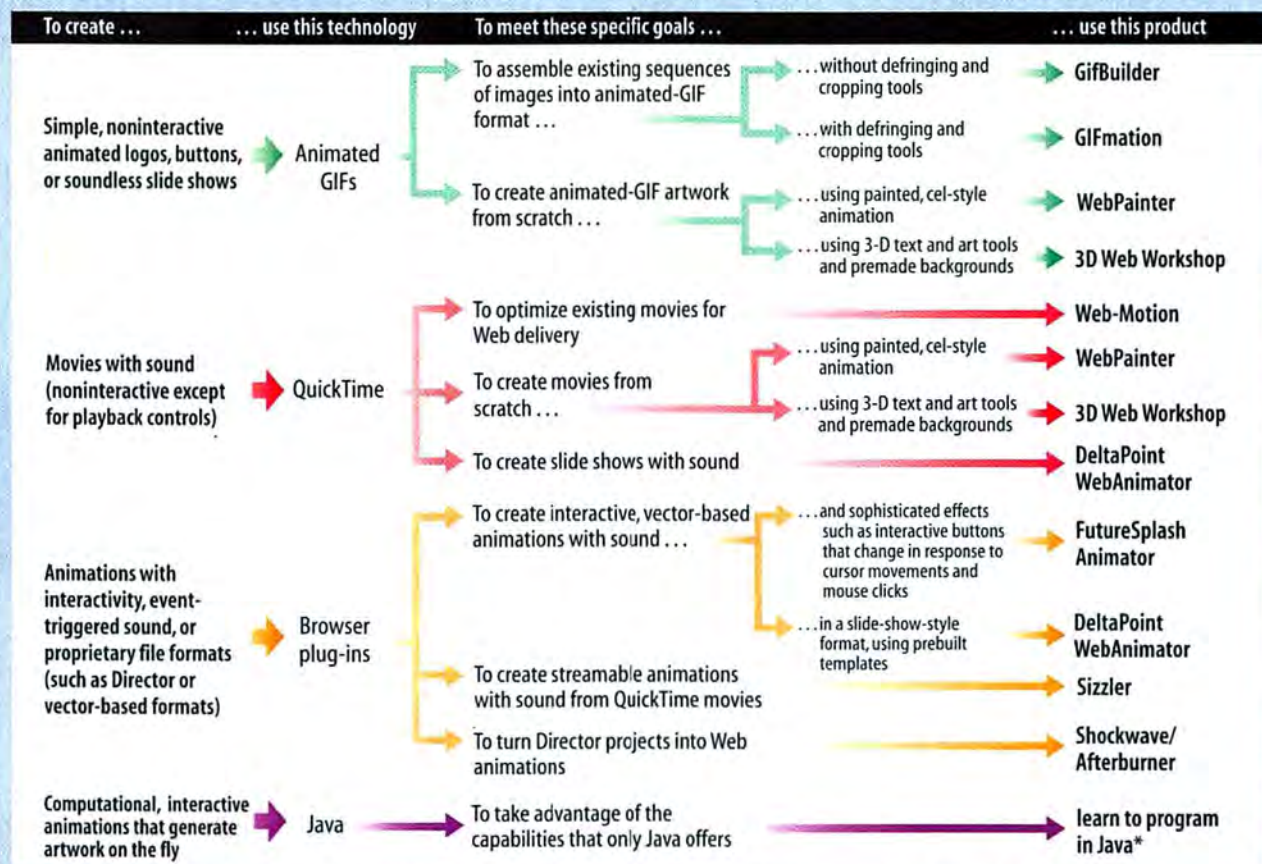
an abstract interface showing boxes and filenames, save it, and then preview it in a separate application in order to see the end results. And the end results are less than inspiring; most of the sample applets you'll find at the ActionLine Web site look like rather crude slide shows. If you want to create business presentations that require interactive slide shows, ActionLine is worth considering, but the level of interactivity lends itself more to changing the color of text than to linking to database information or handling more-complicated what-if-type programming operations.

STARTING FROM SCRATCH: GENERAL-PURPOSE ANIMATION CREATORS

Although some Web animation tools are targeted toward using specific technologies to put content (usually preexisting) on the Web, others are more general-purpose, letting you create content from scratch and choose from multiple Web-delivery technologies. If you're looking for a tool that lets you create animated content for the Web in multiple formats, check out the following products: Totally Hip Software's WebPainter, Specular's 3D Web Workshop, FutureWave's FutureSplash Animator, and DeltaPoint's DeltaPoint WebAnimator. End viewers will need plug-ins in order to view animations in the proprietary, vector-based formats of the latter two products, but the resultant speed may be worth the compromise — or you may want to export these products' animations in one of the other formats allowed.

Cut to the Chase / deciding on a Web animation approach

Still confused by all the options for creating animations for the Web? Here's a visual guide to help you find the simplest way to meet your goals.



*The GUI-based Java-applet-creation tools we looked at were complicated and didn't offer impressive enough results to make them worth learning.

Why 7 out of 10 people choose Family Tree Maker™



#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.


*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.

Call us at 1-800-474-8696 or visit www.familytreemaker.com

WebPainter. If you want to create basic, cel-style Web animations (artwork changing in each frame, as in a cartoon) or if you just want to learn about animation principles, you can't go wrong with Totally Hip Software's WebPainter. It provides an easy way to paint animations and export them in a variety of formats, including PICS, QuickTime, animated GIF, sequential GIF, and Sizzler. Its interface lets you use onion-skinning (the computer equivalent of tracing paper), edit multiple cels (frames) at once, and create foregrounds and backgrounds separately. The WebPainter Web site includes a very thorough tutorial that not only explains how to use the product but also describes universal animation principles. Although WebPainter lacks some of the sophisticated animation features found in higher-end packages, such as timelines and motion controls, it does a great job of making cel-style character animation understandable and easy.

3D Web Workshop. If you want your animation to pop out in that superdimensional way that only 3-D art can, Specular's 3D Web Workshop bundle is a handy bag of tricks to have. 3D Web Workshop bundles two existing products (LogoMotion and TextureScape) with a Web clip-art collection called WebHands — plus Adobe's PageMill (the popular WYSIWYG HTML generator) as an optional extra — to form a suite of Web artwork-generation tools. The WebHands collection gives you easy-to-edit-and-customize clip art as well as clip animation of preexisting Web-based artwork, such as seamlessly tileable background textures and 3-D buttons, bullets, and rules. All the WebHands clip art is professionally designed for use on the Web, with optimized palettes and transparency information, and you can drag and drop the clip art onto a Web page with either the Mac OS or Windows version of Netscape's Navigator Gold. You can also build your own 3-D animated logos in LogoMotion and save them as animated GIFs or QuickTime movies, or you can create your own custom artwork and background tiles by using TextureScape. We were disappointed that the documentation for the individual products wasn't reworked and integrated for the bundle, but overall, it's a helpful group of 3-D tools, suitable for animation old-timers and newcomers alike.

FutureSplash Animator. If you want to create animations that are both fast and scalable to different resolutions, a vector-based format is your best bet, and if you want lots of controls to make those animations as professional-looking as possible, go for FutureWave Software's FutureSplash Animator, a distinctive, original Web animation tool and plug-in. There are two basic parts to this product: the animation-creation interface and the Save As choices, which let you save files in FutureWave's impressive .spl format (which supports interactive buttons and admirably small file sizes) or as animated GIFs or PICS files (among other formats). The animation tool lets you create animations that use multiple artwork layers and multiple movement paths (for example, a ball, a triangle, and some text all moving at various speeds and all independently controlled) — plus, you can create

interactive buttons with rollover effects without doing any programming. FutureSplash Animator is a great overall package with terrific features. The only drawback is that it's plug-in-based, so it requires your end viewer to go that extra mile that

Directory

BoxTop Software Starkville, MS 800-257-6954 601-323-6436 601-324-7352 (fax) http://www.boxtopsoft.com/	Interactive Media Los Altos, CA 415-948-0745 415-324-4590 http://www.imcinfo.com/	Specular Amherst, MA 800-433-7732 413-253-3100 413-253-0540 (fax) http://www.specular.com/
DeltaPoint Monterey, CA 800-446-6955 408-648-4000 408-648-4020 (fax) http://www.deltapoint.com/	Macromedia San Francisco, CA 800-326-2128 415-252-2000 415-626-0554 (fax) http://www.macromedia.com/	Terran Interactive San Jose, CA 800-577-3443 408-278-9065 408-278-9063 (fax) http://www.terran-int.com/
FutureWave Software San Diego, CA 800-619-6193 619-552-7680 619-552-7689 (fax) http://www.futurewave.com/	PowerProduction Software Hermosa Beach, CA 310-937-4411 310-937-4416 (fax) http://www.powerproduction.com/	Totally Hip Software Vancouver, BC Canada 604-685-6525 604-685-4057 (fax) http://www.totallyhip.com/

some will not travel — unless you can bypass the problem by using the included Java and ActiveX players for the .spl format. If support for its format were built right into browsers, FutureSplash would be a product everyone from professionals to design dabblers would want.

DeltaPoint WebAnimator. Like FutureSplash Animator, DeltaPoint WebAnimator is built around a vector-based, plug-in-dependent format that produces fast, scalable animations — but it's a less flexible product, oriented more toward business-style slide shows than artistic-looking animations. WebAnimator supports sound and animation. It imports artwork in PICT, GIF, JPEG, and TIFF formats and exports in QuickTime format or its own proprietary .wan format (which can be seen from Netscape Navigator or Microsoft Internet Explorer if the WebAnimator plug-in is installed). WebAnimator uses a storyboard-style creation process, in which you can set wipes, pans, and movements. It supports animation templates, so once you've settled on a movement sequence you like, you can repeat it with various artwork, sounds, and text. The problem is, most of the prebuilt templates are fairly mundane and the storyboard/template structure limits users' ability to branch out into more-creative ground. The fact that it's a plug-in-based system limits its accessibility as well.

MOVING TO A CLOSE

With all the superb tools now available, there's little reason *not* to spice your Web site up with some animated art. Whichever animation technologies and tools you choose, though, you should always keep your site's goals and audience in mind. Although animation can add a lot to your site's appeal, it can also create exclusionary walls that only the elite few with fast CPUs and loads of RAM can break through. Make sure your medium fits your message; use animation wisely and sparingly, and the Web will be a much more inviting place. ☞

Lynda Weinman is a designer, animator, mother, and author of three books on Web design from New Riders Publishing: *Designing Web Graphics*, *Deconstructing Web Graphics*, and *Coloring Web Graphics*. Additional research was done by Juan Gonzalez and Wendy Polek.



RELATED INTERNET SITES

- **GIF Animation on the WWW**
The definitive resource for creating animated GIFs.
- **BrowserWatch — Plug-In Plaza**
A comprehensive directory of links to plug-ins.
- **Gamelan: The Official Directory for Java**
Resources and example applets for Java developers.

GO TO <http://www.zdnet.com/macuser/0297.html#web>

INVESTMENT INTELLIGENCE SYSTEMS GROUP

800 494 WINGZ (9464)

London +44(0)171 628 6960 • Paris +33 1 45 23 13 72 • New York +1 (1)212 697 WINGZ • Kansas City +1(1)913 663 4472

**Why settle for a product which is big and slow?
Maximize the potential of your Macintosh hardware.**



Wingz® is the lightest, fastest and most scalable spreadsheet available for the Macintosh® environment. This new release of Wingz, version 2, has added many new features and boosted its already sizzling performance without adding unnecessary bulk. This means that choosing Wingz as your spreadsheet is a decision without compromise.

Upgrade Now and Save

For a limited time, existing Wingz users can upgrade to version 2.1 for the remarkably low price of \$89. Hyperscript Tools upgrades are available for only \$179. If you use another spreadsheet, please ask us about our competitive upgrade plan. You must act quickly, however, as this opportunity will not last.

Call 1-800-494-WINGZ (9464) today. Or visit us at <http://www.wingz.com>.

Is your Mac spreadsheet a dog?



© 1996 IISC

Wingz is a trademark of Informix Software, Inc.

All brand names are trademarks or registered trademarks of their respective companies.



High Resolution
768 x 576 Pixel
images

RDC-2 multimedia digital camera

Stills with Sound



- **Dual Lens Design** utilizes a wide-angle 35mm and telephoto 55mm lens as well as Macro optics for close-up photography.
- **Automatic Features** like Auto Flash, Auto Focus and Auto Exposure makes picture taking effortless.
- **Exposure Compensation** adjustable to +/-5 EV stops in .3 increments gives you control over your images.
- **LCD Monitor** (optional) allows you to view your images before and after you shoot them.
- **Compact Design** makes the camera easy to hold yet small enough to fit in your shirt pocket.

Ricoh's RDC-2 advanced design features let you go beyond just taking still pictures. Now you can bring your images to life by capturing the movements and sounds of your subjects.

The RDC-2 lets you select between five independent recording modes to capture digital information in any combination or order you choose: Still Mode with macro capability, Sound Mode, Stills with Sound Mode, Continuous Mode, Document Mode.

The Ultimate Presentation Tool. The RDC-2 allows you to use your digital images in a multitude of ways...plug the RDC-2 into any TV monitor or VCR and playback your images and sounds instantly. Download text and graphics to the camera to customize and enhance your presentations.

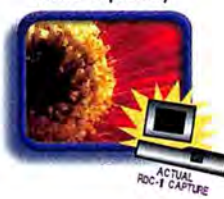
Hear what you see.

RDC-1 3X Zoom Digital Camera with Full Motion and Sound.

- **High Resolution** 768 x 576 images.
- **Portable:** Easily fits in your briefcase, purse or pocket.
- **Output to Virtually All Digital Media:** Output to color PC or video printer, TV monitor, or send still images and sound around the world via modem/digital phone.
- **6 Different Data Recording Modes:** Still images, sound, still images with sound, continuous shooting, full motion video with sound, document mode, and macro capability.
- **Removable Media:** Stores everything on PCMCIA cards available in 2, 8, and 24 megabyte capacities.
- **Software Included:** Photo-editing and cataloging software is included for both Windows and Macintosh platforms.

RDC-1 DIGITAL CAMERA

Macro Capability



Think of the Possibilities!

Document events, create entire presentations, send your images to the Internet within minutes. Communicate with co-workers in remote locations.

RICOH

Visit us @

www.ricohcpg.com

CIRCLE 160 ON READER SERVICE CARD





Is E-Mail Dead ?

The stampede toward Internet mail is trampling all over LAN-based office e-mail systems — and the casualties are going to be the features you know and love.

Sweeping down from the steppes of academia and the defense industry to meet its crowds of hyped-up fans, the Internet-mail craze has quickly overwhelmed the proprietary systems that carry messages within most networked companies. In the rout that's taken place over the past year, many stalwart Mac e-mail products for offices — from e-mail-centric packages such as CE Software's QuickMail

to groupware products and bulletin-board systems — have taken blows that have brought changes to the world of e-mail as we know it.

The switch from LAN mail (where a matched pair of client and server applications share advanced ways of exchanging information) to a strategy of “adding value” to Internet mail has happened with a rapidity unknown in the usually poky e-mail world. If you weren't paying

By Stephen Howard

obsessively close attention during 1996, you probably didn't notice that virtually every vendor of Mac LAN-mail software jettisoned its proprietary LAN-mail underpinnings and set its sights on Internet standards for intranet mail delivery. And there's the rub: Although the Internet is great for contacting colleagues continents away, it's really suboptimal for the day-to-day business of battling messages around inside an organization. Unfortunately, the shortcomings of Internet mail for intracompany use haven't stopped Mac mail-software vendors such as Lotus, Microsoft, Novell, and SoftArc from executing a collective about-face (see the "Reincarnation Scorecard" table). Each of them is integrating Internet protocols into the heart of their LAN products and making development of Internet-based mail software a primary focus.

If you're an Internet junkie, you're likely to greet this new regime with glee. No doubt you're going to see the ascendancy of almost universal mail access and open standards as a victory over the iron grip of often incompatible platforms, operating systems, and proprietary technology. But that rosy view ignores the fact that

compared to LAN-based e-mail, Internet mail stinks.

Apple, independent software vendors, and online services have temporarily taken leave of their senses in their rush to embrace this technology. They've been lured by the Carl Sagan-like numbers that fuel every Internet craze, and in the process, they are all too happily tossing aside features that users of every non-Internet Mac mail system take for granted.

Internet Mail's Trade-Offs

Delivering e-mail was, until recently, the fundamental activity on the Internet. Traffic from Web browsers now exceeds that of basic mail, but for the first few decades of the Net, its millions of users were primarily sending and receiving mail. Admittedly, these early settlers were onto something.

From the beginning, anyone who had a spare UNIX server could plug into the Internet, so mail could leap over organizational boundaries and circle the world to the intended recipient. The same is true today, and like Amway's, the scheme *sounds* good when you

Reincarnation Scorecard

/ will your LAN-mail package be reborn as an Internet-mail product?

Rebirthing instructors may want to offer their services to the many vendors of Mac LAN e-mail products who are reworking their offerings around Internet-mail standards. Here's a scorecard to help you track the changes.

COMPANY	PRODUCT	STATUS OF LAN-MAIL PRODUCT	INTERNET-MAIL PLANS
Apple	PowerTalk	Canceled. Deader than a doorknob.	All-new Internet-based mail system to come.
CE Software	QuickMail	On back burner. Few new features planned for LAN version.	Internet-based QuickMail Pro and QuickMail POP due in early 1997.
Claris	OfficeMail and EMailer	Never planned.	Claris skipped LAN mail altogether and jumped headfirst into Internet-based mail in 1996, with OfficeMail. EMailer, Claris' Internet front end, came out in 1995.
Lotus	Notes	Still strong because of groupware hooks. Mac product slow to ship.	Ahead of the curve, Notes developers started moving quickly to add Internet features during 1995.
Lotus	cc:Mail	Behind the curve. LAN product needs an upgrade.	Lotus waited surprisingly long to adopt an Internet strategy for cc:Mail. As the company leaps to catch the boat that's left the dock, cc:Mail may sink.
Microsoft	Exchange	Limbo. Mac Exchange client software still MIA.	Microsoft spent millions developing a competitor to Lotus Notes and then discovered that it had to switch gears to embrace the Internet. Not quite there yet.
Novell	GroupWise	Upgrade due in early 1997 will add significant features.	The most integrated groupware system around was moved to the Internet in the fall of 1996.
Quarterdeck	Quarterdeck Mail	Improving, with much needed ease-of-use features.	Quarterdeck is building a new Internet life for the program once known as Microsoft Mail. First baby steps in 1996, more due soon.
SoftArc	FirstClass	Moving slowly. New features and improvements due sometime in 1997.	Server software will start using Internet standards internally sometime in 1997.
Spider Island Software	TeleFinder	Forgotten. AppleTalk services available but little known.	Company has taken a quiet lead in Mac Internet-mail server software.
Stalker Software	CommuniGate	Needs attention. Decent low-end product has life in SOHO.	Stalker has made its low-end approach to Internet mail the main selling point for its small-group messaging software.

first hear about it. But those interested only in getting e-mail from point A to point B within one organization with maximum convenience will find that the overwhelming growth of Internet mail has set back the clock of e-mail progress about five years.

By any objective measure, Internet-mail software offers minimal features compared to those of a competent LAN-mail system. Many niceties are available in specific Internet-mail client software or in certain Internet-mail server software, but the Mac clients and servers don't really know anything about each other, because they depend on Internet standards for communication. For an example of what gets lost in the translation, send yourself a piece of mail, using any Mac Internet-mail client software. Unless you've availed yourself of the little-known Notify Mail control panel, which works only with Apple Internet Mail Server, you won't be notified when the server receives your message, as you'd probably be with a LAN-mail system. Instead, you have to check your Internet mailbox frequently to find out if anything new has arrived — a small hassle that PC users have had to put up with for years while Mac users have enjoyed superior convenience. And once you've opened the mail, you'll find that few, if any, of the special characters and formatting you may have used, such as smart quotes or tabs, are available.

A much more fundamental shortcoming is the lack of integrated address features. Internet-mail clients are all isolationists when it comes to addresses. On LAN-mail systems, client programs learn about addresses from the server, so the name of a new person in Accounting shows up in your mail program automatically. With today's Internet mail, you'll have to learn the name of that person's e-mail account on your own. (And if that name changes in six months, you'll find out the hard way.)

Systems for exchanging and updating directories of user names were for years a major focus of all messaging-software development. In the days before the Internet flood, users could expect to share group addresses, distribute directories across multiple servers, search address books for names, and even add information such as a phone extension to an address-book entry. Maintenance of e-mail-address lists is a major piece of work in big organizations, where people change names and entire departments alter their structures regularly. E-mail-software vendors beat each other bloody for years, battling to offer the most-advanced capabilities for creating central mail directories. Now, everybody has surrendered all at once.

Convenient addressing features are possible when the client and the server share information about mail addresses, but these features are all unavailable in today's Net mail, where Internet clients and servers are black boxes to each other. Each side maintains its own list of users and groups, usually in different formats. Given that the two sides communicate addresses via the electronic equivalent

of throwing names over the fence, it's amazing that Net addressing works at all.

The Net, by nature, is less controlled than a company LAN, and in order for Net-based e-mail to work at all, it had to be pared down to its core feature set. In contrast, LAN e-mail systems are built atop proprietary technologies that assume the presence of a reliable network, and e-mail-software vendors have moved quickly to compete by adding features. Now, lured by the millions of users on the Internet, companies in the Macintosh mail-software market are

adopting those all-too-basic Internet standards as the basis for their mail systems. As they try to retrofit their advanced features on top of the bare-bones standards, they're discovering that certain things just won't work. And some, such as the ability to get return receipts to make sure your mail arrived, will probably *never* work (see the "Lowered Expectations" table).

The Standard Drawbacks

Although you could build castles in the air with the advanced features promised for Internet mail, the daily reality for almost all of its users is a text-only message that uses a single, monospaced font and contains more gobbledygook than content. Internet mail is confusing and plain because it's built on international standards that are, and always have been, unable to deliver a high level of service and sophisticated features. Although widely accepted on paper, these mail standards and protocols are also, unfortunately, widely interpreted in programs. The resulting discord among the implementers results in "standards-based" mail often being unreliable and unfriendly — adding insult to the injury inflicted by the overly basic nature of the standards.

What are the specific standards at the root of all this trouble? There are three in particular: MIME, or Multi-purpose Internet Mail Enclosures, which allows a message to include data other than plain text; SMTP, or Simple Mail Transfer Protocol, which basically sends messages; and POP3, or Post Office Protocol version 3, which lets a client program pick up mail from a server that's holding it. There are other standards involved as well, particularly BinHex and Uuencode, which both serve to translate usable files into sendable text, but the first three are the biggies.

MIME: Off with the Gloves. It is telling that MIME is named after one of the least loved types of performance artist; this so-called standard is a pest. If you're unfortunate enough to have used Cyberdog's mail parts, then you've experienced firsthand the hassle that ensues when one mail client creates a MIME message in a manner slightly different from the way another client expects. Early users of Intercon's TCP/Connect programs experienced some of the same difficulties, as do Lotus Notes users today — along with just about anyone who's ever tried to link an Internet-mail gateway to a LAN-



If you weren't paying close attention during 1996, you probably didn't notice that nearly every vendor of Mac LAN-mail software jettisoned its proprietary LAN-mail underpinnings.

mail system. Depending on its source and type, your mail may be chopped into pieces or arrive with tons of garbage text included at the bottom. Sometimes that garbage is actually an enclosed file that you need to copy into a new document, save as text, and decode by using some geeky utility. (Thank heavens for StuffIt Expander! Without it, Mac-based Internet mail might not function at all.)

Although it has always been finicky, MIME is one of the great hopes of Internet mail, since it tries to create a way for mail to be more than just text. This openness has resulted in such fascinating experiments as the use of formatted text (multiple fonts and sizes) and the embedding of live Web links, sounds, QuickTime movies, raw Macintosh resources, and even interactive electronic forms in messages. These features are already available, of course, in most non-Internet Mac e-mail systems, and it's still very rare that any of these capabilities work across three or more Internet-mail clients. But MIME at least has potential as a mechanism for new Internet-mail features — unlike its fellow standards, SMTP and POP3.

SMTP and POP3: Aiming Low. These standards are so bare-bones it's embarrassing. You want a reliable return receipt, to know when someone read your mail? Sorry. You want to unsend a message you thought better of? Forget it. Would you like your message encrypted while it's sent over the wire or stored on a server? Think again. Most of the e-mail features invented in the past ten years have been left out of POP3 and SMTP. However, like a seasoned two-by-four, these standards do have their uses. Where MIME fails in its aspirations, these two succeed by their lack of them. The evidence shows that SMTP and POP3 can be implemented well enough by a variety of programs to get basic text-only mail through most of the time. Hurrah for standards.

A Serviceable Example. The failings of these protocols and of their implementations in Internet mail in general have been cruelly apparent on the commercial online services, which so many users approach because they're seeking a smoother, easier on-ramp to the Information Superhighway. Since America Online, CompuServe, and Prodigy all provide gateways for sending and delivering standards-based Internet mail, it should be a piece of cake to send a message with an enclosed file from one to another. But if you haven't tried it yet, don't waste your time; the Internet-mail gateways of these online services are not quite compatible with one another, even though every one of these companies views connectivity to the Internet as being at the core of its future business.

Inherent Limitations

Net boosters insist that the problems lie not with our standards but with our programmers. If all those Internet-software creators would just follow the standards better, everyone could communicate with



E-mail-software vendors beat each other bloody for years battling to offer the most-advanced capabilities for creating central mail directories. Now, everybody has surrendered all at once.

everyone else without a hitch. This is utopian hokey.

You want to know what really makes Internet messaging standards work — to the degree they do — in the Mac community? Mac programmers attend Internet Engineering Task Force meetings — where the standards are supposed to be hammered out — and then afterward, they have coffee or Jolt together, swap notes, and iron out the details. The reason you can send e-mail with an attachment from Qualcomm's Eudora to Claris EMailer has more to do with these efforts than with Internet-mail standards making anything easy. The developers of Macintosh Internet software have even formalized this informal exchange by banding together to form MIDAS (Macintosh Internet Developers Association), a group whose goal is to ensure compatibility among their standards-based programs.

These folks all know that the published Internet-mail standards have never been enough to keep all the Mac programs communicating, so anything that works today most likely relies on the personal cooperation and good will of these programmers. This reality makes a mockery of the supposed superiority of open standards.

Internet mail is alleged to be better than a collection of proprietary LAN-mail systems because new mail systems need only implement the right standards and protocols to work with any other standards-based mail server or client software. But when vendors have to trade tips and tricks to help each other read one another's messages, the standards aren't doing their job. If the same effort were expended getting a group of proprietary LAN-mail systems talking to one another, the results would prove to be just as good, if not better. Consequently, we would get to keep our return receipts and companywide address books, since each vendor has protocols that accommodate these features.

But Wait, There's Hope

So if Internet-mail standards and the processes that produce them offer little hope of our regaining lost ground in e-mail features, are we just plain out of luck?

Not necessarily. Perversely enough, the same force that allowed Internet mail to trample the world of LAN mail — the power of numbers — may be the force that finally makes Internet-mail standards work. If a company with an impossible-to-ignore number of customers creates an Internet-mail client program that dominates the market, that company can create a de facto set of standards others must follow. Netscape and Microsoft, because they have both added mail capabilities to their extremely popular Web browsers, are each in a position to set that messaging benchmark.

At first glance, these two Internet titans may seem the worst possible candidates for the position of e-mail trendsetter. Based on their

Lowered Expectations

/ LAN-mail features you will and *won't* find in Internet mail

The Internet community is never at a loss for new standards that add features to e-mail. However, some of the features we take for granted today in LAN-mail systems are still not mainstream for Internet mail, and some will probably never be possible except within a specific vendor's system.

Today's Standard Internet-Mail Capabilities

- ▶ Send text message to server
- ▶ Pick up text message from server
- ▶ Translate enclosures
- ▶ Include multimedia data types

Stay Tuned — Still Not Mainstream Abilities

- ▶ Synchronize address books
- ▶ Use forms
- ▶ Search text

Don't Hold Your Breath ...

- ▶ Send return receipts
- ▶ Unsend messages
- ▶ Sound alert when mail arrives at server
- ▶ Route messages sequentially in workflow
- ▶ Allow direct dial-in to server
- ▶ Allow local control of mail rules or filters on server

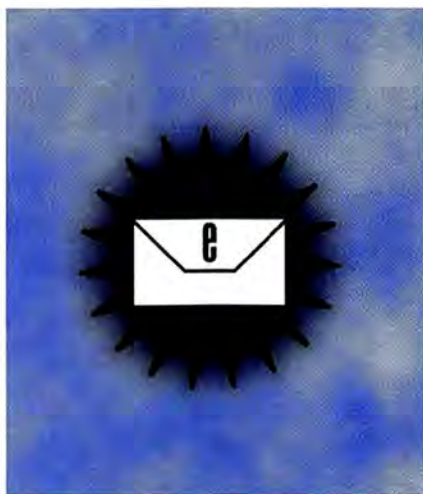
efforts to date, it seems that neither possesses any innate talent for this sort of thing. Netscape's original attempts at putting e-mail features into Navigator were cloddish at best, and Microsoft — in spite of all the resources it devoted to Microsoft Mail — hasn't had a successful e-mail strategy in its entire history.

But both companies are ambitious, powerful, and experienced at making Internet standards happen. Just as their browsers helped define many Web features, so too might the mail functions built into Netscape Navigator or Microsoft's Internet Explorer become the bludgeon that pounds out some of the chaos of Internet-mail standards. The situation clearly calls for forceful measures. And if one program or the other becomes the touchstone of messaging software, our view of Internet-mail compatibility will change drastically. Compatibility will be judged not by degrees of compliance with an academic standard but by the ability to trade MIME-encoded messages with that dominant client software.

More than being just another standards war, this is a transition that provides the only hope that Internet mail will break free of its inherent confusion and limitations. Once leadership in the implementation of standards has been established, most of the advanced niceties of LAN-based mail can and will reemerge on the Internet. The customary grind of Internet standards is not

going to be strong enough to smooth out these rough spots until the market applies some elbow grease.

The reverse of the traditional trickling down of standards will happen: As Netscape and Microsoft add features to their mail client software, their implementations will flow back into the standards-definition process for belated ratification. (This de facto standard setting is already happening with Web client and server software.)



The feature-rich LAN e-mail we've known is, if not actually dead, in an extremely deep coma.

The Verdict

The feature-rich e-mail we've known in the LAN-based versions of programs such as QuickMail is, if not actually dead, in an extremely deep coma. In gaining a straightforward connection to the sea of Internet users, we're losing many of the nuances and conveniences we've grown accustomed to within our companies' e-mail systems. But despite the obstacles posed by the Internet standards-setting process, all is not lost. The bludgeon of majority rule can work for good as well as for evil, and if a firm such as Netscape or Microsoft can wield it effectively for e-mail standards, we may yet keep our favorite LAN-mail features from ending up in the dead-letter office. ☒

MacWEEK Executive Editor Stephen Howard is striving to uphold the banner of LAN-mail standards on the Internet; send a MIME enclosure to stephen@macweek.com, and he'll send you a return receipt.

Low-Cost Color Scanners:



THESE DAYS THERE'S more reason than ever to turn hard-copy pictures into electronic bits — for publishing on the

Web as well as on paper. Luckily, prices for a key group of devices needed for this process — color flatbed scanners — have reached a new level of affordability. In the past, choosing the lower-priced models required you to make major compromises in quality, but no longer. MacUser Labs tested 17 color flatbed scanners — 11 with a street price of \$500 to \$1,000 each and 6 costing less than \$500 each — for image quality, ease of use, and helpfulness of software tools. Our verdict: Whether you're a DTP pro looking for a sub-\$1,000 bargain or a home user with a \$500 budget, you'll find scanners in your price range that produce high-quality output.

Scanning the Results

To test each scanner's image-output quality, we scanned a 5-x-7-inch color photo from the Graphic Arts Technical Foundation (Pittsburgh, Pennsylvania; 412-621-6941).



The GATF image challenges a scanner's prowess in several ways: It includes a wide range of color, skin, and other natural tones; a gray-gradient background; varying degrees of highlight and shadow; and some fine detail. We printed the images on a Tektronix Phaser 480X dye-sublimation printer and asked a jury of imaging experts to evaluate the output quality.

Our jury was able to separate the scanners into three distinct categories: Outstanding, Good, and Fair. Scanners that produced outstanding images required little tweaking and produced accurate colors with good detail. Scanners that did well in some areas but poorly in others were in the Good category. With these scanners, we found that the problems — which included color inaccuracy,

PHOTOGRAPHY / LON CLARK



FEATURES OF LOW-COST COLOR SCANNERS

RATING	PRODUCT	OVERALL IMAGE-OUTPUT QUALITY	ESTIMATED STREET PRICE	BIT DEPTH	OPTICAL RESOLUTION	MAX. INTERPOLATED RESOLUTION	MAX. SCAN AREA
SCANNERS PRICED \$500 TO \$1,000							
★★★★	✓ Linotype-Hell Jade	+	\$900	33 bits	600 x 1,200 dpi	3,600 dpi	8.5 x 11.7 in.
★★★★	Nikon ScanTouch 210	+	\$700	24 bits	600 x 1,200 dpi	9,600 dpi	8.5 x 11.7 in.
★★★★	Agfa StudioScan IISI	●	\$600	30 bits	400 x 800 dpi	2,400 dpi	8.5 x 14 in.
★★★★	Agfa StudioStar	●	\$800*	30 bits	600 x 1,200 dpi	2,400 dpi	8.3 x 14 in.
★★★★	Apple Color OneScanner 1200/30	●	\$830	30 bits	600 x 1,200 dpi	4,800 dpi	8.5 x 11 in.
★★★★	UMAX Vista-S12	●	\$550*	33 bits	600 x 1,200 dpi	9,600 dpi	8.5 x 11.7 in.
★★★★	Epson ES-1000C	—	\$600	30 bits	400 x 800 dpi	3,200 dpi	8.5 x 11.7 in.
★★★★	Hewlett-Packard ScanJet 4c	●	\$900	30 bits	600 x 600 dpi	2,400 dpi	8.5 x 14 in.
★★★★	Microtek ScanMaker E6	—	\$600*	30 bits	600 x 1,200 dpi	4,800 dpi	8.5 x 13 in.
★★★★	Pacific Image ScanAce II	—	\$600	30 bits	600 x 1,200 dpi	4,800 dpi	8.5 x 14 in.
★★★★	Pacific Image ScanAce III	—	\$900	36 bits	600 x 1,200 dpi	4,800 dpi	8.5 x 14 in.
SCANNERS PRICED UNDER \$500							
★★★★	✓ Agfa SnapScan	+	\$330	24 bits	300 x 600 dpi	2,400 dpi	8.5 x 11.7 in.
★★★★	Nikon ScanTouch 110	+	\$300	24 bits	300 x 600 dpi	4,800 dpi	8.3 x 11.7 in.
★★★★	Microtek ScanMaker E3	—	\$330	24 bits	300 x 600 dpi	2,400 dpi	8.5 x 13.5 in.
★★★★	UMAX Vista-S6E	—	\$300*	24 bits	300 x 600 dpi	4,800 dpi	8.5 x 11.7 in.
★★★★	Tamarack Z1-600	—	\$300	30 bits	300 x 600 dpi	2,400 dpi	8.5 x 11 in.
★★★★	Tamarack Z1-1200	—	\$450	30 bits	600 x 1,200 dpi	4,800 dpi	8.5 x 11 in.

✓ MacUser BEST BUY

*An expanded software package is available at extra cost.

LISTING IS ALPHABETICAL WITHIN GROUPS OF EQUAL MOUSE RATINGS.

Quality for Less

loss of detail in highlight and shadowed areas, and variance in saturation and sharpness — could be fixed by moderate editing in the prescan. The last group of scanners required substantial tweaking to produce acceptable scans; we categorized these as Fair.

The overall best-looking scans were those of the Linotype-Hell Jade, which produced an image that came very close to an accurate reproduction of the original photograph. The Jade was able to maintain the natural look of skin and other neutral tones, and it preserved fine details in the highlighted as well as the shadowed areas and produced balanced color saturation. The Jade was also the only device we tested that reproduced the gray background in our image correctly — every other scanner created a magenta cast.

The Nikon ScanTouch 110 and ScanTouch 210 were close behind the Jade in image quality. Both produced nice-looking, sharp images, but the colors were less saturated than the Jade's. Both also produced a magenta cast in the background, although the natural tones looked good.

The biggest bargain in the Outstanding group was the Agfa SnapScan. The amount of detail it preserved in highlighted areas was consistent across the image, although detail in the shadowed areas was somewhat uneven. Overall, image details were discernible but not crisp. But the under-\$400 SnapScan produced images that gave some of the more expensive scanners a run for their money.

Bit by Bit

Although price and image quality are major considerations, other features — in the areas of bit depth, resolution, software tools, maximum scan area, and add-on extras — also differentiate the products.

Bit Depth. Each scanner we tested has a specified *bit depth* — the sum of the number of bits of data per color (red, green, and blue) it can capture for each pixel. For example, a 24-bit scanner captures 8 bits of data per color for each pixel whereas a 30-bit scanner captures 10 bits per color for each pixel.

If you're wondering whether to go for 24-bit, 30-bit, or higher (the 33-bit Linotype-Hell Jade and UMAX Vista-S12 or the 36-bit Pacific Image ScanAce III), bear in mind that scanners with a bit depth higher than 24 bits don't actually provide any more colors than 24-bit scanners nor do they necessarily provide better scans. A scanned image can contain a maximum of 24 bits of color information per pixel, so scanners that have a bit depth higher than 24 bits end up discarding the extra information during the final scan. The extra bits are used only during prescan adjustments such as darkening, lightening, or sharpening portions of the image — operations you perform with the tools provided in the software that drives the scanner.

Resolution. Resolution is a measure of the fineness of detail the scanner is able to provide — the more dots (pixels) per inch, the finer the detail. Manufacturers provide two resolution specifications for each scanner they make: *optical resolution*, or the actual number of pixels the scanner collects data for per inch (given as two numbers, vertical

smart shopper

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

1. What software is bundled with the scanner, and are expanded versions of any of the programs available at extra cost?
2. What type of software driver is used to run the scanner — a Photoshop plug-in, a TWAIN driver, or a stand-alone application?
3. Does the scanner's lid have an adjustable hinge for scanning oversized items such as books?
4. Does the scanner come with a SCSI cable for connection to a Mac?
5. Does the scanner perform single-pass scanning or need three passes to gather red, green, and blue data?

and horizontal), and *maximum interpolated resolution*, which is an artificially enhanced resolution the scanner can provide by guessing at the colors between each set of adjacent pixels from the original scan, using mathematical algorithms (this number is the same vertically and horizontally).

The method you should use for determining what resolution you need from your scanner depends on what device you'll be using to output images. If you're scanning images for use on the Web or for viewing on a monitor, but not for printing, you'll want to scan at the same resolution as your monitor (typically 72 dpi). If you plan to print the scanned images, you'll need to consider what type of printer you're printing to.

For laser printers and imagesetters, start with your printer's line-screen frequency (generally provided in the printer's manual). If your printer's line-screen frequency is less than 133 lpi (lines per inch), multiply it by 1.5. If it's more than 133 lpi, multiply it by 2. For example, if you're printing to an Apple Color LaserWriter 12/660 PS, which has a line-screen frequency of 200 lpi, your scanning resolution should be at least 400 dpi.

For inkjet printers, which don't have a set line-screen frequency, you'll generally need to do a little experimenting to find the best scanning resolution. Of course, experimenting is difficult to do before you buy a scanner, so here's a general guideline: We've found that a scanning resolution of 125 to 200 dpi is

TRANSPARENCY- OPTION COST

SHEET- FEEDER COST

WARRANTY

\$350	NA	1 year
\$475	\$575	1 year
\$390	\$650	1 year
\$250	\$275	1 year
\$500	\$300	1 year
\$400	\$500	1 year
\$750	\$450	2 years
\$600	\$500	1 year
\$300	\$400	1 year
\$380	\$330	1 year
\$380	\$330	1 year

\$200	\$250	1 year
\$475	\$575	1 year
\$300	\$400	1 year
\$300	\$500	1 year
\$350	\$350	2 years
\$350	\$350	2 years

+ / OUTSTANDING ● / GOOD — / FAIR

usually adequate for an inkjet printer.

Finally, if you plan to enlarge or reduce your scanned images, multiply the scanning resolution by the percentage (as a decimal number) that represents the relationship of the enlarged or reduced image's size to the original size. Continuing with the example of printing to an Apple Color LaserWriter 12/660 PS, if you want to make your images 1.5 times (or 150 percent) as big as the original, you'll need a scanning resolution of 600 (400 x 1.5) dpi.

Generally, you should look for a scanner that offers vertical and horizontal optical-resolution numbers greater than or equal to your desired scanning resolution. If, however, you plan to enlarge images or perform operations such as smoothing jagged edges on line art, you may be able to use an interpolated resolution to make up some of the difference between the optical-resolution numbers and your desired resolution.

Software Tools. Since your scanner's scanning software allows you to make adjustments during scanning, you'll want it to provide plenty of tools for tweaking scans before any extra bits of color information (beyond 24 bits) are discarded. In particular, look for curve controls, highlight- and shadow-adjustment tools, balance controls, and sharpness options. Agfa, Microtek, Nikon, and UMAX provide software that combine an easy-to-use interface with a full set of image-editing tools. The LinoColor Easy bundle, which comes with the Linotype-Hell Jade scanner, also provides ample tools, but they're designed for more-experienced users who need to perform prepress-oriented operations such as scanning in the CMYK color space (rather than in RGB).

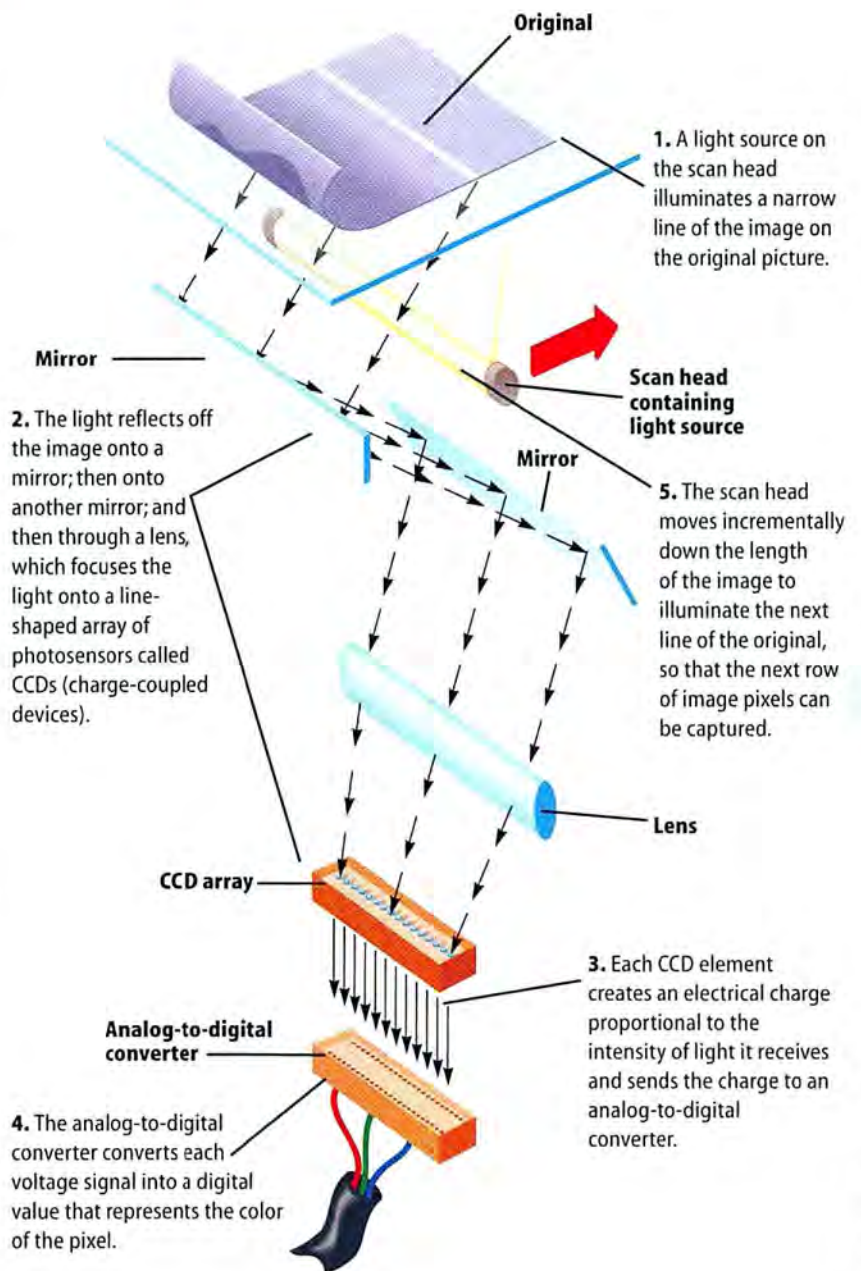
If you don't want to fiddle with tone curves or learn how to read a densitometer or a histogram in order to evaluate color accuracy, look for a scanner that has software that offers printer profiles and automatic controls. Agfa's FotoSnap software (included with the three Agfa scanners we tested for this report) uses preset generic color profiles based on an assortment of output devices. All you need to do before performing a scan is configure a couple of settings.

Finally, if you want to operate the scanner from within a particular application, make sure your scanner's driver software will allow you to. If the driver software is a Photoshop plug-in, you can operate the scanner from within any application that supports

FROM PICTURES TO PIXELS / how flatbed scanners work

THE BASIC PRINCIPLE of how a scanner operates is pretty simple: Light reflected off an image (or shone through it, if the image is on a transparency) is directed by way of mirrors and a lens onto a set of photosensors that register electrical charges based on the intensity of the light. These electrical charges are then converted into digital values representing color measurements.

Where things get a bit more complex with color scanners is in the actual mechanics of how the light moves across the image and passes through red, green, and blue filters in order to produce the three sets of data necessary for a color picture. In a three-pass scanner, the scan head makes three passes down the length of the image — once using each color filter. A single-pass scanner generally uses three arrays of photosensors, each one coated to filter a particular color (red, green, or blue), so that only one pass needs to be made and the scan can occur more quickly. Single-pass scanners were at one time considered inferior to three-pass scanners in terms of image quality, but they have improved to the point where their speed now generally gives them an advantage over three-pass scanners. / KAREN J. OHLSON



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

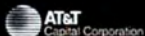
Duplexing also available.

Call 800 926-8839

EXT. 2231 • DEALERS CALL EXT. 2232 • FAX 334-342-3345

Optional on-site service provided by XANTÉ
in partnership with Olivetti North America

olivetti



MasterCard•Visa•Amex•Discover

 **XANTÉ**
Innovations In Output



Adobe PostScript



© 1993 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 Spring Hill Ave., Mobile, AL 36608, P.O. Box 16526, Mobile, AL 36616-0526. Phone: (334) 342-4840. Fax: (334) 342-3345.

CIRCLE 126 ON READER SERVICE CARD

BOTH ENDS OF THE SPECTRUM / *an outstanding scan and a fair one*

The Linotype-Hell Jade produced the best-looking output of the scanners we tested — an image that comes very close to matching the original photograph. The color accuracy is the best we've seen from a scanner costing under \$1,000.



The Tamarack Z1-1200's output suffers from problems common to the scanners we categorized as Fair: The image is too dark, resulting in unnatural-looking color, lost detail in the shadowed areas, and an oversaturation effect.

Photoshop plug-ins. If it complies with the TWAIN specification, you can operate the scanner from within any application that supports TWAIN drivers (for example, Adobe PageMaker). If the driver software is a stand-alone application specific to the scanner, see if it can link to an image editor, to provide you with a bit more flexibility.

Maximum Scan Area. All the scanners we reviewed can scan a letter-sized image, and some have a larger maximum scan area. The area you choose should be dictated by the size of the images you want to scan. The dimensions most scanner manufacturers provide for their maximum scanning area are for *reflective scans* — scans of nontransparent media. If you want to scan transparencies or slides, note that the maximum scan area for these media may be smaller than the area for reflective media — and factor in the

extra cost of transparency adapters.

Extras. If you want to scan anything other than single pages of art and text (all the scanners we tested come with OCR software) on reflective (nontransparent) media, you'll need to pay extra. With one exception, all the scanners we tested have transparency adapters and automatic sheet feeders, at extra cost. A transparency adapter is an alternative scanner lid with a transparent area and an extra scan head that shines light through a transparent image during scanning. A sheet feeder lets the scanner automatically scan a multipage document. The exception is the Jade, which does not have an automatic-sheet-feeder option because it is aimed at the prepress market.

As a further extra, many vendors offer expanded software packages, such as a full version of Photoshop, at additional cost.

The Bottom Line

The Linotype-Hell Jade produced the best scans we've seen from a scanner priced under \$1,000 — an attractive price for a prepress scanner. Its LinoColor Easy software is a stripped-down version of the same software the company bundles with its more expensive scanners, but it still has the tools most prepress and imaging experts need for tweaking images.

If you want a bargain, check out the Agfa SnapScan. Its image quality was the fourth-best, yet it sports one of the lowest prices — and the lowest prices for a transparency adapter and an automatic sheet feeder. Plus, its included FotoSnap software makes the SnapScan a snap to use. / ROMAN LOYOLA

Roman Loyola is a MacUser associate editor. Associate Project Leader Martin Wong managed the testing for this report.

DIRECTORY

Agfa Ridgefield Park, NJ 800-685-4271 201-440-2500 201-440-8187 (fax) http://www.agfahome.com/	Epson America Torrance, CA 800-463-7766 310-782-0770 310-782-5220 (fax) http://www.epson.com/	Linotype-Hell Hauppauge, NY 888-546-6265 516-434-2000 516-434-2706 (fax) http://www.linotype.com/	Nikon Melville, NY 800-526-4566 516-547-4355 516-547-0299 (fax) http://www.klt.co.jp/nikon/	Tamarack Technologies Orange, CA 800-598-3918 714-744-3979 714-744-4582 (fax) http://www.tamaracktechnologies.com/
Apple Computer Cupertino, CA 800-538-9696 408-996-1010 800-510-2834 (fax) http://www.apple.com/	Hewlett-Packard Palo Alto, CA 800-722-6538 408-246-4300 800-333-1917 (fax) http://www.hp.com/	Microtek Redondo Beach, CA 800-654-4160 310-297-5000 310-297-5050 (fax) http://www.microtekusa.com/	Pacific Image Electronics Torrance, CA 800-909-9996 310-214-5281 310-214-5282 (fax) http://www.scanace.com/	UMAX Technologies Fremont, CA 800-562-0311 510-651-4000 510-651-8834 (fax) http://www.umax.com/

UMAX®

The Magic of Color™ Vista-S12 Mac Deluxe

\$499*
U010 1055

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.

\$1850
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.....	\$1850
	Adobe Photoshop LE	
U010 1052	PowerLook II Pro 36-bit with Transparency Adapter.....	\$1955
	Full Adobe Photoshop, Kai's PowerTools SE, PhotoPerfect Advanced	

Vista S6E Color Scanner SPEED, QUALITY, ACCURACY

- 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.

\$279†
U010 1061



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 9am - 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

MACINTOSH PRODUCTS AT DISCOUNT PRICES

ClubMac® You Are Entered to Win the NEW Apple PowerBook 1400 with each order placed!

Lowest Prices Anywhere!

APPLE PRICES SLASHED!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK
1-800-258-2622
Order On-line @ <http://www.club-mac.com>

<http://www.club-mac.com>



NO SURCHARGE!

When placing an order
please mention source code
680297

ORDER 24 HOURS A DAY • 7 DAYS A WEEK
1-800-258-2622
Visit Our Web Site @ <http://www.club-mac.com>

ClubMac®

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	\$64
M101 1082	16MB	\$129
M101 1083	32MB	\$259
M101 1084	64MB	\$519



SOUTHLAND
MICRO SYSTEMS

Quality • Strength • Speed

Internet: <http://www.southlandmicro.com>

SIMM (72PIN)

M101 1031	4MB	\$29
M101 1054	8MB	\$55
M101 1072	16MB	\$122
M101 1070	32MB	\$245

ClubMac®

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Visit Our Web Site @ <http://www.club-mac.com>

When placing an order
please mention source code
680297

Unleash Your Creativity

Limited time offer
\$100.00
Rebate!
Painter 4

FRAC TAL DESIGN PAINTER® 4.0
Painter 4 is the world's leading paint program. With more than 150 unique brushes that simulate traditional painting tools and special 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 Host and shapes are trademarks of Fractal Design Corporation.



PAINTER® 4.0
\$259*

F039 1003
*Price after \$100 manufacturer mail-in rebate.



More New Cool Stuff from Fractal Design



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)



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)



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

\$129

F039 1009

FRAC TAL
DESIGN
CORPORATION

When placing an order
please mention source code
680297

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Visit Our Web Site @ <http://www.club-mac.com>

ClubMac®

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 800	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	\$1,799	\$1,395	\$899	\$745
Part Number	R053 1034	R053 1043	R053 1031	R053 1042	R053 1035



SuperScan
An advantage you can clearly see.

NSA 100 Lowder Brook Drive, Westwood, MA 02090
http://www.nsa.hitachi.com
The ENERGYSTAR™ emblem does not represent
EPA endorsement of any product or service.

RASTEROPS™

HITACHI

ClubMac®

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Visit Our Web Site @ <http://www.club-mac.com>

When placing an order
please mention source code
680297

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



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



When placing an order
please mention source code
680297

ORDER **24 HOURS A DAY • 7 DAYS A WEEK**
1-800-258-2622
Visit Our Web Site @ <http://www.club-mac.com>

ClubMac®

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 \$99⁹⁵



FEATURES

- Advanced Pen Technology**
Simulates drawing or pointing
- 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 applications
- 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



\$199⁹⁵

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	\$199 ⁹⁵
C290 1001	DrawingSlate II 12"x12" w/Erasing Pen	\$229
C290 1004	DrawingSlate II 12"x18" w/Erasing Pen	\$299
	w/Painter 4.0 (C290 1003)	\$435
	w/Painter 4.0 (C290 1005)	\$459
	w/Painter 4.0 (C290 1006)	\$529

ClubMac®

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

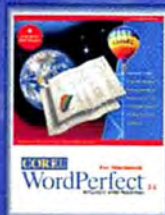
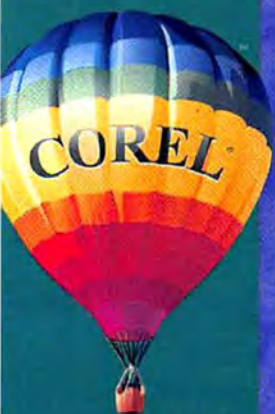
1-800-258-2622

Visit Our Web Site @ <http://www.club-mac.com>

When placing an order
please mention source code
680297

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
\$175^{00*}
Full CD-ROM version



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



<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.

When placing an order
please mention source
code
680297

ORDER 24 HOURS A DAY • 7 DAYS A WEEK
1-800-258-2622
Order On-Line @ <http://www.club-mac.com>

ClubMac®

CIRCLE 119 ON READER SERVICE CARD

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

3 reasons why we chose Splash over Fiery...

Paul Kalil, V.P. Operations
WYSIWYG PREPRESS

Dave King, President
WYSIWYG PREPRESS

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.



WHEN YOU'RE SERIOUS ABOUT COLOR.

For more information
circle 54 on the reader service card.



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 screens to print color matching and the ability to simulate the output of a printing press with standard press inks (DANES, Euroscale, Toyo, SHANS). 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 the type or rendering chosen.



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, online and without the need for an expensive desktop system.



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.

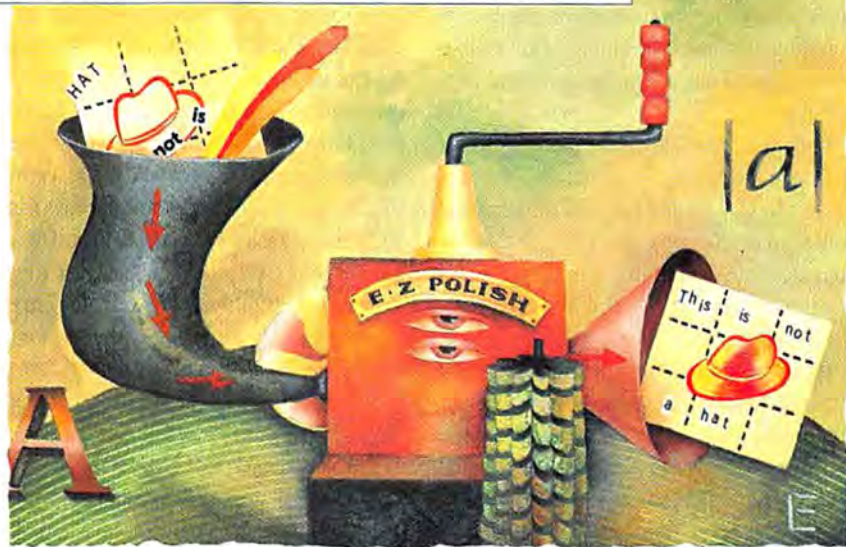
© 1996 Splash Technology. Splash and the Splash logo are trademarks of Splash Technology, Inc. XEROX and the stylized X are trademarks of Xerox Corporation. Other product names used herein are trademarks of their respective owners.



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.

DESKTOPmedia

So you think you've finally
got the basics of HTML?
These tips will help take
your page to the next level.



By Tonya Engst

Polishing Your Page

AS MANY MODEM-TOTING Mac users have found, making a basic Web page isn't all that difficult. Making a page that stands out from the pack, however, can pose a challenge.

After you conquer the basics of HyperText Markup Language, or HTML, you may discover that your next battle is design. Whether you've gotten graphics onto a page but can't seem to control where they land or your colored text is unreadable, the answer to common Web design problems often lies not with more tools but with a little knowledge and cleverness.

This article will walk you through four ways to take your page to the next level simply by making the most out of HTML. WYSIWYG programs, such as Adobe PageMill and Claris Home Page, can make some design techniques easy as pie, but they aren't perfect. Chances are you'll still find yourself tweaking code. They also don't protect you from some cross-platform pitfalls, as Tip #2 outlines, using the example of colors.

If you have more questions, check out the online version of this article, at <http://www.zdnet.com/polish.html>, for links to articles about getting started with HTML.

Tip #1: Turn Tables into a Design Tool

Designing for the Web is trickier than designing for print. For starters, text and graphics won't stay put — you can't even place images and text right where you want them, as you would on a printed page. What you can do, however, is use tables as grids to hold your elements in place. On the Web, tables can be a designer's best friend.

The anatomy of a basic table might look like this: `<TABLE WIDTH=100%> <TR> <TD WIDTH=50%>Cell 1</TD> <TD WIDTH=50%>Cell 2</TD> </TR> </TABLE>`.

The opening tag, `<TABLE>`, starts the table. Each table row, or line of cells, begins with `<TR>` and ends with `</TR>`. In between, you indicate cells, or table data, with the tag pair `<TD>` and `</TD>`. You finish the table with the closing tag `</TABLE>`.

Notice that I added `WIDTH` commands (technically known as attributes) inside the tags to modify the table's basic behavior. `<TABLE WIDTH=100%>` tells browsers to make the table as wide as the browser window, regardless of what size the

window is on the viewer's screen. I also included a `WIDTH` attribute with each cell, `<TD WIDTH=50%>`, making each span half the table's width. See figure 1 for the results.

To create a slim border around each of my table cells, I could have included a `BORDER` attribute (for example, `<TABLE WIDTH=100% BORDER=1>`). Instead, I wanted this table to be an uncluttered transparent grid. (In a WYSIWYG program, you may need to turn automatic bordering off. Look for a table option, and set borders to 0.)

Once you think of a table as a grid for your page elements instead of as just a mechanism for arranging numbers, you can experiment by adding text and graphics to the cells. Don't

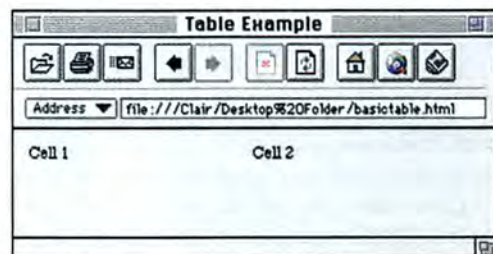


figure 1 / This page sports a basic table that has invisible borders and uses `WIDTH` attributes to position its cells.

worry about being boxed in by inflexible arrays of rows and columns. By manipulating the row and column span, you can make an element run across an entire row or column (much as you merge cells in a spreadsheet application). This means that you can stretch a graphic through the middle of your table or even place a navigation bar across the bottom row.

In figure 2, the Fixed Rate Mortgages row spans eight columns. To accomplish this, the page's designer added a column-span attribute to the TD tag: `<TD COLSPAN=8>`. To make cells span multiple rows, you add a row-span attribute to the TD tag: `<TD ROWSPAN=3>`.

If you find that COLSPAN and ROWSPAN attributes are straining your brain, you can try another technique — creating a table within a table. A basic example of a table cell that holds another table might look like this: `<TD><TABLE><TR><TD>a table within a table!</TD></TR></TABLE></TD>`.

Most newer WYSIWYG HTML editors let you edit your tables visually, although to create COLSPAN or ROWSPAN effects, you may need to go through a dialog box. In a few programs, you can drag and drop cell borders to create COLSPAN and ROWSPAN effects. You should also be able to insert a table within any table cell. Just place your cursor in a cell and use the same commands you used in order to make your original table.

Tip #2: Add Color Correctly

The Web has donned a rainbow-hued coat, and you too can easily add color to your pages. This is a simple way of jazzing up Web pages that adds virtually no downloading time for

surfers accessing your pages over the Internet. To get colors to look good, however, can require some finesse.

The trick is to avoid dithering. Not all monitors can see all colors — some see millions, some see thousands, some see only 256. Worst of all, Mac and Windows machines don't even see the same set. If you use a color another monitor can't see, that monitor tries to fudge the color by combining colored pixels that look similar to your color when viewed as a group. Unfortunately, the effort doesn't always work. Dithering can be a big problem for background colors, because it creates dot patterns that make text difficult to read. This isn't as much of an issue for Mac users as it is for users of older PCs.

To prevent dithering, you need to stick to colors commonly referred to as "the Netscape 216 palette." First specified by Netscape Navigator, this palette is supported by all popular browsers, and its colors display well on Macs and Windows machines.

Using the Netscape palette takes a little extra work, and your first obstacle could be your HTML editor itself. When you pick a color within an editor, you usually use the RGB color wheel (the RGB system indicates colors by giving values for red, green, and blue). Not only does the color wheel span a spectrum far beyond that of the meager Netscape palette but HTML doesn't even use the RGB system; instead, it indicates colors with different numeric values, hexadecimal. This situation gives you two opportunities to accidentally pick colors that are guaranteed to dither.

To use the color wheel effectively, you must stick with the few RGB values the Netscape palette supports: 0, 51, 102, 153, 204, and 255.

Most HTML editors automatically convert those RGB values into hexadecimal. If the program you're using doesn't do colors, you'll have to type in the hex values yourself. Figure 3 shows some basic colors that won't dither, along with their RGB and hex values.

Once you've gotten a handle on what colors you can use, it's easy to add them to your page. If you want a page to have a teal background color, with an RGB value of 102,204,153, the final BODY tag would look like this after your program converted the RGB values to hexadecimal and created the tag: `<BODY BGCOLOR="#66CC99">`.

If you aren't concerned about older browsers being able to display your colors, you can also use common color names in place of the hex values. For instance, Internet Explorer 2.1 and Navigator 3.0 both understand that `<BODY BGCOLOR="LIME">` indicates a bright-green background. Other color names you can use include black, red, blue, purple, yellow, and navy.

You can also color the different types of text on your page. Be careful when you change the text color, however, since colored text is often difficult to read for long periods of time. To make a page with a dark-blue background and white text, you would add this BODY tag: `<BODY BGCOLOR="#06014C" TEXT="#FFFFFF">`. You can also change the color of linked text after it's been clicked on (ALINK), links you haven't followed yet (LINK), and visited links (VLINK).

If coloring all text on a page isn't your style, use the FONT tag pair to enclose text you want colored. For instance, to turn "a few words" purple, your tag would look like this: `a few words`.

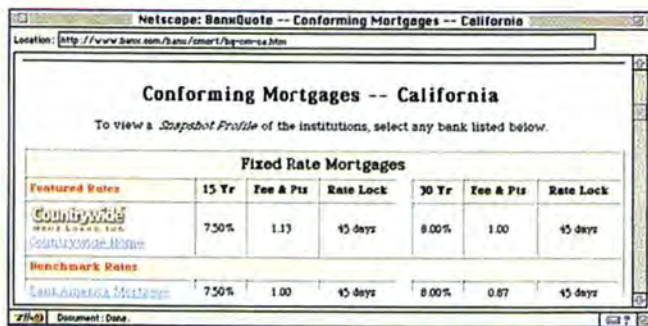


figure 2 / This site is a straightforward example of how you can use a COLSPAN attribute to make one table row span multiple columns. Don't be fooled by the apparent simplicity of this technique. A table with borders turned off that uses COLSPAN or ROWSPAN attributes can offer the most-powerful layout flexibility possible with HTML.

Hex Value: FFFF99

R: 255
G: 255
B: 153

Hex Value: CCFEFF

R: 204
G: 255
B: 255

Hex Value: CC99FF

R: 204
G: 153
B: 255

Hex Value: 66FF66

R: 102
G: 255
B: 102

Hex Value: 6633FF

R: 102
G: 51
B: 255

Hex Value: 66CC99

R: 102
G: 204
B: 153

Hex Value: 000000

R: 0
G: 0
B: 0

figure 3 / This illustration shows a sampling of nondithering colors you might want to use, along with their RGB and hex values. If you type in HTML code for a color, use the hex value. If you use an HTML editor, chances are the program will convert the RGB to hex for you.



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.



Ziff-Davis Television

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



Tip #3: Widen Your White Space

A cramped and cluttered screen does not invite the eye. Most print designers know the value of white space, but incorporating this basic design technique into a Web page can prove a tricky task. Back in the days before tables, Web designers created white space by convoluted and at times unsuccessful uses of PRE, BR, or P tags (which set preformatted text, make line breaks, and indicate paragraphs, respectively). Today you can pick from a few more alternatives.

If you use a table to hold page elements in place, CELLPADDING and CELLSPACING hold the keys to white space. When table borders are set to 0, these attributes are functionally the same as each other, but with borders on, CELLPADDING widens the space between cells whereas CELLSPACING widens the gap between cell text and cell edges. For example, the table on the left in figure 4 has no special spacing but the one on the right uses the tag `<TABLE CELLPADDING=4 CELLSPACING=6>` to create 4-pixel borders and 6-pixel cell margins.

Those seeking the ultimate in control can use transparent graphics to nudge elements into place. Simply create a transparent GIF that's the size you want your white space to be. You can slip the graphic into a table cell or place it directly on your page. Transparent GIFs do have drawbacks. Surfers who browse to your page with graphics turned off will see the outlines of these graphics. Also, different people will open their browsers to different widths, and some widths may have unexpected effects on your layout.

For more-intrepid Web designers, there's a

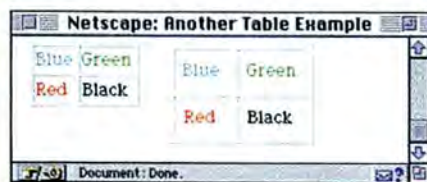


figure 4 / Compare the table on the left, which has standard border widths and cell margins, with that on the right, which has thickened borders and increased cell margins because of the CELLPADDING and CELLSPACING commands. By manipulating these two table attributes, you can widen your white space in subtle ways.

new Netscape addition to HTML, the SPACER tag. Supported only by Netscape Navigator 3.0 at press time, SPACER gives more-consistent control over white space than other alternatives. Additional browsers are likely to support this tag in the future, but you should consider your audience carefully before planning a page around this tag.

SPACER opens up white space vertically and horizontally. Its effect depends on the TYPE attribute, which can be set to HORIZONTAL, VERTICAL, or BLOCK. For example, to indent the first line of a paragraph, you could use the tag this way: `<SPACER TYPE=HORIZONTAL SIZE=24>`. To create a slice of extra vertical space between two paragraphs, this tag would do the job: `<SPACER TYPE=VERTICAL SIZE=36>`.

The TYPE=BLOCK attribute lets you use the SPACER tag to push text and graphics around on the page, much as you can with an invisible graphic. For instance, to create a left-aligned, one-inch-square patch of nothing, try `<SPACER TYPE=BLOCK ALIGN=LEFT HEIGHT=72 WIDTH=72>`. Figure 5 shows The Line Up, a page that uses horizontal spacers to push text in from the left margin.

If you use a WYSIWYG program, chances are good that it won't yet support SPACER, so be prepared to type SPACER tags by hand in the text view and don't expect your results to show until you view the page in a browser that supports SPACER.

Tip #4: Learn When to Give Up Control

A Web page is not a printed page. When you post something online, there's no telling what type of operating system, monitor, or browser



figure 5 / The Line Up's use of the SPACER tag to indent singers' names creates a striking layout. This layout will also look just fine in browsers that don't support SPACER — the names will align neatly to the left. This is a good example of a creative design still flexible enough to look good when displayed in different ways.

the person on the other end will use to see it. Text may appear in a different font or size than the one you've set as a default in your own browser. If the page is going to be viewed on a black-and-white monitor, well, your rainbow page won't look like a rainbow anymore.

By designing your pages with flexibility in mind, you'll take advantage of one of the Web's great strengths: person-to-person, two-way interaction. When a reader's browser interprets your HTML, you and the reader are in effect collaborating on how the page appears.

Sure, you want your pages to look great, but remember that the more you struggle to gain control, the more likely you are to create a mess for some readers. For instance, using transparent graphics to create white space or controlling line widths by way of a table set to a specific pixel width can cause a jumble of page elements for people with smaller monitors or different screen resolutions. Even overuse of the SPACER tag makes for a goofy-looking page if people don't resize their windows the way you want them to. For instance, figure 6 shows the Boston Computer Society home page, which looks great at standard browser width; shrinking the window slightly caused the logo to shift off center.

In the final analysis, your principal goal is communication. You'll want to aim for a visually appealing and unique-looking Web page, but don't get so hung up on looks that you forget that what you see on your screen is unlikely to be exactly what your readers see on their own.

Tonya Engst wrote the HTML chapter in *Internet Starter Kit for Macintosh*, Fourth Edition. You can find her on the Web at <http://www.tidbits.com/tonya/>.

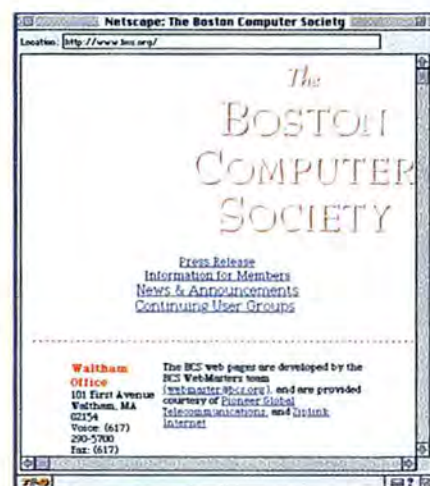


figure 6 / The use of the SPACER tag here causes the logo to shift to the right when the window isn't opened to a standard width.

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 MB, and as much

RAM as we can get.



"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 breakthrough 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.

RELY ON TWINTURBO 128

TWINTURBO
1 2 8 M

CIRCLE 43 ON READER SERVICE CARD

The Award-Winning TwinTurbo 128 Series of Multimedia Accelerators for Macintosh.



INTEGRATED
MICRO
SOLUTIONS

Keep pace with the leaders.

Call 1-888-IMS-8282 today or visit our

Website: www.integratedmicro.com.

Can This Photo Be Saved?

Look to Adobe Photoshop 3.0's layers for an antidote to overexposure angst.

YOU DON'T HAVE TO BE MADONNA

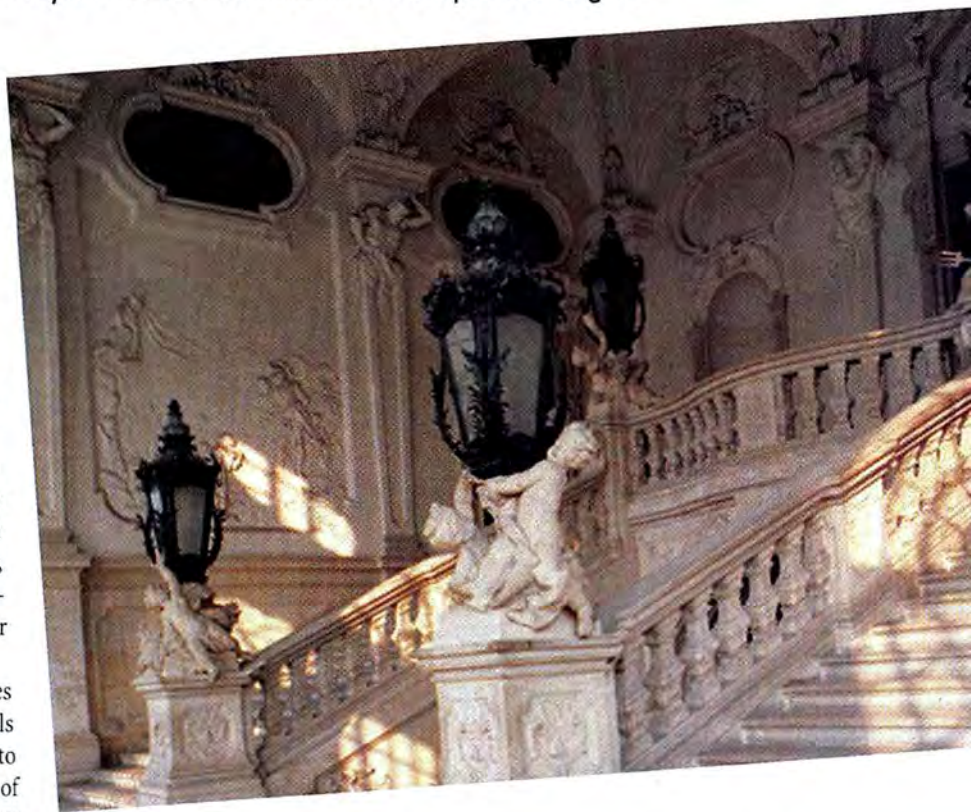
to suffer from overexposure. Whether you're a seasoned image-processing professional or a weekend photographer, you've probably come across a blown-out image or two.

Chances are that you've also run into trouble as soon as you attempted to fix the image by using Adobe Photoshop 3.0's general color-correction tools. Levels, Curves, and Variations all have three fundamental shortcomings. They suffer from the limitation of having only one level of undo. Each of the tools also takes quite a bit of time to do its magic, especially if you're working with large files. And they all affect images globally, unless you make selections or use masks — a process that is fraught with opportunity for mistakes.

The way to get around all these problems lies with layers. Instead of slowly tweaking pixels with Levels or Curves, you can use layers to build up density and tone by laying copies of the image on top of one another. Where better to find the detail you lost in blown-out highlights than in the photo itself?

The other advantage of layers is the layer mask. By adding a layer mask to the mix, you can also adjust not only how much density and darkness you apply to your image but also precisely where you apply them. All of Photoshop's drawing and painting tools, from gradients to the pencil, can assist you in controlling where the density buildup is going to be located.

Here we employ layers in order to salvage our image's tone, color,



and contrast. Try some experimentation with your new layers' opacity and transfer modes to get exactly the effect you have in mind. Remember, if you happen to mess up, the unaltered image is still sitting safely in the original Background layer, which is only a click away. (Image courtesy of the PhotoDisc stock library, at <http://www.photodisc.com/>).

David Biedny is a founding editor of MacUser and the coauthor (with Bert Monroy) of Adobe Photoshop — A Visual Guide (Addison-Wesley). Nathan Moody is a multimedia artist and freelance illustrator.

STEP BY STEP

1. LOOK FOR TROUBLE AREAS. Examine your image carefully for particular problems. Our image has a lot of small detailed areas, such as the ornate stairway, but the brighter areas lack contrast, making that detail quite difficult to see. Most important, if you look closely, you'll notice that the picture is generally much lighter along the bottom half than it is along the top. We need to enhance the contrast, color saturation, and darker tones more in the lower region.

2. BEGIN TO BUILD DENSITY BY DUPLICATING THE BACKGROUND. Open the Layers palette (Window: Palettes: Show Layers), and duplicate the background layer by selecting Duplicate Layer from the pop-up menu on the palette's right. Click on the new layer, now called "Background copy," to select it, and then darken the image by setting the layer's transfer mode to Multiply. Depending on how light your image is, you may want to repeat this step a few times. We duplicated our background twice.

1. LOOK FOR TROUBLE AREAS.



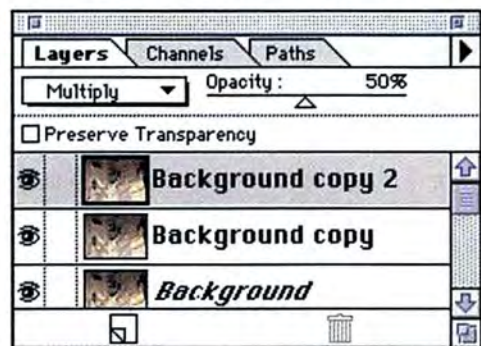
Image is lighter along the bottom half.

Brighter areas lack detail.

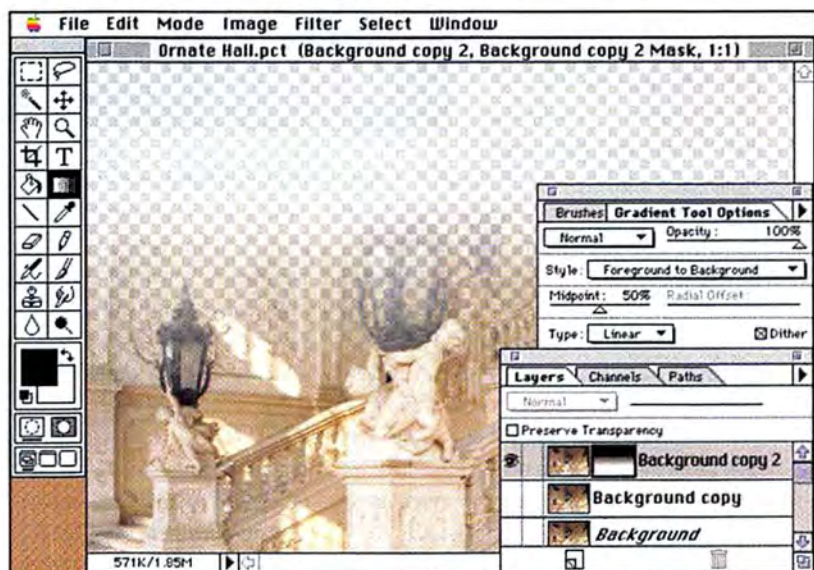
2. BEGIN TO BUILD DENSITY BY DUPLICATING THE BACKGROUND.



3. ADJUST THE OPACITY OF YOUR NEW LAYERS.



4. CONTROL WHERE YOU APPLY DENSITY, BY CREATING A LAYER MASK.



3. ADJUST THE OPACITY OF YOUR NEW LAYERS. By duplicating the background and setting the transfer mode to Multiply, you will increase your image's overall density of tone and color. In some instances, however, you'll also notice that the image becomes much too dark. If you have to deal with this problem, you can adjust the opacity of each of the new layers by adjusting the position of the slider on the Layers palette. We set our new layers' opacity at 50 percent.

4. CONTROL WHERE YOU APPLY DENSITY, BY CREATING A LAYER MASK. Regions of your image may still be too dark. To control exactly where you apply density, create a layer mask. Select the new layer, and choose Add Layer Mask from the pop-up menu. You can then use a variety of Photoshop tools to create an appropriate mask. Since our image was dark at the top and light at the bottom, we created a black-to-white horizontal linear gradient to shield the top from the density the last layer added.

The A, Be, Cs of Prepress

Can the graphic arts migrate to the promised land?

AS WE WRITE THIS, Apple is in the throes of the moral equivalent of war. Should it go with the BeOS, abandoning the Copland path forever? Or shouldn't it? Rumors and online postings are flying left and right, the trade press (including the magazine you're reading) is filled with pro and con articles, and no clear resolution is in sight.

We assume that by the time this article is printed, the issue may have been resolved. Just for the sake of argument, we're going to guess that Apple went with the BeOS and you're sitting there reading this in January, saying, "How prescient these guys were!" The alternative — having you read this and say, "What a pair of idiots!" — is less attractive. There's a third choice, where you say, "What does *prescient* mean?" but we'll leave that alone for now.

We're not going to talk about what the BeOS is or what its salient characteristics are; you'll find that discussion in the January '97 issue (page 64). The big concern for us is, So what? Why do we in the graphic arts care? In a (somewhat) random sample of graphic-arts users we polled last November, most had not even heard of the BeOS nor very much cared to explore its ramifications for the Mac.

And that's as it should be. The minute we as users begin to focus on the technical details of the operating system, we've lost sight of the real goal: getting productive work done with our computers. Who *cares* whether the system is multiprocessing, or multifaceted, or multidimensional? Knowing that doesn't help us get that QuarkXPress layout ready — it just makes great cocktail-party talk. Or maybe it doesn't We haven't been invited to too many events since we talked about the origins of protected memory.

The point is, we shouldn't have to be experts on the guts of the OS; that's one of the things

that distinguishes Mac users from the Blue crowd. On the other hand, we'd all welcome a more crash-resistant OS and one that didn't come to a screeching halt when you held the



mouse button down. And I/O speed (both network and drive)? We've been complaining about that for years. So if that Be checklist (or mantra) of "preemptive multitasking, symmetrical multiprocessing, multithreading, protected memory, and object-oriented API" will help fix those problems, then we're for it.

Be Ware

But on the minus side, what about those technologies that are wired into the Mac OS and may not survive a transition to Be-ville? What if ColorSync, which is just beginning to really work after several false starts over the years, gets dumped? How about little things such as the PostScript printing architecture (not that this is in great shape on the Mac today, but at least it's usable)? And what about AppleScript, Frontier, and the whole Open Scripting Architecture, which production people are using to build automation tools that save time and money every day?

The rumors we've heard are that Apple is going to sacrifice some compatibility in order to use Be technologies. And Monsieur Gassée himself proclaims that the BeOS is built for

"next decade's applications, rather than legacy software." Is QuarkXPress a legacy? What about Adobe Illustrator? In its rush to adopt a multimedia-savvy OS that can show half a dozen QuickTime movies simultaneously, would Apple be abandoning the lion's share of its current market in pursuit of a Hollywood grail?

When Gassée unveiled the BeBox in October 1995, the story was that it was aimed at "the fast-growing AV market . . . as well as technology enthusiasts and hobbyists." Well, fine, we thought. Another NeXT. Very cool architecture, no application software, and a superniche market. Yes, portions of the Be scenario are appealing, but let's face it: Most people *don't* produce QuickTime movies! Far more people are using the Mac for its original revolutionary purpose: authoring and the production of high-quality printed products.

The BeOS is what those in the theater (a close relative of the graphic arts, since both deal with imagery) call a *deus ex machina* — literally, a god from the machine. Everything's hopeless, the battle is all but lost, when suddenly — shazzam! A heretofore unknown solution appears out of thin air and saves the day. It's an old Greek dramatic trick, most commonly used these days in *Star Trek*.

We hope something like that is in the wings for Apple, especially if the alternative is to wait four more years for a Copland successor (would this be called Bernstein?). We hope that by embracing the BeOS, Apple can have a fast, robust, magazine-reviewer-checklist-savvy operating system again. But we bought our Macs because (once upon a time, anyway) you could turn them on and they worked. And they got the job done. Please, let's not sacrifice ease of use, which is in short supply these days, on the altar of a quick fix. Good luck, Apple — but remember to Be yourself! 🐼

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. Write to them at experttips@macuser.com.

MacWAREHOUSE

OVER 6,000 PRODUCTS FOR YOUR MACINTOSH® OS SYSTEM!

8 Pages of
**HOT
DEALS**

ADOBE PHOTOSHOP 4.0

UPGRADE FOR ONLY

\$149⁹⁵

FREE!

Get Alien Skin Black Box 2.0 when you buy NEW Adobe Photoshop 4.0 now! Black Box shipped in promotional packaging on CD-ROM.

New!

BND 1628

HI-PERFORMANCE MAC SYSTEMS!

on MAC OS Systems
and SIMMs!

PowerPC systems starting as low as

\$1299!

SuperMac C500—160MHz PowerPC 603e processor, 1.2GB HD, 16MB RAM, 8X CD-ROM, 2 PCI slots, 1MB VRAM. CPU 0476

UMAX
Computer Corporation

Monitor, speakers
and microphone
not included.

POPULAR
PRE-INSTALLED
SOFTWARE & CDS
INCLUDED!

Adobe PageMaker 6.5

UPG 0560

\$99⁹⁵

NEW

UPGRADE FOR ONLY

from any previous version of PageMaker

TRADE-UP FROM QUARKPRESS

FOR ONLY \$129.95! (SID 0381)

*Serial number required at time of order

Macromedia FreeHand 7

UPG 0531

\$149⁹⁵

NEW

UPGRADE FROM ANY PREVIOUS

version of FreeHand or trade up from

Canvas, Adobe Illustrator or CorelDraw.

*Serial number required at time of order

FREE MYST

WITH THE PURCHASE OF A

12X CD-ROM DRIVE

FOR ONLY

\$249⁹⁵

BND 1727

*Shipped in promotional packaging on CD-ROM. While supplies last.

LaCie FM Tuner

New!

\$49⁹⁵

EASILY CONNECTS TO YOUR

ADB PORT SO YOU CAN PLAY YOUR

FAVORITE FM RADIO STATIONS!

INP 0969

33.6 SUPERFAST Modem

BND 1447

\$99⁹⁵

ALL FOR ONLY

• 33.6Kbps FAXMODEM

• TOTAL INTERNET ACCESS SOFTWARE

*After \$30 mail-in rebate. Price before rebate \$129.95.

Get Quicken 7 Deluxe & MacTax

1040 Deluxe Headstart 1996

TOGETHER FOR AS

\$59!

BND 1699

Price after publisher's \$20 mail-in rebate for previous version of Quicken and a \$10

mail-in rebate for MacTax Special promotional

price before rebates is \$79 (\$114.95 if purchased

separately. See coupon inside box for details.

FREE!

WITH ANY PURCHASE!

Marathon 2: Durandel

Ask for Item #AAA 0442

*You pay only \$2.95 shipping & handling. Offer good while

supplies last. Shipped in promotional packaging on CD-ROM.

ASK ABOUT OUR

Daily Specials

\$12⁹⁵

ONLY

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK

Visit our Web site @ <http://www.warehouse.com>

CIRCLE 156 ON READER SERVICE CARD

1-800-725-1454

ORDER 24 HOURS A DAY, 7 DAYS A WEEK



SPEEDS UP TO 240MHZ! MOTOROLA



New!

StarMax 3000/180 MAC OS DESKTOP SYSTEM

**Includes
28.8 Modem!**

Worry-Free!
The Motorola-Branded Service & Support
5-YEAR WARRANTY

- 180MHz PowerPC 603e Processor
- 16MB RAM (expandable to 160MB)
- 256K Level-2 Cache (512K optional)
- 1.2GB Internal Hard Disk Drive
- 8X-SPEED CD-ROM Drive
- 1.4MB Floppy Disk Drive
- Motorola 28.8 Data/Fax Modem
- Three PCI Expansion Slots
- Two ext. drive bays, one internal
- 1MB VRAM (expandable to 4MB)

- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports
- Keyboard & mouse included
- Five-year manufacturer's warranty
- Monitors sold separately

Ask for Item # CPU 0538

\$1599!



New!

StarMax 3000/200 MAC OS DESKTOP SYSTEM

**Includes
28.8 Modem!**

Worry-Free!
The Motorola-Branded Service & Support
5-YEAR WARRANTY

- 200MHz PowerPC 603e Processor
- 16MB RAM (expandable to 160MB)
- 256K Level-2 Cache (512K optional)
- 1.2GB Internal Hard Disk Drive
- 8X-SPEED CD-ROM Drive
- 1.4MB Floppy Disk Drive
- Motorola 28.8 Data/Fax Modem
- Three PCI Expansion Slots
- Two ext. drive bays, one internal
- 1MB VRAM (expandable to 4MB)

- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports
- Keyboard & mouse
- Five-year manufacturer's warranty
- Monitors sold separately

Ask for Item # CPU 0449

\$1999!



New!

StarMax 3000/180 MAC OS MINI-TOWER

**Includes
28.8 Modem!**

Worry-Free!
The Motorola-Branded Service & Support
5-YEAR WARRANTY

- 180MHz PowerPC 603e Processor
- 32MB RAM (expandable to 160MB)
- 256K Level-2 Cache (512K optional)
- 2.5GB Internal Hard Disk Drive
- 8X-SPEED CD-ROM Drive
- 1.4MB Floppy Disk Drive
- Motorola 28.8 Data/Fax Modem
- Five PCI Expansion Slots
- Three ext. drive bays, two internal
- 1MB VRAM (expandable to 4MB)

- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports
- Keyboard & mouse
- Five-year manufacturer's warranty
- Monitors sold separately

Ask for Item # CPU 0537

\$1899!



New!

StarMax 3000/200 MAC OS MINI-TOWER

**Includes
28.8 Modem!**

Worry-Free!
The Motorola-Branded Service & Support
5-YEAR WARRANTY

- 200MHz PowerPC 603e Processor
- 32MB RAM (expandable to 160MB)
- 256K Level-2 Cache (512K optional)
- 2.5GB Internal Hard Disk Drive
- 8X-SPEED CD-ROM Drive
- 1.4MB Floppy Disk Drive
- Motorola 28.8 Data/Fax Modem
- Five PCI Expansion Slots
- Three ext. drive bays, two internal
- 1MB VRAM (expandable to 4MB)

- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports
- Keyboard & mouse
- Five-year manufacturer's warranty
- Monitors sold separately

Ask for Item # CPU 0450

\$2199!

100% MAC OS-COMPATIBLE! SUPER SYSTEMS!

New!

From the creators of the PowerPC chip!

The StarMax 3000

The Motorola StarMax™ 3000 Mac® OS-compatible brings you industry-leading PowerPC performance at an amazingly affordable price! With Motorola's state-of-the-art PowerPC 603e processor running at speeds up to 240MHz, you'll race through all your graphics and publishing applications faster than you ever dreamed possible!

Up to 240MHz PowerPC 603e processor!

Up to 32MB RAM, expandable to 160MB!

State-of-the-art 8X-SPEED CD-ROM Drive!

Up to 2.5GB Internal Hard Disk Drive!

180MHz
PowerPC 603e

MODELS STARTING AS LOW AS

\$1599!

Monitors
sold
separately.



StarMax
3000/240
MAC™ OS MINI-TOWER

Worry-Free!
The Motorola Brand Service & Support
5-YEAR WARRANTY

Includes
28.8 Modem!

- 240MHz PowerPC 603e Processor
- 32MB RAM (expandable to 160MB)
- 512K Level-2 Cache
- 2.5GB Internal Hard Disk Drive
- 8X-SPEED CD-ROM Drive
- Motorola 28.8 Data/Fax Modem
- Five PCI Expansion Slots
- 4MB VRAM

Ask for Item # CPU 0548

\$2799!

Monitor sold separately

The StarMax 3000 Series includes this
MEGA BUNDLE of software and CD titles!

ClarisWorks, Now Contact/Up-To-Date, Quicken SE,
Printmaster, Internet Connection, AOL, Conflict Catcher,
SAM, FWB Disk Tools, DiskFit Direct, Norton Utilities,
ClickArt, Mayo Family Health, Grolier Encyclopedia

Includes
28.8 Modem!

Includes
Internet
Access
software!

MacWAREHOUSE
Order toll-free 24 hrs. a day, 7 days a week!

1-800-725-1454

CIRCLE 156 ON READER SERVICE CARD

Order by
MIDNIGHT (ET) for
OVERNIGHT DELIVERY
of your order!





MOTOROLA

COMPUTER GROUP

HI-PERF

From the creators of the PowerPC chip!

**160MHz
PowerPC 604e**
MODELS STARTING AS LOW AS

\$2299!

Monitors sold separately.

Up to 200MHz PowerPC 604e processor!

Up to 32MB RAM, expandable to 160MB!

State-of-the-art 8X CD-ROM Drive!

Up to 2.5GB Internal Hard Disk Drive!

Pre-installed Mac OS 7.5.3!

New!

The StarMax 4000: PowerPC At Its Best!

Motorola, maker of the PowerPC chip, has set a new standard for Mac® OS system performance with the StarMax™ 4000! These state-of-the-art workstations feature the PowerPC 604e processor, proven in industry benchmarks to process up to 50 percent faster than the PowerPC 603e processor.

Great standard features, legendary quality, and the best Service and Support Warranty in the business!

These new Motorola systems come standard with 512K Level-2 cache, up to 32MB of RAM, an 8X CD-ROM drive, up to 2.5GB of hard disk storage, 2MB of Video Memory, built-in 16-bit stereo, up to five PCI expansion slots, extended keyboard and mouse!

Plus, only Motorola gives you five years of exclusive Motorola-Branded Service & Support. Your comprehensive warranty includes on-site service the next business day for your first year—you can even upgrade your warranty to get same-day on-site service for all five years!

Get unparalleled PowerPC 604e performance AND Mac OS ease of use in a powerful desktop system that gives you great price/performance value — order the Motorola StarMax 4000 today!

PERFORMANCE MAC OS SYSTEMS!

FEATURING TOP-OF-THE-LINE PowerPC 604e PROCESSING

UP TO **200MHz!**

New! StarMax 4000/160

MAC OS DESKTOP SYSTEM

- 8X CD-ROM Drive
- Three PCI Expansion Slots
- Two ext. drive bays, one internal
- 2MB VRAM (expandable to 4MB)
- Keyboard & mouse included
- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports

Ask for Item # CPU 0451

\$2299!



monitor sold separately

- 160MHz PowerPC 604e Processor
- 16MB RAM (expandable to 160MB)
- 512K Level-2 Cache
- 1.2GB Internal Hard Disk Drive

New! StarMax 4000/160

MAC OS MINI-TOWER SYSTEM

- 8X CD-ROM Drive
- Five PCI Expansion Slots
- Three ext. drive bays, two internal
- 2MB VRAM (expandable to 4MB)
- Keyboard & mouse included
- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports

Ask for Item # CPU 0452

\$2899!



monitor sold separately

- 160MHz PowerPC 604e Processor
- 32MB RAM (expandable to 160MB)
- 512K Level-2 Cache
- 2.5GB Internal Hard Disk Drive

New! StarMax 4000/200

MAC OS DESKTOP SYSTEM

- 1.2GB Internal Hard Disk Drive
- 8X CD-ROM Drive
- Three PCI Expansion Slots
- Two ext. drive bays, one internal
- 2MB VRAM (expandable to 4MB)
- Keyboard & mouse included
- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports

Ask for Item # CPU 0453

\$2999!



monitor sold separately

- 200MHz PowerPC 604e Processor
- 32MB RAM (expandable to 160MB)
- 512K Level-2 Cache

New! StarMax 4000/200

MAC OS MINI-TOWER SYSTEM

- Keyboard & mouse included
- ADB/PS/2, SCSI, stereo 16-bit, headphones/microphone & two serial ports

Ask for Item # CPU 0454

\$3199!



monitor sold separately

- 200MHz PowerPC 604e Processor
- 32MB RAM (expandable to 160MB)
- 512K Level-2 Cache
- 2.5GB Internal Hard Disk Drive
- 8X CD-ROM Drive
- Five PCI Expansion Slots
- Three ext. drive bays, two internal
- 2MB VRAM (expandable to 4MB)

MacWAREHOUSE

Order toll-free 24 hrs. a day, 7 days a week!

1-800-725-1454

CIRCLE 156 ON READER SERVICE CARD



180MHz. PowerPC. The Low



PowerComputing

Top-of-the-Line Computing at Rock-Bottom Prices!

You'll be blown away by the standard

features: all hard drives are 1.0GB or bigger, CD-ROM drives are 4X or 8X, accelerated graphics bring you realistic gaming and modeling, and more. Plus, all are **jam-packed with FREE software**, including MacOS 7.5.3! And, with three or six PCI slots, these machines will give you all the power you need for years to come. PowerCenter and PowerBase machines are available in either a low-profile desktop model, or in a mini-tower case with extra expansion bays and larger power supply for only \$100 more. Any way you choose, you'll get the computing speed you want at a great price! **Order yours today!**



Monitor not included.

POWERCENTER

PowerCenter Series
132MHz, 150MHz,
166MHz or 180MHz PowerPC™ 604

- 16MB RAM (expandable to 512MB RAM)
- 512K Level-2 Cache
- 1.0GB or 2.0GB Hard Drive
- 8X CD-ROM Drive
- 3.5" 1.44MB Floppy Drive
- 3 Fast PCI Expansion Slots
- Built-in Ethernet (10Base-T & AAUI)
- 1MB VRAM Graphics on Board
- Extended Keyboard & Mouse
- Low Profile or Mini Tower Case

Jam-Packed with FREE Software!



PowerCenter 132MHz Low Profile
Ask for Item # CPU 0505 **\$1899**

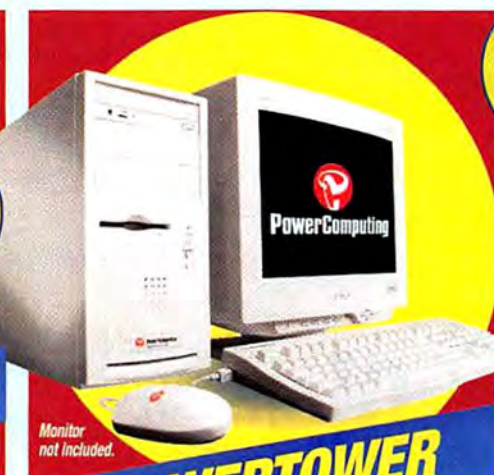
PowerCenter 132MHz Mini-Tower
Ask for Item # CPU 0504 **\$1999**

PowerCenter 150MHz Low Profile
Ask for Item # CPU 0506 **\$2099**

PowerCenter 150MHz Mini-Tower
Ask for Item # CPU 0508 **\$2199**

PowerCenter 166MHz Mini-Tower/2.0GB
Ask for Item # CPU 0549 **\$2399**

PowerCenter 180MHz Mini-Tower/2.0GB
Ask for Item # CPU 0550 **\$2799**



Monitor not included.

POWERTOWER

PowerTower
166MHz, 180MHz or 200MHz
PowerPC™ 604 or 604e

- 16MB RAM (expandable to 512MB RAM)
- 512K Level-2 Cache
- 2.0GB SCSI Hard Drive
- 4X or 8X CD-ROM Drive
- 3.5" 1.44MB Floppy Drive
- 3 Fast PCI Expansion Slots
- Built-in Ethernet (10Base-T & AAUI)
- 2MB VRAM Graphics on Board
- Extended Keyboard & Mouse
- Mini-Tower Enclosure

Jam-Packed with FREE Software!



PowerTower 166MHz PowerPC 604 Processor/4XCD
Ask for Item # CPU 0149 **\$2899***

PowerTower 180MHz PowerPC 604e Processor/8XCD
Ask for Item # CPU 0507 **\$3299**

PowerTower 200MHz Power PC 604e Processor/8XCD
Ask for Item # CPU 0417 **\$3599**



Monitor not included.

POWERTOWER PRO

PowerTower Pro 180MHz, 200MHz or 225MHz PowerPC 604e

- 16MB RAM (expandable to 1GB RAM)
- 1MB Level-2 Cache
- 2.0GB SCSI Hard Drive
- 8X CD-ROM Drive
- 3.5" 1.44MB Floppy Drive
- 6 Fast PCI Expansion Slots
- Built-in Ethernet (10Base-T & AAUI)
- 128-bit PCI Graphics with 8MB VRAM
- Extended Keyboard & Mouse
- Tower Enclosure



PowerTower Pro 180MHz
Ask for Item # CPU 0376 **\$4199**

PowerTower Pro 200MHz
Ask for Item # CPU 0367 **\$4499**

PowerTower Pro 225MHz
Ask for Item # CPU 0368 **\$4999**

Jam-Packed with FREE Software!

Call Toll-Free, 24 Hours a Day, 7 Days a Week!

Best Price Ever!

180MHz PowerPC 603e PROCESSOR!

BUILT-IN 8X CD-ROM!

16MB OF RAM!

1.2GB HARD DRIVE!

PowerBase Series Features:

- ✓ 180MHz, 200MHz or 240MHz PowerPC 603e Processor
- ✓ 16MB RAM (expandable to 160MB)
- ✓ 1.2GB Hard Drive
- ✓ 8X CD-ROM Drive
- ✓ 256K Level-2 Cache
- ✓ Three Fast PCI Expansion Slots
- ✓ 2MB VRAM Graphics on Board
- ✓ ADB Keyboard & Mouse
- ✓ Essential Software & CD-ROM Titles, Plus MacOS 7.5.3

NEW!



Monitor sold separately.

POWERBASE LOW PROFILE

Choose the Convenient PowerBase Low Profile Case...

PowerBase Low Profile 180MHz Ask for Item # CPU 0412	\$1499
PowerBase Low Profile 200MHz Ask for Item # CPU 0409	\$1799
PowerBase Low Profile 240MHz Ask for Item # CPU 0408	\$2199

180MHz PowerBase Low Profile ONLY
\$1499!

PowerComputing

PowerBase Series available as a Low Profile desktop unit or a Mini-Tower Case!

MacWEEK

7/96

POWERBASE MINI TOWER

Or Get a Mini-Tower with Extra Expansion Bays and Larger Power Supply for Only \$100 More!

PowerBase Mini-Tower 180MHz Ask for Item # CPU 0411	\$1599
PowerBase Mini-Tower 200MHz Ask for Item # CPU 0410	\$1899
PowerBase Mini-Tower 240MHz Ask for Item # CPU 0407	\$2299



Order by MIDNIGHT (E) for OVERNIGHT DELIVERY of your order!

Monitor sold separately.



MacWAREHOUSE

1-800-725-1454

CIRCLE 156 ON READER SERVICE CARD

MacWAREHOUSE

Memory Upgrade Guide

for Macintosh, Power Macintosh, PowerBook and Mac-OS compatible computers

30-Pin SIMMs

as low as
\$19⁹⁵
each.

1MB, 80ns
CHP 0022
\$19⁹⁵

72-Pin SIMMs

as low as
\$49⁹⁵
each.

4MB, 80ns
CHP 0101
\$49⁹⁵

8MB (80ns)

Ask for item # CHP 0102

\$89⁹⁵
each.

16MB (80ns)

Ask for item # CHP 0103

\$179⁹⁵
each.

32MB (80ns)

Ask for item # CHP 0104

\$349⁹⁵
each.

168-Pin DIMMs

as low as
\$39⁹⁵
each.

4MB, 70ns
CHP 0138
\$39⁹⁵

8MB (70ns)

Ask for item # CHP 0139

\$89⁹⁵
each.

16MB (70ns)

Ask for item # CHP 0141

\$179⁹⁵
each.

32MB (70ns)

Ask for item # CHP 0142

\$249⁹⁵
each.

64MB (70ns)

Ask for item # CHP 0140

\$599
each.

SIMMs!

DIMMs!

Dual In-line Memory Modules for Motorola StarMax 3000/4000, Power Computing PowerBase

8MB (70ns)

Ask for item # CHP 0394

\$89⁹⁵
each.

16MB (70ns)

Ask for item # CHP 0395

\$179⁹⁵
each.

32MB (70ns)

Ask for item # CHP 0396

\$349⁹⁵
each.

64MB (70ns)

Ask for item # CHP 0397

\$599
each.

Call toll-free 24 hours a day, 7 days a week

1-800-725-1454

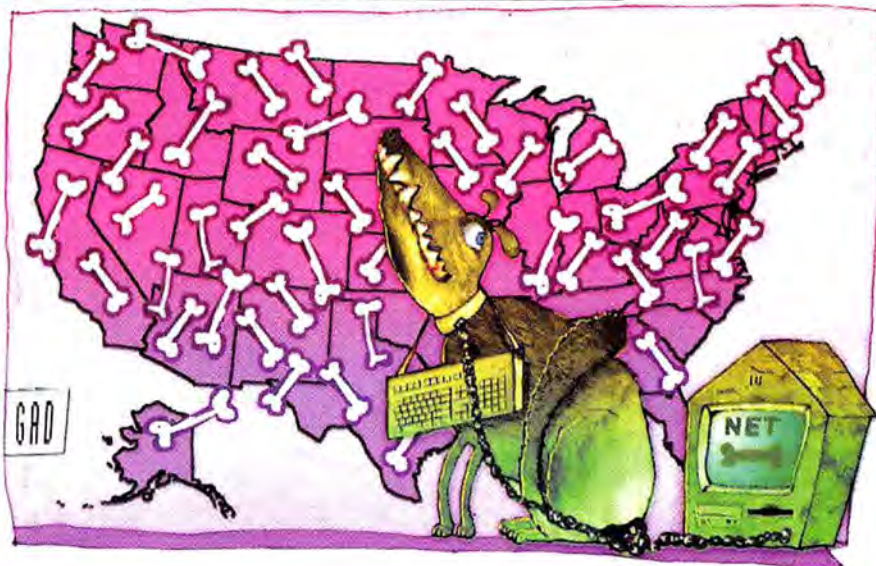
These major credit cards accepted. NO SURCHARGE!



CIRCLE 156 ON READER SERVICE CARD

NETWORKING

Plenty of companies offer Internet access, but they're not all created equal and they don't all cater to Mac users.



By Gregory Wasson

Choosing Your Internet Partner

YOU MAY HAVE GOTTEN your first taste of the Internet from a crusty, traditional online service such as AOL (America Online) or CompuServe. Like many online veterans, you may feel you've outgrown clunky browsers and limited software choices. You may also be looking to save a few bucks. If surfing the Net is your main reason for going online, it's time to look for an ISP (Internet service provider), which does nothing but connect people to the Internet.

You'll face lots of decisions and trade-offs, but getting inexpensive Net access and being able to use the software of your choice is usually worth the work. To help you search for the perfect ISP, we surveyed 20 national and local companies, looking for inexpensive, Mac-savvy options. With the information we obtained and some common-sense advice, you'll be a smart shopper in the maze of Internet-access choices.

AOL and CompuServe aren't all bad. Both offer a great way to learn Net basics, especially if you're a longtime user of their proprietary features and services. But these traditional services are often poky, particularly when you're dealing with the sometimes sluggish Web, made even slower by the online services'

enormous base of customers, all competing for access. The bandwidth just gets sucked up.

Online services also limit your choice of Internet software. Although CompuServe lets you use a Web browser other than its default (and AOL soon will), using a third-party newsreader, for example, is impossible.

Choices, Choices

Unlike online services, ISPs are many and varied, from small businesses that serve a single city or town to nationwide megaproviders. Chances are good you'll have several companies to choose from when you begin shopping for Internet access. And shop you should, since there are so many variables to consider. Among the major factors you'll weigh are price, services, Mac savviness, and the availability of high-speed access.

For many people, the first issue to tackle is the kind of company they're comfortable with. As we've said, some ISPs are small outfits that focus on your city, state, or region. Others, much like online services, boast nationwide networks, professional-looking documentation, and software bundles on CD-ROM. Local providers often provide better one-on-one service: They have fewer customers to deal

with and can therefore respond faster than providers that serve the entire country. Local providers are generally also more familiar with the idiosyncrasies of local phone companies, which can help when tech-support issues crop up. On the other hand, national ISPs usually offer better documentation: Written tutorials or "getting started" guides are hard to find among small providers. More often than not, local ISPs simply e-mail you the electronic equivalent of a spec sheet, filled with technical jargon and confusing or incomplete instructions on getting set up.

Where you live may help narrow your choice of providers. National companies have lots of local access points (called POPs, or Points of Presence, in Net jargon) in metropolitan areas, but rural coverage is spotty. You may be able to find a regional provider that offers service to small towns in close proximity to its home city, or you may be stuck paying long-distance charges for every Net connection you make. Some national providers offer 800-number access, but you may pay an extra per-hour fee for it. Finally, for mobile users, choosing between a local ISP and a national one is a no-brainer: If you're the kind of person who simply has to have a Net

ISP Shoot-out / prices, services, and extras

INTERNET SERVICE PROVIDERS whose reach extends the length and breadth of the nation compete fiercely on price and with bundles of Mac software. Most offer complete configuration help and documentation and speak fluent Macintosh.

Your hometown ISP may not be in the list of local ISPs, but chances are the rates and services these 14 companies offer are pretty good indicators of what you'll find. Prices vary widely, as do features and software options.

Service Name	Account-Setup Fee	Monthly Charge	Bundles (Software/Documentation)	ISDN Support	ISDN-Account Charges	Region (Area Codes Served)
NATIONAL ISPs						
Delphi 800-695-4005/617-491-3393 http://www.delphi.com/	none	\$23.95 (unlimited)	Delphi Guide, \$9.95; software package, \$24.95	no	NA	nationwide
EarthLink Network 800-395-8425/818-296-2400 http://www.earthlink.net/	\$25	\$19.95 (unlimited)	Netscape Navigator	yes	setup, \$49.95; \$45/month for 30 hours	nationwide
MindSpring (formerly PSINet) 800-827-7482/703-709-0300 http://www.psi.net/	\$35	\$19.95 (unlimited) or \$26.95 (premium)	Netscape Navigator	yes	setup, \$35 (with premium account)	nationwide
Netcom 800-353-6600/408-881-1815 http://www.netcom.com/	none	\$19.95 (unlimited)	NetComplete startup kit (Netscape, Netcom booklet)	yes (CA only)	\$10/month extra	nationwide
UUNET 800-488-6384/703-206-5600 http://www.uu.net/	\$25	\$30 for 25 hours; each additional hour, \$2	none	yes	setup, \$50; \$30/month	nationwide
Whole Earth Networks 415-281-6550 http://www.wenet.net/	none	\$25	Netscape Navigator	yes	\$10/month extra	nationwide
LOCAL ISPs						
A-OnLine 907-276-5463 http://www.aonline.com/	\$25	\$25 (14.4 kbps), \$30 (28.8 kbps)	Eudora, Internet Explorer	no	NA	Alaska (907)
AASP 508-695-8866 http://aasp.net/	none	\$18	Netscape Navigator PE, configuration sheet	no	NA	Boston (508, 617)
AMUG 602-553-8966 http://www.amug.org/	\$19.95	\$19.95 (unlimited)	Eudora, Netscape Navigator	yes	\$35/month	Phoenix (602)
CoastalNet 800-514-5638/919-633-9997 http://www.coastalnet.com/	\$0 - \$25	\$17.95 - \$19.95	none	no	NA	North Carolina (910, 919)
Community Internet Systems 402-562-5904 http://www.megavision.com/	none	\$15 - \$20	none	no	NA	Nebraska (308, 402)
CyberConnect 312-622-5300 http://cyberconnect.com/	none	\$25 (unlimited)	none	no	NA	Midwest (312, 708, 815, 847)
Denver Internet Access 303-745-9588 http://www.diac.com/	\$20	\$12 - \$20	none	yes	none	Colorado (303)
Eureka Networks 888-387-3527/614-593-5052 http://www.eurekanet.com/	none (setup software, \$25)	\$19.95 (unlimited)	tutorial	no	NA	Ohio, West Virginia (304, 614)
FlashNet Communications 800-352-7420/817-332-8883 http://www.flash.net/	\$25	\$14.95 (unlimited) or \$99/year	none	yes	\$29.95 (unlimited) or \$174/year	Texas (210, 214, 405, 501, 505, 512, 520, 713, 817)
HOL (Hawaii OnLine) 808-533-6981 http://www.aloha.net/	\$30	\$19.95 (unlimited)	none	yes	setup, \$50 - \$100; \$25 - \$50/month	Hawaiian Islands (808)
Internet Now 888-389-7200/770-389-7200 http://www.inetnow.net/	none	\$26.99 (unlimited)	configuration sheet	yes	\$36.99/month	South (404, 706, 770)
ISOMEDIA.COM 206-881-8769 http://www.isomedia.com/	none	\$19.95 (unlimited)	shareware starter pack	yes	\$35/month	Seattle (206)
Scruz-Net 800-319-5555/408-457-5050 http://www.scruz.net/	\$12.50; custom domain name, \$25	\$25 (100 hours) or \$50 (unlimited)	none	yes	none	San Francisco Bay Area (408, 415)
TunaNet/InfoHouse 212-805-2470 http://www.tuna.net/	none	\$20 (unlimited)	Eudora, Netscape Navigator	yes	setup, \$75; \$40 - \$75/month	New York (212, 718)

connection while traveling, only a national ISP can provide local access numbers wherever you and your PowerBook may roam.

Whether personal service, customer support, and access to lots of local access points matter to you or not, there are a few issues every potential ISP customer needs to weigh. To help you decide which ISPs offer the best combination of price and service, *MacUser* conducted an unscientific, semirandom survey of ISPs. We asked each company about price, Mac knowledge, customer support, and ISDN availability. We contacted 6 national ISPs and 14 regional providers serving all geographic regions of the 50 states. The information we got will help you compare these companies with any you're considering (see the "ISP Shoot-out" table).

What Will It Cost?

The most important aspect of choosing an ISP is the price you pay, both to set up an account and to keep yourself connected. Generally speaking, you'll find two approaches: flat-rate and tiered services. Just like the flat tax touted by some politicians, flat-rate Internet pricing is seductive. It's simple and to the point: You pay a flat monthly rate for unlimited dial-up access. Rates vary but hover around \$19.95 throughout the nation. The best deal we found was from Dallas-based FlashNet Communications, which offers unlimited access for \$14.95 per month, or \$99 a year, if you pay up front. On the high side, the San Francisco Bay Area's Scruz-Net charges \$50 for unlimited access. As you can see, it pays to shop around.

In most cases, a flat rate for unlimited use is a good deal for anyone who spends a lot of time online. Occasional users or those who can find a sub-\$20 account may prefer tiered pricing. Some services offer basic rates for 20, 50, or 100 hours; others (using the online services' model) give you a certain number of "free" hours for a monthly fee and charge a dollar or two for each additional hour. Still others charge differently depending on whether you're using a modem or ISDN to connect to your account. All these complex pricing arrangements mean that you may lose money by under- or overestimating the amount of time you actually spend online, especially if you're required to lock yourself into a particular pricing plan when you sign up with an ISP. If you're an online-service customer, use the average number of hours you currently spend online as a guideline when calculating your best ISP pricing deal. If you're

not currently online and don't know how much time you'll spend on the Internet, look for an ISP that will let you move from one pricing plan to another, based on your actual service usage.

More and more ISPs (about half, in our survey) have done away with the account-setup fees that were commonplace a year or two ago. We found that providers that do charge a fee ask \$20 to \$35 to activate an account. Eureka Networks, a West Virginia-based ISP, charges a fee only if you want its software bundle.

Mac Supporters

We don't have to tell you that Macs and Windows machines have basic configuration differences. Despite the disproportionate percentage of Macs connected to the Internet compared to their share in the marketplace, some ISPs are unfortunately clueless about Macs. One indication of a provider's Mac savvy is the documentation and software you receive when you open an account. Ask about bundled Mac software and books. Some ISPs, including MindSpring and Netcom, produce their own manuals, whereas others bundle third-party books in lieu of their own documentation. Some accounts come with a browser and other Internet client software (FTP, newsreader, and so on). MindSpring and Netcom supply by far the best Macintosh software/documentation bundle of the national ISPs we examined. Each package includes the usual Internet-access software, along with a configuration utility that walks you through account setup. Many local ISPs offer no fancy bundles or books or don't volunteer them unless you tell them you're a Mac user. If the bundle is generic or Windows-specific, you can probably expect the service to follow suit. Shake the digital dust from your feet, and, like Diogenes, keep on searching.

Another way to scope out an ISP's Mac savvy is to ask some basic Mac configuration questions. Does a question about configuring MacTCP or Open Transport leave ISP representatives stumped or stammering? Are they aware of the different PPP software available for the Mac? If not, you can probably assume they're not for you.

A few — a very few — ISPs specialize in Mac-based Internet access. The best we encountered was AMUG (Arizona Macintosh Users Group). This Mac institution started as a user group and now offers reasonably priced Internet access to any Mac user lucky enough to live in the 602 area code.

As we went to press, the first nationwide Mac-only ISP, MacConnect, was readying its dial-up lines for service. At \$19.95 per month for unlimited access, MacConnect (800-923-2638 or 516-754-3020; <http://www.macconnect.com/>) is right in line with other ISPs and promises Mac-savvy support and a choice of Web browser.

How Fast Can I Go?

If you have an ISDN line at home, chances are you skipped the online services and went straight to an ISP for your Internet access. If you don't have ISDN and aren't planning to install it until you can figure out just what a B channel is good for, choosing a provider that supports digital phone service may not seem particularly important. But as ISDN becomes cheaper and easier to obtain throughout the U.S., more ISPs and their customers are jumping on the bandwagon. If you plan to move up to ISDN or even if you think you *might* do so in the next couple of years, consider a provider that has ISDN lines available. That way, you won't have to change providers (and e-mail addresses) when the itch to ditch your 28.8-kbps modem strikes.

ISDN accounts are almost always more expensive than dial-up accounts (plus you must pay the phone company additional fees and startup costs). ISDN accounts are also more likely to come with valuable hardware bundles (ISDN modems or routers). In fact, some ISPs require you to buy preconfigured ISDN equipment through them. Just make sure that the equipment offered works with your Mac. ISDN support is still spotty among national as well as local providers. Once again, MindSpring and Netcom offer the best ISDN deals. MindSpring's premium account includes ISDN access and costs just \$7 per month more than the standard, unlimited-access account. With Netcom, ISDN costs a total of \$29.95 per month, including an unlimited-access account. Many providers, both local and national, don't yet support ISDN.

Ready-Made Access

For \$49, you can take the expressway to ISP selection. Apple's Internet Connection Kit offers a simple way to avoid many of the hassles usually associated with establishing a PPP dial-up account. Just like an online service, the kit walks you through every step of the process. You simply run the installer, which loads Netscape Navigator, Fetch (FTP), Claris EMailer Light, and NewsWatcher, as well as

PPP software. The installer prompts you to choose a national ISP from a limited list of Mac-friendly providers selected by Apple and Netscape (the ISPs on the list change frequently), signs you up with that provider, and then configures everything for you. It's the Internet Mac-ified. The Apple Internet Connection Kit has one major drawback: You must enter credit-card information before you've even seen the selection of ISPs and decided which one is the best for you. Although it is

possible to back out before making a commitment, this poor design decision may put some people off.

One in a Million

The continuing Internet frenzy ensures that there won't be a shortage of ISPs. To find them, though, you have to know where to look. As you might expect, the Net itself is fertile ground: Check out the List, at <http://www.thelist.com/>. This excellent resource lets you

search for ISPs by area code, name, or region. You can even point and click your way to an ISP via an online map of the U.S. The List provides information about each ISP's rates, services, and coverage. Hot links often exist to take you from the entry to the ISP's Web site, where you can obtain more info or even sign up for service. Netscape's listing of ISPs (<http://home.netscape.com/assist/isp/ispdir.html>) is especially valuable to the Mac community, in that listed ISPs must support Mac users over a PPP dial-up connection. You can't assume Mac support among the List's entries.

If you're looking for an ISP because you don't yet have Net access — a perfectly logical state of affairs — printed sources can help. Computer- or Internet-related periodicals, such as *Boardwatch* and *Computer Shopper*, regularly list ISPs by area code. Your phone book's Yellow Pages probably include listings under "Internet" or "Internet Services." Finally, don't overlook friends and colleagues who already have accounts; they can often tell you the nitty-gritty details about ISPs serving your area, based on their own experiences. You may also want to ask at a local computer store.

Buyers' Bonanza

Finding an ISP that meets your financial, support, and software requirements may be the beginning of a beautiful relationship, or a disappointment, depending on how well your chosen provider lives up to its advance billing. If you end up hating your ISP, switch — there's no law against it. Even if you find a provider you like, keep your options open. Just as banks bend over backward, by having special promotions, to get customers to switch credit cards, ISPs are starting to adopt the same marketing techniques. Phone companies such as AT&T (<http://www.att.com/worldnet/wis/>) — which knows a thing or two about getting customers to ditch other carriers — are rapidly moving into the ISP business. Cable-TV firms too are rapidly expanding into the lucrative Internet market. Services such as the @Home Network (<http://www.home.net/>) are beginning to appear in some areas of the country, offering connect speeds far surpassing even ISDN. As ISPs meet head to head in the marketplace, you can benefit from the inevitable price wars that are looming. It's a buyers' paradise, so shop until you drop — and never stop asking potential ISPs what they have that the other guys don't. ■

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!



"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

Fear Of Missing That Big Call Got You On A Short Leash?

Even with a pager, there's that deep down fear of missing "the big call." Don't sweat, get YoYo. YoYo works with your Mac to automatically page you with incoming calls. Your computer doesn't even need to be on and, best of all, you never have to give your pager number out. YoYo has dozens of other cool functions for your phone and your Mac including call logging and Caller ID. Don't let that big call keep you leashed to your desk... get YoYo. Call 1-800-788-7751 or visit us at www.big-island.com



big island™

"YoYo is a winner! ★★★★★"
MacWorld

*"Nothing on the market does
what YoYo does."* - MacUser

*"YoYo's bells & whistles
really shine!"* - MacAddict

YoYo is a registered trademark of Big Island Communications. All other products mentioned are trademarks of their respective holders.

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.

...is a great HTML editor.

HTML code from the www.macuser.com site displayed in BBEdit 4.0.

BBEdit 4.0

<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

This Old Net

Who needs Bob Villa when you've got a do-it-yourselfer's treasure trove on the Net?

YOU'VE HEARD THE CLAIM that the popularity of the television show *Home Improvement* means we're all rebuilding our transmissions and regrouting our tile, as part of a happenin' new '90s do-it-yourself craze? Hmmm. By this logic, shouldn't the even greater worldwide popularity of *Baywatch* have us all applying for lifeguard jobs?

Nevertheless, the practice of doing for yourself what you would otherwise pay some licensed and bonded bandit to do for you seems to be on the rise. Doing it yourself can save you money and be a lot of fun, and the Internet can be a DIYer's best friend.

Some caveats: If you're tackling a really complex project, you should forget the Net and get professional help (I didn't mean that the way it sounded). And for some projects, such as fixing a flat tire, you probably won't be near a computer when the DIY need comes upon you. But for minor car- or home-repair tasks, and a host of other DIY projects, the Net is a boon. You don't need to leave home to get the information you need, it's often free, and you don't have to tell anyone you looked it up.

Home Alone. Whether you're building, maintaining, or landscaping your home, the Net can help. Check out the home-improvement links at <http://www.nerdworld.com/nw1008.html>. Here are some more-specific Net resources, some free and some describing low-cost brochures or manuals you can order. The PBS do-it-yourself program *Hometime* has a Web site at <http://www.pbs.org/hometime/>, where the producers expand on the information presented in the show with floor plans, details, and options for projects. This site has good, clear advice and nice diagrams and pictures for projects ranging from remodeling your kitchen to building a home theater.

You will find information on installing irrigation systems, diagnosing water problems, and building water tanks at <http://www.rainbird.com/consumer/DIY.html>, <http://ingis.acn.purdue.edu:9999/WETnet/government/diagnose.html>, and <http://www.indra.com/~jade-mtn/ferrocement.html>, respectively. There's landscaping and gardening information at <http://www.usit.net/hp/bionet/DIYgardening.html>, and you can become a DIY exterminator after a visit to <http://www.apex-pest.com/>.

Don't overlook Usenet newsgroups for advice on specific how-to issues, and don't be afraid to post a question to an appropriate

group. You may find useful car-repair tips, for example, within the *rec.autos.** newsgroup hierarchy. The emphasis is on specifics, though, such as how to set the spark-plug gap for a particular car (*rec.auto.makers.ford*) or how to splice a videotape (*rec.video*). Keep your eyes open for lists of frequently asked questions (FAQs) in your area of interest.

Automate Your Life. If you've actually watched *Home Improvement*, you know that the Tim Allen character is a throwback to the 1950s. So is regrouting your tile. The really trendy do-it-yourselfers of the '90s are the home automators. If you dream of making your toast pop up when *Morning Edition* comes on, your lights dim and brighten while you're away on vacation, and your sprinklers take the day off when it rains, start your research at the Home Automator Newsletter page: <http://www.automator.com/>. That guru of home automa-

tion Don Lancaster can be found at <http://www.tinaja.com/>. Are you in pursuit of a home security system good enough to make Oliver North blush? Follow the home-automation links at these two sites: <http://www.automator.com/Links.htm> and <http://www.infinet.com/~dhoehnen/ha/list.html>. Geek warning: An appalling percentage of the wired Mr. Fix-its

you'll encounter online use Windows-based machines and include blinking text on their Web sites.

That Dogsled You've Always Wanted. You can find advice on the Net on how to do just about anything yourself.

Home brewers can learn all about cask conditioning at http://sun1.bham.ac.uk/GraftonG/real_ale.htm, and if you've ever wanted to build your own seismograph or dogsled, be sure to check out <http://cea-ftp.cea.berkeley.edu/Education/lessons/indiv/davis/hs/Seismograph.html> and <http://www.rt66.com/~srlee/JUNIOR/GARAGE/k12sled.html>, respectively.

How about DIY car-care sites? Need you ask? They range from the fanatical to the frivolous. Committed driveway mechanics may want to visit the very serious fuel-injection list at http://www.cpsc.ucalgary.ca/~fridman/diy_efi/diy_efi.html. But even if you don't have a car, you should visit the truly hilarious (and helpful) home of the brothers Click and Clack, at <http://cartalk.com/>.

Don't Know a GUI from DIY? *MacUser* maintains a list of FAQs about the Internet, *MacUser* itself, and this column specifically. Send mail to faq@macuser.com. *MacUser's* address on the World Wide Web is <http://www.macuser.com/>. You can reach me at traveler@macuser.com.



Believable Color...

excellent for client
presentation & digital
photo reproduction

photorealistic

300 x 600 dpi

Ethernet

full-bleed tabloid prints

Unbelievable Price - \$7,999!

Standard Features	QMS® ColorScript 460	QMS® ColorScript 480	Tektronix® Phaser 480X	Kodak® Desktop Color Proofer 9000	3M® Imation Rainbow Model 2715
PRICE	\$7,999	\$9,999	\$14,995*	\$17,995	\$9,995
Processor Speed	24 MHz	33 MHz	24 MHz	133 MHz	Host Based**
Interpreter	Printer Based	Printer Based	Printer Based	Printer Based	Host Based
Max Image Area	11.95" x 17.4"	12.17" x 17.53"	11.9" x 17.2"	12.16" x 18"	11.95" x 17.4"
Ethernet Option	Yes	Yes†	Yes†	Yes†	No
Resolution	300 x 600	300 x 600	300 x 300	300 x 300	300 x 300
Internal Hard Drive	260 MB	540 MB	No	No	No
Std/Max RAM	24 MB/24 MB	24 MB/136 MB	32 MB/112 MB	48 MB/112 MB	Host Based
Photoshop Plug In	No	Yes	Yes/Max Only	Yes	Yes

† EtherTalk, NetWare, TCP/IP

* Requires 48 MB RAM to support 4-color proofing

** Requires a dedicated workstation with a minimum of 20 MB RAM and 160 MB of space for optimum performance

1-800-523-2696 Ext. 66

<http://www.qms.com/>

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

CIRCLE 140 ON READER SERVICE CARD

QMS ColorScript returns with the 460 and 480 dye sublimation printers. These printers are designed to deliver high quality, believable color to graphic design professionals. Improve your proofing capabilities and presentation materials with QMS ColorScript. Compare features, compare prices, call QMS —today!

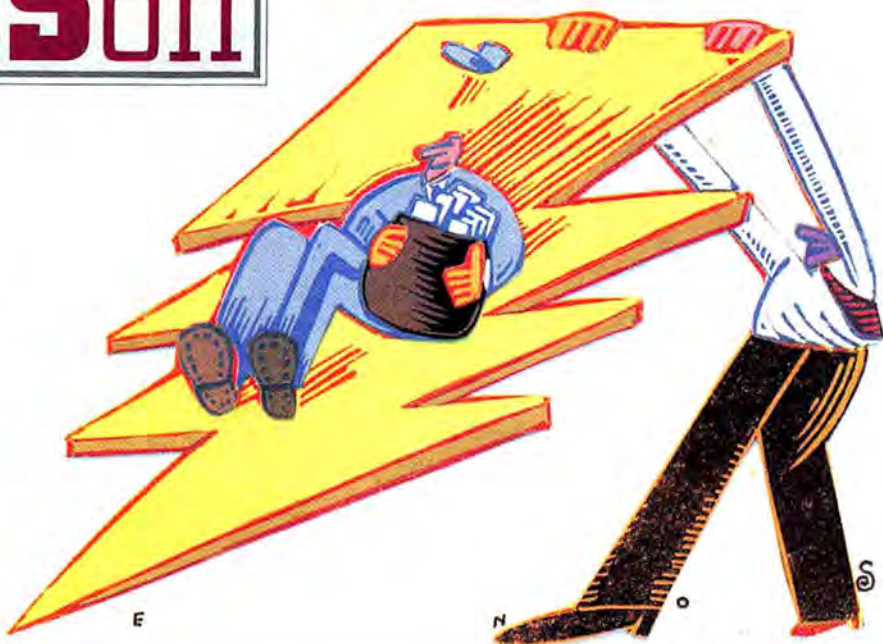


Adobe PostScript



HANDS ON

Neither rain nor snow
nor finicky software
shall keep your e-mail
attachments from their
destination — if you
know the right tricks.



By Gregory Wasson

Foolproof File Enclosures

HAVING TROUBLE with e-mail attachments can be so frustrating you may feel forced to call a courier rather than risk e-mailing important files. Using a courier can easily become a regular, expensive habit, since there are so many ways for e-mail attachments to go wrong between your mailbox and someone else's.

If you don't know all the requirements of your software and those of your correspondents', a graphic may show up mangled, a spreadsheet may turn into weird code, or an attachment may not show up at all. Things get even trickier when you want to send a file cross-platform, because you have to know non-Mac e-mail protocols, such as those for Windows.

No matter whom you correspond with and no matter what software your correspondents use, you can help ensure the safe arrival of your e-mail attachments by following the steps in our "Successful File Attachments" table. They detail the special requirements of the most common e-mail software for the Mac (such as America Online and Claris Emailer) and for Windows (such as Microsoft Exchange and Internet Explorer). In addition, have a look at the rest of this article for general

tips that can help get stranded e-mail on its merry electronic way no matter what software you're using.

Agree to Agree

Discuss with your correspondents before you exchange a file what file types (such as Word document or TIFF), compression formats (SIT or ZIP), and encoding types (uuencode or binhex) you want to use. Agreeing to specifics beforehand can save you such inconveniences as having to resend the file.

Group and Compress Files

Multiple files have the best chance of arriving at their destination safe, sound, and readable if you compress them into a single archive before sending them. You can choose your compression weapon, be it StuffIt Deluxe or a ZIP utility. Even a single file can benefit from being slipped into an archive before being e-mailed. If you have trouble sending a single file and don't know why, try archiving it.

When to Zip It

Sometimes using any old compression scheme isn't enough to make an attachment readable for your recipients. If you're sending

an attachment to PC users (or don't know what platforms the recipients have), your best bet is to choose the ZIP format. StuffIt's SIT archives are prevalent on the Mac platform but even though there's a Windows version of StuffIt Expander, the SIT format is virtually unknown outside Mac circles. StuffIt Deluxe can decode ZIP files, but to create one, you'll need a ZIP utility such as ZipIt, from Tommy Brown.

Can't Beat 'Em? Join 'Em

Even the way you name a file can hinder the e-mail process. Specifically in the case of sending files cross-platform, it's safest to use the 8+3 DOS naming convention (filename.doc). Otherwise your file may be renamed or processed in a way that will make the contents unusable.

Work Around Big Files

Large file attachments, say 500K and up, tend to run into problems. They may get corrupted by the time they reach their destination or may simply be kept out of some e-mail systems. The best way to deal with such hefty attachments is to try to reduce their size.

If you have a graphics file, you could make

Successful File Attachments / all the right steps

IT CAN BE SIMPLE to send e-mail attachments, but only if you know how the procedure can vary from software package to software package. The variations depend not only on what e-mail software you use but also on what e-mail software your correspondents use. To help you avoid problems you're likely to run into when exchanging attachments, we list the steps necessary for e-mail success. To see a more extensive chart that includes steps for a wider range of sender software as well as steps on exchanging attachments with UNIX users, visit *MacUser's* Web site (<http://www.zdnet.com/macuser/0297.html#email>).

*Claris EMailer provides unique opportunities for confusion, because of its many encoding and compression options and because it can send mail in a variety of ways, such as through America Online, CompuServe, and the Internet. This table assumes that EMailer is sending all mail through an Internet account. To minimize problems, always use your America Online or CompuServe software to send messages that have file attachments through those two services.

¹See the "E-Mailer's Best Friends" sidebar for more information about this software.

²Pre-3.0 versions of Navigator add some confusion to exchanging attachments by renaming those you send. The recipients will see a generic name such as ATT0001.ATT, but it's the same file you sent and should be handled like any other attachment. To open the file, simply use the application the file was created in, such as Word or Photoshop.

it smaller by reducing the graphic's color depth or size — for example, the original file may have millions of colors, but if the recipients need it for Web use, 256 will suffice.

If the file is a page-layout document and the recipients need only to be able to view and print the file (not edit it), there's another technique you can use to squeeze the file. First,

save the document to a PostScript file, using a program that lets you, such as PageMaker, QuarkXPress, or FrameMaker. Then compress the PostScript file. Since PostScript is a text-only format, you can compress a PostScript file to a much smaller size than that of the original. If it's crucial that you save your formatting, you can still get a tightly compressed

page-layout document if you use Adobe Distiller. Distiller boasts powerful compression algorithms and options for dealing with graphics that make its compression highly efficient.

No matter what type the file is — graphic, page layout, or something else — you can get it safely to its destination by using yet another method for shrinking a file — segmentation.

The E-Mail Alternative / help with sending large files

SENDING LARGE FILES as e-mail attachments can be unreliable or even impossible. Another option often overlooked is to use FTP (file-transfer protocol). America Online subscribers and most people connecting to the Internet through an ISP (Internet service provider) have some space reserved on the server where they can leave large files for other users to download. Downloading files requires FTP client software, such as Fetch or AOL's built-in FTP software.

Here are some steps to follow for using FTP to exchange files with others, using AOL and ISP servers:

FTPing with AOL. Every AOL subscriber has 2.5 MB of space available for Web pages or files. To go to this space, use *myplace* as a keyword. Click on the

Go To My Place button. The My Place window contains buttons for uploading files, creating directories, and accessing online help. Create a directory called *incoming* (it must be this name), and upload files for others there. Tell your recipients to go to <ftp://ftp.ispname.com/screenname/incoming/>. Their FTP software will let them download any files they find there.

AOL users can access this area simply by using *FTP* as a keyword, clicking on the Go To FTP button, clicking on Other Site, typing the full pathname given above, and then clicking on Connect. They can highlight a file and click on Download to transfer the file to their hard disk.

FTPing with an ISP. Most Internet service providers provide their subscribers with generous amounts of

space for Web pages or files. Ask your ISP for details and for the pathname to your area. The pathname will look something like <ftp://ispname.com/users/username/>. You should be able to create directories there so that recipients can easily find the files you leave for them. Fetch or some other FTP client software will allow you to manage directories and files in this area.

AOL users can access the area by using *FTP* as a keyword, clicking on the Go To FTP button, clicking on Other Site, typing the first pathname given earlier, and then clicking on Connect. Note: You may have to set the read/write privileges of the directories, using the FTP site command (sent via your FTP client software) `SITE chmod 0777 directoryname`.

RECIPIENTS

America Online

Claris EMailer (Internet)*

CompuServe Information Manager (Mac)

SENDER

America Online

General Procedure: To attach a file, click on the Attach button in the AOL Compose Mail dialog box and select the file.

Claris EMailer (Internet)*

General Procedure: Turn off compression in EMailer's Attachment window if sending a file to a non-Mac user.

Eudora Pro or Eudora Light

General Procedure: In Eudora for Mac, set encoding to AppleDouble; in Eudora for Windows, set encoding to MIME.

Netscape Navigator 3.0¹

General Procedure: When you attach a file, make sure you select the As Is option in the Attach dialog box.

In EMailer, set encoding to Base64 or uuencode. Download with usual AOL procedure.

AOL processes the attachment normally and lets the recipient download it by clicking on the Download Now button.

No special instructions.

EMailer handles the attachment automatically. The recipient can find the detached file in the user-specified folder.

EMailer handles the attachment automatically. The recipient can find the detached file in the user-specified folder.

EMailer handles the attachment automatically. The recipient can find the detached file in the user-specified folder.

The CIM recipient sees the attachment as code at the bottom of a message. In CIM, choose the Save a Copy (Text) command. Then decode the file with MPack or YA-Base64.²

In EMailer, set encoding to binhex or uuencode. In CIM, save the attached file, using the Save a Copy (Text) command. Then decode the file with Stuffit Expander with DropStuff.¹

In CIM, save the attached file, using the Save a Copy (Text) command. Then decode the file with MPack or YA-Base64.²

In CIM, save the attached file, using the Save a Copy (Text) command. Then decode the file with MPack or YA-Base64.²

CompuServe Information Manager (Windows)	Eudora Pro or Eudora Light	Microsoft Exchange (Windows 95)	Microsoft Internet Explorer 3.0 (Windows)	Netscape Navigator 3.0 ¹
The CIM recipient sees the attachment as code at the bottom of a message. In CIM, save the attached file, using the Save As command. Then decode the file with XferPro. [†]	Eudora automatically processes the attachment. Look for the detached file in the user-specified folder or directory.	The received attachment appears as an icon at the bottom of the Exchange message. Double-click on the icon to open the file.	The received attachment appears as an icon at the bottom of the Explorer message. Double-click on the icon to open the file.	In Navigator, download the attachment by clicking on its link (underlined text in a table at the bottom of the message).
In EMailer, set encoding to binhex or uuencode. In CIM, save the attached file, using the Save As command. Then decode the file with XferPro. [†]	In EMailer, set encoding to anything but Service Default. Eudora automatically processes the attachment.	In EMailer, set encoding to Base64. From the Exchange message, drag the attachment icon to a directory and double-click on the icon to open the file.	In EMailer, set encoding to anything but Service Default. Use Internet Mail or Exchange to receive the attachment. Drag the attachment icon from the received message to a directory, and double-click on the icon to open the file.	In EMailer, set encoding to Base64. In Navigator, download the attachment by clicking on its link (underlined text in a table at the bottom of the message).
In CIM, save the attached file, using the Save As command. Then decode the file with XferPro. [†]		From the Exchange message, drag the attachment icon to a directory and double-click on the icon to open the file.	Use Internet Mail or Exchange to receive the attachment. Drag the attachment icon from the received message to a directory, and double-click on the icon to open the file.	In Navigator, download the attachment by clicking on its link (underlined text in a table at the bottom of the message).
In CIM, save the attached file, using the Save As command. Then decode the file with XferPro. [†]	Eudora automatically processes the attachment and places it in a user-selected folder or directory. Use the creator application to open the attachment.	From the Exchange message, drag the attachment icon to a directory and double-click on the icon to open the file.	Use Internet Mail or Exchange to receive the attachment. Drag the attachment icon from the received message to a directory, and double-click on the icon to open the file.	

To do so, first agree with your recipients on a compression method (ZIP or Stuffit, for example); then compress the large file across several segmented archives (see your compression software's documentation for instructions). Once you've created several small archives, send each one in a separate e-mail message. The recipients reconstruct the file by joining the segmented archives together.

Despite all the options you have for reducing file size, you may have a file you don't want to alter in any way. If that's the case, the next-best method is to use a more complicated procedure — FTP (file-transfer protocol) — instead of e-mail (see the "E-Mail Alternative" sidebar for details on using FTP).

Send Help

It's a nice touch of netiquette to add a reminder about an attachment's file and compression type as well as special instructions for handling the attachment. For instance, it's helpful to tell your recipients if they need to use a particular utility, such as the shareware Stuffit Expander with DropStuff, to decode and extract your file.

Get the Message

At the end of the day, it's money you'll save and frustration you'll avoid if you can manage to make e-mail function reliably. Not only may you kick the habit of using a courier by following our tips but you may also be able to ride to the rescue of frustrated others in your life who can't get their attachments to behave properly. ☺

Gregory Wasson, a MacUser contributing editor and former NetCerta Webmaster, has been furiously flinging file attachments through electronic passageways for years.



You can find the shareware and freeware programs that are 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).

An E-Mailer's Best Friends / essential utilities

BESIDES BECOMING MORE SAVVY about sending attachments, you'll also need to arm yourself with special software to make sure you and your correspondents can read everything you exchange. The following files, mentioned in the "Successful File Attachments" table, will help you do just that. They're available through major online services and from various Internet sites. You can also retrieve them from the MacUser Web site by going to <http://www.zdnet.com/macuser/0297.html#email>.

Macintosh Utilities

The **Stuffit Expander with DropStuff** freeware/shareware combo can unscramble binhex and uuencode attachments as well as decompress SIT and ZIP archives. If you need to deal only with ZIP

files, you could instead get a ZIP shareware program, such as Ziplt.

Both **MPack** and **YA-Base64** are freeware utilities that can handle Base64 and MIME attachments. MPack can encode as well as decode.

Windows Utilities

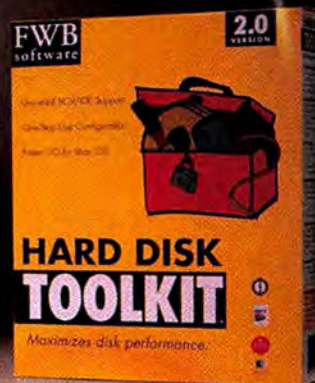
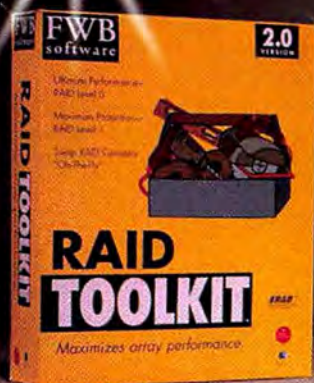
XferPro is the essential e-mail tool for all Windows users. It handles uuencode, binhex, MIME, and other encoding schemes.

Stuffit Expander for Windows is a Windows version of Aladdin's famous freeware — handy when a Windows user receives a rogue SIT archive from a Mac user.

See the end of the main article for information on finding shareware programs.

\$149

COMPETITIVE
UPGRADE



\$99

COMPETITIVE
UPGRADE

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

RAID TOOLKIT \$149

Eligible products include DiskWorks™, Remus™, Conely RAID™, Anubis RAID™, Express Stripe™ or any other non-FWB array management software.

HARD DISK TOOLKIT \$99

Eligible products include Silverlining™, Anubis™, Formatter-One™, APS Power Tools™, SCSI Director™, Drive7™, Zip-Tools™ or any non-Apple formatting software.

MW ★★★★★

Must fax proof of competing product ownership (disks or manual cover). Offer expires March 31, 1997. Upgrades shipped in promotional packaging.



FWB
software

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

#1 in Storage Management.™

Now Showing at the FWB Theatre—Macworld San Francisco, January 7-10, Booth 2331.

© 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 Mac OS 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.

CIRCLE 71 ON READER SERVICE CARD

By Bob LeVitus and Christopher Breen

Help Folder

A colorful primer, starting over, and singin' those PostScript-printing blues.

Color My World

Q. I'm moving up from my tired old Performa 200 (a.k.a. Classic II) to a Power Computing PowerBase 180. But since the new Mac clone will be my first color system, I really need a crash course in color: selecting color depth, screen resolution, VRAM, etc. Where might I find an "Everything I Need to Know to Break Away from Nine-Inch Monochrome" tutorial?

Bob Woolley
St. Paul, MN

CHRIS: Gee, we've got nothing better to do. How about right here? Bob —

BOB: Yeah?

CHRIS: No, not you, Bob. The other Bob.

BOB: Oh.

CHRIS: Bob, as a couple of crusty Mac veterans, we've made the jump from the teensy-screened, black-and-white world of compact Macs to the glorious world of full-color, just-slightly-smaller-than-a-dormitory-fridge monitors and have lived to tell the tale. You will find the jump remarkably easy to make. Bob?

BOB:

CHRIS: Ahem! BOB!?

BOB: Oh, me? Sorry, thought you were addressing the other Bob. Geez, this is confusing. Let's clear this Bob thing up once and for all.

Mr. Woolley, once you've set up your new



computer, open the Control Panels folder and hunt around for Monitors & Sound. This is where you'll change your color and resolution settings. Because you're working with a PowerBase 180, which carries 2 MB of VRAM, you'll see several color options: for example, 256, thousands, and millions. The range of color will depend on the monitor you have and the resolution you set it to.

CHRIS: Different monitors support different resolutions — with *resolution* hereby and forever after defined as the number of pixels jammed on the monitor's screen. For example, my 17-inch multisync monitor supports resolutions of 640 x 480 (meaning 640 pixels across and 480 down) and 832 x 624. I have enough VRAM to display thousands of colors (32,768, to be exact) at 640 x 480 pixels. When I increase the pixel count, by switching to a higher resolution setting (which eats up more VRAM), I can display only 256 colors. When I change resolutions, my monitor blinks off for a second while making a *bewweeeek* kind of sound and then jumps back to life with the new resolution.

Because Mr. LeVitus is among the World's Great Power Users, he's got enough VRAM to display millions of colors (16.7 million) on multisync monitors ranging up to 21 inches in size. Heck, he's probably got enough to run the DiamondVision scoreboard at 3Com/Candlestick Park. With the PowerBase 180, you'll be a bit more limited. You'll be able to view millions of colors on a 17-inch monitor

set to 832 x 624 but only 256 colors on a 21-inch monitor running at 1,280 x 1,024.

BOB: Don't forget, the PowerBase has PCI slots. If the onboard VRAM doesn't satisfy your colorful desires, you can plug in a graphics card that not only gives you more colors but also speeds up screen redraws.

Bypass Startup Items?

Q. Is there a key combination that will prevent items in the Startup Items folder from loading when I boot my Mac?

Ken Jordan
via the Internet

BOB: I'm glad you asked. I was wondering that

Tips / AOL

[In November '96 (page 143), reader Max Kaganov suggested using the undocumented *Dumpfile* command (*Command-Option-D*) to stop AOL's endlessly spinning beach ball. Of the many messages we received regarding this tip, we found this one most noteworthy. — Ed.]

Stopping the Ball

As Christopher Breen mentioned, creating a dumpfile is not a real nifty solution to the spinning-beach ball problem because of the security issues it raises. Here's a way to stop the ball without resorting to dumpfiles:

Launch AOL, and press *Command-N* to create a new memo. Type anything you like into the blank document — one character will do — and save the memo to the desktop. Switch to the Finder, and move the icon of your newly saved memo to an easily accessible location — someplace where you'll be able to see it in the background even when a lot of AOL windows are open. Before continuing, be sure to switch on the "Show Desktop when in background" option in the General Controls control panel, so that you'll be able to see icons sitting on the desktop while AOL is running.

Now when the ball spins longer than you'd like, simply move your cursor to the desktop and double-click on the memo you created. Your document will open, and more important, the beach ball will disappear — allowing you to issue a less time-wasting command.

name withheld by request
via the Internet

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.

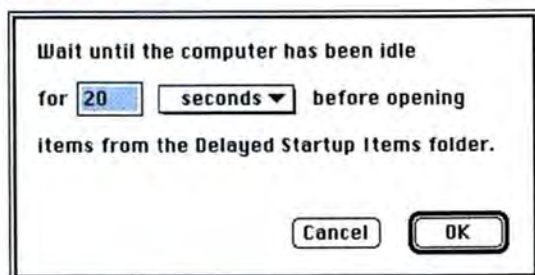


figure 1 / Delayed Startup Items, shareware from Extra Software, lets you control startup-item launches.

myself. So were Chris and some of our editors. So we researched the subject extensively.

CHRIS: And we came up with three ways you can keep those startup items from starting up. The first is not only the cheapest solution but is also recommended by Apple and needs no extra tools or software. Simply mash down the Shift key just after your last extension or control panel loads but before the Finder appears.

BOB: Unfortunately, after intense testing on a variety of keyboards, neither of us was able to get this trick to work reliably every time. The best we can figure is that this is related to the precise timing of the Shift-key mashing and the phase of the moon, although our totally unscientific research revealed that it works more often with Apple keyboards than with third-party ones.

CHRIS: Solution 2: What Help Folder column would be complete without a plug for Casady & Greene's Conflict Catcher? As with its competitor, Now Startup Manager, you can create startup sets that include or exclude as many startup items as you like. If you occasionally need to apply the ax to your startup items, create a set excluding them, assign the set a hot key, and mash down said hot key at the next startup.

BOB: Perhaps the most excellent and elegant solution, though, is to use a little \$8 shareware application called Delayed Startup Items (see figure 1). It waits a user-determined amount of time before beginning to launch the items in the Delayed Startup Items folder that it creates for you, and it launches them only when your Mac is idle, meaning when you're not moving the mouse or using the keyboard. Plus, it offers the option of launching all the items immediately or not launching them at all. It's way cool.

Browser Errors

Q. I'm plagued by Type 11 errors in Web browsers. I've tried Netscape Navigator and Microsoft Internet Explorer. I've rebuilt the desktop, trashed preferences, and zapped the

PRAM, but these errors always come back. Can you help me?

Corey Fox
via the Internet

BOB: OK, Corey, but let's get one thing straight before we start: Browsers — and I'm trying to put this as delicately as humanly possible — are more *fragile* than most programs.

CHRIS: Granted, some of this fragility can be blamed on earlier versions of system-software components such as MacTCP and Open Transport, but let's face it, people have more system errors with browsers than with most other apps.

BOB: Keeping that in mind, here are a few things you can do to try to stabilize your browser. The most important is to make sure you have the latest version of the Mac OS and that none of its components are damaged in any way. The best way to do this — at least at this writing — is to perform a clean install of System 7.5.3 and then apply the 7.5.5 update and Open Transport 1.1.1. It's probably not a bad idea to run Disk First Aid or Norton Utilities first, to discover any hidden damage to your hard disk's directory structures.

CHRIS: The plumbing for Internet connections has gotten better with each update, so if you've been running System 7.5.3 or earlier, you should see significant reliability improvements with 7.5.5.

BOB: You may have to rebuild the desktop, trash preferences, and zap the PRAM again, but ultimately you'll have more-reliable TCP/IP connections with the latest system's stuff.

The next thing is to make sure you have the latest version of each browser. Once again, each successive version has been a little more reliable than the one before.

CHRIS: Take that last recommendation with a few grains of salt. With browsers being updated and upgraded several times a year — for example, new versions of Netscape Navigator (3.0) and Microsoft Internet Explorer (2.1) came out around the time this column was being written — it's hard to say if it will still be good advice by the time you read it.

BOB: But one thing's for sure — for gosh sakes, be sure you're not using a *beta* copy of a browser. Ever since the browser wars began, Microsoft and Netscape have been offering naive and innocent users the opportunity to test buggy, prerelease software for free. Just say no — unless you're willing to really be a tester, which means you won't whine about system

errors and will write detailed bug reports about them.

CHRIS: Here's one last thing that may make your browsing more reliable, especially if you use a lot of third-party extensions or control panels: Create a minimal startup set with Extensions Manager, Now Startup Manager, or Conflict Catcher, and enable only the extensions you need in order to connect with the Internet (usually any extension with the letters "PPP" in it, the TCP/IP control panel, and all the extensions with "Open Tpt" or "Open Transport" in their names, plus the Internet Config extension if you have it).

The Perils of PostScript

Q. I need to transfer formatted documents and graphs from my home Mac to a UNIX system at work. PostScript is the preferred format, and I can't use the LaserWriter driver's "print to file" option, because I don't have a LaserWriter at home. Is there a straightforward way to produce PostScript versions of my documents?

Rodney Jee
via the Internet

CHRIS: I can understand your consternation — particularly if you've tried working around this problem with earlier versions of the LaserWriter 8 extension. Fortunately, Apple and Adobe have recently made living with PostScript easier.

Before presenting the answer, I feel it's our duty to explain the standard procedure for creating and downloading PostScript files. And by our duty, I really mean *Bob's* duty, because I suffer from a debilitating malady that causes me to drop into slumber and drool copiously when the subject of PostScript code is brought up in general conversation.

BOB: Gee, thanks.

Here's how it works: When you send a document to a PostScript printer for output...

CHRIS: [zzzzz...]

BOB: ... the document is translated into commands the printer understands — namely, PostScript code. Those who have PostScript printers may know there's an alternative to printing the file to paper — you can save the raw PostScript code as a text document. Simply select LaserWriter (or whichever PostScript printer you have) in the Chooser. In the Print dialog box of your host application, click on the File (as opposed to the Printer) option under Destination. Up pops a Save dialog box. Name your file, and save it as ASCII text.

The perfect color system.

Scan

Correct

The best scanner is the human eye, and the best color correction device is the human brain. Think about it. You just look at something and there's the color. That's exactly how LinoColor™ VisualLab™ software works, too.

With LinoColor VisualLab, you scan directly into CIELAB, the color space that encompasses all the colors the human eye can see.



And because we've put our more than 40 years of color expertise into this software, your scans will be more accurate than you ever thought possible. If you do want to make color corrections, we've made it very easy, with the industry's most intuitive interface. To learn more about how easy great scanning can be, call for our free brochure today:



800-842-9721. In Canada, call 800-668-0770. Or get it on the Web at www.linocolor.com

CIRCLE 11 ON READER SERVICE CARD



LinoColor
Color is child's play.

Linotype-Hell

© 1996 Linotype-Hell. Hell and Linotype are registered trademarks, and LinoColor and VisualLab are trademarks of Linotype-Hell AG and/or its subsidiaries.

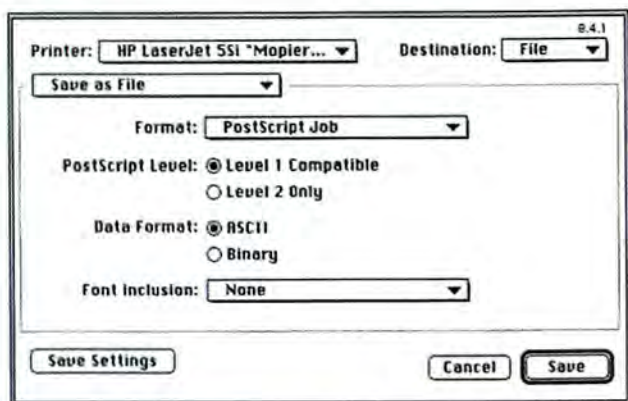


figure 2 / You can save a print job in one of several file formats with the LaserWriter 8.4 printer driver. Choose Save as File, and select ASCII or one of several binary formats.

Once you've saved your file, you can do as our friend Rodney wishes and send it along to a UNIX system as a text file, or if you want to print it at a later time, you can download it to a PostScript printer, using a utility such as Apple Printer Utility or Hewlett-Packard's HP LaserJet Utility 3.0.

CHRIS: [snuck! yawn ...] Tell 'em why you'd want to download the file rather than print it from its native application. I'd help you out, but ... [zzzzz ...]

BOB: [sigh ...] Saving the file as PostScript has these advantages: If you take it to a service bureau for printing, you don't need to worry about whether the facility has the application necessary to print it. And if your document contains lots of different elements — let's say a couple of graphics, fonts, and text blocks — you don't have to bring all the pieces down to the service bureau with you. The single PostScript file has all the information necessary to print the document.

Warning: This file can be huge — much larger than the original file was when it was saved in its native format. Be prepared to deliver the file on SyQuest or Zip cartridges.

Now if we can just get Chris stirred up so he'll finish the answer. **HEY, YOU'RE A CONTRIBUTING EDITOR, SO CONTRIBUTE!**

CHRIS: Wha ... ? Oh. OK, I'll try.

As I hinted at before my little snooze, early versions of the LaserWriter 8 extension made it impossible to print or save a PostScript file without actually being linked to a PostScript printer. You could select the printer in the Chooser, but heavens to betsy, the Print command produced only a dialog box indicating — in technical terms, of course — that you were hosed.

Thankfully, Apple released the LaserWriter

8.4 software package, which has a printer driver that doesn't give a good gosh darn whether you have a printer connected or not. Just glom on to the software (you can find it in Apple's software libraries on the Web, CompuServe, and AOL), run the installer, restart, and select LaserWriter in the Chooser.

When you choose Print, select File from the Destination pull-

down menu and then choose Save as File from the unnamed pull-down menu at the left of the dialog box (see figure 2). When you choose Save as File, you'll have the option of saving your file as a PostScript job (in ASCII or binary) or as an EPS file. With either option, you can select PostScript Level 1 or PostScript Level 2 compatibility. Unless you're positive that the printer is compatible with PostScript Level 2 — the newest PostScript printers are — save it as Level 1.

You will also want to determine whether to include PostScript descriptions of the fonts in your document. Another pull-down menu allows you to decide whether to include all, none, or some of the fonts. If you suspect that the printer you'll eventually use doesn't have access to your fonts, include them.

Guessed Address

Q. I would like to find the e-mail address of a friend who I know is online. Is there a way to track him down?

**Masahiro P. Knittel
via the Internet**

CHRIS: Ah, this one will be a cinch compared to that painfully dull PostScript matter.

Masahiro, given that you're a *MacUser* reader, you're obviously a person of matchless taste who gathers like-minded individuals to his bosom. Why recommend an online-search service when we know full well that each and every one of your friends is a *MacUser* subscriber reading these words right now? Undoubtedly, one or two of your pals — perhaps due to a carelessly misplaced address book or the mastications of an undisciplined canine — have lost contact with you. Surely they will see your name and drop us a line here at Help Folder, reading: "The only Masahiro Knittel I

know owes me money! Please forward my e-mail address to him pronto!!"

And we'd do it too!

BOB: As much as I admire Chris' willingness to help you personally, an Internet-search service is more likely to provide the results you're after.

I would start by checking Four11 (<http://www.four11.com/>) and WhoWhere? (<http://www.whowhere.com/>). You can search out a person's e-mail address as well as home address and phone number with both of these services. To track someone down, enter the person's name and such relevant data as the city and state where they live.

While checking out this answer, I found that some of my e-mail addresses were listed, but a search for my partner brought up only a guy in the U.K. and another who works for Silicon Graphics in Massachusetts. How come I didn't see you in there? Paranoid?

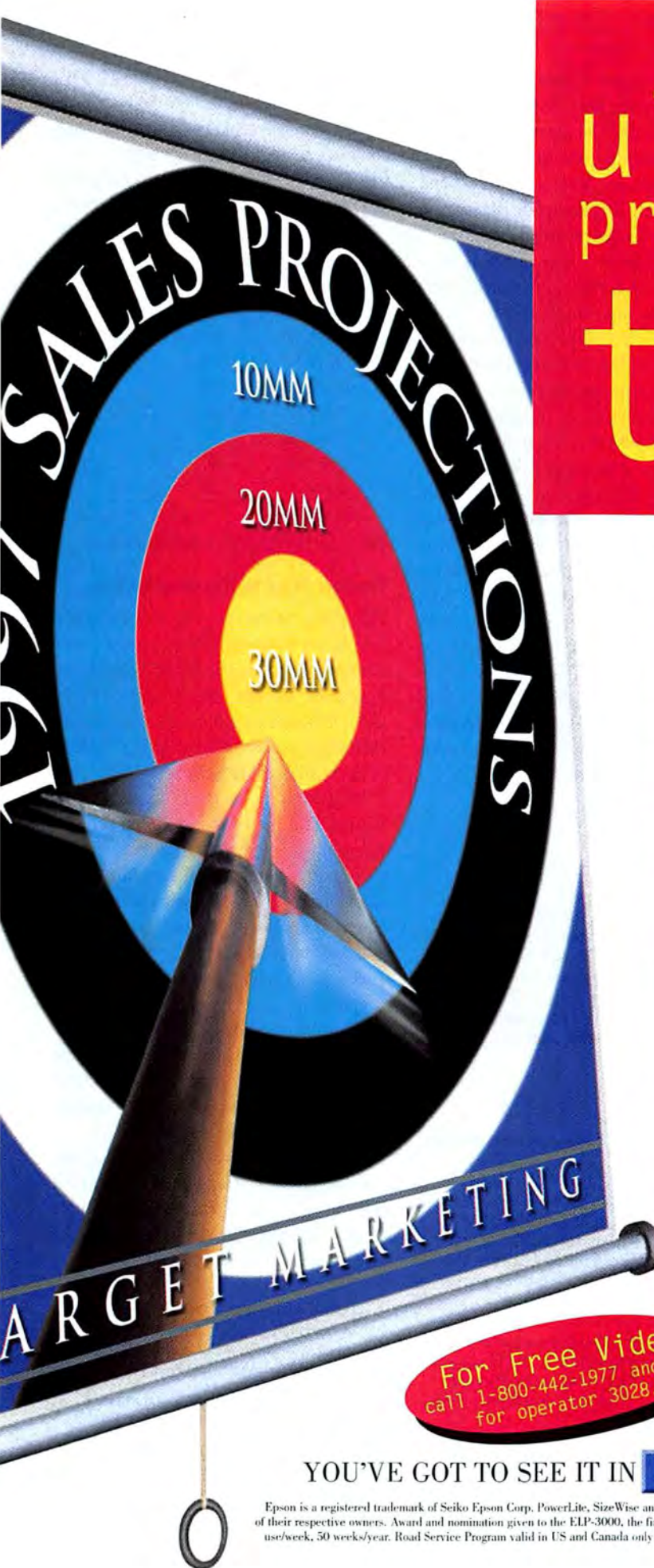
CHRIS: Hardly. I've been far too busy gathering evidence that definitely links Elvis to the Kennedy assassination to bother registering my address.

Oh, how we kid ... Truth be told, I conduct most of my e-mail business via CompuServe and AOL. Because both of these outfits consider their user information an asset to be sold to advertisers, they don't pass user names along to companies such as Four11 and WhoWhere?. Also, I don't post to newsgroups. If I did, my e-mail address would appear in MIT's UseNet Addresses service (<http://usenet-addresses.mit.edu/>) — a service you should check out, Masahiro, if your buddy is the chatty type.

For those of you who are worried that any yabbo with a computer and a modem can get ahold of your address and phone number within seconds, both Four11 and WhoWhere? allow you to have your name removed from their lists. Additionally, both companies claim that your personal information is not provided to other companies. Forms are laid out in such a way as to make it difficult to gather a bevy of names at one sitting.

One WhoWhere? option does bother me, however. Unlike Four11, WhoWhere? lets you track people by their phone numbers alone — just enter the number, and WhoWhere? spits out a name and address if a person is listed in one of the major U.S. phone books. If you're concerned about your privacy, this may be a compelling argument for blocking your phone number.

BOB: Since Chris brought up CompuServe and



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.



The PowerLite 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.



Weights 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.

AOL, I should mention that you can search these commercial services for your friend's address if you're a member. If your friend is an AOL subscriber, he may have filled out a Member Profile, with vital stats such as his user name and the city in which he lives. But since profiles aren't required of AOL users, it's quite possible that your friend has an account but can't be tracked down with a profile search. CompuServe's directory is more complete.

A Walk Around the Blocks

Q. I've noticed slight file-size differences when a file is copied from the hard disk to another disk (floppy, SyQuest, and the like). Why these differences?

Joel Scharf
via the Internet

CHRIS: Joel, before we answer, I'd like to get a little something off my chest. This will only take a sec. Although we get some remarkably supportive mail, the occasional sourpuss slithers in complaining that he'd (yes, it's always a man) like the information without having to wade through our witty repartee.

BOB: Perhaps these people could read *Byte* instead.

CHRIS: Now, now. It's important that we address

the needs of *all* our readers — even those lacking the humor gene. For this reason we will now provide the answer without any unnecessary embellishment. Hit it, Bob.

BOB: Hard disks are made up of tracks and sectors — these are physical divisions. Hard disks are also divided into *logical* units called allocation blocks — a block can be as small as one sector or contain more than one sector. These allocation blocks vary in size depending on the size of the disk you format. A high-capacity disk has larger allocation blocks than a low-capacity disk.

CHRIS: An allocation block can hold only one file. Even if the block is not completely full, no two files — or portions of files — can be written to a single allocation block. This can lead to wasted space. For example, a 1-GB disk's allocation blocks are 16K (they're 8K on a 512-MB disk). If you save a 7K file to the gig drive, it will still take up the entire 16K block — wasting 9K of storage space. If you copy that file to a smaller-capacity disk, with the disk's smaller allocation blocks, you waste less space and the file size shrinks. If you saved that 7K file to the 512-MB disk, you'd waste only 1K. Files stored on 1-GB-plus disks may require another K or two in overhead.

BOB: This explains why it's a good idea to partition large disks if you want to reduce wasted space. Partitions act like lower-capacity disks and carry smaller allocation blocks.

CHRIS: Here's the formula for determining how large your allocation blocks are: Add 512 bytes (.5K) for every 32 MB of storage. Put another way, the formula is

$$(\text{Disk Size} / 32) \times .5 = \text{Allocation Block Size}$$

Therefore:

Disk Size	Allocation Block Size
32 MB	.5K
64 MB	1K
128 MB	2K
256 MB	4K
384 MB	6K
1 GB	16K

... and so on

BOB: And that's the answer. We're done.

The Last Word on Key-ping It Clean

BOB: Several readers responded to our advice to Malcolm Reid regarding the malfunctioning Power key on his keyboard (Help Folder, November '96, page 140). Although we provided Malcolm with some good advice, we overlooked another likely culprit — a dead or dying internal Mac battery.

Macs use a small battery to maintain things such as PRAM (parameter RAM) settings when the power to your Mac is turned off. This same battery activates the circuitry that senses the Power key on your keyboard. If said battery is dead or dying, the Power key may not work or may take several presses to generate enough voltage to activate the power-supply relay.

CHRIS: Another indication that your battery is dead or dying is when settings stored in PRAM — such as monitor, sound, time and date, and Chooser-device settings — are forgotten when you shut down.

If you suspect that your battery is the problem — and they do tend to wear out after a few years of service — check with your Apple dealer about replacing it. This is an inexpensive fix on most Mac models. ☞

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 / Sound Off!

No Startup Chime

If you have AppleScript installed, here's an easy way to keep your Mac's startup chime from waking the family whenever you get an idea in the middle of the night:

Create the following script in Script Editor, save it as an application, and place it in the Shutdown Items folder in your System Folder:

```
on run
    tell application "Finder"
        set volume 0
    end tell
end run
```

The next time your Mac starts up, it will play a barely audible startup chime. To automatically bring your Mac back to full volume, make a copy of the script, set the volume within the script to your usual level (7, for example), save it as an application, and place it in the Startup Items folder.

Lou Flemaal
Islandia, NY

No Monitor Beeping

I use the Energy Saver control panel to put my monitor to sleep after 15 minutes of inactivity, but I hate the annoying beeping that occurs when the monitor wakes up. Armed with a copy of ResEdit, I decided to do something about it.

Using ResEdit, open a copy of Energy Saver. Locate the snd resources item, and open it. Once it is

open, you'll spy the -4041 resource (it's the only one there). Open this resource, press Command-A (Select All), and press the Delete key. Save your changes, install the updated Energy Saver in your Control Panels folder (keep a copy of the old Energy Saver in case you want the beep back), and restart.

Now your Mac will awaken silently.

George Craig
Dalton, GA

Your Own Bad Dog

Have you ever wanted to scold After Dark's Bad Dog yourself? It's easy:

Use a sound-recording utility to record the command you'd like Bad Dog to hear — I recommend recording at 11 kHz to keep the resource small. Make a copy of the Bad Dog After Dark module, and open it with ResEdit. Open the Bad Dog snd resource inside the Bad Dog module, and delete it.

Now use ResEdit to open the sound you recorded, open its snd resource, press Command-A to select all, copy, and paste its contents into the Bad Dog snd resource. Save Bad Dog, install it in the After Dark Files folder (found inside the Control Panels folder), and restart.

The next time Bad Dog starts misbehaving, that will be you doing the barking.

Mark Brethen
via the Internet

The
ultimate
computing
resource
online

ZDNet™

<http://www.zdnet.com>

From the
sources you trust:

PC Magazine

PC Week

PC Computing

Computer Shopper

Windows Sources

MacUser

MacWEEK

Inter@ctive Week

Computer Life

FamilyPC

Computer Gaming World

Yahoo! Internet Life

Be sure to
sign up for
Personal View

ZD Net's FREE
news service that
you can easily
configure to track
only the companies
and products that
interest you most.

Click into
ZD Net's world-
renowned
**Shareware
Library
and start
downloading!**

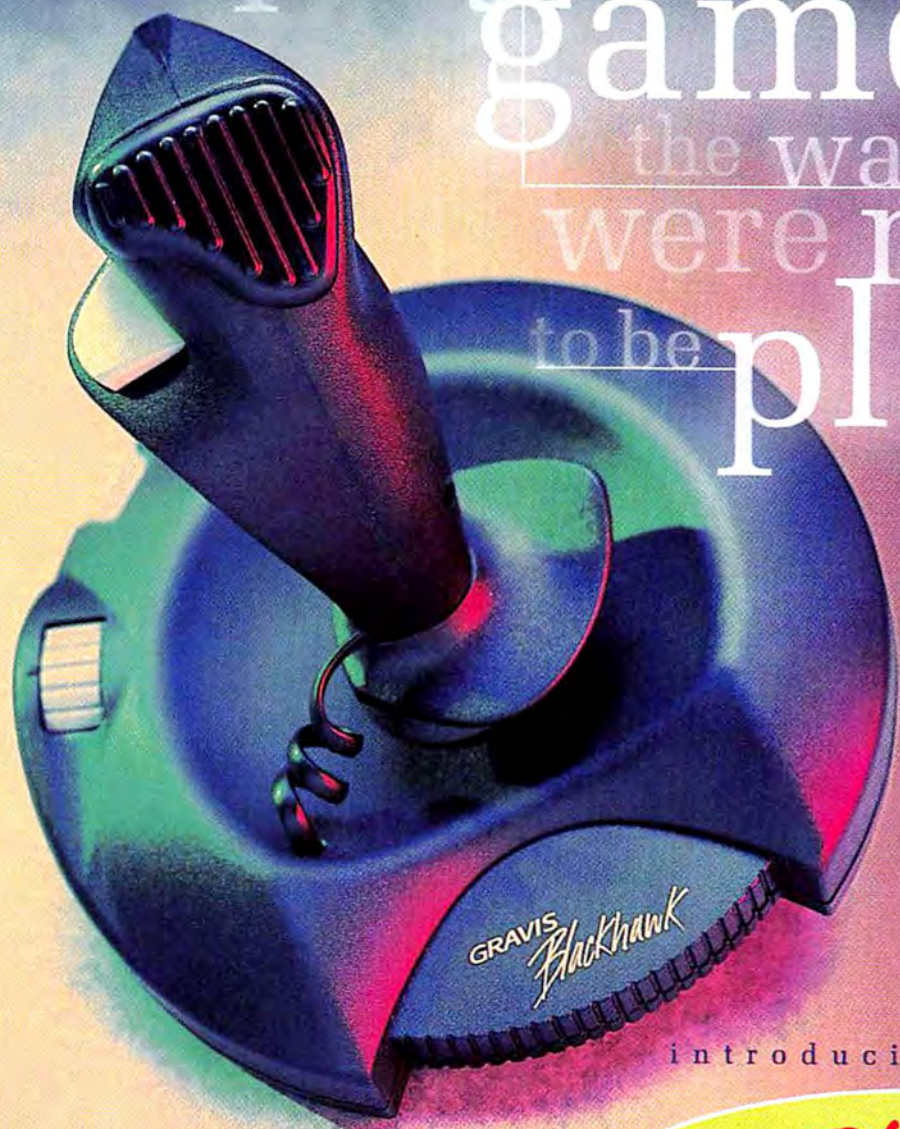
Over 10,000
programs —
all tested, rated
and reviewed by
ZD Net editors.

**Join in!
There's a lot
going on —**
from wide-ranging
discussions with
industry leaders,
to topical weekly
chats with editors
and ZD Net
personalities —
there's always some-
thing new, exciting
and insightful
happening at
www.zdnet.com.

**See You
Online!**

So easy to program, so comfortable, so responsive, you can finally

play
games
the way they
were meant
to be played



introducing the new

Mac Blackhawk



Now there's a joystick for users who want the speed, firepower and custom controls of the highest

end joysticks. But at a cost that's easy to afford. And even easier to program.

With four programmable buttons, ready-to-play settings and drag and drop software, you can set Mac Blackhawk™ up for any joystick or keyboard controlled game in minutes. And once you're up and running, you'll be able to play for hours thanks to the new contoured, ergonomic design. It's even compatible with MouseStickII™.

So get Mac Blackhawk. And start playing games the way they were meant to be played.

Go to your favorite store or call us at 1-800-257-0061 or visit our web site at www.gravis.com.

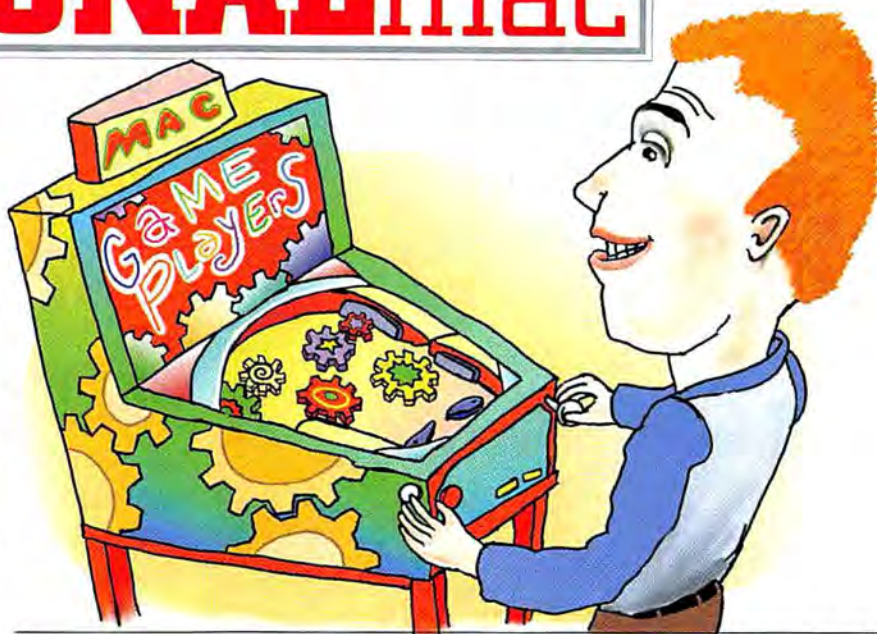
GRAVIS

| gaming for the 21st century |

CIRCLE 97 ON READER SERVICE CARD

PERSONALmac

It's made for game developers, but it's Mac game *players* who really benefit from Apple's newest game technology.



By Roman Loyola

Game Gears

WHEN APPLE FINALLY ADMITTED that the Macintosh was a great game machine, it backed up its words with action by releasing Game Sprockets. Sprockets is a set of APIs (application-programming interfaces) game developers can use to simplify

DrawSprocket

Perhaps the best way to understand what the DrawSprocket does is to look at how it works in the new game **Tempest 2000**, from MacPlay (800-462-2752 or 714-553-3521). In this remake of the Atari arcade hit of the early '80s, you're a futuristic creature traveling through a series of geometric planes, eliminating other creatures that attack you. It's a chaotic game that requires graphics to be drawn rapidly. That's where the advantage of the DrawSprocket comes in. It makes animations smooth by using *multiple buffering* — a method of creating and storing more than one image at a time to send to your Mac's screen. Without multiple buffering, the Mac creates and stores only one image at a time, which can make animations choppy.

InputSprocket

This sprocket contains programming that users and developers have needed for a long time. The

InputSprocket is a hardware driver that lets Mac games work with any Mac joystick, steering wheel, or other input device. By press time, we'd found no games that used the InputSprocket.

NetSprocket

The NetSprocket makes playing networked games easier for users and makes creating them easier for developers. It's easier for users because a game that uses the NetSprocket is not restricted to the use of one network protocol — one player can use TCP/IP, one person can log in remotely via a 28.8-kbps modem, and another can use a TokenTalk connection. Even better, they can all participate in the same game without experiencing much speed degradation.

For developers, the NetSprocket reduces the amount of time it takes to make a game networkable. LucasArts (800-985-8227 or 415-472-3400), for example, figures that because it used the NetSprocket, it

saved about a month's worth of work while developing **Outlaws**, a first-person shooter set in a Sergio Leone-type Western (available in late January 1997).

Because of the NetSprocket, the number of network games available should soon be vast. The experience of the developers of MacPlay's **Virtual Pool** will likely be the common case. This game was originally made for a single player, but when the developers found how easy it was to implement the NetSprocket, they tacked on network capability.

saved about a month's worth of work while developing **Outlaws**, a first-person shooter set in a Sergio Leone-type Western (available in late January 1997).

QuickDraw 3D RAVE

If a game uses this sprocket, you don't have to worry about compatibility between the game and your 3-D-graphics accelerator, assuming you have one. This means that even if you have a game with its own proprietary rendering engine — in other words, one that doesn't use QuickDraw 3D — the game

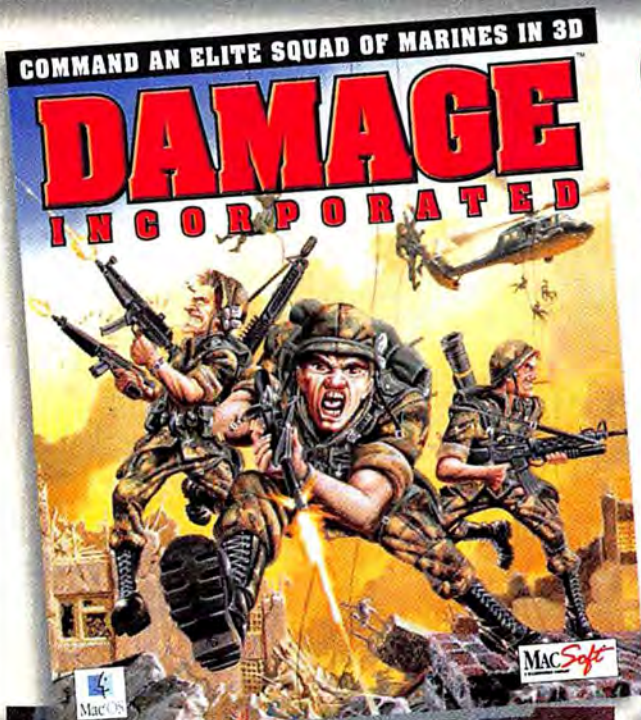
can still be accelerated with any 3-D-accelerated-graphics card.

When Bungie Software (800-295-0060 or 312-563-6200) releases **Weekend Warrior** (shown below) later this year, it will be the first game developed from the ground up to take advantage of many sprockets, including the RAVE (Rendering Acceleration Virtual Engine) sprocket.

Weekend Warrior is a combo adventure and fighting game that takes place in a twisted 3-D game-show world. Playing one of several characters, you complete missions for cash and fabulous prizes. You



Enough Work. Let's Play.

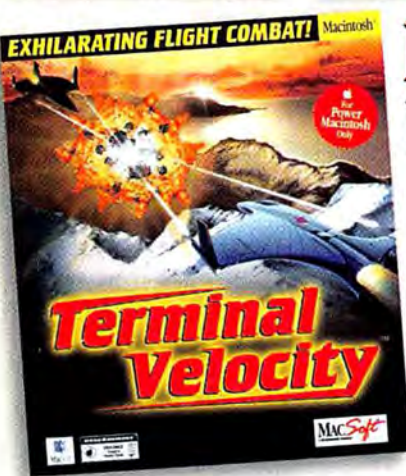


Command Your Own Squad of Marines in 3D

Take command of an elite special forces unit in this extraordinary 3D first-person shooting extravaganza. Lead four highly-trained marines on six deadly covert missions. Fight for your own life while strategically issuing orders to your squad. All in 3D. So real you'll be a bloody wreck before it's over.

SYSTEM REQUIREMENTS: Any Power Macintosh with color monitor and CD-ROM drive.

MSRP: \$49.99 **\$34.99**



Incredible Flight Combat Action!

Terminal Velocity is absolutely the most exhilarating flight game available for the Macintosh. It offers fast 3D texture-mapped graphics, full 360-degree flight movement and 7 weapons of extraordinary destruction. Fight your way through 9 unique planets with an awesome array of spectacular air-to-air and air-to-ground combat action.



"...gripping high-speed action from moment one."

-Computer Gaming World

MSRP: \$49.99 **\$34.99**

SYSTEM REQUIREMENTS: Any Power Macintosh with color monitor and CD-ROM drive.

Lots more. Call for a free catalog or visit our website at www.wizworks.com

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.

BUNGIE

A GT Interactive Company • 2300 Berkshire Lane, Plymouth, MN 55441

MACSoft[®]
800-229-2714

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 skullduggery in the National Gallery of Art.



Includes 9 deadly weapons plus a horde 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 & TECHNOLOGY LICENSED FROM
BUNGIE

Call for
a free catalog or
visit our website at
www.wizworks.com

can even personalize a character by mapping the image of your own face onto its head.

This is a powerhouse of a game that shows off how impressive QuickDraw 3D and 3-D-graphics acceleration can be. It gives you a realistic sense of being in a 3-D world, featuring 3-D zooms that give you a perspective from anywhere in the game's space. Since it's designed for 3-D-graphics-acceleration hardware, the game requires a card to work properly and works only on PowerPC machines. You can get a copy of Weekend Warrior only by buying certain 3-D-graphics accelerators or a Mac with 3-D-graphics-acceleration hardware built into the motherboard — it isn't a stand-alone product.

SoundSprocket

The most exciting aspect of the SoundSprocket is its unusual stereo sound effects — it creates 3-D sound that seems to come from various points in space, such as the upper-right corner of your screen. You can take advantage of the sound experience only if you have two speakers or headphones.

To better illustrate 3-D sound, let's look at a game that uses the SoundSprocket — **WarCraft II: Tides of Darkness**, from Blizzard Entertainment (800-953-7669 or 714-955-1380). In this game of discovering and colonizing new lands, your main screen shows only a small portion of a larger map. So, it's possible to have events occur off-screen. Now suppose your home base is located in the lower-left part of the map but one of your armadas is under attack in the upper-right corner. Without 3-D sound, the noises of the battle — the explosions, the cries of "We're being attacked!" — would sound distant (because they would be faint), but you couldn't ascertain their direction. With 3-D sound, not only do the noises sound distant but they also sound as though they're coming from the upper-right corner. That's because the SoundSprocket lowers the volume and plays sound only out of the right speaker.

Other sound effects, such as the Doppler effect, can also be simulated by 3-D sound. By varying each speaker's volume level, a developer can create the effect of an object, such as a car, passing at high speed. If you were wearing headphones, the sound would literally zoom through your head.

SpeechSprocket

This sprocket brings speech recognition to games. It's based on Apple's PlainTalk technology, so you must have PlainTalk installed to use it. What's cool about PlainTalk is that it's robust. First of all, it's speaker-independent, meaning that you don't need to train the speech-recognition software by sitting in front of your Mac and reciting a list of words. It also lets you speak in natural, multiword phrases rather than single words separated by exaggerated pauses.

Nascar Racing, from Sierra On-Line (800-757-7707 or 206-644-4343), uses speech recognition to make playing the game not only more enjoyable but also more realistic. Just as in a real Nascar race, you, as the driver, must send instructions, such as which tires to change, to the pit crew before you pull into the pit. Rather than take your hands off the steering wheel, you simply speak commands.

The Gears Keep Turning

What's next for Game Sprockets? Plenty. Although you can't do it now, you'll be able to use the SpeechSprocket in the future for directional commands — "turn right, turn left." The SoundSprocket does an excellent job of simulating 3-D sound coming from in front and from the side, but it can't replicate sounds that come from behind your head. In the future, you should be able to hear an opponent firing a missile at you from behind and to the right in a network game of Marathon Infinity.

These will be big improvements, but what would you think if I said that Apple is creating a "GoggleSprocket"? If you're thinking of virtual-reality goggles, you've got the right idea. But what if a game also employed the SoundSprocket for 3-D sound, the InputSprocket for a control "glove," the SpeechSprocket for vocal input, and the DrawSprocket for faster animation, and all of this was implemented in a game situated in a full-color 3-D world that used the QuickDraw 3D RAVE? You'd have a virtual reality that didn't require a high-powered workstation. A cool game, indeed.

MacUser Associate Editor Roman Loyola is the keeper of The Game Room. Special thanks to Ben Calica, formerly of Apple Computer, for his help with this story.

The Two Dads

BY RIK MYSLEWSKI AND JIM SHATZ-AKIN



CAREY MYSLEWSKI (11 years old): My dad's name is Rik. He writes about kids' software.

ROXANNE MYSLEWSKI (9 years old): It's our turn to talk about what software we like.

BAILEY SHATZ-AKIN (19 months old): 'Puter! Push buttons!



CAREY: Yeah, right I don't like most educational software, because it's waaaaaay too boring. I sometimes like to shoot at people and ships in **Dark Forces** and **Rebel Assault II**.

ROX: I play **Diamonds and More Diamonds** a lot. It's hard but fun. There's some educational games I like, like **Math Workshop**.

CAREY: **Virtual Pool** is sort of educational, about angles and stuff.

ROX: **3-D Ultra Pinball** is cool. You don't have to go to an arcade, and it doesn't cost quarters.

CAREY: Dad gets everything free.

ROX: That's really, really, reeeeeeally cool. Like he has all the Living Books.

Arthur's Teacher Troubles is my favorite.

BAILEY: Arthur. Aardvark!

CAREY: It's dumb.

ROX: A little. The best stories are **Freddi Fish** and the **Case of the Missing Kelp Seeds** and **Putt-Putt Saves the Zoo**.

BAILEY: Putt-Putt! Car. Pep. Puppy.

CAREY: Oh, Rox, those aren't Living Books.

ROX: Who cares? They're better.

CAREY: If I could pick only one game to take to a desert island, I'd take **You Don't Know Jack XXL**.

BAILEY: Bpifffttt!

Arthur's Teacher Troubles

Price: \$19.95 (list).

Company: Living Books; 800-397-4240 or 415-382-7818.

Reader Service: Circle #420.

Dark Forces

Price: \$49.95 (list).

Company: LucasArts Entertainment; 800-985-8277 or 415-472-3400.

Reader Service: Circle #421.

Diamonds and More Diamonds

Price: \$14.99 (list).

Company: MacSoft; 800-229-2714 or 612-559-5301.

Reader Service: Circle #422.

Freddi Fish and the Case of the Missing Kelp Seeds

Price: \$39.95 (list).

Company: Humongous Entertainment; 800-499-8386 or 206-486-9258.

Reader Service: Circle #423.

Math Workshop

Price: \$39.95 (list).

Company: Broderbund; 800-521-6263 or 415-382-4700.

Reader Service: Circle #427.

Putt-Putt Saves the Zoo

Price: \$39.95 (list).

Company: Humongous Entertainment; 800-499-8386 or 206-486-9258.

Reader Service: Circle #428.

Rebel Assault II

Price: \$44.95 (list).

Company: LucasArts Entertainment; 800-985-8277 or 415-472-3400.

Reader Service: Circle #429.

3-D Ultra Pinball

Price: \$44.95 (list).

Company: Sierra On-Line; 800-757-7707 or 206-644-4343.

Reader Service: Circle #430.

Virtual Pool

Price: \$49.95 (list).

Company: MacPlay; 800-462-2752 or 714-553-3521.

Reader Service: Circle #431.

You Don't Know Jack XXL

Price: \$29.99 (list).

Company: Berkeley Systems; 800-344-5541 or 510-549-2300.

Reader Service: Circle #432.

The Game Room

BY ROMAN LOYOLA

EIGHT BALL, CORNER POCKET — I've made that call during a game of eight ball a million times, only to scratch on the shot. Can Virtual Pool improve my game? If not, I can always resort to conquering the New World or blasting my way through the final stage in the Marathon series.

This is a diverse group of games, but they have at least one feature in common — they're among the first to use Apple Game Sprockets. To read how this technology will change gaming, see "Game Gears," in this issue.

Conquest of the New World

With the success of WarCraft, vendors have realized that there's a huge demand for real-time strategy games for the Macintosh. The latest is Conquest of the New World. Conquest isn't as fast-paced as the WarCraft series, nor does it have the variety of characters and managed resources WarCraft does. But it offers a new perspective on the real-time strategy genre for the Mac, and it definitely satisfies.

Conquest takes place in the time period of exploration of the New

World. You control a group of explorers from several Old World countries (England, France, Spain) or a tribe of Native Americans. You start off with a ship, a crew, and a blank screen. Landscape appears as you explore new land. You'll find tribes,



ivers, mountains, lakes, and other landmarks you can claim for your motherland. Details about your exploration are sent back to the rulers of your native land, which puts extra pressure on you — if you progress too slowly, the rulers will get angry and withdraw the expedition.

What's unique and refreshing about Conquest is the way battles are enacted. Instead of having the troops fight on the large map that you see on your screen during most of the game, you get a close-up of the battle on a large grid (shown above). The troops line up at opposite ends of the grid. From that position, you must strategically plan your attack. To make the battle a bit trickier, as well as realistic, the weapons don't have a true aim, just like the weapons of that era — you

may hit one of your own people even though you're aiming at an opponent.

Marathon Infinity

So you're probably thinking, Yet another Marathon game? Although I could simply regurgitate what's been said before about Marathon, Infinity has enough new stuff to make it a must-have for your game collection. This is the last installment in the Marathon series (unless Bungie decides to put out a map collection), and the series ends with a satisfying bang. Infinity has 20 more levels, a bunch of new network levels, and two editors — a level editor called Forge and a shapes tool called Anvil.

It's not the levels, though, that make Infinity stand out, because the game play is just more of the same old game. What's best about Infinity is what you see when you're on the

Forge and Anvil are welcome additions to the Marathon series. Marathon mappers have had to resort to using nicely designed but complex shareware programs. Forge and Anvil simplify the creation tasks, so you don't have to worry about such things as texture alignment.

In all, Infinity is a nice end to the Marathon series. If you don't want it to end, make sure you get Infinity so you can make Marathon adventures of your own.

Virtual Pool

With Virtual Pool (shown in background), you don't have to worry about smoky pool halls, tables with worn-out felt, warped cues, hustlers hovering in the corners, or looking like a sissy when you have to use the bridge. In fact, there's no reason to go back to the pool hall, since Virtual Pool is so realistic that you may find yourself chalking the end of your mouse.

Virtual Pool does an excellent job of replicating the feel of shooting pool. You can determine the spin of the cue ball, depending on where you strike it, and you can also strike the cue ball as hard or as soft as you're able. To measure your shot, you can zoom in and out freely. And you can perform any of these actions without a drop in the animation frame rate. The colorful, gorgeous 3-D imagery doesn't degrade either.

You can play against one of several opponents of various skill levels or against a live opponent via network/modem play (again thanks to Apple Game Sprockets). You can play Straight Pool, 8-Ball, or Rotation, using professional rules. If you want to learn some trick shots, go to the tutorial.

Virtual Pool not only feels real but it sounds real too. The sounds of the cue stick and balls striking each other are true to life. Virtual Pool also uses top-40-like songs — ranging from a sappy, Michael Bolton-style ballad to a line-dancing, boot-knocking country tune — as background music. The only drawback is that the music eventually runs out. It'd be nice if you could play the CD of your choice (the game requires you to mount the Virtual Pool CD-ROM in order to play).

After editing stories about printers, scanners, and hard drives, MacUser Associate Editor Roman Loyola finds that playing a Marathon network game of total carnage is the perfect way to end his day.

GAME POINT

This month's Game Room features a variety of games that belong in your game collection. Conquest of the New World is a challenging strategy game with a unique and entertaining approach to battles. Marathon Infinity is, well, Marathon. Although this may be the last in the series, Infinity's map and shapes editors will enable gamers to keep the saga alive for years to come. Virtual Pool is the most realistic pool simulator available, and if you spend enough time playing it, it may actually help you join the professional billiards tour.

Conquest of the New World ★★☆☆

Price: \$50 (estimated street).
Company: MacPlay, Irvine, CA;
800-462-2752 or 714-553-3521.
Reader Service: Circle #424.

Marathon Infinity ★★☆☆

Price: \$40 (estimated street).
Company: Bungie Software, Chicago, IL;
800-295-0060 or 312-563-6200.
Reader Service: Circle #425.

Virtual Pool ★★☆☆

Price: \$50 (estimated street).
Company: MacPlay, Irvine, CA;
800-462-2752 or 714-553-3521.
Reader Service: Circle #426.

levels — improved texture mapping and sound. The textures are so much cleaner and better-detailed that they breathe new life into the look of the game. To see how drastic the change is, all you need to do is open Marathon 2 maps in Infinity; you'll immediately see that the textures look more sophisticated.

If you get Infinity, be sure to play with a set of headphones on, because the sound is outrageous. The stereo sound adds depth to the game as well as intensifying the experience — there's something exciting about seeing a missile blow up to your left and hearing the sound of the explosion also come from the left. The sound is so good that you can use it as a navigational aid. (For more detail on how stereo, or "3D," sound works, see the SoundSprocket section of the "Game Gears" article.

Where's Eddy?

Eddy's on the Web

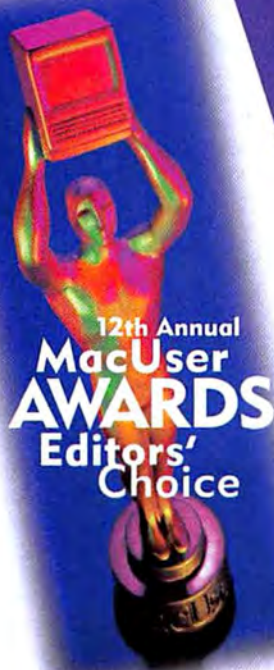
Eddy's at
your house

For the first time in history the exclusive **Eddy Awards** ceremony can be viewed on the Web from the comfort of your living room. Be one of thousands of Macintosh buyers to discover first-hand which 1996 Eddy finalist products will receive the coveted gold statue.

TO ENSURE THE ABSOLUTE BEST USER EXPERIENCE, THE EDDY AWARDS WEBCAST WILL BE PRODUCED WITH MANY OF TODAY'S LATEST TECHNOLOGICAL INNOVATIONS AND AN UNDERSTANDING OF THE BANDWIDTH LIMITATION OF MOST USERS. FOR THE ULTIMATE EDDY WEBCAST EXPERIENCE MACUSER RECOMMENDS VISITING THE SITE EARLY TO DOWNLOAD THE APPROPRIATE FILES.

Each year, only the **very best** Macintosh hardware and software win a **MacUser Editors' Choice Award** nomination.

At www.eddyawards.com you'll have a chance to examine and experience these top products more than a month before the final winners are announced. And MacUser's respected editorial and lab staff will give you the **straight story** on why these products made the Eddy list. In fact, in no other place will you find more *complete* information on this stellar collection of innovative and exciting Mac products.



At www.eddyawards.com you'll find:

- downloadable product demos
- links to product reviews published in MacUser
- RealAudio commentary from editors
- links from eddyawards.com to vendor web sites
- a chance to win Eddy Award products



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

BEST Service!

FREE CATALOG!

10,000 HOT PRODUCTS 24 HRS A DAY!

IOMEGA ZIP DRIVE

FREE! 100MB Cartridge!

JUST \$149⁹⁵

*Reg. \$199.95, Price after \$50 rebate Expires 1/31/97

Deneba Canvas 5.0 Upgrade

More powerful than ever, Canvas 5 delivers great new features not available in any other illustration program. Includes unlimited levels of undo, instant 3D extrusion, and more than 30 file import and export files.

NEW VERSION!

20,000 clip art, 2,000 fonts!

JUST \$149⁹⁵

Robotics Sporster 33.6

Get high speed performance and quality you can count on. Send/receive data at up to 33.6 Kbps, built-in speaker with volume control, and V.42/MNP 2-4 error control.

ONLY \$169⁹⁵

INTERNET!

Exclusive MVP/AppleSoft/Alladin Bundle!

ONLY \$58⁹⁵

Everything you need in one package! MVP Whole Internet Bundle gives you the latest and best versions of indispensable Internet software.

SAVE \$100!

GET OVER 10,000 HOT PRODUCTS 24 HOURS A DAY!

SONY Multiscan 100sx Trinitron Monitor

NEW!

ONLY \$399

15" Trinitron CRT (13.9" viewable larger size) Digitally controlled Multiscan technology Supports resolutions up to 1024x768 @ 80Hz

Canon BJC-4550 Color Bubblejet!

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

MGA Millenium

High resolution at high speed!

A 64-bit PCI PowerMac graphics accelerator for 3D design, multimedia, publishing, and business applications.

matrox

FROM \$199

Call for details!

Miramar PC MACLAN for Windows 95

Mac and Windows 95 operating systems become one powerful resource, allowing you and your co-workers to share files, printers, drives, and other resources bi-directionally.

JUST \$169⁹⁵

NEW!

HP LaserJet 6MP Printer!

The Perfect Gift - A New HP LaserJet its no-nonsense 80ppm printing is 33 percent faster than its predecessor the HP LaserJet MP

ONLY \$959

hp HEWLETT PACKARD

Connectix Color QuickCam

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!

FREE!

\$179⁹⁵

*After \$30 Rebate

Kodak DC40 Digital Camera

No need for a scanner and complex input procedures—just point, shoot, and connect to add your own instant images to documents. Crisp, clean 756 x 504 pixel resolution.

ONLY \$599

HOT!

JBL Ensemble Speaker Set

Delivering great imaging and home theater sound, these advanced satellite speakers boast a 3 1/2" woofer, 3/4" dome tweeter, and a separate 20 watt stereo amplifier.

ONLY \$299⁹⁵

EXCLUSIVE!

120W SPEAKERS

MacIntax/Quicken Deluxe Early Bird Bundle-Buy Now and Save! Over 30 IRS publications on screen. Call for details.

ONLY \$59⁹⁵

SAVE!

Microspeed KidTRAC

Get a FREE Mr. Potato Head Saves Veggie Valley with purchase of KidTRAC.

ONLY \$69⁹⁵

FREE!

Extensis CyberPress

Give your Quark creations greater exposure—take them to the Internet with CyberPress.

FREE PAGEMILL 2.0!

ONLY \$139⁹⁵

Microsoft Office Bundle

Get the Office suite for the Macintosh that works for small businesses! The integrated applications give you the tools you need to plan, analyze, report, and present.

ONLY \$269⁹⁵

BUSINESS BUNDLE!

Claris Home Page

Claris Home Page is the essential Web page authoring tool that lets you design and develop powerful, customized Web pages in minutes—without learning HTML programming. Buy Version 1.0 today, get FREE Version 2.0 upgrade off the Web as soon as it is available!

ONLY \$59⁹⁵

FREE VERSION 2.0 UPGRADE

Adobe Photoshop 4.0

World Class Imaging for print, multimedia and the Web. NEW Navigator Palette. NEW Guides and Grids.

ONLY \$128⁹⁵

Version Upgrade

Adobe PageMaker 6.5

Now create document-wide layers. The interface looks and feels like Photoshop and Illustrator.

UPGRADE! \$99⁹⁵

LOW PRICE!

"Best Mail-Order Company!"



PC Connection was awarded "Best All Around Company" for the second year in a row by The Boston Computer Society!



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 603-446-7781 M-F 9 a.m.-5:30 p.m. ET.

©1996 PC Connection, Inc., Marlow, NH. MacConnection & the racoon 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)

SERVICE • SAVINGS • SELECTION!

- FREE Technical Support
- FREE System Customization
- More Hot New Products
- More Systems
- FREE Memory Installation
- FREE Catalog Subscriptions
- More Bundles
- Save Up To 60% Off Retail

SAVE
ask about...
**LEASING
OPTIONS**
for BUSINESS
CALL FOR DETAILS

HOTTEST DEALS
ON APPLE® PERFORMAS,
POWER MACS & POWERBOOKS!

SuperMac S900L

UMAX
The Magic of Color

UMAX C500L

- 180MHz PowerPC 604e
- Dual processor capable
- 32MB RAM/1GB max.
- IMS TwinTurbo 128M card w/4MB VRAM
- 2.1GB Hard Drive
- 8X CD-ROM
- keyboard & mouse

- 160MHz 603e
- 16MB RAM
- 1.2GB HD
- 8X CD-ROM
- 28.8 Faxmodem

FREE
UTILITIES
Software!

LEASE FOR
ONLY \$124.99
PER MONTH

LEASE FOR
ONLY \$1299
PER MONTH

BEST PRICES ON POWERBOOKS!

YOUR #1 SOURCE FOR MOBILE COMPUTING SOLUTIONS!



**THE
BEST
PRICES
ON
MACS!**
CALL US FIRST!
800-800-MACs

MOTOROLA STARMAX 3000

- 160MHz 603e
- 16MB RAM
- 1.2GB HD
- 28.8 Faxmodem

NEW!
AS LOW AS \$1499
LEASE FOR
\$52.99
PER MONTH

FREE!
**MEMORY
INSTALLATION!**

SUPER LOW SIMMS!

4MB	8MB	16MB	32MB
as low as \$29.95	as low as \$59.95	as low as \$139.95	as low as \$259.95

1MB SIMMS
as low as
\$19.95
1107

Purchase a computer & memory upgrade together and we'll install your new memory upgrade at no extra charge!

PowerPort PC Card

Powerful simple communications for PowerBook 190, 500, or 5300 computers. Award-Winning GlobalFax, GlobalFax OCR and PC Card enhancement software.

NEW LOW PRICE!
ONLY \$349.95

PDC-2000 DIGITAL CAMERA



NEW!
ONLY \$3499
35399

A million pixels per picture. Digital pictures you can actually see. Professional quality output with a single click. Three models to meet your photographic needs.

FREE!

**CATALOG
SUBSCRIPTION!
CALL
TODAY!**

☐ MacConnection ☐ PC Connection
Please check the catalog(s) you wish to receive
Name _____
Address _____ Apt _____
City _____ State _____ Zip _____



MacConnection®

MACUSER 297MU

800-800-3956

Order as late
as 3 a.m. ET
and still get
Overnight Delivery!

FAX US AT:
603-446-7791



Monitors-Best Prices

Apple 1705 17"	699
Apple 20" Refurb 90day Warranty	1379
Mitsubishi Diamond Pro 91TXM	1699
NEC M500 15"	489
Magnavox 14" Monochrome	139
Magnavox 14" Color	269
Magnavox 17" Color	629
Portrait Display Labs 17" 28mm	859
Panasonic S17 17"	649
RasterOps Mc 21	2099
Sony SFL 20"	1749
ViewSonic 17EA	639
ViewSonic G810 21"	1539



Graphics Cards

ATI Xclaim VR 2mb PCI	249
IMS 128M8 8MB PCI	699
Radius Thunder 30/1152	669
Radius Thunder 30/1600	899
Thunder IV GX 1600 Nubus	799
Thunder 24/GT Nubus	479

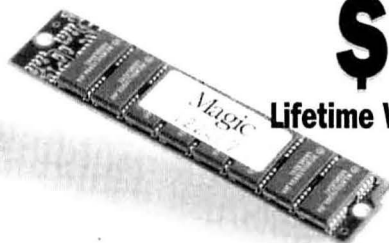
Scanners

Agfa StudioStar 600x1200	995	Microtek ScanMaker E3	319
Agfa SnapScan 24-bit	339	Polaroid Sprintscan ES	1659
Agfa DuoScan *Available*	4899	Polaroid Sprintscan Plus	2189
Agfa Arcus II	1899	Umax Gemini w/full Photoshop	1449
Epson ES-1000c	619	Umax PowerLook II w/ full	1949
HP ScanJet 4P LE	519	Umax PowerLook II LE	1799
HP ScanJet 4C LE	879	Vista S6E w/PhotoDeluxe	329
Microtek ScanMaker III	1429	Vista S12 w/full Photoshop	779
Microtek ScanMaker E6	575	Visioneer PaperPort VX	279

16 MB DIMM

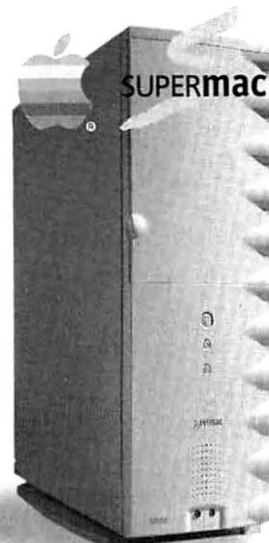
\$97

Lifetime Warranty



SuperMac S900L/200Mhz

\$3689



Motorola System	Call
Umax C500L/160Mhz	1299*
Umax C600L/200Mhz	1899
Umax C600L/240Mhz	2239
Umax S900L/180Mhz Dual	4569
Umax S900L/200Mhz	3699
Umax S900L/225Mhz*Now Shipping*	4159
Daystar Systems	Call
Performa 6400/200 16/2.4/8xCD	2179
7200/120 16/1.2GB/8xCD	1589
7200/120 16/1.2GB/8xCD w/DOS	2199
7600/132 16/1GB/8xCD	2259
7600/120 16/1GB/8xCD	2099
8500/150 16/2.0GB/CD	2799
8500/180 32/2.0GB/8xCD	3779
9500/132 16/2.0GB/CD	2999
9500/200 32/2.0GB/8xCD	4516
9500/180 Dual 32/2.0/8xCD	5449
Powerbook 1400C 16/1.0/CD	3499
Powerbook 1400C 16/1.0/CD	3449

*\$50.00 end user rebate good thru 12-31-96

Leasing
Take an additional
5% off on any
Macintosh/Compatible
System when you lease
from Bottomline.

Memory

All memory backed by a lifetime warranty.
Please call for current pricing.

DIMMs

8MB DIMM	49
16MB DIMM	97
32MB DIMM	179
64MB DIMM	359

72 PIN SIMMS

4MB SIMM	28
8MB SIMM	49
16MB SIMM	95
32MB SIMM	199

30 PIN SIMMS

1/2MB SIMM	11/35
4/16MB SIMM	39/179

POWERBOOK 5300/190

16MB Module	179
24MB Module	259
32MB Module	299
48MB Module	459

POWERBOOK 500 SERIES

16MB Module	169
32MB Module	279
167MHz 603e Upgrade	659

VIDEO RAM / CACHE CARDS

PCI 1Mb VRAM Dimm	39
256K Cache 61/71/8100	33
256K Cache Dimm	79
512K Cache Dimm	159

CalComp Graphics Tablet 4x5 \$95

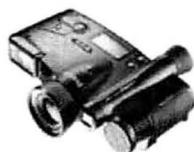
With Cordless
Pen and
Overlay



Let's Get Digital

DIGITAL CAMERAS

Kodak DC25	459
Kodak DC40	539
Kodak DC50	799
Agfa EPhoto	529
Olympus D-200L	595
Epson PhotoPC	389
Casio QV-10A/QV-100	395/635
Polaroid PDC-2000	3399
Video Labs Flexcam	359
Chinon ES-3000	899



**Polaroid
PDC-2000 Camera
\$3399**

DIGITAL VIDEO

MiroMotion DC20 PCI	629
Bravado 1000 PCI	679
Radius VideoVision PCI	3599
Radius VideoVision Nubus	1299
Targa 2000 PCI	2999

230 optical disk

from \$15



44mb/88mb Cart from	34/39
200/270Mb Squest from	49/54
540MB Cart from	49
EZ135/EZ230MB Cart from	20/29
Zip/Jaz Cart from	12/99

128/230Mb Optical from	13/15
256Mb Optical Cartridge	59
1.3gb Optical Cartridge	69
CD Recordable Media from	7.59

Get Connected



**Teleport
Platinum
33.6kbps
Best Price
\$169**

Supra Express 33.6kbps v.34	129
SupraSonic 33.6kbps v.34	269
SAGEM ISDN Geoprot Adapter	369
SAGEM ISDN PCI/Nubus Card	539
NetLink PCMCIA 33.6 kbps v.34	159
US Robotics Sportster 33.6	166
US Robotics Sportster 33.6kbps w/Voice	199
GV Powerport Platinum Pro PC Card	489
GV Powerport Platinum PC Card	325
Hayes Accura 33.6	169

Zip Mega Kit

\$279* After rebates

- Includes:
- 1 Zip Drive w/1 cart
- 10 Pack Zip 100mb Disks
- 1 Disk Caddy
- 1 Nylon Carrying Bag



Storage

EZ135 Removable	123
EZFlyer 230/135MB	289
Nomai 540MB Removable	289
Fujitsu 640MB Optical	599
Fujitsu 230MO5300/190	389
Vertex 2.6GB	1569.00

Specials

Umax 150Mhz Processor Card	399
MacPicasso 320 Nubus 24bit	349
MCI 24bit LC/PDS	249
10Base-T Transceiver	29
Calcomp 6x9 Graphics Tablet	209
Calcomp 12x12 Graphics Tablet	234
Wacom 12x12 Graphics Tablet	429
VST 230 Optical for PB5300/190	369
DGR 105-Key Ext. Keyboard	49
Ultrastar 2.16GB Int. SCSI-2	379
Ultrastar 2.16GB Ext. SCSI-2	459
Princeton Graphics 70F 17"	539
Imega Jaz Internal	385
Epson Stylus Color Pro	379
Newton 130	689
IMS M2P2 2MB VRAM	159
PhotoShop v4.0	589

BOTTOM LINE
DISTRIBUTION

1-800-990-5793

512-892-4070 • Fax: 512-892-4455 Hours: M-F 9-9 | Sat 9-4

CIRCLE 19 ON READER SERVICE CARD

Shipping: \$5, 5 lbs., 2 Days Payment: No surcharge on credit cards. 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 the international Macintosh user. We offer discounted rates with DHL. Delivery to most countries is 2 to 3 days. Dealer inquiries are welcome. Language interpreters available. Address: 4544 S. Lamar Blvd., #100, Austin, TX 78745



your **Macintosh®** catalog SuperStore™

Serving Mac users since 1986

Introducing the Pippin™ @WORLD!®

**Mac Zone
Exclusive!**

New



TV not
included.

▲ Optional Keyboard/
Drawing Tablet

▲ Included ergonomic
controller

▲ Pippin
@WORLD unit

- 66MHz PowerPC™ 603 processor
- 5MB RAM, 1MB VRAM
- 4X CD-ROM drive

AN AMAZING
\$499⁹⁸*

Order #81517

**Connect to the
Internet and More
...without an
Expensive Computer!**

You'll be able to...

1. Explore and harness the World Wide Web!

- Unlimited use access to informative and eye-popping Web sites - only \$19.95 per month
- Parental control with FREE SurfWatch included

2. E-mail family and friends

- Eight separate and secure e-mail accounts and FREE online storage

3. Learn AND play with interactive multimedia on CDs

- Audio support - play your favorite music CDs

4. Create, print and save colorful, impressive documents

- Word processing, graphic design and drawing
- Either save your documents to online storage or print them with your own printer

**Get started immediately with a
dynamic software package:**

- @WORLD Internet Browser - the easiest way to surf the Web on your TV
- TV Works - word processing, drawing and e-mail
- Call for a complete list of exciting Pippin-compatible software titles on CD

Pippin™ @WORLD Internet/Multimedia Center

If you can hook up a VCR, plug in a phone cord and load a CD, you can use Pippin @WORLD - it's that easy. Pippin @WORLD, developed jointly by Bandai Digital Entertainment and Apple Computer, is a state-of-the-art Internet/multimedia device designed specifically for your TV or VGA monitor. It brings the world of the Internet and multimedia into your family room for hours of learning, entertainment, communication, productivity and more. Best of all, it costs hundreds of dollars less than a conventional multimedia computer. So, what are you waiting for? Talk to a friendly Mac Zone Sales Advisor right now about Pippin @WORLD, and bring a whole new world into your family room!

Pippin @WORLD's features:

- Vivid 8- and 16-bit color video output to TV or VGA
- 16-bit stereo audio input and output for rich, full stereo sound
- Two ADB-compatible ports for use with Apple® joysticks, keyboards, etc.
- Full-featured Motorola 28.8 External Modem for reliable, high-speed connectivity
- Comfortable, functional, ergonomic 3-button controller
- Familiar, easy-to-use, Mac® OS-based Pippin™ interface
- Optional Pippin keyboard and integrated pen-based drawing tablet (sold separately) - easy data input for word processing and e-mail

#80860 Pippin Keyboard/Pen-based Tablet.....\$69.98

*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 configuration information.



**Before you buy,
call The Mac Zone**

1-800-436-8000



your **Macintosh**[®] catalog **SuperStore**[™]

Serving Mac users since 1986



Only
\$399⁹⁸
A#84137
Was \$499⁹⁸

Hewlett-Packard DeskJet 855CXI Refurbished Printer

- Sharp 600x600 dpi B&W, 600x300 dpi color resolution
- Speedy 6 ppm B&W, 1.5 ppm color printing
- 1MB memory, 16.7 million colors, 150-sheet capacity



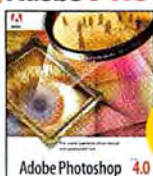
Only
\$89⁹⁸
#83068

NEW!

Adobe PageMaker 6.5 Version Upgrade

New breakthrough
page layout features!

Adobe Photoshop 4.0 Upgrade



Only
\$134⁹⁸
#83084

Batch-process files
with a single click!

New features improve
productivity!



Macromedia FreeHand 7 Version Upgrade

Only
\$148⁹⁸
#84242

Extend the
creative
power of
FreeHand to the Web!

UNLIMITED PORTABLE STORAGE



Only
\$149^{98*}
#91825

Zip™ Drive

- 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 1/31/97.



AGFA Arcus II Scanner

The best scanner you
can put on your desktop!

Only
\$199⁵
#02135

AGFA

1500 15" Color Monitor w/Mac Adapter

Only
\$299⁹⁸
#84145

Great for all your
business, education
and home applications!



13.6" viewable
image size



MacInTax Deluxe Final 96/ Quicken Deluxe 7 Bundle

\$30 REBATE!

Mac Zone Price **\$89⁹⁸**
Mfr. Mail-in Rebate **-\$30⁰⁰**
Your Price After Rebate **\$59⁹⁸**
Order #06188



Only
\$499⁹⁸
#25659

Jaz 1GB External Drive

- 5.53MB/second transfer rate and 17ms access time
- Includes 1GB cartridge!

Global Village TelePort Internet Edition 33.6 Kbps Fax/ modem



Only
\$169⁹⁸
#82575

Fast and powerful
Internet
communications!



Only
\$599^{98*}
#38728

Panasonic PM17 Multimedia Monitor

*With purchase of any computer.
Low Mac Zone price \$679.98

16.0" viewable image size

Polaroid PhotoPad Bundle PhotoPad Scanner, OneStep Camera and 600 Film



Only
\$189^{98*}
#82100

*After \$60 Mfr. Mail-in Rebate. Low Mac Zone price \$249.98.



**10X
Speed
CD-ROM**
Only
\$219⁹⁸
#83437

External Drive
Top speed,
top performance!

ADD MEMORY

BOOST YOUR MAC'S PERFORMANCE!

16MB KIT

Only
\$99⁹⁸
#38362

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**

Full Line of Apple® Macintosh® Computers



✓ 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



AS LOW AS
\$1495

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



Power Computing

*Prices and configurations subject to change without notice.
Ask your Sales Advisor to confirm your order.

**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	Korea	Spain
Chile	Malaysia	Switzerland
Colombia	Mexico	UAE/Middle East
France	New Zealand	United Kingdom
Germany		Venezuela
Hong Kong		

Your Source Code
MU702

Circle 135 on the reader service card

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
#90935	S900L 200MHz, 32MB/2.1GB, 8X CD-ROM, IMS	\$3795
#90936	S900L 180MHz, 32MB/2.1GB, 8X CD-ROM, IMS	\$3995
#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.



AS LOW AS
\$1599

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	\$1599
#81522	3000 603e, 160MHz, 32/2.5GB, 8xCD, 28.8, Minitower	\$1899
#81523	3000 603e, 200MHz, 16/1.2GB, 8xCD, 28.8, Desktop	\$1999
#81524	3000 603e, 200MHz, 32/2.5GB, 8xCD, 28.8, Minitower	\$2199
#81525	4000 603e, 160MHz, 16/1.2GB, 8xCD, 28.8, Desktop	\$2299
#81526	4000 603e, 160MHz, 32/2.5GB, 8xCD, 28.8, Minitower	\$2499
#81527	4000 603e, 200MHz, 16/1.2GB, 8xCD, 28.8, Desktop	\$2699
#81528	4000 603e, 200MHz, 32/2.5GB, 8xCD, 28.8, Minitower	\$2899

Sleepless in Seattle...

You bet! We're
here 24 hours a
day, 7 days a
week to serve
you when you
need us.

1-800-436-8000

Call Today for Your **FREE CATALOG!**

YES! START MY FREE 1-YEAR CATALOG SUBSCRIPTION ASAP!

☐ MAC ZONE ☐ PC ZONE

Name
Address
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
MU702



SIZZLIN' HOT PRICES

WITH A NORTHWEST FLAVOR

FROM "THE LLB CO."



1.800.848.8967

Fax: 206.746.5168

DRIVES +

MEDIA

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 70NS ...	349

PB 150

4MB/8MB ...	\$55/90
12MB/20MB ..	218/280
28MB	390

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
PINNACLE MICRO RECORDABLE ..	1295
PMO TAHOE 230MB OPTICAL DR ..	695
PINNACLE VERTEX 2.6GB M.O	1619

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 Cartridge	22
230MB 3 Pack MO 3.5	55
230MB Mac Format 3 Pack	52
600MB/521 MO Cartridge	52
650MB/1024 MO Cartridge	52
1.2GB/512 MO Cartridge	59
1.3GB/1024 MO Cartridge	59
2.6GB/1024 MO Cartridge	86
3.5 MO Disk 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

VISIONEER

PAPERPORT VX FOR MAC	\$295
PAPERPORT VX SCSI ADAPTER	65

POLAROID

PLD 621343/619111 SPRINTSCAN 35 LE/ES ..	\$979/155
PLD 621659/621035 SPRINTSCAN 35+/45 ..	2015/752

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!

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

• **Founded in 1990, The LLB Co. Inc.** is acknowledged by our customers 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

PB DUO 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-Slimpack Ext. Battery PB100-180c ..	145
VSTCI001-VST Thinpack Complete	115

PB5300 Series

VSTBAT5000-VST PB190/5300 Battery NiMH ..	\$163
VSTBAT5300-VST PB5300 Bat/Chrg/AC Adptr ..	329
PB1522-Apple AC Adapter	59
PB1519-NiMH Internal Battery PB5300	189
PB1520-Supercharger Bat/Chrg PB5300	95
PB15210 Supercharger Bat/Chrg 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
APUM2995LL/C-Apl PCMCIA Exp.	215
APUM3081LL/A-Apl PB500 Power PC Upgd. ..	1229

VIDEO CARDS

IMS	
TWIN TURBO 128M PCI 2MB V	\$370
TWIN TURBO 128M PCI 4MB V	\$69
TWIN TURBO 128M PCI 8MB V	\$95

TRUE VISION	
TV 281733 - TARGA 1000 PCI FOR MAC	\$2459
TV 281732 - TARGA 2000 PCI FOR MAC	\$4165
TV 281749 - 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	
#R02562 - VIDEO TIME	\$415
#R02566 - 24MXTV	\$1689
#R02618 - PAINTBOARD II	\$759
#R02678 - HORIZON 24	\$1655
#R02685 - LIGHTNING NUBUS	\$745
#R02722 - PAINTBOARD PRIS	\$995

ACCESSORIES

FPU*	
CENTRIX FPU 25 MHz	\$189
DUO/P600 FPU 33 MHz	\$2
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	\$82
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/IIX60	
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

16MB 70NS	\$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 Bnd	\$75
#USR 719119 Sportster 28.8 V.34 Voice	\$205
#USR 719113 Sportster V.34 PCCard	\$215

Megahertz

#MHZ XJA2288 Cruise 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

APS TECHNOLOGIES: HIGH-TECH 2 GIG FOR ONLY



**NEW
LOWER PRICE!**

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.

JUST THE RIGHT CAPACITY!

APS Q 3200

- ✓ 3GB for the price of 2GB
- ✓ Works on SCSI-2 and Ultra SCSI buses
- ✓ 4500 rpm mechanism



Only \$499⁹⁵ internal

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

- ✓ High areal density and PRML read channel
- ✓ Works on SCSI-2 and Ultra SCSI buses



Quantum[®]
Only \$249⁹⁵ internal

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.



\$399⁹⁵
External configuration

APS Q 2100

Only \$349⁹⁵ internal

- ✓ 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.



APS M-POWER 603e160[™]

- ✓ 160MHz Motorola[®] PowerPC 603e processor
- ✓ 1.2GB hard drive
- ✓ 10X CD-ROM
- ✓ 16MB of RAM



APS M-POWER 603e200[™]

- ✓ 200MHz Motorola[®] PowerPC 603e processor
- ✓ 1.2GB hard drive
- ✓ 10X CD-ROM
- ✓ 16MB of RAM & 256K L2 Cache

\$1399⁹⁵

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

\$1599⁹⁵

*Monitors are not included.

APS DESKTOP DRIVES

Model	Capacity/Awards	Internal	SR2000
APS Q 1280	1222MB	\$249 ⁹⁵	\$299 ⁹⁵
Quantum Fireball TM			
APS Q 2100	2000MB	349 ⁹⁵	399 ⁹⁵
Quantum Fireball TM			
APS Q 3200	3000MB	499 ⁹⁵	549 ⁹⁵
Quantum Fireball TM			

- 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/Awards	Internal	SR2000
APS I 2160	2063MB	\$399 ⁹⁵	\$449 ⁹⁵
IBM Ultrastar ES			
APS Q 4300	4200MB	899 ⁹⁵	949 ⁹⁵
Quantum Atlas II	7200 rpm		
APS MS 4300	4240MB	999 ⁹⁵	1049 ⁹⁵
Micropolis 4345	7200 rpm		



These products are performance-matched for optimal performance in the PowerPC environment.



**CALL FOR YOUR
FREE
Winter 1996
CATALOG**

APS HIGH-PERFORMANCE DRIVES

Model	Capacity/Awards	Internal	Full height
APS Q 9000	8682MB	\$1499 ⁹⁵	\$1549 ⁹⁵
Quantum Atlas II	7200 rpm		
APS MS 9000	8669MB	1899 ⁹⁵	1949 ⁹⁵
Micropolis 3391	7200 rpm		

Fast/Wide available for an additional \$100.00

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

\$299⁹⁵

106428



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
- ✓ 2.5GB hard drive
- ✓ 10X CD-ROM
- ✓ 24MB of RAM



- 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
 - 24MB RAM
 - 2.5GB HD
 - Floppy Drive
 - 2MB VRAM
 - 512K L2 Cache
 - ADB Keyboard & Mouse
 - One-Year Limited Warranty
 - Mini-Tower Case



*Monitors are not included.

1GB REMOVABLE! APS Jaz

- ✓ 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?



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

*Only with the purchase of an Olympus 230MO media 5-Pack at \$49.95, total price \$349.95

BEST VALUE IN MO!

\$299.95*
External configuration
SR 1000 enclosure as pictured

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.

STEAL THIS 8X CD-ROM DRIVE! APS CD8 8X

- ✓ High performance 8X CD-ROM drive
- ✓ Great for home and office CD-ROM use

\$179.95
External configuration
Slimline case*

Smooth full-screen video output, the 8X performance of the APS CD8 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 DaTerm™



Introducing IC'E, the industry's hottest (and coolest) enclosure cooling technology.

A radical new concept in drive mechanism climate control, APS exclusive IC'E system uses digital technology to sense heat build-up around the drive mechanism. Applying that information, IC'E 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 IC'E 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™	8GB **** Travan 4 Conner QIC 3095 Mech.	*** N/A	\$449.95
APS ProDAT®	4GB DDS-2 Non Compression Mech.		\$649.95 699.95
APS HyperDAT® Pro8GB	8GB DDS-2 High Speed Mech.		\$949.95 999.95

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		1799.95

*Only with the purchase of an Olympus 230MO media 5-Pack at \$49.95, total price \$349.95

APS REMOVABLE DRIVES

Model	Capacity/Awards	SR 1000	SR 2000
M540 (with 1 cartridge)	500MB	N/A	\$299.95
APS M540 (with 4 cartridges)		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	\$329.95
106635	8MB	449.95

APS CD-ROM DRIVES

Model	External
APS CD8 8X CD-ROM in Slimline case	\$179.95
APS CD8 Pro 8X CD-ROM in SR 2000 case	299.95
APS CD Changer 8X 4 Disc CD changer	499.95
APS CD-R Plus 2X record/4X read CD-R	699.95
APS CD-R Pro 4X4 performance CD-R	1299.95
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. MacPower, 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.



Call 800-289-5385

Visit our Web Page at <http://www.apstech.com/>
International Sales: (816) 920-4109

CIRCLE 148 ON READER SERVICE CARD



FEBRUARY 1997 / MacUser 153

CALL CLUBMAC FIRST!

REMOVABLE STORAGE



Zip 100MB Drive



\$199⁹⁵
- \$50⁰⁰
\$149⁹⁵

Includes One Free Cartridge

Includes One Free Cartridge

Jaz 1.0GB Drive



\$499⁹⁵

1GB drive
jaz



ClubMac 200MB SyQuest



\$389⁹⁵

C104 1801	ClubMac 200MB 5.25" Removable	\$389 ⁹⁵
S198 2002	SyQuest EZ Flyer 230MB Removable	\$299
C104 2500	ClubMac Nomai 540MB Removable	\$299

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 2010	EZ135MB	\$24.95ea	\$23.95ea	\$23ea
S198 2011	EZ230MB	\$30ea	\$29.50ea	\$29ea
N220 1005	Nomai 540MB Media		\$29.50ea	\$29ea

HARD DRIVE STORAGE



\$269

C104 0015



\$989

Atlas II
C104 0022



2.1GB

2.1GB UltraStar SCSI drive from IBM. With great performance and ClubMac's Low Pricing, the UltraStar is a Great Buy.

\$379

C104 1001

512K BUFFER
5400 RPM

Model Number	Access	Internal Price	External Price
IBM 2.1GB IBM QUANTUM 1280MB Tempest	10.5ms	C104 0015 \$269	C104 0065 \$329
2150MB Tempest	10.5ms	C104 0013 \$339	C104 0063 \$399
3255MB Tempest	10.5ms	C104 0014 \$469	C104 0064 \$529
4550MB Atlas II	8ms	C104 0021 \$989	C104 0071 \$1049
9180MB Atlas II	8ms	C104 0022 \$1699	C104 0072 \$1759
SEAGATE 2.1GB Barracuda 2LP	8ms	C104 0300 \$749	C104 0350 \$809
2.1GB Barracuda 4LP	8.5ms	C104 0308 \$789	C104 0358 \$849
4.3GB Barracuda 4LP	8.5ms	C104 0306 \$1169	C104 0356 \$1229
9.1GB Barracuda 9	8ms	C104 0307 \$2299	C104 0357 \$2359
9.1GB Elite 9	11ms	C104 0305 \$2099	C104 0355 \$2199

CD-ROM DRIVES



CLUBMAC C104 1760	ClubMac 10X-Speed CD-ROM Drive 140ms 1500k/sec	\$229
C104 1700	ClubMac 4.4X-Speed CD-ROM Drive 140ms 675k/sec	\$129
C104 1730	ClubMac Nakamichi 4 disk 8X-Speed CD disk changer 140ms 676k/sec	\$399

CD RECORDABLE



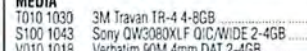
\$999

CD Recorder 4X

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



\$879

DDS-2 DAT Drive

C104 0901	2-4GB SCSI QIC MiniCartridge Drive	\$429
C104 1303	4-8GB DDS-2 DAT Drive	\$879
C104 1302	4-8GB Performance DAT Drive	\$999

REMOVABLE STORAGE



\$299

ClubMac Nomai 540MB Includes One 540MB Cartridge

MEMORY



ClubMac Slashes Memory Prices

Guaranteed Compatibility
Memory prices fluctuate frequently, please call for latest prices.

memory as low as **\$20**

32-Bit 72pin SIMMS

M101 1031	4MB 1X32 70NS	\$39
M101 1054	8MB 2X32 70NS	\$69
M101 1072	16MB 4X32 70NS	\$149
M101 1070	32MB 8X32 70NS	\$285

8-Bit 30pin SIMMS

M101 1017	1MB 1X8 70NS	\$22
M101 1026	2MB 2X8 70NS	\$25
M101 1042	4MB 4X8 70NS	\$55

64-Bit 168pin DIMMS

M101 1080	4MB DIMM Module	\$65
M101 1081	8MB DIMM Module	\$75
M101 1082	16MB DIMM Module	\$139
M101 1083	32MB DIMM Module	\$285
M101 1084	64MB DIMM Module	\$575

PowerBook 2300

M101 2004	8MB Module	\$125
M101 2006	16MB Module	\$239
M101 2008	24MB Module	\$349

PowerBook 190

M101 1088	4MB Module	\$65
M101 1089	8MB Module	\$125
M101 2000	16MB Module	\$195
M101 2001	24MB Module	\$315
M101 2002	32MB Module	\$375

PowerBook 520, 520C, 540, 540C

M101 1037	4MB Module	\$95
M101 1059	8MB Module	\$125
M101 1007	16MB Module	\$215
M101 1029	32MB Module	\$375

Video RAM

M101 1085	2MB VRAM for ATI XC/aim GA	\$149
M101 1047	512K VRAM 8100 & 605	\$30
M101 1086	1MB VRAM 7200, 7500, 7500, 8500	\$65

Cache Memory for PowerMacs & PowerPC Performas

M101 1019	256K level 2 cache 7100, 8100	\$85
M101 1045	512K level 2 cache 7100, 8100	\$285
M101 1087	256K 7200, 7500, 7600, 8500	\$75
M101 1088	512K 7200, 7500, 7600, 8500	\$165

ACCELERATORS



\$1499

DAYSTAR D040 1059 nPower 360+

Performa, Quadra, 605 & 630, LC 470, 570 & 580	\$1499
D040 1057 100MHz PowerCard 601	\$969
Mac II, IIX, IICX, IISI, IIVI, IIVX, SE/30 & Performa 600	\$655
D040 1048 40/80 Turbo 040 with 128 cache	\$129
D040 0446 Mac IICX Adapter Turbo 040	\$950
Quadra and Centrals 620, 650, 700, 800, 900, and 950	\$1199
D040 1043 100MHz PowerPro 601 with 1MB cache	\$105
D040 1053 100MHz PowerPro Adapter (610 only)	\$1139
D040 1048 100MHz Turbo 601 (IICX)	\$1139
D040 1050 100MHz Turbo 601 (IISI)	\$1139

POWER BACKUP



\$89

APC A080 1027 Back-UPS 200 2 outlets

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 450 450VA UPS 4 outlets	\$299
A080 1047 Back-UPS Pro 1000 1000VA UPS 4 outlets	\$389
A080 1048 Back-UPS Pro 1400 1400VA UPS 6 outlets	\$525



WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. WORLD BACK GUARANTEE: All products manufactured by ClubMac carry a 30-day money back guarantee. ClubMac extends to other manufacturers' return policies to its customers. Non-ClubMac products carry 30-day money back guarantee when specified. RETURN: Call for return number. Any product that is returned WITHOUT a return number will be rejected. ALL PRODUCTS 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

FANTASTIC PRICES!

GREAT PRODUCTS!

HUGE SELECTION!

THE BEST SERVICE!

GRAPHIC CARDS

radius
High performance
PCI for your Mac
R013 1071



\$699

RADIUS		
R013 1012	Precision Color Pro 24XPC (Nubus)	\$299
R013 1081	ThunderPower 30/1600 (PCI)	\$1299
R013 1071	Thunder 30/1600 (PCI)	\$699
R013 1085	Thunder 3D (PCI)	\$3649
R013 1069	PrecisionColor 8/1600 (PCI)	\$349
R013 1082	PrecisionColor 24/1600 (PCI)	\$449
ATI		
A143 1010	XCclaimGA 2MB PCI video card	\$245
A143 1009	XCclaimGA 4MB PCI video card	\$345
A143 1012	2MB VRAM upgrade for XCclaimGA	\$235
INTEGRATED MICRO SOLUTIONS		
I143 1002	Twin Turbo 128MB 2MB PCI	\$299
I143 1001	Twin Turbo 128MB 4MB PCI	\$499
I143 1003	Twin Turbo 128MB 8MB PCI	\$799
RASTEROPS		
R053 1038	Opticolor 128 8MB PCI	\$1199

NETWORKING

ASANTE		
A120 1010	10BaseT FriendlyNet Adapter FN10TA	\$29.95
A120 1011	Thin FriendlyNet Adapter FN1TNA	\$44.95
A120 1041	Thin FriendlyNet Adapter FN1NC	\$44.95
A120 1009	10BaseT/Thin FriendlyNet Adapter FN10T/TL	\$79.95
A120 1083	10/100 PCI Card w/Net Doubler	\$198
A120 1084	10/100 Nubus Card w/Net Doubler	\$279
A120 1078	ASANTEFAST 10/100 Bridge	\$889
A120 1081	FriendlyNet PC Card 10BT	\$159
A120 1082	FriendlyNet PC Card 10BT/Thin (for PowerBook)	\$169
A120 1039	Thin/0BaseT Micro SCSI Ether. Micro EN/SC	\$265
A120 1001	10BaseT Hub 12 RJ45, 1 AU, 1 BNC 10THUB/12	\$235
A120 1003	10BaseT Hub 8 RJ45, 1 AU, 1 BNC 10THUB/8	\$129
A120 1050	10BaseT Hub 24 RJ45, 1 AU, 10THUB/24	\$379
DAYNA		
D300 1013	MiniHub 5.5 RJ45, 1 cross-over	\$89
D300 1029	MiniHub 8 RJ45, 1 cross-over	\$119
D300 1057	Hub 16 16 RJ45, 1 BNC, 1 AU	\$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 1046	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 Ethernet LC 10BT	\$149
F010 1055	Farallon Streamline Starlet 16 Hub	\$239
F010 1057	Farallon ISDN Internet Router w/Appletalk	\$1099

DIGITIZING TABLETS

WACOM ARTZ II 6" x 8" 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	DrawingSlide II 4x5 w/Dabbler	\$99
C290 1002	DrawingSlide II 6x9	\$205
C290 1001	DrawingSlide II 12x12	\$229
C290 1004	DrawingSlide II 12x18	\$299

MONITORS

radius
PrecisionView
21 Display



\$2349

RADIUS		
R016 1031	PrecisionView 17SR 17", 1600x1200	\$1999
R016 1032	PrecisionView 21 21", 1600x1200	\$2349
R016 1034	PrecisionView 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 1041	MC20M 20", Monochrome	\$749
R053 1036	MC21M 21", Monochrome	\$799
NEC		
N026 1031XV15 15", 1024x768		\$469
N026 1035M500 15", 1024x768		\$529
N026 1032XV17 17", 1024x768		\$779
N026 1037M700 17", 1024x768		\$799
SONY		
S106 1021 Multiscan 15SXII 15", 1024x768		\$389
S106 1024 Multiscan 1200SX 17", 1024x768		\$695
S106 1025 Multiscan 1200SX 17", 1152x870		\$795
VIEWSONIC		
V056 1017 15GA w/Speakers 1024x768 (14" viewable)		\$479
V056 1016 17GA w/Speakers 1024x768 (15" viewable)		\$755
V056 1024 P610 1600x1200 (20" viewable)		\$1699

PRINTERS

EPSON
Stylus COLOR Pro



\$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	\$499
H047 1077	HP LaserJet 6MP Printer	\$898

MODEMS

GLOBAL VILLAGE
TelePort
Internet Edition
33.6kbps



\$169

GLOBAL VILLAGE		
G050 1025	TelePort 33.6kbps data (Internet Ed.)	\$169
G050 1019	PowerPort Platinum PC Pro 28.8/10BT	\$499
NETSPED		
N020 1001	ClubMac NetSpeed 28.8 Modem	\$99
U.S. ROBOTICS		
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 500 for Mac & PC
w/optional LCD Display



\$499

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	\$299
K043 1001	Kodak DC40 Camera	\$599
K043 1002	Kodak DC50 Zoom Camera	\$999

MAC OS SYSTEMS

PowerComputing
PowerTowerPro™ 225



\$4995

PowerComputing		
P512 1021	PowerCenter 133LP 133MHz 16MB RAM 8K CD	\$1895
P512 1023	PowerCenter 150LP 150MHz 16MB RAM 8K CD	\$2095
P512 1006	PowerTower 166 166MHz 16MB RAM 8K CD 2MB VRAM	\$2895
P512 1005	PowerTower 180 180MHz 16MB RAM 8K CD 2MB VRAM	\$3295
P512 1004	PowerTower 200 200MHz 16MB RAM 8K CD 2MB VRAM	\$3595
P512 1003	PowerTowerPro 180 180MHz 16MB RAM 8K CD 2MB VRAM	\$4195
P512 1002	PowerTowerPro 200 200MHz 16MB RAM 8K CD 2MB VRAM	\$4495
P512 1001	PowerTowerPro 225 225MHz 16MB RAM 8K CD 2MB VRAM	\$4995

SOFTWARE

Adobe
Illustrator 6.0
Upgrade for
Adobe Illustrator 5.0



\$89.95

ADOBE		
A030 1003	Illustrator 6.0 CD upgrade	\$89.95
A030 1001	Photoshop 4.0 upgrade	\$139.95
A030 1060	PhotoDisk 1.0	\$79.95
A030 1015	PageMaker 6.0 upgrade	\$139.95
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
A109 1196	System 7.5.3 upgrade w/iK	\$44.95
CASADY & GREEN		
C049 1003	Control of Catcher 3.04 upgrade	\$38.95
C069 1008	Spool/Catcher	\$59.95
CLARIS		
C069 1002	FileMaker Pro 3.0 competitive upgrade	\$95.95
C069 1026	ClarisWorks 4.0 bundled w/CPU or Storage	\$59.95
C069 1037	Claris Emailer 1.1	\$44.95
C069 1036	Claris OfficeMail 1.0	\$275.95
CONNECTIX		
C149 1020	RAM Doubler 2	\$28.95
C149 1010	Speed Doubler	\$53.95
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
FRACAL		
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	Photographer 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		
M389 1021	Office Standard 4.21 upgrade CD or Disk	\$275.95
M389 1034	Word 6.0 1 upgrade	\$118.95
M389 1029	Excel 5.0 upgrade	\$118.95
M389 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 1051	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 (AIK)	\$45.95
CE SOFTWARE		
C209 1010	WebArranger	\$79.95
CLARIS		
C069 1039	Claris Home Page 1.0	\$99.00
SOFT QUAD		
S609 1001	HotMetal Pro 3.0	\$55.00

UMAX
Computer Corporation
SuperMac
C500L



\$1299

UMAX		
U012 1014	SuperMac C500L 133MHz 16MB RAM 8K CD	\$1299
U012 1007	SuperMac C500L 133MHz 16MB RAM 8K CD 2MB VRAM	\$1695
U012 1007	SuperMac C500L 200MHz 16MB RAM 8K CD 2MB VRAM	\$1995
U012 1007	SuperMac C500L 200MHz 16MB RAM 8K CD 2MB VRAM	\$2295
U012 1011	SuperMac J700L 166MHz 16MB RAM 8K CD 2MB VRAM	\$2795
U012 1017	SuperMac J700L 166MHz 16MB RAM 8K CD 2MB VRAM	\$3095
U012 1006	SuperMac S300L 166MHz 16MB RAM 8K CD 2MB VRAM	\$3595
U012 1007	SuperMac S300L 200MHz 16MB RAM 8K CD 2MB VRAM	\$3795
U012 1012	SuperMac S300L 200MHz 16MB RAM 8K CD 2MB VRAM	\$4295
U012 1010	SuperMac S300L 200MHz 16MB RAM 8K CD 2MB VRAM	\$4595

SCANNERS

VISIONEER
PaperPort Vx



\$279

AGFA		
A055 1022	Agfa SnapScan for MAC 600DPI 24-Bit	\$325
A055 1011	Agfa StudioStar IIS	\$649
A055 1015	Agfa StudioStar LE w/PhotoShop LE	\$825
A055 1017	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		
R060 1004	Reli380 30-bit w/trans adapt, Photoshop LE	\$699
Microtek		
M150 1006	Microtek Scanmaker III	\$1495
M150 1026	Microtek Scanmaker E3	\$329

DIGITAL VIDEO

radius
VideoVision
Studio 2.5.1



\$1599

RADIUS		
R013 1018	VideoVision Studio 2.5.1 (Nubus)	\$1599
R013 1079	VideoVision Studio 2.0 (PCI)	\$3795
TRUEVISION		
T043 1008	Bravado 1000 (PCI)	\$699
T043 1001	Targa 1000 (PCI)	\$2499
T040 1001	Targa 2000 (PCI)	\$3995

Call 1-800-258-2622

for a FREE subscription to the

ClubMac Catalog.

ClubMac
Lowest Prices Anywhere!



\$1299

Technical Support
(800) 854-6227
M - F: 6am - 6pm PST
Sat: 8am - 1pm PST

ClubMac E-Mail Addresses
ClubMac Sales: csmails@club-mac.com
Customer Service: custserv@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
680297

ClubMac

ProDirect

Service•Performance•Price... ALWAYS

800-524-9952

Fax 24 hours a day 612-941-1109
International orders call 612-844-0012

MW
EDITORS' CHOICE

90
DAY PERFORMANCE
GUARANTEE ON ALL
PRODIRECT DRIVES



BLINDING SPEED!

ULTRA AV 8.7GB

FAST & WIDE ULTRA SCSI 3

ONLY \$1755 Internal \$1855 External

*SUSTAINED TRANSFER RATE OF 11.5 MB/SECOND WITH ADAPTEC 2940UWM

*7.5MS SEEK *7200 RPM *512K CACHE BUFFER
* 5 YEAR WARRANTY (48 HOUR REPLACEMENT)

FREE!
SHIPPING ON ALL DOMESTIC
ORDERS



Internal
Configuration

INCREDIBLE AV VALUE!

ULTRA 4GB ONLY \$799

*7.5MS SEEK *7200 RPM *512K CACHE BUFFER * 5 YEAR WARRANTY

- IBM PATENTED MR HEAD TECHNOLOGY
- ADVANCED READ AHEAD CACHE BUFFER CONTROL
- OUR LOWEST PRICE 4 GB EVER (SPECIAL LIMITED TIME OFFER)

IBM

MICROPOLIS

9 GB **Ultrastar XP Wide 3.5"**
8.5ms Seek *512K Buffer
*7200 RPM *5 Year Warranty
Internal *2095

4.3 GB **Ultrastar XP Wide \$975 1035Ext**
8.5ms Seek *7200 RPM *512K Buffer *5 Year Warranty
2.2 GB **Ultrastar ES \$359 Int 429Ext**
8.5ms Seek *5400 RPM *512K Buffer *5 Year Warranty

LEGENDARY IBM PERFORMANCE!

- INDUSTRY LEADING IBM PATENTED MR HEADS
- IDEAL FOR YOUR MOST INTENSIVE AV OR DTP
- 1,000,000 MTBF (Mean Time Between Failure)
- 5 YEAR WARRANTY

AWESOME VALUE!

2.2 GB **ULTRA XP** 4.3 GB **ULTRA XP**
8.5ms Seek *7200 RPM *512K Buffer *5Yr.War.
*MR Head Technology
\$425 Int \$495 Ext
\$475 Int \$585 Ext

4.3 GB **ULTRA XP** 8.5ms Seek *7200 RPM *512K Buffer *5Yr.War.
*MR Head Technology
\$789 Int \$859 Ext
\$889 Int \$989 Ext

ULTRA SCSI 9GB

9 GIG Model PDM2391 3.5"
8.5ms Seek *7200 RPM *512K Cache Buffer *5 Year Warranty
\$1695 Internal \$1765 External

AV Thru Drive Desk for Direct to Disk Recording

2.1 GB	M4221AV	\$595	\$655
2.1 GB	M4221WAV	\$675	\$775
8.5 ms. Seek	7200 RPM 512K Buffer	5 Year Warranty	
4.3 GB	M3243AV	935	995
4.3 GB	M3243WAV	1020	1080
10.5 ms. Seek	7200 RPM 512K Buffer	5 Year Warranty	
9.0 GB	M1991AV	1795	1895
9.0 GB	M1991WAV	1795	1895
11 ms. Seek	5400 RPM 512K Buffer	5 Year Warranty	

ULTRA SCSI DRIVES

4.3 GB	M4345NS	895	965
4.3 GB	M4345WAV	945	1045
7.9 ms. Seek	7200 RPM 512K Buffer	5 Year Warranty	
9.0 GB	M399NS	1695	1945
9.0 GB	M399WAV	1770	1870
7.9 ms. Seek	7200 RPM 512K Buffer	5 Year Warranty	

Also Available in Fast Wide Ultra SCSI Interface

AWESOME PERFORMANCE

Quantum ATLAS 1080

*8MS SEEK *7200 RPM *1024K CACHE BUFFER * 5 YEAR

- GREAT FOR YOUR DATA INTENSIVE APPLICATIONS
- AV TUNED WITH EMBEDDED SERVO TECHNOLOGY
- 1024 BUFFER PROVIDES FASTER TRANSFER RATES

ONLY \$289

EXTERNALS INCLUDE:
* HIGH PERFORMANCE DOUBLE SHIELDED CABLES
* FREE FWW TOOLKIT
* ACTIVE TERMINATION OR DUST CHAIN CASE
* ALL PDI DRIVES COME PRE-TESTED AND TESTED FOR TRUE Plug and Play.
* Unlimited Toll Free Technical Support

New Ultra SCSI drives from...



Seagate

1.2GB Hawk 2 XL Ultra SCSI	\$389	\$449
9 ms Seek 5400 RPM 512K Buffer	5 Year Warranty	
2.4 GB ST32155 Ultra SCSI	535	595
9 ms Seek 5400 RPM 512K Buffer	5 Year Warranty	
2.5 GB BARRACUDA 2	695	755
2.5 GB F & W BARRACUDA 2	735	835
8 ms Seek 7200 RPM 512K Buffer	5 Year Warranty	
4.3 GB BARRACUDA 4	1025	1085
4.3 GB F & W BARRACUDA 4	1095	1195
10.5 ms Seek 7200 RPM 1024K Buffer	5 Year Warranty	
9.0 GB ELITE	1845	1945
9.0 GB F & W ELITE	1975	2075
11 ms Seek 5400 RPM 1024 Buffer	5 Year Warranty	

ULTRA SCSI DRIVES

4.3 GB BARRACUDA 4LP	1125	1195
4.3 GB BARRACUDA 4LP Wide	1175	1275
8 ms Seek 7200 RPM 512K Buffer	5 Year Warranty	
9.1 GB BARRACUDA	2095	2165
9.1 GB BARRACUDA WIDE	2155	2255
8 ms Seek 7200 RPM 1024K Buffer	5 Year Warranty	

Quantum

240MB	\$119 Int \$179 Ext	
14 ms Seek 4500 RPM 128K Buffer	2 Year Warranty	
540 MB FIREBALL	155	215
11 ms Seek 5400 RPM 128K Buffer	2 Year Warranty	
1080 MB ATLAS	289	349
8 ms Seek 7200 RPM 1024K Buffer	5 Year Warranty	
1280 MB FIREBALL TM	275	345
10.5 ms Seek 4500 RPM 128K Buffer	5 Year Warranty	
2.1 GB FIREBALL TM	325	595
10.5 ms Seek 4500 RPM 128K Buffer	5 Year Warranty	
3.2 GB FIREBALL TM	435	495
10.5 ms Seek 4500 RPM 128K Buffer	5 Year Warranty	
2.0 GB ATLAS	525	595
8 ms Seek 7200 RPM 1024K Buffer	5 Year Warranty	

ULTRA SCSI DRIVES

4.3 GB ATLAS II	889	959
7.9 ms Seek 7200 RPM 512K Buffer	5 Year Warranty	
9.1 GB ATLAS II	1475	1545
7.9 ms Seek 7200 RPM 512K Buffer	5 Year Warranty	

Available in Wide 68 Pin at same price (Small additional charge may apply for external wide drives).

MAXIMIZE YOUR TRANSFER RATE

PDI POWERRAIDS™

UNMATCHED SPEED

Our Exclusive 90 Day Performance Guarantee.

5 YEAR WARRANTY

48 HOUR REPLACEMENT

ULTRA SCSI 3
POWER RAID 17GB WIDE
OUR RAIDS COME COMPLETE WITH:
Ultra SCSI 3 8.7 GB Fast & Wide Drives
* Adaptec 3940 Dual Channel
Ultra SCSI 3 Accelerator
* REMUS 1.4 RAID SOFTWARE
TRANSFER RATE EXCEEDS 20 MB/Sec SUSTAINED WRITE
ONLY \$4795 PDM14AD2X38R
OUR RAIDS COME PRETESTED AND CONFIGURED FOR YOUR

CDROM DRIVES

NEC 4x CD ROM	\$139
NEC 4x CD ROM	\$139
NEC 4x 7 Disk Changer	\$299
NEC 8x CD ROM	\$249



CD Recorders

Yamaha 2x CD Writer/ROM CDE102	\$675
Yamaha 4x CD Writer/ROM CDE100	\$985
Pinnacle Micro BCD 5040	\$885
Pinnacle Micro BCD 441	\$1099

- NEVER A SURCHARGE!
- NO SALES TAX!
- SAME DAY SHIPPING!

TOLL FREE TECHNICAL SUPPORT!

ProDirect, Inc. 10830 Nesbitt Ave South,
Bloomington, MN 55437

ATTO SCSI Accelerators

Express PCI Ultra SCSI \$345
Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers.

Dual Channel Express PCI Ultra SCSI \$595
Dual channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers. Transfer up to 40 MB/Sec. computers.

adaptec

PowerDomain 2940 UWM \$285

Single channel RISC based PCI to Fast/Wide Ultra SCSI 3 accelerator card for Apple's PCI based computers.

FWB SCSI Accelerators

JackHammer \$445

Fast/Wide 16BIT SCSI 2 accelerator card for Apple's Nubus based computers. Supports fast/wide SCSI 2 (16 Bit) transfer rates up to 20MB/sec. and fast SCSI 2 (8 Bit) transfer rates up to 10 MB/sec. Full 16 Bit wide support for the latest drives and disk arrays.

PCI JackHammer \$385

Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers. Ideal solution for your audio, video, prepress, and real time applications. Transfer rates up to 20MB/sec. Formatting software included. 5 year warranty. Call for Disk

DIGITAL TAPE BACKUP

Quantum DIGITAL LINEAR TAPE

SPEED & VALUE

DLT2000XT 30GB
Transfers 150MB Per Minute
Only \$2575

MASSIVE STORAGE

DLT4000 40GB
Transfers 180MB/Minute
Only \$4495



Opticals

Pinnacle Micro Vertex 2.6GB Optical	\$1399
17MS Seek, 108K Cache, ISO JANS Standard	
Pinnacle Micro Apex 4.6GB Optical	\$1599
17MS Seek, 108K Cache, ISO JANS Standard	

MEMORY

LIFE TIME WARRANTY

72 PIN MEMORY		168 PIN DIMMS	
4 MB 70/60 NS	\$29/42	8 MB 60/NS	\$79
8 MB 70/60 NS	64/69	16 MB 60/NS	\$139
16 MB 70/60 NS	124/129	32 MB 60/NS	\$279
32 MB 70/60NS	225/229	64 MB 60/NS	\$579

REMOVABLES

Capacity	Model	External
44 MB	\$38	
88 MB	42	
135 MB	19	
200 MB	66	
270 MB	54	
135 MB	17	
230 MB	28	

1.0in Iomega Jaz Drive \$395
Includes 1 Free Cartridge
100 in Iomega Zip Drives \$195
Includes 1 Free Cartridge
Jaz Cartridges.....\$97
Zip Cartridges.....\$16

M-F 8 a.m. - 7 p.m. 10:00 am - 3:00 pm Saturday

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 RMA's must be returned within 15 business days of invoice. Customers are responsible for shipping charges to return product.

CIRCLE 75 ON READER SERVICE CARD

MAC BARGAIN\$



Top Mac clones from Motorola!

StarMax Series

New

AS LOW AS
\$1599

Five year
worry-free
warranty

3000 Series

- 200 or 160MHz PowerPC 603e CPU
- 16 or 32MB RAM, exp. to 160MB
- 2.5 or 1.2GB internal hard drive
- 8X CD-ROM drive
- Motorola 28.8 Data/Fax Modem
- 1MB VRAM, expandable to 4MB
- Up to five PCI expansion slots
- Up to three ext. drive bays, two internal
- Keyboard & mouse included

4000 Series

- 200 or 160MHz PowerPC 604e CPU
- 16 or 32MB RAM, exp. to 160MB
- 2.5 or 1.2GB internal hard drive
- 8X CD-ROM drive
- 2MB VRAM, expandable to 4MB
- Up to five PCI expansion slots
- Up to three external drive bays, two internal
- Keyboard & mouse included



Monitor sold separately.



MOTOROLA

StarMax Computer Series

ORDER #		LOW PRICE
#81521	StarMax 3000/160 603e 16/1.2GB/8XCD Desktop	\$1599
#81522	StarMax 3000/160 603e 32/2.5GB/8XCD Minitor	\$1899
#81523	StarMax 3000/200 603e 16/1.2GB/8XCD Desktop	\$1999
#81524	StarMax 3000/200 603e 32/2.5GB/8XCD Minitor	\$2199
#81525	StarMax 4000/160 604e 16/1.2GB/8XCD Desktop	\$2299
#81526	StarMax 4000/160 604e 32/2.5GB/8XCD Minitor	\$2499
#81527	StarMax 4000/200 604e 16/1.2GB/8XCD Desktop	\$2699
#81528	StarMax 4000/200 604e 32/2.5GB/8XCD Minitor	\$2899

PowerPC™ computing at an affordable price!

New

The PowerBase Series

Six all-NEW PowerPC 603e models! at entry-level prices!

- 16MB RAM • 1.2GB Hard Drive • 8X CD-ROM Drive

#83734 PowerBase 180MHz Desktop	\$1495
#83733 PowerBase 200MHz Desktop	\$1795
#83732 PowerBase 240MHz Desktop	\$2195
#83737 PowerBase 180MHz Minitor	\$1595
#83736 PowerBase 200MHz Minitor	\$1895
#83735 PowerBase 240MHz Minitor	\$2295

*Prices and configurations subject to change without notice. Ask your Sales Advisor to confirm your order.

AS LOW AS
\$1495



Monitor sold separately.

PowerCenter, PowerTower and PowerTower Pro Series

AS LOW AS
\$1799

#86642 PowerTower Pro 180 16/2GB 8xCD	\$4195
#86643 PowerTower Pro 200 16/2GB 8xCD	\$4495
#86644 PowerTower Pro 225 16/2GB 8xCD	\$4995
#86648 PowerTower 604/200e 16/2GB 8xCD Tower	\$3595
#86649 PowerTower 604/180e 16/2GB 8xCD Tower	\$3295
#86635 PowerTower 604/165 16/2GB 4xCD Tower	\$2895
#86636 PowerTower 604/180 16/2GB 4xCD Tower	\$3095
#86632 PowerCenter 604/120 8/500 4xCD Desktop	\$1799
#86633 PowerCenter 604/132 16/1GB 4xCD Desktop	\$1895
#86634 PowerCenter 604/150 16/1GB 4xCD Desktop	\$2095



PowerComputing



SUPERmac™

AS LOW AS

\$3795

Includes keyboard and mouse. Monitor sold separately.

UMAX®
SuperMac S900
Mac OS™ Computers
Upgradable to dual processors!

#81529 SuperMac S900L/225 32/1.2GB 8CD	\$4295
#90934 SuperMac S900L/180 DP 32/2.1GB	\$4595
#90935 SuperMac S900L/200 32/2.1GB	\$3795

Call MAC BARGAIN\$ before you buy!
1-800-407-7404

Our Knowledgeable Sales Advisors help make buying easy!



YOUR SOURCE CODE
BU702

Add applicable sales tax (only in CA, WA). All shipments refer to "in stock" items, barring system failures, 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. 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.

DISCOUNT PRICES ON QUALITY HARDWARE, SOFTWARE & ACCESSORIES

MAC BARGAIN\$

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



Adobe PageMaker 6.5

Only \$89⁹⁸

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



Macintosh System 7.6

Only \$98⁹⁸

Upgrade to System 7.6

- Internet connectivity and access with Cyberdog
- Enhanced compatibility with windows files
- Excellent support for Java, HTML and Netscape plug-ins
- For more information, e-mail keyword **APPLEDS** Apple #83094

#80438 System 7.5 to 7.6 Upgrade \$98.98
#80439 System 7.1 or Lower to 7.6 Upgrade \$98.98



Model C600

Only \$134⁹⁸

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 \$1999
#81533 SuperMac C500L/240 16/2 1GBHD 8CD 603e \$2295

Adobe		
88827	Adobe After Effects 3.0 CD	\$615.42
06263	Adobe Dimensions 2.0	\$123.53
88207	Adobe Iilus 5.0 To 6.0 Upgr CD/3.5"/Mac	\$116.09
88205	Adobe Illustrator 5.0 to 6.0 Upgrade CD	\$89.80
88206	Adobe Illustrator 6.0 CD & 3.5"	\$368.22
87610	Adobe Illustrator 6.0 CrossGrade CD & 3.5"	\$116.09
87628	Adobe Illustrator 6.0 CrossGrd CD /FreeHand	\$89.80
91256	Adobe PageMaker 6.0 CD & 3.5"	\$553.06
99605	Adobe PageMaker 6.0 Competitive Upgrade	\$179.69
91255	Adobe PageMaker 6.0 Upgrade	\$134.74
83932	Adobe PageMill 2.0 Upgrade	\$44.85
83060	Adobe PageMill 2.0 w/PageMill Handbook	\$88.89
38523	Adobe Persuasion 4.0 Mac & Win	\$244.49
38524	Adobe Persuasion 4.0 Upgrade	\$118.98
83083	Adobe Photoshop 4.0	\$548.89
83084	Adobe Photoshop 4.0 Upgrade	\$134.49
04670	Adobe Premiere 4.2 CD	\$491.82
87636	Adobe Streamline 3.1	\$172.29
93971	Adobe Streamline 3.1	\$123.53
92218	Adobe SuperPaint Deluxe 3.5	\$64.91
92249	Adobe TextureMaker 1.0 Mac & PowerMac	\$123.53
95307	Adobe Type Twister 1.0 for Mac	\$27.49

AEC Software

Aladdin		
03456	Fast Track Schedule 4.0 PowerMac or Mac	\$163.58
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	AfterDark 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	\$27.42
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
86011	Conflict Catcher 3-RAM Dbl/Spd Dbl Bnd	\$93.98
95255	Glider Pro	\$23.81

Claris

84075	Claris Emailer 1.1	\$38.73
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

QuarkXPress 3.32/Quark Immedia Bundle

Quark #82536

92638	ClarisWorks 4.0 Comp/Ver Upgrade	\$62.38
88830	FileMaker Pro 3.0	\$181.02
88829	FileMaker Pro 3.0 Ver/Comp Upgrd CD/3.5"	\$89.90
85770	Internet Conn Kit w/Mission Impossible	\$39.98
04140	MacProject Pro 1.5	\$370.72
06525	MacWrite Pro 1.5	\$44.85

Connectix

91300	Conflict Catcher 3	\$56.17
-------	--------------------	---------

86011	Conflict Catcher 3-RAM Dbl/Spd Dbl Bnd	\$93.98
84048	Connectix RAM Doubler 2	\$53.63
90149	Connectix RAM/Speed Doubler Bundle	\$74.98
90375	Connectix Speed Doubler for Mac V1.1	\$53.63

Corel

91628	Corel GALLERY 2 (Mac)	\$33.75
31722	Corel Pro Photo Vol13-Txts,Backgds&Ons	\$124.88
92234	Corel Stock Photo Library 1 w/World's Bo	\$882.61
91276	Corel Stock Photo Library 2	\$878.97
84053	CorelDraw 6	\$391.97
84052	CorelDraw 6 Ver/Comp Upgrade	\$136.09
03972	WordPerfect 3.5 Full Version CD-ROM	\$156.04
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



Eudora Pro 3.0 Upgrade

Eudora #85325

Only \$34⁹⁸

Dataviz

96907	MacLink Plus/PC Connect 8.0	\$116.08
96908	MacLink Plus/Translators Pro 8.0	\$87.35

Datavatch

02077	Virex 5.6 for Mac	\$62.38
89501	Virex 5.6 Version Upgrade	\$22.46

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	\$204.75
-------	-------------------------	----------

Extensis

91343	QXTools	\$87.35
-------	---------	---------

Farallon

96801	Farallon Timbuktu Pro for Mac 2.0 2-Pack	\$167.19
96800	Farallon Timbuktu Pro for Macintosh 2.0	\$127.38

Fractal

37624	Fractal Design Dabbler 2.0 CD	\$39.98
83051	Fractal Design Detailer	\$277.15
83073	Fractal Design Expressions	\$279.99
00665	Fractal Design Painter 4 for Mac	\$339.60
93967	Fractal Design Painter 4 Upgrds for Mac	\$121.03
91289	Fractal Design Poser	\$88.61

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 Software's 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	\$43.60
87501	The Ultimate Doom CD	\$28.69

Insignia

98471	SortWindows 3.0 for PowerMac 3.5" Disk	\$292.06
98475	SortWindows 3.0 for PowerMac CD	\$292.06
89308	SortWindows 3.0 for PowerMac CD Upgrd	\$67.30
87440	SortWindows 95 for PowerMac CD	\$325.90
87442	SortWindows 95 for PowerMac CD Upgrd	\$141.01
94287	SortWindows for Mac	\$269.98
91088	SortWindows 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	\$39.99

89685	Quicken Deluxe 7 for Mac	\$57.99
-------	--------------------------	---------

Jian

04257	Biz Plan Builder 5.0 Mac w/Video	\$76.99
-------	----------------------------------	---------

Jump Development

92896	Optimem RAM Charger 2.0	\$36.99
-------	-------------------------	---------

Leister Productions

05884	Reunion 4.0 The Family Tree Software	\$89.99
-------	--------------------------------------	---------

MacroMedia

88730	Director 5.0 w/Shockwave	\$842.99
92266	Director Multimedia Studio 2.0	\$917.99
86007	Director Multimedia Studio 2.0 Upgrade	\$465.99
88748	Extreme 3D Competitive Upgrade	\$92.99
04537	Fontographer 4.1	\$320.99
82501	Freehand 7.0	\$384.99
84242	Freehand 7.0 Upgrade	\$148.99
92290	FreeHand Graphic Studio 2.0	\$448.99
86505	SoundEdit 16.2.0 Pl Dck II 2.5	\$348.99

MetaTools

95335	Bryce 2.0	\$158.99
84479	Ka's Power Goo	\$41.99
06668	Ka's Power Tools 3.0	\$116.99
91258	Vector Effects 1.0	\$116.99

Microsoft

37803	MS Cinema '97 for Mac CD	\$25.99
95750	MS Encarta 1996 Mac CD	\$67.99
00227	MS Excel 5.0 for Mac	\$303.99
04545	MS Excel 5.0 for Mac/Version Upgrade	\$117.99
04293	MS Flight Simulator 4.0 Mac	\$39.99
99696	MS Fox Pro 2.6 for Mac	\$89.99
18059	MS Office 4.2.1 Comp/Version Upgrade	\$270.99
96024	MS Office 4.2.1 Comp/Version Upgrade CD/270	\$270.99
03233	MS Office 4.2.1 for Mac CD	\$460.99
00427	MS Office 4.2.1 Mac	\$460.99
06300	MS PowerPoint 4.0 Version Upgrade	\$117.99
04161	MS Project 4.0 for Mac	\$430.99
04838	MS Word 6.0.1 for Mac	\$303.99
00596	MS Word 6.0.1 Version Upgrade	\$117.99
05750	MS Works 4.0 for Mac	\$43.99

Nisus

83691	Winter 5.0 Comp Upgrade	\$143.99
81652	Winter 5.0 Upgrade	\$91.99

Now Software

86085	Now Up to Date/Now Contact 3.6	\$63.99
84065	Now Up to Date/Now Contact/	\$118.99
04191	Now Utilities 6.5	\$51.99

Tech Tool Pro for Mac

- Finds the culprits that make your Mac crash
- Point and click computer repair
- E-mail keyword **TECHTOOL**

Micromat #87067

ParSoft

66442	Now Utilities 6.5 Upgrade	\$23.99
-------	---------------------------	---------

Qualcomm

88389	A-10 Attack CD-ROM	\$44.99
-------	--------------------	---------

Quark

91072	Eudora Pro Mac	\$52.99
-------	----------------	---------

Quark

82500	QuarkImmedia	\$657.99
95320	QuarkXPress 3.32 Native PowerPC	\$635.99

SolKey

87626	Amer Her Dlx Talking Dictionary Mac/Win	\$28.99
03631	Calendar Creator 2.0 Mac	\$36.99
00641	WriteNow 4.0 with Correct Grammar	\$39.99

Symantec

06231	ACT! 2.5 for Mac	\$149.99
06997	Norton DiskDoubler Pro 1.1	\$67.99
34186	Norton DiskLock 4.0 Upgrade	\$44.99
04890	Norton Utilities 3.2	\$91.99
93976	Norton Utilities 3.2 Upgrade	\$35.99
00116	SAM 4.5 Full Upgrade	\$63.99
04776	Subcase 3.0 Full Upgrade	\$63.99

Call MAC BARGAIN\$ before you buy!
1-800-407-7404

Overnight Delivery
AIRBORNE

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		
07188	ClickArt Handwritten Fonts	\$31.19
11303	ClickArt Incredible Image Pak 25000	\$33.60

Monitors		
Hitachi		
07013	Rasterops SuperScan MC 17s	\$738.24
01077	Rasterops SuperScan MC 21	\$1,711.00

NEC		
07642	NEC Multisync C400 14" Monitor	\$296.27
06793	NEC Multisync M700 Cir Monitor 17"	\$783.98
09719	NEC XE21 21" Color Mtrs	\$1,729.61
09721	NEC XP17 17" Color Mtrs	\$1,064.20

Sony		
06676	Sony Multiscan 15sf II Monitor	\$464.11
06675	Sony Multiscan 15sx Monitor	\$388.89
06909	Sony Multiscan 17se II Monitor	\$974.00
06677	Sony Multiscan 17sf II Monitor	\$771.56
06961	Universal Mac Video Adpt I-17s	\$7.41

ViewSonic		
08429	ViewSonic 17GA Monitor/Adapter Bundle	\$715.55
08431	ViewSonic 17GS Monitor w/Adapter Bndl	\$635.14
07296	ViewSonic GT770 17" Color Monitors	\$692.56
03486	ViewSonic P810 Monitor/Adapter Bndl	\$1,541.11
09932	ViewSonic PT770 17" Color Monitor	\$739.44

Video Cards		
ATI		
00136	ATI Exclaim GA 4MB PCI	\$325.84

Connectix		
05317	Connectix Color QuickCam for Mac	\$223.46
02884	Connectix QuickCam for Macintosh	\$94.84

Radius		
09097	Radius Thunder 30/1600 PCI Video Card	\$681.57

Accelerators		
DVC		
01361	DVC Equalizer Pwr Mac 6100 7100 & 8100	\$85.33

FWB		
00124	FWB PCI SCSI JackHammer	\$344.53
04121	FWB SCSI JackHammer	\$434.64

Modems		
Global Village		
09312	PowerPort Platinum Pro V34/10-T PC Card	\$494.98
09313	PowerPort Platinum V34 PC Card	\$329.58
02575	TelePort Internet Edition 33.6 Fax Modem	\$165.34
03641	TelePort Platinum Comm Slot 28.8 V34	\$198.25

Megahertz		
06528	CruiseCard Cellular Ready XJax 288 Mac	\$239.99

Sportster for Mac 28.8/33.6 Fax modem

- Lightning-fast and incredibly dependable!

US Robotics #92953

As Low As \$169.98

Supra		
03465	Supra FAXModem V34 33.6 External Mac	\$183.07
03856	SupraExpress 33.6 External	\$119.90

US Robotics		
03701	Mac & Fax Sportster 14.4 Fax/Data Modem	\$55.53
02953	Mac & Fax Sportster 28.8 V34	\$164.13
07406	Mac Sportster Voice v.34 28.8	\$193.18

Storage		
LaCie		
06295	LaCie 2160MB IBM External HD	\$443.07
02193	LaCie Fireball TM 1.280GB Int SCSI HD	\$300.45
09878	LaCie IQ 2160MB Internal HD	\$363.52
09876	LaCie Q 4300MB Ext HD	\$999.89

CIRCLE 108 ON READER SERVICE CARD

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

WACOM ArtZ II 12x12" Graphics Tablet Refurb

WACOM #85588

Only \$299.98

While supplies last

85616	270MB SyQuest Drive w/cartridge	\$398.98
24936	EZ 135MB Ext. SCSI Drive	\$119.98

VST		
87426	VST Expan Bay 230MB MQ Dr 1PB 1905300	\$381.31

Media		
Fuji		
94094	FUJII 3.5" MF2HD Mac Frmt. 10-Pk 1.4MB	\$5.20
91952	FUJII CDR-74	\$7.80
05717	Fuji DG900 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	\$19.95

Kyocera		
86251	Kyocera CDR-74	\$7.79

Performantz		
83437	Performantz 10x Ext CD Drive	\$199.88
83400	Performantz 4x CD Drive	\$141.06

Philips		
89805	Philips CD-Recordable 74 Min Disk	\$9.06

Sony		
01140	Sony 3.5" 230MB M.O. 5.12b/s	\$18.32
14368	Sony CD-R 650MB 74 Min Disk	\$6.54
86839	Sony SRS-3000 Speakers w/sub	\$159.41
32604	Sony SRS-PC21 PC Speakers	\$22.20

SyQuest		
00278	SyQuest 200Mb 5.25" Removable Cartridge	\$63.39
07992	SyQuest 270MB 3.5" Removable Cartridge	\$51.19
02183	SyQuest 44MB Cart Unfo	\$49.99
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 74min 4X	\$7.82

Scanners		
AGFA		
02135	AGFA Arcus II Scanner, MAC Version	\$1,856.49
84141	AGFA SnapScan	\$348.40
84140	AGFA StudioScan IISI Color Scanner	\$590.45
06685	AGFA StudioStar	\$792.79

Epson		
91939	Epson ES-1000C Flatbed Scanner	\$575.51
82673	Epson Expression 636 Professional Scanner	\$1,849.00
82671	Epson Expression 636 Executive Scanner	\$858.88
06919	Epson Transparency Unit - Enhanced	\$617.98

UMAX		
82874	Gemini D-16 UTA w/Photoshop, KPTse	\$1,428.20
84149	Powerlook II w/TMA & Pitsph LE	\$1,811.46
21401	UMAX Transparency Adapter for Vista	\$235.96
83501	UMAX Vista S-6E w/Adobe Photodeluxe	\$292.13
83505	UMAX Vista-S12 w/Adobe Photoshop LE	\$620.45

Visioneer		
86783	PaperPort Vx SCSI Adapter for Mac	\$57.42
88164	Visioneer PaperPort Vx For Macintosh	\$280.83

Input		
Adesso		
91854	Adesso Soft Touch Keyboard	\$44.09
90766	Tru-Form Extended Keyboard	\$73.18
91099	Tru-Form Extended Keyboard w/Pointer	\$82.05

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 I O	\$54.31
93628	Kensington Thinking Mouse ADB	\$63.17
87483	Turmouse 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/Dabber Bundle	\$147.63
90643	ArtPad II (ADB) w/Erasing UltraPen	\$133.77
90646	Artz II 12x12 (Serial) w/Erasing UltraPen	\$417.85
90645	Artz II 6x8 (ADB) w/Erasing UltraPen	\$301.72

Printers		
Epson		

Epson Stylus Color 500 Inkjet Printer

- 720 dpi color
- Prints 4 ppm black text
- Keyword EPSON500

Only \$279.98

Epson #83409

90488	Epson Multi-Protocol Ethernet Interface	\$385.82
83409	Epson Stylus Color 500 Inkjet Printer	\$278.31
89901	Epson Stylus Color Pro Ink Jet Printer	\$370.79
87980	Epson Stylus Color Pro XL Inkjet Printer	\$1,780.22

Hewlett-Packard		
89150	HP DeskJet 1600CM Color Printer	\$2,005.03
36156	HP DeskJet 870Cse Inkjet Printer	\$499.99
89902	HP DeskJet 600 Printer	\$202.16
86345	HP DeskJet 680C Inkjet Printer	\$289.55
83911	HP LaserJet 5si	\$2,799.90
82666	HP LaserJet 6MP Printer	\$930.02
13692	HP Tri-Chamber ColorPrint Cartridge	\$23.78

Power Backup/Batteries		
------------------------	--	--

American Power Conversion		
19035	APC Back-UPS 1250	\$442.00
07150	APC Back-UPS 280	\$99.38
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/Phone	\$19.97
94393	APC Prof Surge Arrest 7 Outlet w/Phone	\$32.42
94917	Powerchute for Mac	\$59.96

Battery Technology		
87494	BTI 2-Slot Batt Chgr 11mt 5300/190 Batt.	\$78.71
88751	BTI Auto Pwr Adpt 1PB 5300/190 Series	\$67.42
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		
85817	Curtis Accessory Pouches	\$4.98
85816	Curtis Cellular Phone Holder	\$7.98

DoubleCase		
87219	zipPack Hardcase w/Iomega Zip Drive Bndl	\$227.79
86293	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.



Performantz 4X CD-ROM Refurbished

- 600K/second data transfer rate
- Fast 150ms average access time
- 256K buffer for smooth performance
- E-mail keyword REFURB4X

Only \$59.98

Performantz #82828

Only \$499.98

Only \$199.95

Iomega Zip and Jaz Drives

- Faster than most hard drives
- 5.5MB/second transfer rate and 17ms access time
- Provides 1GB of space on each cartridge
- For more information, e-mail keywords ZIPSCSI or JAZSCSI

Iomega

#91825 Iomega Zip Drive \$199.95

#25659 Iomega Jaz Drive \$499.95

WHY PAY MORE

when you can get a better price from **MAC BARGAINS?**

Our Knowledgeable Sales Advisors help make buying easy!

YOUR SOURCE CODE BU702



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!

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 T1611MR **\$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 **\$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**

**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 Ultra 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 24XX	\$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



- 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

\$399*
from
Retail at \$499

Adaptive Solutions PowerShop

Radius Photo Booster for Quadra/PDS or Rockets
SuperMac DSP daughter cards for Thunder/Ultras**\$CALL**
from **\$199**
\$299

COLOR CALIBRATORS



SuperMac Display Calibrator	\$199
SuperMac Display Calibrator PRO	\$499
Radius Mac ProSense Calibrator	\$799

POWERBOOK 5300

FOCUS enhancements Lapis Color MV Cards

**\$249**
from
Compare at \$249

- 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

AT OR BELOW DEALER COST!

PRINTERS

TABLOID LASERS

QMS 860 HammerHead

- 600 dpi 11 x 17
- PostScript Levels 1&2
- 8ppm heavy-duty Canon engine
- Powerful RISC processor



from **\$1999**

QMS PS2210/2220

- 20,000 page monthly duty cycle
- 22ppm • Dual-tray input

GCC Elite XL series 800dpi

Hewlett-Packard 4MV

GCC SelectPress 1200x1200dpi

GCC ELITE XL808 & XL1208

Radius Proof Positive PTR 220/230

from **\$2499**

\$2499

\$4999

\$CALL

Dye-Sublimation

\$CALL

Ask about Printers available in 220v!

LETTER/LEGAL

QMS PS1700 for Macs and PCs

- True Adobe Postscript
- 17ppm output
- Dual Paper output; Duplex Option
- 50,000 print monthly duty cycle

Hewlett-Packard 5mp 600dpi

Apple Select 360 10ppm, 600dpi

GCC WriteMove II portable printer for Powerbook

from **\$1499**

\$CALL

\$1199

\$CALL

CPU SPECIALS

POWER MACS

All PCI PowerMacs
Available -- CALL for
Lowest Prices Ever!!



from **\$999**

Radius 81/110

FACTORY CLOSE-OUT! LAST CHANCE!

PowerMac 7200/7500/7600

PowerMac 8500/9500

Umax C500/C600/S700/S900L

Power Computing

Motorola StarMax 3000/4000

from **\$999**

from **\$1699**

from **\$2399**

from **\$1349**

from **\$1895**

\$CALL

POWERBOOK/QUADRA

PowerBooks/Duos

Quadra 800 8/250/CD NEW

Quadra 840AV 8/250/CD w/ Spigot Power AV

Quadra 900/950

\$CALL

\$CALL

\$CALL

\$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

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

miroMOTION DC20 M-JPEG PCI video capture & playback

Spigot II Tape Now Bundled with Adobe Premiere

VideoSpigot Cards Nubus/LC/IIsi

SINSTOCK!



Compare at \$4999
from **\$2999**

\$CALL

\$499

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

\$999
from



SET-UP WAIVED!
18 FREE DAYS
With every purchase!



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.



THE MOST KNOWLEDGEABLE SALES STAFF IN THE INDUSTRY!

CIRCLE 50 ON READER SERVICE CARD

800/375-9000

THE BEST DEALS

MacMall

YOUR #1 MAC SOURCE!

MacMall

THE MALL WITH THE GREAT DEALS



FREE!
FRACTAL PAINTER 4

Monitor sold separately

Or lease for \$64 per month

POWER COMPUTING

PowerBase 180 Mini Tower

Each PowerBase is packed with a super-speedy 8X CD-ROM drive for fast access to hundreds of multimedia titles. The series is available in low profile (with one 5 1/4" bay and one 3 1/2" bay) and tower models (includes three 5 1/4" bays and an extra 3 1/2" bay for even more expandability). Each model comes with a ton of great software.

180MHz
16/1.2GB/8XCD
\$1595
#84674

MORE POWER COMPUTING DEALS!

Model/MHz	Processor	RAM/HD/CD	Price	Order #
PowerCenter 132LP	PowerPC™ 604	16/1GB/4X	\$1895	#85964
PowerCenter 150LP	PowerPC™ 604	16/1GB/4X	2095	#85968
PowerBase 180*	PowerPC™ 603e	16/1.2GB/8X	1595	#85739
PowerBase 200*	PowerPC™ 603e	16/1.2GB/8X	1895	#85742
PowerBase 240*	PowerPC™ 603e	16/1.2GB/8X	2295	#85744
PowerTower 180e	PowerPC™ 604e	16/2GB/8X	3295	#85729
PowerTower 200e	PowerPC™ 604e	16/2GB/8X	3595	#85730
PowerTower Pro 180	PowerPC™ 604e	16/2GB/8X	4195	#85731
PowerTower Pro 200	PowerPC™ 604e	16/2GB/8X	4495	#85732
PowerTower Pro 225	PowerPC™ 604e	16/2GB/8X	4995	#85733

*Mini Tower Models

UMAX COMPUTER

UMAX
Computer Corporation

FREE!
FRACTAL PAINTER 4

Monitor sold separately

Introducing the Newest MacOS™ Compatible SUPERmac® C500/166

It's a serious tool for fun and business! The new SUPERMac C500 is loaded with a fast 166MHz 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.

166MHz
16/1.2GB/8XCD
\$1299*
#85751

HOT NEW PRODUCT!

*After \$50 manufacturer mail-in rebate

MORE UMAX DEALS!

Model/MHz	Processor	RAM/HD/CD	Price	Order #
Supermac C600/180	PowerPC™ 603e	16/1.2/8X	\$1595	#85753
Supermac C600/200	PowerPC™ 603e	16/2.1/8X	1895	#85754
Supermac J700/150	PowerPC™ 604	16/2.1/6.7X	2795	#85750
Supermac S900/180	PowerPC™ 604e	32/2.1/8X	3595	#85747
Supermac S900/200	PowerPC™ 604e	32/2.1/8X	3795	#85748

CorelDRAW 6

CorelDraw 6 CD Mac®/PowerPC
Competitive Upgrade with Free Descent CD
Super integrated graphics and word processing!

\$148.99
#82852

CorelDraw 6 Mac®/PowerPC™ with FREE Descent CD \$389.99 #82836

MAG INNOVISION

DX1495 14" Color Display

1280 x 1024NI, MAX
.28mm Dot Pitch.

\$249.99
#85921

MOTOROLA

FREE!
FRACTAL PAINTER 4

Monitor sold separately

Introducing StarMax 3000

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 160 or 200MHz PowerPC 603e processor. And it's backed by Motorola's 5-year warranty (the best in the business).

160MHz
1.2GB
\$1499
#85983

- 16 or 32MB RAM
- 1.2 or 2.5GB HD
- 8X internal CD-ROM
- 3-5 PCI slots
- Motorola 28.8 data/fax modem

MORE StarMax DEALS!

Model/MHz	Processor	RAM/HD/CD	Price	Order #
StarMax 3000/DT160	PowerPC™ 603e	16/1.2/8X	\$1499	#85984
StarMax 3000/MT160	PowerPC™ 603e	32/2.5/8X	1799	#85986
StarMax 3000/DT200	PowerPC™ 603e	16/1.2/8X	1999	#85988
StarMax 3000/MT200	PowerPC™ 603e	32/2.5/8X	2199	#85990
StarMax 4000/DT160	PowerPC™ 604e	16/1.2/8X	2299	#85992
StarMax 4000/MT160	PowerPC™ 604e	32/2.5/8X	2899	#85994
StarMax 4000/DT200	PowerPC™ 604e	16/1.2/8X	2999	#85996
StarMax 4000/MT200	PowerPC™ 604e	32/2.5/8X	3199	#86084

MacMall is OPEN 24 Hrs

MARATHON INFINITY

Marathon Infinity CD Mac®

Infinity is based on the Marathon 2 world, and consists of: "Blood Tides of Lh'owon", a 30-level scenario with new textures, landscapes and monsters.

\$37.99
#81434

New 10mm Hyper accurate Flechette SMG weapon & the second trigger fires a burst underwater!

BUNGIE

Call by 11:00pm EST for Delivery by 10:30am the Next Day via **FedEx** Priority Overnight!

CALL THE NUMBER
BELOW TO GET YOUR
FREE!
ISSUE

FREE! Fractal Design Painter 4

with any CPU or PowerBook purchase!



MACINTAX **Intuit**
MacInTax Deluxe Bundle
New MacInTax Deluxe bundled with Quicken Deluxe 7.0 for '97.
"SAVE \$30!" Price reflects mail-in rebate direct from manufacturer.
Quicken Deluxe 7.0/
MacInTax Bundle
\$59.99*
#84626
Quicken Deluxe 7.0 . . . \$39.99* #84356
Price reflects '20 mail-in rebate direct from manufacturer.

NEW! EXPRESSION
Expression CD Mac®/PowerPC™ Upgrade for owners of Painter, Designer, Studio or Proser.
The revolutionary natural-media vector drawing tool.
Upgrade
\$148.99*
#83711
Expression™ CD Mac®/PowerPC™ . . . \$299.99 #82974

SUPRA EXPRESS 14.4
14.4Kbps Fax/Data Modem for Mac® **DIAMOND**
\$34.99*
#67021
33.6 External Data/Fax Modem
\$89.99*
#86006
*Price after '20 mail-in rebate. Price before rebate is '109"

EPSON PRINTER
Award-Winning EPSON Stylus Color 500 Printer
\$279.99*
#83463
720 x 720 dpi black and color printing
Prints up to 4ppm in black
Prints brilliantly on any type of paper
EPSON

QUICKEN 7.0 **Intuit**
Quicken
Organizes Finances Painlessly
SAVE \$10 When You Order Quicken 7.0 for '97 (It Has Over 30 NEW Shortcuts!)
Now Quicken is faster and easier than ever! You can easily pay your bills and manage your finances online.
"Price reflects '10 mail-in rebate direct from manufacturer for previous Quicken owners."
\$29.99*
#84357

FREEHAND™ GRAPHIC STUDIO
FreeHand Graphics Studio 7
Design your own Vector Graphics for your Web Site!
Upgrade CD Mac®
\$169.99*
#84730
Includes: FreeHand 7, Fontographer 4.1, Extreme 3D, and Macromedia xRes!
FreeHand Graphics Studio 7 CD Mac® . . . \$379.99 #84729
MACROMEDIA

SYQUEST SYJET 1.5GB
Removable External SCSI Drive
NEW! SyJet 1.5GB
Back-up all your work quickly with the NEW SyJet 1.5GB removable drive! Its quick 12 msec. average seek time provides blazing-fast removable storage for your graphics, audio, video and more!
SyJet 1.5GB
\$499.99*
#81323
Internal SCSI also available
EZ135MB SCSI Drive (while supplies last). . . \$119.99 #73549
SyQuest

HOT NEW PRODUCT!
SyJet 1.5GB
\$499.99*
#81323
EZ135MB SCSI Drive (while supplies last). . . \$119.99 #73549

NOMAI
540 MB Removable Drive
\$299.99*
#77062
Includes: Sub System, SCSI Cable, and Utility!
540MB Removable Cartridge . . . \$59.99 #81474
NOMAI

PINNACLE MICRO
Tahoe 640 3.5" Optical External Drive (PC/Mac)
\$798.99*
#84841
640MB Optical Media for Tahoe 640 . . . \$59.99 #84943
PINNACLE MICRO

GREEN EGGS & HAM
NEW! Dr. Seuss Bundle! Dr. Seuss ABC CD, Green Eggs & Ham CD, & FREE CD Sampler
39.99
-5.00
34.99
Rebate in CD Sampler*
*CD Sampler includes product demos & \$150 in rebates.
\$34.99*
#86240
After mail-in rebate.
Broderbund

CONNECTIX RAM DOUBLER
RAM Doubler 2.0
Up to triple your RAM for just...
\$24.99*
#82525
*Price after '25 mail-in rebate for previous owners of version 1.0 or higher. Price before rebate is '49".

MEMORY DEALS
SUPER VALUES
8MB SIMM . . . \$59.99 #4177
16MB SIMM . . . \$159.99 #65416
32MB SIMM . . . \$299.99 #65417

NOMAI
SyQuest Compatible Cartridges
as low as
\$31.99
SIZE PRICE ORDER #
44MB \$31.99 #66229
88MB \$36.99 #66230
200MB \$59.99 #82323
270MB \$54.99 #84370

INTERNET PHONE
Internet Phone
Talk to anyone for the cost of a local call to your Internet service provider.
Say goodbye to long distance charges!
\$48.99*
#82692

CLARIS HOME PAGE
CLARIS Home Page
Create Web sites without heavy-duty HTML coding!
Free Upgrade to 2.0
\$77.99*
#82557
*Price after '20 mail-in rebate for owners of PageMill or HotMetalPro.

Call 1.800.217.9498



MacMall

THE MALL WITH THE GREAT DEALS



ACCELERATED GRAPHICS & VIDEO CARDS FOR MAC & COMPATIBLES

24-bit QuickDraw™ Accelerated Graphics Cards at Great Prices!

The Video Wizard provides accelerated graphics & video, 4MB memory, Video-Out and Video-in comparable to a Power Macintosh™ 8500, and TV Tuner in one PCI slot with no external components...all at a tremendous value!

The Video Wizard utilizes the latest generation 128-bit graphics/video engine (designed for Mac™ OS). QuickDraw™ accelerated graphics in 8, 16 & 32-bit at resolutions up to 1280x1044* as well as bi-linear interpolated video acceleration. Video-out in NTSC and PAL. Video-in supports real-time play-through up to 640x480 NTSC (768x576 PAL), 320x240 capture up to 30fps (with Fast SCSI hard drive) and maximum capture size of 640x480. 181 channel TV Tuner allows watching television in a scalable window or capturing video/audio clips.

- 4MB Accelerated Graphics
- Video Acceleration
- Video-out
- Video-in
- TV Tuner
- Additional Features

Add Multimedia Magic to your documents and presentations.

4MB version, 2MB version: 32-bit up to 832x624 and 8-bit up to 1280x1024.



24-bit Accelerated PCI Graphics Card
\$348.99 #85544
Video Wizard
"Multimedia Magic"

Graphics and Video Products

VP-W4M-PCI 4MB PCI Graphics with Video-Out, Video-In and TV Tuner NEW!	.....\$348.99	#85544
VP-W2M-PCI 2MB PCI Graphics with Video-Out, Video-In and TV Tuner NEW!	.....\$268.99	#85543
VP-4M-PCI 4 MB PCI Graphics with Video-Out	.....\$248.99	#85541
VP-VDC-PCI Video-In & TV Tuner daughtercard	.....\$138.99	#85542
2124NBII NuBus Graphics (24-bit/21")	.....\$348.99	#83594
1724PD PDS (630/6300 tpe) (24-bit/17")	.....\$248.99	#83593
VP-2M-PCI 2 MB PCI Graphics Card	.....\$148.99	#83592

Macintosh, Mac, Power Macintosh, QuickDraw and QuickTime are trademarks of Apple Computer, Inc. Video Wizard and logo are trademarks of Micro Conversions, Inc.



Award winning innovator of Macintosh solutions since 1985.
<http://rampages.onramp.net/~microc>

NEW: VP-4M-PCI, 4MB PCI Graphics Card

Same graphics and Video-Out performance as the Video Wizard, but without Video-in and TV Tuner. These can be added later through the on-board expansion connector with the VP-VDC-PCI daughter-card. Perfect for applications requiring a PCI graphics card with the added feature of Video-Out!

24-bit Multi-Resolution PDS Graphics Card
\$248.99 #83593

- Accelerated for Power Macintosh
- Resolution switching on-the-fly
- Mac and PC/VGA monitors
- Energy Star Compliant
- Three Year Warranty

Spoil Yourself this Holiday!

Grab a Pivot 1700 & we'll throw in a FREE Connectix QuickCam!

We know you hate scrolling & using print preview to see a full-page view! So why buy the same old landscape monitor? The Pivot 1700 brings you a whole new point of view. See an entire 8.5" by 11" view of documents, images, and Internet web pages! Imagine never having to scroll again! What you see on your screen is exactly what will print out on your printer. Get true versatility to rotate your image into landscape without having to close your application. With flicker free images you'll view millions of colors at resolutions up to 1024x768 (Max) and 1280x1034 (PC). Better yet, the Pivot's Hitachi hi-definition Invar Shadow Mask CRT has a built in anti-glare coating and a tilt & swivel base. The Pivot 1700 is backed by the best warranty in the industry—a hassle free 3 year full replacement warranty.

PIVOT 1700



Pivot 1700 .28mm Dot Pitch Monitor
\$899.99 #75000



Pivot 1700 .28mm Dot Pitch Monitor
.....\$1049.99 #72477



Mail in coupon.
Call 800-358-7744 to request



Scan at 2820dpi

Optical Resolution in a Single Pass!

The Minolta QuickScan 35 digitally scans 35mm film into your Macintosh® in one pass. The included Adobe Photoshop™ plug-in and utility software enable easy color adjustments, trimming and image editing. With other application software, high-res desktop publishing business presentations and personal applications are also possible. Order one today and grab a 2820dpi, blazing-fast film scanner for just \$995.99!



- Single-pass scanning at 2820dpi optical, 2688 x 4032 pixel resolution
- Supports Photoshop
- 3.0 density range
- 40 second full scan rate at 2800dpi
- RGB Tri-linear CCD color separation
- SCSI-2 interface
- 30-bit color depth

QuickScan 35 Film Scanner
\$995.99 #80572



Call 1.800.217.9498

Call by 11:00pm EST for Delivery by 10:30am the Next Day via **FedEx** Priority Overnight!

CALL THE NUMBER
BELOW TO GET YOUR

FREE!
ISSUE

FREE! Fractal Design Painter 4

with any CPU or PowerBook purchase!



AGFA SCANNER BUNDLES

Check Out AGFA's New Scanner Bundles!



WOW!

SnapScan Gives You Copying, Faxing and Scanning in One Unit!

Here's the perfect office assistant! This advanced scanner gives you a special lift-off hinge for scanning books and three dimensional objects. You can energize your brochures, flyers and letters with color images. And enjoy the flexibility of scanning information directly to your fax modem or your printer, for quick and easy fax, copy and scanning operations. Check out one today!

- Scans up to 2400dpi
- 24-bit, one-pass scanner
- Includes FotoSnap, FotoLook, ColorIt!, OmniPage LE OCR and SOFTcopy software on CD-ROM

SnapScan Transparency Option (8" x 10" Image Area) \$199⁹⁹ #83710
SnapScan Automatic Document Feeder 259⁹⁹ #83709

\$325⁹⁹ #82684

Snapscan Mac
2400 DPI

**StudioScan IIsi—
High-Performance
Office Value &
Stunning 30-bit
Color!**

For a rock-bottom '649⁹⁹, you can have this 400 x 800dpi, 8.5" x 14", 30-bit RGB scanner that scans detailed color, continuous tone, halftone and line art images at resolutions from 600 to 2,400dpi.



\$649⁹⁹ #72071

StudioScan IIsi, Mac

Get this **FREE SOFTWARE** when you order your StudioScan IIsi

- Adobe™ Photoshop™ LE
- Caere's OmniPage Direct optical character recognition software
- FotoLook, FotoSnap, FotoTune & FotoFlavor



StudioScan II/IIsi Transparency Option (8" x 10" Image Area) . . . 379⁹⁹ #66018
StudioScan IIsi w/Photoshop Full Version & OmniPage Direct. . . \$819⁹⁹ #81495
StudioScan IIsi Solo \$569⁹⁹ #82210



\$1995⁹⁹ #66643

ARCUS II Scanner

Arcus II—The 36-bit Scanner for High-End Users!

The Arcus II scanner gives you professional 36-bit color scans at 600 x 1200dpi with an 8.5" x 14" scanning area. It can register more than 68 billion color combinations and capture deep shadows and bright highlights with ease (it's perfect for adding maximum impact to all your high-end full-color spreads).

- 36-bit scanner
- 600 x 1200dpi
- Includes Adobe Photoshop 3.0 and FotoLook/ FotoTune Light



StudioStar! Integrated 30-bit Color Scanning, Faxing & Copying!

Of course, you can scan super-detailed images! And with its special lift-off hinge you can scan three dimensional objects, too! And its advanced software lets you streamline your office by scanning directly to your modem or printer for quick faxing and copying.

- 600 x 1200dpi optical resolution
- Includes: FotoLook and FotoSnap; FotoTune Scan and IT8 color reference target; FotoFlavor color correction; Photoshop LE; OmniPage Limited Edition and SOFTcopy fax-copy-print utility
- 8.5" x 14" scanning area

\$849⁹⁹ #82038

StudioStar 600x1200
DPI Scanner

AGFA

StudioStar Scanner w/Photoshop Full Version & OmniPage LE . \$1039⁹⁹ #82579
StudioStar Transparency Option (8" x 10" Image Area) 249⁹⁹ #82578
StudioStar Scanner Automatic Document Feeder (10 pages) 259⁹⁹ #82577

CIRCLE 18 ON READER SERVICE CARD

Call 1.800.217.9498

THE BEST DEALS

MacMall

YOUR #1 MAC SOURCE!

MacMall

THE MALL WITH THE GREAT DEALS



UMAX SCANNERS

Double Your Value with a Umax Scanner Bundled with Valuable Extras!

- ▶ Single Pass, 800 X 600dpi
- ▶ Up to 4800dpi
- ▶ 24-bit Color
- ▶ SCSI-II Interface
- ▶ Cold Cathode Lamp



Includes:

Adobe® PhotoDeluxe™, Presto! PageManager (with OCR)



Vista S6EM SOHO w/PhotoDeluxe, Presto!
\$279.99* #81385

Vista S-12 Scanner w/Photoshop, Presto!
\$699.99* #81391

The Vista S-12 delivers 9,600dpi maximum resolution and 600 x 1200dpi hardware resolution.
*After manufacturer's mail-in rebate

Vista S-12 w/PhotoDeluxe and Presto! Page Manager \$499.99 #86345
Vista S-12 w/Photoshop LE and Presto! Page Manager \$599.99 #81389
Gemini w/Photoshop LE & Transparency Adapter \$999.99 #85101

UMAX

FREE

Turn Your Mac® into a Web Station with Power Mach™!

POWER MACH TEN



Upgrade today to the new PowerMach Ten 4.0.3—the ONLY UNIX available for every PowerMac® & PowerMac clone. Accelerated for PowerPC™, PowerMach Ten enables just about anyone (from schools to small offices) to provide Internet and Web services with workstation-class strength on inexpensive Mac platforms. You can even create binary PowerPC Executable Format (PEF) files that can integrate with other Mac development tools.

- ▶ Features high-performance NFS file sharing
- ▶ TCP/IP Protocol stack supports multi-homing and multi-casting
- ▶ Includes Domain Name Service (DNS), POP Mail Service and IP Forwarding



Power Mach Ten (for Power Mac), w/X Window software \$579.99 #75953
Professional Mach™ for 68K Mac \$579.99 #82714
NEW XTEN PowerPC (a stand alone XServer XTEN doesn't require Mach™ to run) \$289.99 #82713

New Introductory Prices on Adobe Products

New Photoshop 4.0 is Available NOW!

- ▶ Actions palette for automating editing
- ▶ Guides and Grids feature
- ▶ Navigator moves you quickly to any location on your image
- ▶ Speed improvements for more efficiency
- ▶ 48 new effects filters for artistic effects

Get Paint Alchemy & Fresco **FREE** from Xaos Tools w/any Photoshop 4.0 purchase. While supplies last. This offer is exclusively through MacMall.

Adobe® Photoshop™ 4.0 CD Mac/PPC \$549.99 #72972

Adobe® PageMaker™ 6.0 CD Upgrade Mac/PPC \$139.99 #84980

NEW VERSION!

Adobe PageMaker 6.5

NEW PageMaker 6.5 Upgrade

- ▶ Document-wide layers and automatic reformatting
- ▶ New text and graphics frames
- ▶ Import Adobe Illustrator designs
- ▶ New familiar interface
- ▶ Export page to HTML or PDF formats for easy Internet publishing

Buy Adobe PageMaker V6.0 and receive a **FREE** upgrade to V6.5

Adobe® PageMaker™ 6.0 Mac/PPC \$549.99 #72971

Adobe® Photoshop™ 4.0 CD Upgrade Mac/PPC \$139.99 #84980



NEW VERSION!

Adobe Photoshop 4.0

Prepare All Your Graphics Automatically

DEBABELIZER



DeBabelizer Toolbox™ V1.6.5 with any Photoshop purchase Mac/PowerPC \$169.99 #84384

DeBabelizer is essential for anyone using graphics, animations and digital video in multimedia and Web delivery. DeBabelizer Toolbox combines image editing, palette manipulation and translation into one complete program. Integrated batch features save you time by automating repetitive tasks, so you can process thousands of images while saving to over 90 bit-mapped graphic and animation formats on Macintosh®, DOS®, Windows®, Silicon Graphics, SUN and more. And it supports new formats like Interlaced GIF with transparency option, PNG, and Progressive JPEG. Plus, it supports AppleScript and most Photoshop Acquire, Filter and Export plug-ins.

DeBabelizer Toolbox™ 1.6.5 Mac/PPC \$249.99 #75628
DeBabelizer Toolbox™ 1.6.5/5 user Mac/PPC \$1029.99 #81548
DeBabelizer Toolbox™ 1.6.5/Jag II Mac/PPC \$299.99 #81549

EQUILIBRIUM

Call 1.800.217.9498

CALL THE NUMBER
BELOW TO GET YOUR
FREE!
CATALOG

FREE! Fractal Designer Painter 4

with any CPU or PowerBook purchase!



ALADDIN SYSTEMS

SPRING CLEANING™ 1.0

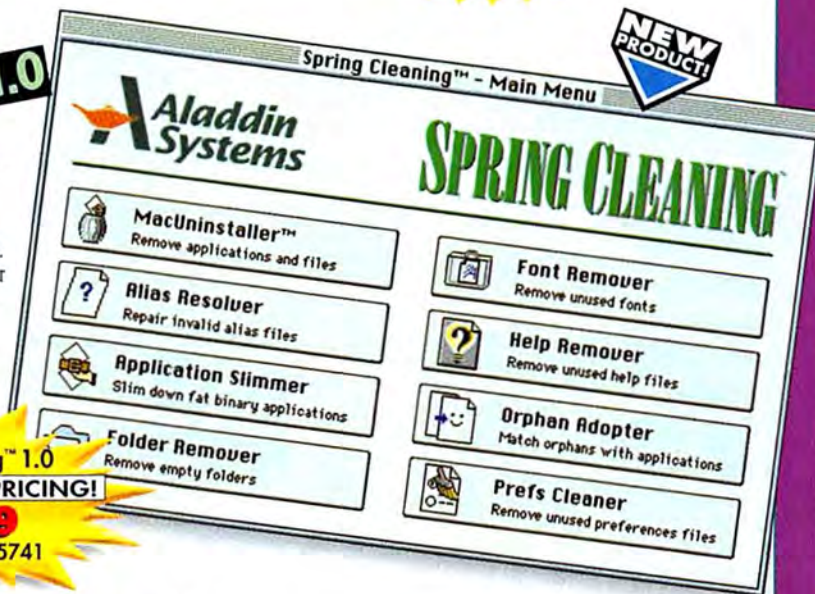
The Safe and Easy Way to Clean up Your Macintosh

Ever experienced the tedium of scouring your hard drive for unwanted and irrelevant files? What a pain! From now on, let Aladdin's Spring Cleaning do the work for you. It's simple. Spring Cleaning automatically eliminates the clutter from your computer quickly, easily, and safely. Spring Cleaning's collection of eight powerful utilities uninstalls old applications, removes duplicate and unused fonts, finds lost alias files, slims down fat binary applications, finds orphaned help files, and cleans out your Preferences folder.

- Uninstalls old applications
- Removes duplicate fonts
- Finds lost alias files
- Slims fat binary applications
- Cleans out Preferences folder

Spring Cleaning™ 1.0
INTRODUCTORY PRICING!

\$49.99
#85741



STUFFIT 4.0

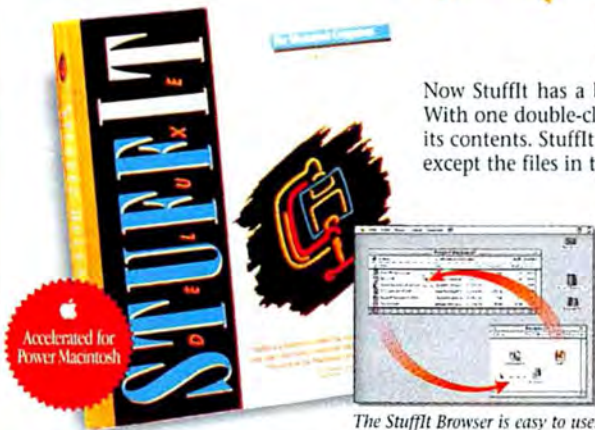
Now Stuffit has a browser! Your Stuffit archives are now integrated into the Finder. With one double-click, a Stuffit archive immediately opens in the Finder and displays its contents. Stuffit archives now act a lot like folders in the Finder, except the files in them take up MUCH less disk space.

- **NEW!** Faster Stuffing & Expansion
- **NEW!** Drag & Drop Segmenting
- **NEW!** Easier Ways To Backup
- **NEW!** SpaceSaver "tags"
- **NEW!** Improved Interface

Stuffit Deluxe 4.0
Mac/PowerPC 3.5" Diskette ..\$74.99 #79363

Stuffit Deluxe 4.0
Upgrade Mac/PowerPC
3.5" Diskette

\$39.99
#79368



The Stuffit Browser is easy to use.

ALADDIN DESKTOP TOOLS

**Break down the barrier
between you and your work!**

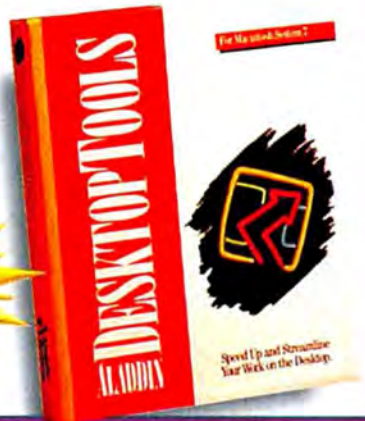
Improve the quality of life on your Macintosh with DesktopTools! Now you can continue working instead of waiting for copies to complete with Background copying. Avoid "Application Can't Be Found" alerts by linking documents to any application. And securely erase sensitive files so that they cannot be undeleted. You can also print a file just by dragging it onto a printer icon in the finder. And you get more info about files and folders than the Finder normally provides. You can even have keyboard equivalents to Finder commands and much more!

Aladdin Systems

Cyberfinder Mac®\$19.99 #78855

Aladdin's Desktop Tools
Mac 3.5" Diskette

\$48.99
#71811



CIRCLE 18 ON READER SERVICE CARD

Call 1.800.217.9498

THE BEST DEALS MacMall YOUR #1 MAC SOURCE!

MacMall

**WILL BEAT ANY PRICE ON
OVER 20,000 PRODUCTS!**

(Maybe More) Some limits apply, call for details.



Authorized
Catalog Reseller

Serious Action and Fun with MacSoft

Terminal Velocity-Incredible Flight Combat Action

Terminal velocity is absolutely the most exhilarating flight game available for Macintosh. It offers fast 3D texture-mapped graphics, full 360-degree flight movement, and 7 weapons of extraordinary destruction. Fight your way through 9 unique planets with an awesome array of spectacular air-to-air and air-to-ground combat action.

System Requirements: Any Macintosh with color monitor and CD-ROM drive.

Prime Target-The Most Advanced Mac 3D

Shoot-em up Ever! 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. Includes the most advanced 3D Mac game technology ever and a constant flurry of incredibly intense action.

System Requirements: Any Macintosh with color monitor and CD-ROM drive.

MACSOFT



Terminal Velocity
\$29.99
#85601

Prime Target
\$29.99
#85612



Damage, Incorporated Command an Elite Squad of Marines in 3D

Take command of the world's top special forces unit in this extraordinary 3D first-person shooting extravaganza. Lead four highly trained marines on six deadly missions with more than 30 levels. Fight for your life while issuing strategic orders to your squad. All in 3D. So real you'll be a bloody wreck before it's over.

System Requirements: Any Macintosh with color monitor and CD-ROM drive.

Damage, Inc.
\$29.99
#85613



MacArcade Pak 2

More red hot arcade action with five of the best arcade classics ever! Modern-day versions of Galaxian™, Star Castle™, Pac-Man™, Gauntlet™ and Asteroids™. Includes a sequel to MacWorld 1995 Hall of Fame and a runner-up for Inside Mac Games 1995 Best Arcade Game.

System Requirements: Any Macintosh with at least 8MB RAM, color monitor, CD-ROM drive, and System 7.0 or higher.

MacArcade
\$19.99
#85602



Absolute Solitaire

Designed by dozens of solitaire fanatics, Absolute Solitaire features a fast, responsive and helpful new solitaire interface that is built for serious solitaire gameplay. Absolute Solitaire includes 24 solitaire games, many of which are not found in Solitaire Game Pack™, Eric's Ultimate Solitaire™, and others.

System Requirements: Any Macintosh running system 7.0 or higher with at least 8MB RAM.

Absolute Solitaire
\$19.99
#85603

MACSoft

INTERPLAY

Interplay Brings More fun and Games to the Holiday



Conquest of the New World™

NEW Breakthrough in computer gaming! Conquest of the New World CD offer amazing graphics and realism. You'll navigate oceans, discover new lands and build the ultimate empire! You'll swear it actually happened.

Conquest of the
New World™ CD
\$44.99
#84691



Drawing Discoveries

Enjoy 18 "step-by-step" drawing adventures! This unique software gives you simple drawing techniques augmented by full motion videos. You'll learn important facts about the subjects you learn to draw. You can even print out pictures of animals and geography and create a personal coloring book!

Drawing Discoveries
CD Mac / Windows™
\$34.99
#82956



Virtual Pool

You can enjoy four great pool games played according to professional rules.

- 4 great professional pool games
- Play with other players over a modem
- Realistic 3-D perspectives and zoom
- Full-motion video library

Virtual Pool
CD Mac™
\$39.99
#84689

Tempest 2000

It was the most popular arcade game of all time. And now it explodes with new destruction and excitement. The concept is still simple but very challenging. Awesome weapons, dazzling visual effects and non-stop addictive gameplay will have you at the edge of your seat!

Tempest 2000
\$34.99
#85657



Mario Teaches Typing

Mario makes typing fun and easy to learn! He comes to life and encourages, jokes and informs you of your progress with hilarious and wacky behavior. You'll develop typing dexterity, get a report card display of your progress and print honorary certificates for being an outstanding typist. Take the dullness out of typing and order Mario Teaches Typing today.

Mario Teaches
Typing 2.0
CD Mac / Windows™
\$29.99
#82951



Pro Pinball

It's the only pinball game that lets you view the entire table from six different angles. The state-of-the-art graphics give you the most awesome and realistic pinball environment around.

- 20 soundtracks
- 4 game modes
- 3 flippers, 2 ramps,
- 100 animated sequences (4 players)

Pro Pinball™ 1.2
CD Mac™
\$47.99
#84692

Call 1.800.217.9498

168 MacUser / FEBRUARY 1997

Call by 11:00pm EST for Delivery by 10:30am
the Next Day via **FedEx** Priority Overnight!

FREE! Fractal Design Painter 4

with any CPU or PowerBook purchase!



FREE!
CATALOG

SEE BELOW

STARPLAY GAMES

HOT New Games from StarPlay

Alley 19 Bowling

NEW! Cruise back to the 50's and roll a few frames with Alley 19! Its unique mouse controlled throwing action replicates the true bowling experience. Computer opponents, full-motion characters, fun 50's graphics, original soundtrack. Full network play up to four bowlers. Bowling shoes optional!

Alley 19™ Bowling
CD Mac®

\$36.99
#86506

FREE! Crystal Caliburn Pinball

With ANY purchase! A '29" Value!

Games of Fame Vol. 1 CD Mac®

\$29.99
#86789

Vol. 1 contains classic hits, must-haves for every gamer's library. Full versions of **Crystal Caliburn Pinball** (Arcade Game of the Year—IMG), **Pathways into Darkness** (Best Adventure Game of the Year—MacWorld), **F/A-18 Hornet Classic** (Best Flight Simulator of the Year—MacWorld).



Souls in the System

NEW! The ultimate network combat with over 25 levels filled with cyber-enemies and challenging mazes. Head to head modem/ network play with one copy. Sequel to ShadowWraith ('95 Arcade Game of the Year—GameWire).

Souls in the System™
CD Mac®
\$36.99
#86500

Games of Fame Vol. 2 CD Mac®

\$29.99
#86507



For great family fun, give **Vol. 2** a whirl! Full versions of **Loony Labyrinth Pinball** (Golden Triad winner—CGR, 4-1/2 mice—MacUser), **Pegleg** (Best Shoot-'Em up of the Year MacWorld), **Glider Pro** (Best Action Game—MacWorld) **BONUS:** Two games from Eric's Ultimate Solitaire.

Loony Labyrinth Pinball CD Mac® **\$32.99** #86508



NEW! With **Vol. 3** enjoy full versions of **Warcraft** ('95 Premier Finalist—Computer Gaming World), **Marathon** ('95 Best Network Game—MacWorld Game Hall of Fame), **A-10 Attack! LE** with 8 missions ('96 Best Mac Game—PC Entertainment).

Games of Fame
Vol. 3 CD Mac®
\$36.99
#86501

SOFTKEY

NEW Products! NEW Upgrades! NEW Low Prices!

SoftKey



Popular Photography

This double collection of photos includes 500 high-quality images taken by the world's leading photographers. It's the cost effective way to use professional photographs for your personal and business projects.

Popular
Photography
Mac®/Windows® 95/Windows
\$34.99
#84341

- Chosen by the editors of the leading photography publication
- 500 high quality photos
- Two sizes, all 300dpi and all 24-bit

Buy any of the trail series titles
and get Oregon Trail I **FREE**—\$29.99 Value

Oregon Trail II

Grab the reins of a covered wagon as you cross dangerous mountains, barter for clothing and hunt buffalo to survive in this historical adventure of a lifetime!

Oregon Trail II
Mac®/Windows® CD
\$49.99
#77068

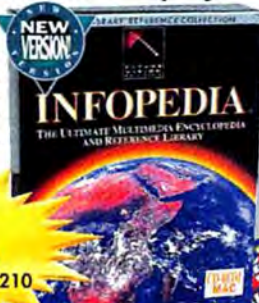
Maya-Quest Trail Mac®/Windows **\$29.99** #77070
CD w/FREE Oregon Trail I

Africa Trail Mac®/Windows **\$29.99** #77069
CD w/FREE Oregon Trail I

Infopedia

Infopedia is a 29-volume Funk and Wagnalls Encyclopedia which includes a bookshelf of seven additional reference works.

NEW!
LOW PRICE
Infopedia
CD/Mac®
\$42.99
#86210



Amazon Trail II w/FREE Oregon Trail

The Amazon Trail™ takes kids on an adventure of a lifetime. They'll fish for food, dodge log jams and avoid deadly snakes, hungry piranha and headhunters!

Amazon Trail II
Mac®/Windows® CD
\$36.99
#86134



How many great deals have YOU missed?

Choose the FREE "Great Deal" catalog at right that best suits your needs and we'll rush your FREE deal-packed catalog to you!

For Our Full Line Catalog & Get All The Details

Call 1-800-217-9498 or 1-310-225-2800

OR visit our web site at: <http://www.creativecomputers.com>



Get your FREE Catalog(s) today!

Please check catalog(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

OFFER CODE
MacUser
ZMUS721

CIRCLE 18 ON READER SERVICE CARD

1-800-553-4230

Call Mac Xtra Now!

Fax • 206-746-5324

International • 206-746-3803

72-Pin SIMMs

For G 605/630, 610, 650, 700, 800-840AV,
LCIII/475/630, PERF 450-560/675 / 6115CD,
PMAC 6171/6100
W550/601/601/6150/6151/6150

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 8500, 8500, 7500, 7200

8MB - - - - \$45
16MB - - - - 85
32MB - - - - 179
64MB - - - - 367



<http://www.macextra.com>

NEW EDO

DIMMS

For Motorola StartMax
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/Chrg - 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 Flat. PC Card 2B.8 - 349
Powerport Flat. PC Card Pro - 619

•SUPRA•
Express 33.6 EXT V.34 - \$149
14.4 V.32BIS - 69
33.6 V.34 Fax Modem - 189
SupraExpress 33.6 Int(PC) - 169
Supraonic 33.6 V.34 W/Voice - 270
Express 2B.8 v.34/R Fax Ext - 175

•MOTOROLA•
ISDN Bteurfer Pro - \$365

•US ROBOTICS•
2B.8 V.34 Internet Bundle - \$175
2B.8 Sportster Ext W/Voice - 205
2B.8 Sportster V.34PC card - 215

•OMEGA•

ZIP 100 Single - \$19
ZIP 100 5-Pack - 49.50
ZIP 100 10-Pack - 139
JAZ 540MB Single - 69
JAZ 540MB 5-Pack - 284
JAZ 1GB Single - 123
JAZ 1GB 5-Pack - 479

•SYQUEST•

EZ FLYER 230MB Cart. - \$29.50
5YJET 1.3GB Cart. - 108
5YJET 1.3GB 3/PK Cart. - 278
5YJET 1.3GB 5-PK Cart. - 452

•SONY•

MO 128MB 3-Pack - \$44
128MB Format 3-Pack - 55
MO 230MB 3-Pack - 55
230MB Format 3-Pack - 60
DDS 4MM 2GB Data - 8
DDS 4MM 4GB Data - 25

Media

•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 197 FT - 6.50
DATA 4MM DC 295 FT - 7.50
DATA 8MM DC 367 FT - 6.50

FPU's

FPU'S/MATH/COPROCESSOR

CENTRIS FPU 25MHZ - \$186
FPU 33MHZ DUO/P600 - 51
FPU Color Classic 16MHZ - 48
LC575 33MHZ FPU - 238
LC FPU 16MHZ - 49
LCIII FPU 16MHZ - 49

•VRAM•

256K 80NS V RAM - \$13
512K VRAM - 20
1MB V RAM (DIMM) - 45
2MB V RAM (DIMM) - 119

•CACHE•

256K Cache 6171/8100 - \$55
512K Cache 6171/8100 - 220
1MB Cache 6171/8100 - 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 - \$323/399
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

•JOMEGA•

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
5YJET 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



Product Index

ADVERTISER PAGE

Display Systems & Video

Epson America 800-GO-EPSON	133
Panasonic 800-742-8086	18
Portrait Display Labs 800-858-7744 ext. 25	43

Education

Broderbund Software 800-474-8696	79
--	----

Entertainment

Advanced Gravis Computer Technology 800-257-0061	136
Connectix 800-950-5880 ext. 101	51
Wizardworks Group 612-559-5140	138-139

Financial Management

Investment Intelligence Systems 800-494-WINGZ	81
Palm Computing 800-881-7256	29

General Hardware & Accessories

ATI Technologies 905-882-2600	35
Orange Micro 714-779-2772	120
Power Computing 800-405-7693	Cover 2-4, 1
Power Computing 800-405-7693	Cover 5-8

Graphics & Design

Binuscan 800-881-2352	9
Casady-Greene Inc. 800-359-4920	50
Diehl Graphsoft 410-290-5114	38
Engineered Software 910-299-4843	6
Extensis 800-796-9798	16
Integrated Micro Solutions 888-IMS-8282	105
Linotype-Hell 800-842-9721	131
Quark, Inc. 800-788-7835 ext. 3017	10-11
Splash Technology http://www.splashtech.com	100

Input Devices

Advanced Gravis Computer Technology 800-257-0061	136
Connectix 800-950-5880 ext. 101	51
Ricoh Corp Consumer Product Group 702-352-1600	82
SONY Electronics Inc. 800-352-7669	54-55

Internet/Online Products

Bare Bones Software 617-676-0650	122
EarthLink Network 800-395-8425	53
Pacific Bell 800-4PB-ISDN	24 A/B

Mail Order

Bottom Line Distribution 800-990-5699	146
ClubMac 800-258-2622	93-99
ClubMac 800-258-2622	154-155
Computer Discount Warehouse 800-291-4239	172-175
CRA Systems 800-375-9000	160-161

ADVERTISER PAGE

DGR Technologies 800-990-5699	146
Digital Graphix 800-680-9062	179-183
LLB Company, Inc. 800-848-8967	150-151
Mac Bargains 800-407-7404	157-159
MAC Xtra 800-553-4230	170
MacConnection 800-800-3956	144-145
MacMall 800-217-9498	162-169
MacProducts, USA 800-990-5699	146
MacWarehouse 800-593-9078	60-61
MacWarehouse 800-593-9078	109-116
MacWarehouse 800-593-9078	184-185
MacZone 800-436-8000	147-149
ProDirect 800-555-1256	156

Organizational Tools

AEC Software 800-450-1983	12
---------------------------------	----

Output Devices

Epson America 800-GO-EPSON	47
QMS, Inc. 800-523-2696 ext. 66	124
Tektronix 800-835-6100	37
XANTÉ Corporation 800-926-8839	91

Performance Enhancers

Connectix 800-950-5880 ext. 101	49
Synchronys SoftCorp 888-777-5600	103

Programming & Systems

UMAX Computer Corp 800-232-UMAX	2-3
---------------------------------------	-----

Resources

AEC Software 800-450-1983	12
Apple Computer, Inc. 800-364-0766 ext. 1026	45

Scanners

AGFA Corporation 800-685-4271 ext. 5644	7
Caere Corporation 800-535-SCAN	30
Epson America 800-GO-EPSON	15

Storage Systems

APS Technologies 800-235-3707	152-153
FWB Software http://www.fwb.com	128
Maxell Corporation of America 888-2-MAXELL	77
Olympus Image Systems 800-347-4027	62
Syquest 800-245-2275	33

Telecommunications

Big Island Communications 800-788-7751	121
Prodigy 800-PRODIGY	41

Utilities

Dantz Development 800-95-BACKUP	48
---------------------------------------	----



SOMETHING FOR EVERY



MOTOROLA StarMax



Monitors sold separately.

NEW!

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

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	\$1883.07	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

UMAX
Computer Corporation

Serious tools for serious fun!

SuperMac C500/C600 Series

Bundled software includes the Mac OS, ClarisWorks, Intuit Quicken and Family Lawyer, Netscape Navigator, Grolier Encyclopedia, Adobe PageMill, Now Software Up-to-Date, Conflict Catcher and more.

Everything you need and more

SuperMac J700 Series

Bundled software includes the Mac OS, ClarisWorks, Intuit Quicken and Family Lawyer, Now What Software's Talking Globe and Chronosphere, Netscape Navigator, Grolier Encyclopedia by Mindscape, Micromat TechTool Diagnostic, Adobe PageMill, FWB CD-ROM & HD Tool Kit, Casady & Greene Conflict Catcher V3.0 and NewSoft OCR Software.

SUPERmac

Maximum expandability, maximum performance

SuperMac S900 Series

The S900 series mini-tower systems have been specifically designed to eliminate performance bottlenecks and showcase features such as 16MB of interleaved memory on the motherboard for fast, 128-bit, memory access and system performance. The S900 offers UMAX's exclusive A.S.P.D. (Advanced Scalable Processor Design), a unique feature that provides economical and easy upgradeability to dual processors or higher speed processors.



Monitors sold separately.

**\$50
Rebate***

C500

**C600
SERIES**

CHECK OUT THESE SPECS AND CALL A CDW ACCOUNT EXECUTIVE FOR MORE DETAILS.

Desktop	CPU	RAM	Hard drive	CD-ROM	Modem	PCI slots	Price	CDW
C500	160MHz PowerPC 603e	16MB	1.2GB	8X	optional	2	\$1299.00*	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	150MHz PowerPC 604	16MB	2.1GB	6.7X	optional	6	\$3495.00	70197
S900L	180MHz PowerPC 604e	32MB	2.1GB	8X	optional	6	\$3595.00	73854
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

800-291-4239
www.cdw.com

©1997 CDW Computer Centers, Inc.
MU1931 MacUser 2/97

MAC LOVER & MORE!



TelePort Internet Edition

33.6K bps faxmodem

**The perfect choice for
maximum performance
and Internet connectivity**

Connect to the Internet faster and easier than ever with the new 33.6K bps TelePort Internet Edition faxmodem from Global Village. You get outstanding features like an on-screen status and performance display, call sensing, a new set-up helper and GlobalFax software. It also comes complete with all the software you need to get up and running fast on the World Wide Web.

- ▲ 33.6K bps data transfer
- ▲ Includes NETCOMplete Internet access and Netscape Navigator web browser and e-mail software
- ▲ On-screen status lets you monitor modem operations and data throughput rates conveniently, in any application
- ▲ Call sensing—receive fax and voice calls automatically on the same line as your answering machine
- ▲ Complete address book for management of phone, fax, e-mail, data and street addresses in one place
- ▲ Includes GlobalFax software

\$169.57 CDW 75481



Internet connectivity requires access services from an Internet access provider. Contact your local service provider(s) for rates, terms and conditions.

HITACHI
NSA

RasterOps® SuperScan MC 17 17" monitor

- ★ 17" flat, black matrix CRT (15.9" viewable image size)
- ★ .26mm dot pitch
- ★ Resolution: 1600 x 1200 non-interlaced
- ★ Refresh rate: 120Hz at 640 x 480
- ★ 3-year warranty

\$911.13 CDW 71404

RasterOps® SuperScan MC 21 21" monitor

**Designed, enhanced
and optimized
for the Power Macintosh®**

- ★ 21" flat, square CRT (20" viewable image size)
- ★ .22mm dot pitch
- ★ Resolution: 1600 x 1200 non-interlaced
- ★ Refresh rate: 160Hz at 640 x 480
- ★ 3-year warranty

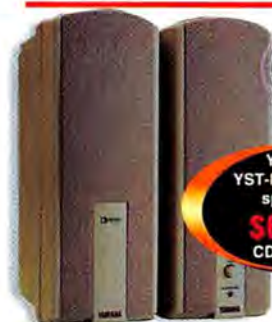
\$1685.77 CDW 71406



SPEAKERS

**Enhance your
personal
computing
experience
with sound!**

Yamaha
YST-M15 10 watt
speakers
\$69.63
CDW 66028



Altec Lansing ACS-52 shielded	\$122.28	CDW 54150
Altec Lansing ACS-500 surround sound	\$299.39	CDW 56096
Altec Lansing ACS-51 shielded	\$51.27	CDW 56438
Creative Labs CS-46 Sound Blaster full range	\$13.98	CDW 71620
JBL Media 2 mm 10 watt	\$59.51	CDW 64100
JBL Media with subwoofer 2 mm 10 watt	\$185.14	CDW 64102
JBL Media 3 mm 14 watt	\$98.35	CDW 64103
Jensen JPS45 amplified	\$84.76	CDW 41128
Jensen JPS35 amplified	\$54.29	CDW 41129
Labtec LCS-150 6 watt shielded	\$16.51	CDW 27974
Labtec LCS-800 3.5" 5 watt shielded	\$29.58	CDW 30578

Labtec 20 watt surround sound	\$99.64	CDW 67825
Labtec LCS-600 shielded	\$22.72	CDW 69337
Panasonic EAB-MPC250 30 watt	\$99.00	CDW 71656
Panasonic 20 watt minitower	\$99.00	CDW 71657
Sony SRS-PC41 6 watt shielded	\$55.01	CDW 73785
Yamaha 25 watt	\$103.59	CDW 45524
Yamaha 5 watt	\$38.62	CDW 73418
Yamaha YST-M15 10 watt	\$69.63	CDW 73416
Yamaha System 45 YST-M15	\$169.85	CDW 66030

**OVER 20,000 PRODUCTS
AT DISCOUNT PRICES!**



XCLAIM VR™

**The best way
to get incredible
3D gaming and
multimedia on your PCI Mac**

**ALL NEW
PRODUCTS
from ATI!**



XCLAIM™ VR from ATI® features QuickDraw 3D RAGE acceleration, support for resolutions up to 1152 x 870, TV-quality QuickTime playback, incredible QuickTime capture and video out capabilities. You'll be able to play games like never before, plus cruise 3D web sites, even capture still images or QuickTime movies from video tape, TV or laser disk to enhance any multimedia project. Plus, when you add XCLAIM TV, ATI's TV Tuner, you'll be able to bring the broadcast world to your desktop.

- ▲ Arcade-style, big-screen gaming
- ▲ Awesome QuickDraw 3D acceleration
- ▲ Incredible QuickTime acceleration and capture
- ▲ Blazing graphics performance

XCLAIM VR 2MB PCI	\$222.56	CDW 75076
XCLAIM VR 4MB PCI	\$293.76	CDW 75077
XCLAIM VR 2MB SGRAM upgrade	\$79.95	CDW 75081
XCLAIM TV External TV Tuner	\$79.95	CDW 75080

CIRCLE 136 ON READER SERVICE CARD

©1997 CDW Computer Centers, Inc.
MU1931 MacUser 2/97

800-291-4239
www.cdw.com



SOFTWARE for work...or play!

COMPUTER DISCOUNT WAREHOUSE™

SYMANTEC.

Symantec and Connectix Norton Utilities V3.2 and RAM Doubler 2

Essential tools for your Macintosh

Norton Utilities™ V3.2 by Symantec™ proactively prevents trouble by immediately alerting you when problems arise. RAM Doubler 2 triples your memory so you can run more applications and increase productivity. Together, Norton Utilities V3.2 and RAM Doubler 2 give you comprehensive data protection and recovery tools with increased performance for your Macintosh. This special value is available for a limited time only — get yours today!

*Offer ends 1/31/97.



Norton Utilities and RAM Doubler 2

\$97.56
CDW 77015



Adobe PageMaker V6.5

Expand your publishing capabilities

Adobe PageMaker V6.5 provides all the power and versatility you need to create outstanding work for both print and electronic media.

New features include: ✓ Enhanced HTML export plug-in ✓ Enhanced QuarkXPress file converter ✓ More than 15 new template designs ✓ Faster printing of separations from PostScript® Level 2 imagesetters



Version upgrade.....	\$89.96	CDW 75501
Competitive upgrade.....	\$114.98	CDW 75505
Full version.....	\$545.78	CDW 75495



CorelDRAW 6 Suite for Power Macintosh

The first graphics and word-processing suite for Power Macintosh™

Includes:

- ▼ CorelDRAW™6 for Power Macintosh—Industry leading vector drawing tools
- ▼ Corel WordPerfect™3.5—Fast, powerful, easy to use word processor
- ▼ CorelDREAM 3D 6—Powerful spline-based modeling and rendering
- ▼ Corel ARTISAN™—Photo-editing and image creation
- ▼ Corel TEXTURE™—Photo-realistic natural media creator
- ▼ Netscape Navigator—Internet web browser



Competitive upgrade, CD.....	\$136.37	CDW 71486
Full version, CD.....	\$363.18	CDW 71487

SAM V4.5 Maximum Internet virus protection

◆ Keep your files safe from viruses hidden in Internet downloads, compressed files, shared files and e-mail attachments. SAM's new SafeZone acts as a virtual clean room so copies or downloaded files can be scanned in isolation before you use them.

\$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.



\$40
Trade-Up rebate*

Business

Adobe After Effects V3.1.....	624.72
Adobe File Utilities.....	93.07
Adobe Persuasion V3.0.2.....	242.37
Aladdin StuffIt Deluxe V4.0.....	69.29
Apple AI Ease V3.0.....	29.49
Apple Internet Connection Kit V1.1 CD.....	43.65
Apple Newton Press.....	61.34
Apple Remote Access Client V2.1.....	49.60
Apple Remote Access Personal Server V2.1.....	169.13
Apple System 7.5.3 3.5".....	93.15
Apple System 7.5.3 CD.....	93.15



Upgrade CD **\$63.04** CDW 78420
CD **\$122.56** CDW 78419

Caere OmniPage Direct V2.0.....	57.70
Caere OmniPage Pro V6.0.....	459.02
Caere OmniPage Pro V6.0 upgrade.....	114.75
Casady & Greene Conflict Catcher 3.....	54.89
Casady & Greene Conflict Catcher 3 comp upg.....	35.15
Casady & Greene Conflict Catcher 3 vers upg.....	34.94
Casady & Greene Let's Keep It Simple.....	109.62
Clarix Emailer V1.1.....	41.56
Clarix FileMaker Pro V3.0 server.....	902.29
Clarix FileMaker Pro V3.0 server upgrade.....	275.62
Clarix OfficeMail V1.0.....	255.51
Connectix QuickCards V1.1.....	31.77
Connectix RAM Doubler V2.0.....	55.91
Connectix Speed Doubler V1.1.....	55.38
Connectix VideoPhone software.....	55.74
Corel Super Ten Animals CD.....	37.78
Corel Super Ten Great Works of Art CD.....	37.78
Corel Super Ten People CD.....	37.50
Corel Super Ten Select Photos CD.....	37.78
Deneba Canvas V5.0 3.5+ CD.....	382.83
Equilibrium DeBabelizer Lite V1.1.....	54.41
Extensis Fetch V1.2 CD.....	89.00
Extensis Photo Tools V1.0 CD.....	89.00
Fractal Design Dabbler V2.0.....	42.87
Fractal Design Poser V2.0.....	122.56
Fractal Design Ray Dream Designer V4.1 CD.....	89.35
Fractal Design Sketcher V1.0.....	48.68
Intuit QuickBooks Pro V4.0.....	181.14
Intuit QuickBooks V4.0.....	111.19
Intuit Quicken V7.0.....	42.10



Adobe Type Manager Deluxe V4.0

\$47.81 CDW 71489

Intuit Quicken V7.0 Deluxe CD.....	59.63
Microsoft Excel V5.0.....	296.94
Microsoft Excel V5.0 upgrade.....	114.98
Microsoft Office V4.2 license.....	382.05
Microsoft Office V4.2.1.....	449.03
Microsoft Office V4.2.1 CD.....	449.31
Microsoft Office V4.2.1 upgrade CD.....	265.72
Microsoft Office V4.2.1 version upgrade.....	265.86
Microsoft Project V4.0.....	421.73
Microsoft Visual FoxPro V3.0 CD.....	442.61

Microsoft Visual FoxPro V3.0 CD upgrade.....	265.72
Microsoft Word V6.0.1.....	298.44
Microsoft Word V6.0.1 upgrade.....	114.98
Microsoft Works V4.0.....	45.46
Qualcomm Eudora Pro V3.0.....	55.87
Qualcomm Eudora Pro V3.0 20-user.....	521.39
Qualcomm Eudora Pro V3.0 5-user.....	209.23
Qualcomm Eudora Pro V3.0 upgrade.....	38.95
Specular Infini-D Studio V3.5.....	493.39
Specular Infini-D V3.5.....	372.90
Strata Media Paint V1.0.....	403.97
Strata Studio Pro BLITZ V1.75.....	851.37
Symantec ACT! V1.0 for Newton.....	89.13
Symantec ACT! V2.5.....	148.18
Symantec ACT! V2.5 upgrade.....	47.79
Symantec Central Point MacTools Pro V4.0.....	31.16
Symantec Disk Doubler Pro V1.1.....	69.56
Symantec Norton Utilities V3.2.....	94.27
Symantec Norton Utilities V3.2 upgrade.....	38.23
Symantec Suitcase V3.0.....	65.43
Symantec Suitcase V3.0 10-user pack.....	514.70
Virtus 3D Website Builder V1.0 CD.....	85.53
Xerox TextBridge Pro upgrade V3.0.....	112.33
Xerox TextBridge Pro V3.0.....	242.68
Xerox TextBridge V3.0.....	67.75

MACROMEDIA FreeHand Graphics Studio 7 with Shockwave

Upg CD.....	\$187.08	CDW 75616
Com Upg CD.....	\$187.08	CDW 75617
CD.....	\$402.86	CDW 75615

Games

Activision MechWarrior 2 CD.....	46.40
Berkeley You Don't Know Jack Broderbund in the 1st Degree CD.....	32.72
Broderbund MYST CD.....	48.39
Capstone Bridge Master.....	37.79
Casady & Greene Amoebarena CD.....	27.52
Casady & Greene Crystal Crazy.....	35.42
Casady & Greene Mac Glider Pro CD.....	25.35
Casady & Greene Zone Warrior CD.....	35.42
Davidson Warcraft Orcs & Humans CD.....	35.42
Electronic Arts Wing Commander IV CD.....	31.37
Interplay Battletchess Enhanced CD.....	49.14
Interplay Descent II CD.....	28.33
Interplay Virtual Pool CD.....	49.76
Interplay Wolfenstein 3D.....	43.30
Lucas Arts Rebel Assault CD.....	37.26
Lucas Arts The Dig CD.....	26.69
Maxis: Missions in the Rainforest CD.....	26.69
Maxis SimAnt Classic.....	CALL!
Maxis SimCity 2000.....	19.54
Maxis SimCity 2000 Special Edition CD.....	33.67
Maxis SimCity Classic CD.....	45.76
Maxis SimTower CD.....	25.55
Maxis Widget Workshop CD.....	36.70
Microsoft Arcade V1.0 CD.....	34.15
Microsoft Cinemania 1997 CD.....	29.16
Microsoft Flight Simulator V4.0.....	29.28
Microsoft Music Central CD.....	41.98
Mindscape AI Unser Jr.....	35.89
Racing Arcade CD.....	23.63
Mindscape Angel Devoid: Face of the Enemy CD.....	23.63
Sierra On Line 3D Ultra Pinball.....	28.89
Sierra On Line Police Quest 5 CD.....	38.42
Sierra On Line The Beast Within CD.....	48.32
Virgin 11th Hour CD.....	52.38
Virgin Dogz CD.....	54.73
Virgin Flight Unlimited CD.....	19.14
Virgin Flight Unlimited CD.....	49.05

NASDAQ

BUY WITH CONFIDENCE
CDW® IS A NASDAQ
TRADED COMPANY
TICKER SYMBOL: CDWQ
D & B rated SAI
Duns 10-762-7952



Credit card charges are not submitted with bill of shipment. Your protection, we ship only by your credit card's verified billing address. Freight is calculated on the carrier's actual freight charge plus insurance and packaging volume. The cost of insurance is 0.25% (US\$200) of the order total. Packaging materials will not exceed \$4.00 for single package shipments or \$8.00 for multiple package shipments. Before returning any product, you must obtain an RMA number. Manufacturer returns are subject to a restocking fee. Software, chips and other electronic components are not returnable. Allow 15 business days for shipping when using the personal check. All pricing subject to change. For all prices, products and offers, CDW reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or in accordance with other extraordinary circumstances. All trademarks and registered trademarks are the sole property of their respective owners.

CDW® TELEPHONE HOURS

Sales
Monday-Friday 7am-9pm CST
Saturday 9am-5pm CST
Tech Support for Customers
Monday-Friday 8am-9pm CST
Saturday 9am-5pm CST

If you find a better price, call CDW® before you buy
Fax: 847-465-6800
Sales: 800-291-4239 (CDW)

©1997 CDW® Computer Centers, Inc.
MU1931
MacUser
2/97

MONITORS

NEC

M500 15" flat square w/speakers	478.81
XV15+ 15" flat square	473.13
XV17+ 17" flat square	759.05
XE21 21" flat square	1705.69
XP21 21" flat square	1943.57

MAGNAVOX

CM2080 14" 29mm	249.56
CM1215 15" 28mm	341.37
107B 17" 28mm	602.55
20CM64 20" 31mm	849.00

SONY

15x15 15" Trinitron	369.34
15x15 15" Trinitron	439.58
17x17 17" Trinitron	729.23
17x17 17" Trinitron	929.76
20x17 20" Trinitron	1559.84
Multiscan TC 20" Trinitron	3099.11

ViewSonic

15GA 15" PerfectSound 27mm	405.97
17GS 17" PerfectSound 27mm	616.79
GT770 17" Graphics Series 25mm	674.31
17GA 17" PerfectSound 27mm	652.29
PT770 17" Graphics Series 25mm	719.33
GT800 20" Professional Series 30mm	1311.18
GS10 21" Professional Series 25mm	1417.90
P810 21" Professional Series 25mm	1472.44
PT810 21" Professional Series 30mm	1634.19
P815 21" Professional Series 25mm	1653.43

radius

PressView 17SR 17"	1984.03
MultiView 21 21"	1418.10
PrecisionView 21 21"	2314.94
PressView 21SR 21"	3177.77

GRAPHICS/VIDEO BOARDS



Xclaim GA 2MB PCI	236.16
Xclaim 3D 4MB PCI	292.62
Xclaim 3D 8MB PCI	412.04
Xclaim VR 2MB PCI	222.56
Xclaim VR 4MB PCI	293.76

radius

Thunder 30/1600	694.88
ThunderColor 30/1600	1986.48
ThunderColor 30/1152	1585.78
ThunderPower 30/1920	1206.52



Bravado 1000 PCI	637.19
Targa 1000 PCI	1953.48
Targa 2000 PCI	3788.22

MODEMS



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



28.8K cellular-capable CruiseCard w/XJACK	231.95
---	--------



14.4 external mini-tower w/fax	79.05
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	219.64
MacClass 33.6 PC Card	194.88



MacFax Sportster 14.4 external	58.86
Sportster 28.8 PC Card w/DataView	199.65
Sportster 33.6 V.34 external	169.29
Sportster Voice 33.6 external	193.68
Courier V Everything 33.6 external	276.51
Courier I-modem	344.74

STORAGE SYSTEMS

CD-ROM DRIVES

Hi-Val 4X SounTastic CD-ROM Kit	159.60
Hi-Val 8X SounTastic CD-ROM Kit	289.73
Hi-Val 10X SounTastic CD-ROM Kit	259.11
NEC MultiSpin 6XE	335.65
Panasonic 4X Portable for PowerBooks	399.00



HammerCD 2X/4X CD-ROM recorder	872.88
HammerCD 4X CD-ROM recorder	1249.07



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



Advantage 1GB drive featuring "Jaz" external	526.37
Advantage 1GB "Jaz" disk	114.00
Advantage 2.6GB optical drive external	1749.54
Advantage 2.6GB optical cartridge	105.44

STORAGE SYSTEMS



EZFlyer 230MB external	291.47
EZFlyer 230MB cartridge	29.39
SyJet 1.5GB SCSI external	499.00
SyJet 1.5GB cartridge	95.00

MEDIA

Fuji 100MB Zip Disk	15.00
Fuji 100MB Zip Disk 5-pack	79.00
3M 63 minute (550MB) CD Recordable	8.05
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	803.24
Arcus II	1995.00

ALPS

Portable GlidePoint	41.45
Desktop GlidePoint	69.84
GlidePoint Keyboard	108.00
GlidePoint Keypad	73.58



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	57.12
Color QuickCam digital video camera	222.89

EPSON

Action Scanning System II	376.41
ES-1000C color flatbed scanner	572.37
Expression 636 Executive scanner	851.57
Expression 636 Artist scanner	1271.71
Expression 636 Professional scanner	1756.88



DC20 24-bit digital camera	299.00
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



ScanMaker E3	309.26
ScanMaker E6	556.25
ScanMaker E6 Pro	839.98
ScanMaker 351 Plus	743.40
ScanMaker III w/trans adapter	1389.52

Nikon

AX-110 Scantouch flatbed scanner	286.83
AX-210 ScanTouch flatbed scanner	649.34
AX-1200 Scantouch flatbed scanner	725.91
LS-20 Super CoolScan II	1154.02
Super CoolScan film scanner	1943.58

Polaroid

SprintScan 35LE film scanner	761.41
SprintScan 35ES film scanner	1499.92
SprintScan 35F film scanner	1995.86

RELISYS

Scorpio Infinity	351.54
Taurus Infinity	526.61



Vista-S6E with PhotoDeluxe	291.60
Vista-S6E with full PhotoShop	556.14
Vista-S12 with PhotoShop LE	629.93
Vista-S12 with full PhotoShop	712.10
PowerLook II	1955.00



Paper Port VX	274.94
SCSI Adapter for PaperPort VX	62.93

PRINTERS



Stylus Color 500	279.00
Stylus Color II	279.00
Stylus Color Pro	379.00
Stylus Pro XL	1799.00



HP DeskJet 870Cse Printer	499.00
HP DeskWriter 340 Portable Inkjet Printer	293.84
HP DeskWriter 680C Printer	285.76
HP DeskWriter 1600CM Printer	1962.07
HP LaserJet 5MP Printer	953.39

LOW-COST SCANNING SOLUTIONS!

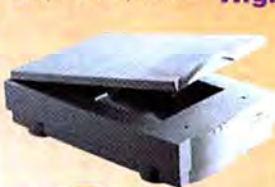


UMAX

Vista S6E

Computer Corporation

High speed color scanner



- ◆ 300 x 600 dpi optical, 4800 x 4800 dpi interpolated resolution
- ◆ Selectable 24-bit color, 8-bit grayscale scanning
- ◆ Single pass, single light source with cold cathode lamp
- ◆ SCSI-2 interface
- ◆ Includes: Adobe PhotoDeluxe and Presto! PageManager with OCR capabilities



\$271.60* CDW 72108

*After \$20 mail-in manufacturer rebate. Offer valid through 1/15/97.

Nikon

AX-110 Scantouch

Color flatbed scanner

Quick, affordable, graphics-quality color flatbed scanner

- ◆ Scan speed: 24 seconds at 300 dpi color mode
- ◆ Effective reading area: 8.5" x 11.7"
- ◆ Scanning method: single pass with color CCD
- ◆ Optical resolution: 300 x 600 dpi
- ◆ Analog to digital conversion: 8-bits per color
- ◆ Built-in SCSI-II interface
- ◆ Includes Nikon Scan drive software, Adobe Photoshop LE and Caere Omnipage LE
- ◆ Optional transparency adapter and Auto Document Feeder



\$286.83

CDW 71079

Transparency adapter
Auto Document Feeder

\$309.42 CDW 71082
\$379.64 CDW 71083

MICROTEK

Better Images Through Innovation.

ScanMaker E3

Affordable color flatbed scanner

- ✓ Resolution: 300 x 600 dpi (optical); 2400 x 2400 dpi (interpolated)
- ✓ Selectable 24-bit color or 256 grayscale scanning
- ✓ Single-pass scanning
- ✓ Maximum scanning area: 8.5" x 13.5"
- ✓ Included software: Color It! imaging software, OmniPage LE OCR and ScanWizard plug-in
- ✓ Includes SCSI cable



\$309.26

CDW 83624

EPSON

ES-1000C-LE

Multifunction color flatbed scanner

- ◆ Document size: 8.5" x 11.67"
- ◆ Scanning resolution: 400 x 800 dpi (optical)
- ◆ Maximum resolution: 3200 x 3200 dpi (interpolated)
- ◆ Effective pixels: 3400 x 4680 at 400 dpi
- ◆ Includes Adobe® Photoshop® LE 3.0, Xerox® TextBridge OCR, ScanTastic PIM and DA
- ◆ Includes SCSI cable
- ◆ 1-year limited warranty



\$572.37 CDW 54432

Auto document feeder

\$399.30 CDW 25705

Transparency unit

\$614.85 CDW 52318

Call for a
FREE CDW® catalog!



800-291-4239
www.cdw.com

CIRCLE 136 ON READER SERVICE CARD

FEBRUARY 1997 / MacUser 175

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. Griffith, Account Executive (415) 547-8658
Ryan Saurer, Sales Assistant (415) 547-8634

Bay Area CA (South Bay, NY)

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
97	Advanced Gravis Computer Technology	800-257-0061	136
15	AEC Software	800-450-1983	12
169	AGFA Corporation	800-685-4271 ext. 5644	7
*	Apple Computer, Inc.	800-364-0766 ext. 1026	45
148	APS Technologies	800-235-3707	152-153
20	ATI Technologies	905-882-2600	35
76	Bare Bones Software	617-676-0650	122
158	Big Island Communications	800-788-7751	121
133	Binuscan	800-881-2352	9
19	Bottom Line Distribution	800-990-5699	146
*	Broderbund Software	800-474-8696	79
99	Caere Corporation	800-535-SCAN	30
25	Casady-Greene Inc.	800-359-4920	50
119	ClubMac	800-258-2622	93-99
120	ClubMac	800-258-2622	154-155
136	Computer Discount Warehouse	800-291-4239	172-175
62	Connectix	800-950-5880 ext. 101	49
64	Connectix	800-950-5880 ext. 101	51
50	CRA Systems	800-375-9000	160-161
28	Dantz Development	800-95-BACKUP	48
19	DGR Technologies	800-990-5699	146
10	Diehl Graphsoft	410-290-5114	38
33	Digital Graphix	800-680-9062	179-183
90	EarthLink Network	800-395-8425	53
73	Engineered Software	910-299-4843	6
*	Epson America	800-GO-EPSON	15
*	Epson America	800-GO-EPSON	47
*	Epson America	800-GO-EPSON	133
153	Extensis	800-796-9798	16
71	FWB Software	http://www.fwb.com	128
43	Integrated Micro Solutions	888-IMS-8282	105
128	Investment Intelligence Systems	800-494-WINGZ	81
11	Linotype-Hell	800-842-9721	131
23	LLB Company, Inc.	800-848-8967	150-151
108	Mac Bargains	800-407-7404	157-159
146	MAC Xtra	800-553-4230	170
147	MacConnection	800-800-3956	144-145
18	MacMall	800-217-9498	162-169
19	MacProducts, USA	800-990-5699	146
155	MacWarehouse	800-593-9078	60-61
156	MacWarehouse	800-593-9078	109-116
157	MacWarehouse	800-593-9078	184-185
135	MacZone	800-436-8000	147-149
22	Maxell Corporation of America	888-2-MAXELL	77
69	Olympus Image Systems	800-347-4027	62
130	Orange Micro	714-779-2772	120
*	Pacific Bell	800-4PB-ISDN	24 A/B
143	Palm Computing	800-881-7256	29
79	Panasonic	800-742-8086	18
*	Portrait Display Labs	800-858-7744 ext. 25	43
24	Power Computing	800-405-7693	Cover 2-4, 1
24	Power Computing	800-405-7693	Cover 5-8
138	Prodigy	800-PRODIGY	41
75	ProDirect	800-555-1256	156
140	QMS, Inc.	800-523-2696 ext. 66	124
5	Quark, Inc.	800-788-7835 ext. 3017	10-11
160	Ricoh Corp Consumer Product Group	702-352-1600	82
*	SONY Electronics Inc.	800-352-7669	54-55
54	Splash Technology	http://www.SplashTech.com	100
30	Syquest	800-245-2275	33
124	Tektronix	800-835-6100	37
141	UMAX Computer Corp	800-232-UMAX	2-3
27	Wizardworks Group	612-559-5140	138-139
126	XANTÉ Corporation	800-926-8839	91
3	ZDNet	http://www.zdnet.com	135
*	ZDTV	thesite.msnbc.com	103

*Denotes no reader service number.

ROLL OVER YOUR COMPETITION WITH A **New** 200MHZ POWERMac, 225MHZ UMAX OR MOTOROLA SYSTEM

LOW
Prices

We will beat any price on over 5,000 products!!!



Need Financing?
We Can Help!

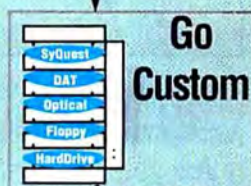


Start with one of these systems and we will custom configure to meet your specifications.



BASIC SYSTEM	CASH	LEASE
PowerMac 7200/120 16MB/1.2GB/8xCD	\$1469	\$39
PowerMac 7600/132 16MB/1.2GB/8xCD	\$2099	\$59
PowerMac 8500/180 16MB/2GB/8xCD	\$3399	\$89
PowerMac 9500/180MP 32MB/2GB/8xCD	\$5099	\$144
PowerMac 9500/200 32MB/2GB/8xCD	\$3999	\$112
StarMax 3000/200MT 32MB/2.5GB/8xCD	\$2199	\$62
StarMax 4000/200MT 32MB/2.5GB/8xCD	\$3199	\$83
UMAX S900L-180 16MB/2GB/8xCD	\$3530	\$93
UMAX S900L-200 32MB/2GB/8xCD	\$3769	\$96
UMAX S900L-225 32MB/2GB/8xCD	\$4199	\$119

DIGITAL GRAPHIX WILL CUSTOM CONFIGURE ANY POWERMac, UMAX OR MOTOROLA SYSTEM



9500/200 MHZ Hi PERFORMANCE WORKSTATION

- PowerMac 9500/200 604e
- 6 PCI slots, E-Net, 512K L2
- 80MB RAM/2GB Hard Drive
- Internal 8x CD ROM
- Internal Jaz 1GB with cartridge
- 4GB RAID Fast/Wide hard drive
- Adaptec Fast/Wide SCSI RAID controller
- Extended keyboard
- Sony 20SFII Trinitron Monitor
- IMS Twin Turbo 8MB Video Card

Whole System

base system starting at
only \$3,599

Per Month
\$219



8500/180 MHZ Mac & Dos WORKSTATION

- PowerMac 8500/180 604e
- 3 PCI slots, E-Net, 256K L2
- 24-bit composite and S-Video IO
- Internal 8x CD ROM
- Pentium 100mhz PC card with 16MB RAM with DOS/Windows
- 64MB RAM
- 2GB SCSI hard drive
- Extended keyboard
- Sony 20SFII Trinitron Monitor
- ATI Xclaim 4MB Video Card



Whole System

base system starting at
only \$2,899

Per Month
\$189

UMAX

UMAX S900L/225 MHZ Hi-END WORKSTATION

- UMAX S900L/225 604e
- 6 PCI slots, E-Net, 512K L2
- Internal 8x CD ROM
- IMS Twin Turbo 8MB
- 64MB RAM
- 4GB SCSI Fast/Wide hard drive
- Adaptec Fast/Wide SCSI controller
- Extended keyboard
- Sony 20SFII Trinitron Monitor

Whole System

base system starting at
only \$3,599

Per Month
\$189

Order 800-680-9062

4 More Pages
of Great Deals

\$0 Down 100% Business Financing NO Payments for 90days



Ultimate 9500/200 Graphics and Marketing SuperStation

Are you in the market for a Hi-End graphic system and are tired of not knowing what to get? Digital GraphiX has done the work for you and has designed the Ultimate Graphics system. You get everything you need to meet your demanding design deadlines.

Look at everything you get!!!!



Specifications

- PowerPC 9500/200MHz
- Internal CD ROM
- 272MB RAM
- 4GB internal Stripped Disk Array
- Adaptec Disk Array Controller/SW
- IMS Twin Turbo 8MB PCI Video Card
- Radius PrecisionView 21 Trinitron Monitor 1600x1200
- Epson Stylus Color Pro XL 11x17 wide color printer, E-Net, PSRip
- IOMega JAZ 1GB with 1 cartridge
- Microtek ScanMaker III with Transparency
- GCC XL 808 800dpi, 11x17 Printer, E-Net, Cables/Con
- 12x12 Graphics Tablet

Features

This system can handle all of your in-house publishing chores, printing 11x17 in both BW and color, scanning, and back up of your files onto a JAZ cartridge. We even give you all of the ethernet cables and connectors for hi-performance printing. The IMS 8MB Video card provides the fastest accelerated display of your hi-resolution images. With a built-in Fast & Wide 4GB Array, the Ultimate Graphics SuperStation is the fastest system available today for a low monthly payment of:

Only \$449

per Month

Ultimate Realtime Digital Video Capture SuperStation

Are you in the market for a Hi-End video capture system and are tired of not knowing what to get? Digital GraphiX has done the work for you and has designed the Ultimate Video Capture system. You get everything you need to meet your demanding realtime video capture needs.

Look at everything you get!!!!



Specifications

- PowerPC 9500/200MHz
- Internal CD ROM
- 272MB RAM
- 8GB External Stripped Disk Array
- 2x Adaptec Disk Array Controller/Remus LE SW
- ATI 2MB PCI Video Card
- Sony 20SFII and Viewsonic 17EA
- Yamaha 4x/4x CDR with Toast Software and Director
- 20x 74minute CDR Media
- IOMega JAZ 1GB with 1 cartridge
- TrueVision Targa 2000 PCI Video Capture
- Adobe Premiere 4.2 Video Capture Software
- Sony SDT-5000 DAT tape Backup

Features

This system can handle all of your in-house video capture chores. View video on one monitor and execute your premiere on the other. Capture video at 60 frames per second (Never miss a frame) on your dual channel Fast/Wide SCSI Raid Level 0 24MB per second Array. Store all of your video on your 650MB 74min CDRs, transfer your files with a JAZ cartridge, and backup all your work with a 8GB Sony SDT-5000 DAT tape drive. We even provide you with Macromedia Director and Adobe Premiere Software. This System is the best video system available today for a low monthly payment of:

Only \$449

per Month

**Digital
GraphiX**

Your Value Added Macintosh Source

800-680-9062

Find us on the Internet at <http://www.DigitalGraphiX.com>
Or E-Mail us at: Digital-Graphix@worldnet.att.net

Complete Systems Designed to meet your Needs

FREE!
Omni Page Professional v5.5 with lease
\$450 Value

ULTIMATE DESIGNERS SPECIAL

- PowerMac 8500/180
- 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
- ZIP 100 with 1 cartridge
- Okidata 610e/ps 600dpi Laser Printer
- 12x12 Graphics Tablet

PowerMac 8500/180 Starting at \$2899

Per Month \$199

Most Popular Configuration

FREE VALUE ADDED SERVICES

Why Lease?

- \$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.

Digital Graphix

GO LEASING

Why Lease or Buy from Digital Graphix?

WE PROVIDE THE BEST VALUE ADDED SERVICE IN THE INDUSTRY.

- 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.
- Free technical support from certified engineers.
- All products and systems are tested prior to shipping.
- Fastest 24hr-72hr response to all RMA issues.
- We only sell the finest quality **NEW** equipment. **NO REFURBISHED** products!

Go Custom

FREE VALUE ADDED SERVICES

Graphix Systems

Perfect for:
Graphic Designers, Printers, Service Bureaus, advertising agencies, and marketing departments

NEW \$0 down NEW BUSINESS Financing Available

FREE!

Quark
With Every Graphix System Lease
\$650 Value

7600/132 **Per Month \$149**
ENTRY LEVEL SYSTEM

- PowerMac 7600/132
- Internal CD ROM
- 40MB RAM
- 1.2GB hard drive
- Extended keyboard
- Viewsonic 17EA AV Monitor
- VRAM Upgrade
- ScanMaker II E6 color Scanner
- Okidata 600e/ps Laser Printer
- 6x8 Graphics Tablet
- IOmega Zip 100 with 1 cartridge

Systems Starting at \$1899

8500/180 **Per Month \$319**
MID RANGE DTP SYSTEM

- PowerMac 8500/180
- Internal CD ROM
- 80MB RAM
- 4GB internal hard drive
- Extended keyboard
- Sony 20SFII monitor
- ATI Xclaim 4MB PCI Video Card
- Agfa Studio Scan IIs/w Trans
- Sony 8GB DAT tape drive
- SyQuest 200 Drive/w 2 cartridges
- GCC 608 600dpi, 11x17 Printer
- 12x12 Graphics Tablet

Systems Starting at \$2899

9500/200 **Per Month \$429**
HI END SUPER STATION

- PowerPC 9500/200MHz
- Internal CD ROM
- 144MB RAM
- 4GB internal hard drive
- Radius PrecisionView 21 Trinitron Monitor
- IMS Twin Turbo 8MB PCI Video Card
- Yamaha 4x/4x CDR with Toast Software
- IOmega JAZ 1GB with 1 cart
- Microtek ScanMaker III with Transparency
- GCC XL 1208 1200dpi, 11x17 Printer, E-Net
- 12x18 Graphics Tablet

Systems Starting at \$3599

FREE VALUE ADDED SERVICES

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

7600/132 **Per Month \$219**
STARTER SYSTEM

- PowerPC 7600/132MHz
- Internal CD ROM
- 40MB RAM
- 1.2GB hard drive
- Extended keyboard
- VRAM Upgrade
- Viewsonic 17EA AV Monitor
- TrueVision Targa 1000 PCI Digital Card
- 4GB SCSI-3 Fast&Wide disk array
- SCSI-3 Fast/Wide RAID disk controller with RAID SW
- Sony 8GB DAT tape drive

Systems Starting at \$1899

LOW PRICE

8500/180 **Per Month \$269**
MID RANGE POWER SYSTEM

- PowerPC 8500/180MHz
- Internal CD ROM
- 80MB RAM
- 2GB hard drive
- Extended keyboard
- Sony 20SF II Monitor
- ATI Xclaim 4MB PCI Video Card
- TrueVision Bravado 1000 PCI Digital Card
- 8GB SCSI-3 Fast&Wide disk array
- SCSI-3 Fast/Wide RAID disk controller with RAID SW
- Sony 8GB DAT tape drive

Systems Starting at \$2899

9500/200 **Per Month \$429**
DIGITAL VIDEO WORKSTATION

- PowerPC 9500/200MHz
- Internal CD ROM
- 144MB RAM
- 4GB internal hard drive
- Radius PrecisionView 21 Monitor
- ATI Xclaim 4MB PCI Video Card
- TrueVision Targa 2000 PCI Digital Card
- 8GB SCSI-3 Fast&Wide disk array
- Yamaha 4x/4x CDR with Toast Software
- SCSI-3 Fast/Wide RAID disk controller
- Sony 8GB DAT Tape Drive

Systems Starting at \$3599

Photo Systems

Perfect for:
Photographers and Marketing Professionals

FREE!

Microsoft Office
With Every Photo System Lease
\$439 Value

8500/180 **Per Month \$189**
ENTRY LEVEL

- PowerMac 8500/180MHz
- Internal CD ROM
- 80MB RAM
- 2GB hard drive
- Extended keyboard
- Viewsonic 17EA AV Monitor
- Polaroid Sprintscan 35mm
- Kodak DC40 digital camera
- JAZ 1GB with 1 cartridge

Systems Starting at \$2899

9500/200 **Per Month \$299**
HI-End PHOTO STATION

- PowerPC 9500/200
- Internal CD ROM
- 144MB RAM
- 4GB hard drive
- Extended keyboard
- ATI Xclaim 4MB PCI Video Card
- Sony 20SFII Monitor
- Yamaha 4x/4x CDR w/toast & director
- Kodak DC50 digital camera
- Polaroid Sprintscan 35mm

Systems Starting at \$3599

Call For Custom Configurations

POWERMAC SYSTEM SPECIALS

Every Digital Graphix system is completely assembled and tested before shipping—all ready to run.

CPU/Extended Key/Mouse	Monitor/Card	CASH	LEASE
9500/200/40mb/2.0GB/CD	Sony 20"/ATI Xclaim 4MB	\$5799	\$159
9500/200/80mb/2.0GB/CD	Sony 20"/ATI Xclaim 4MB	\$6349	\$169
8500/180/32mb/2.0GB/CD	Viewsonic 17"/VRAM upgrade	\$4539	\$119
8500/150/32mb/2.0GB/CD	Viewsonic 17EA/ATI Xclaim	\$3649	\$99
7600/132/24mb/1.2GB/CD	Viewsonic 17"/VRAM upgrade	\$2999	\$79
7600/132/80mb/1.2GB/CD	Sony 20SFII/ATI Xclaim 4MB	\$4589	\$119
7600/120/16mb/1.2GB/CD	Viewsonic 17EA/VRAM upgrade	\$2699	\$69
7200/120/16mb/1.2GB/CD	Sony 15SX1 monitor	\$1929	\$49

Complete line of 5,000 Mac items in Stock! If we don't have it, nobody has it!

Lowest Prices on Over 30,000 Products

Digital Video



TrueVision
Targa 2000 PCI
\$3,125

TrueVision Targa 2000 PCI	\$3125
TrueVision Targa 1000 PCI	\$2059
TrueVision Bravado 1000 PCI	\$739
Miomotion DC20 PCI	\$739
Radius VideoVision Studio PCI 2.0	\$3759
Media 100 qx PCI	\$4099
Media 100 qx PCI with Component	\$5769

Graphics Tablets



Wacom
ArtZ II 12x12
\$419

Wacom ArtPad II 4x5	\$139
Wacom ArtPad II 4x5 w/Dabblers	\$149
Wacom ArtZ II 6x8	\$297
Wacom ArtZ II 12x12	\$419
Wacom ArtZ II 12x18	\$689
Calcomp DrawingSlate II 6x9	\$199
Calcomp DrawingSlate II 12x12	\$219
Calcomp DrawingSlate II 12x18	\$279

Global Village 33.6Kbps
Internet Edition
\$739!



- Internet Access SW
- Web Browser
- E-mail

Modems

Global Village TelePort Platinum Internet	\$196
Global Village PowerPort Platinum	\$319
Global Village TelePort Platinum Comm	\$196
Motorola BitSURFER Pro ISDN	\$339
Motorola ModemSURFER	\$129
USRobotics Sportster 28.8 v.34	\$189
USRobotics Sportster Voice	\$199

Disk Arrays



\$999

DG 4GB
Fast/Wide External

LOW
PRICE

DG 4GB Fast/Wide External Array	\$999
DG 8GB Fast/Wide External Array	\$2,399
DG 16GB Fast/Wide External Array	\$4,799
External Drives include external case, cable and terminator	

FWB
Incorporated

FWB 4100 PCI Wide 4GB Array	\$2,879
FWB 8200 PCI Wide 8GB Array	\$3,879
FWB 17400 PCI Wide 17.4GB Array	\$6,399
FWB External Drives include external case, cable, terminator, SCSI JACKHammer PCI Card and FWB's Raid Toolkit SW	
FWB 4100 Pro2 Wide 4GB Array	\$4,599
FWB 8200 Pro4 Wide 8GB Array	\$8,799
FWB 17400 Pro8 Wide 17.4GB Array	\$9,299
FWB 34800 Pro8 Wide 34.8GB Array	\$18,899
FWB Pro External Drives include removable canisters, cable, terminator, SCSI JACKHammer PCI Card and FWB's Raid Toolkit SW	

SCSI Controllers & Raid Software

Adaptec 2940 FW PCI	\$299
FWB Sledgehammer F/W PCI	\$389
Remus Raid Software LE	\$199
FWB Raid Toolkit Software	\$359

Digital Cameras



DC50 Zoom
\$869

Kodak DC20 Camera	\$289
Kodak DC25 Camera	\$489
Kodak DC40 Camera	\$589
Kodak DC50 Zoom Camera	\$869
Epson PhotoPC for Mac	\$389
Epson PhotoPC 500 for Mac	\$489

Digital GraphiX Best Price Specials



Syquest 88MB Cartridges

5 pack Only \$199



IOMega Jaz
1GB Cartridges
Only \$89



APPLE PowerBook
Duo 2300C 20/1GB
and
Duo Doc II Plus
Only \$2479



230MB Optical
Cartridges
Only \$11.99 (10+)



Adobe After
Effects V3.1
Only \$619

Lowest Prices on over 30,000 products on the Internet

Find us on the Internet at <http://www.DigitalGraphiX.com>

Or E-Mail us at: Digital-Graphix@worldnet.att.net

Best Service, Price and Selection



**VIEWSONIC
17" EA IV
\$659!**

*With \$150 Manufacturers Rebate

Monitors

Sony 15SX1	\$389
ViewSonic 17EA AV	\$659 <small>SALE</small>
RasterOps MC 21	\$1739*
Sony 17 200SF	\$799
Sony 20SF II	\$1599
Radius PressView 17SR	\$1979
Radius 21 PrecisionView	\$2329
Radius PressView 21SR	\$3249



- 600 dpi camera ready output
- 8.5" x 11" print size
- 250 sheet capacity

**OKIDATA 600e/ps
\$739!**

Laser Printers

HP 6MP, 8.5x11	\$889
Okidata 600e/ps, 8.5x11	\$739 <small>SALE</small>
Epson Stylus Color Pro XL, 11x17	\$1729
Epson Stylus Color Pro, 8.5x11	\$369
GCC XL 608, 600dpi, 11x17	\$2339
GCC XL 808, 800dpi, 11x17	\$2989
GCC XL 1208, 1200dpi, 11x17	\$4169



MICROTEK

**SCANMAKER III
\$1479!**

- 36-bit color
- 1200 dpi
- Built in Gamma Correction

Free Transparency

Scanners

Agfa Studio Scan IIsi	\$659
Agfa StudioStar LE	\$819
Agfa Arcus II/Transparency	\$1889
Microtek ScanMaker II E6	\$569
Microtek Scanmaker III	\$1479
Microtek Scanmaker E3	\$319



Tape Drives

Sony 8GB	\$969
ExaByte 8205XL	\$1479
ExaByte 8505XL	\$2109
DLT 30GB	\$2569
DLT 40GB	\$4489

Includes external drive 2550 cable, active terminator, and NovaMac backup SW



**32 MB
Only \$189**

Lifetime Warranty

Memory

Size	DIMMS	72pin SIMMS
4MB	N/A	\$29
8MB	\$49	\$47
16MB	\$89	\$99
32MB	\$198	\$189
64MB	\$399	NA

Software Specials

Adobe Photoshop v4.0 CD	\$549
Adobe Pagemaker v6.0 CD	\$539
Adobe Illustrator V6.0 CD & 3.5	\$369
Omni Page Professional v5.5 CD	\$149
Microsoft Office v4.2.1 CD	\$329 <small>SALE</small>
Quark Express V3.32 CD	\$629
Macromedia Freehand v5.5 CD	\$359



**IOMEGA
JAZ 1GB
\$449!**

Optical & CDR Drives

Jaz 1GB with 1 cartridge	\$449
Olympus 230MB with 1 cartridge	\$499
Sony 2.6GB with 1 cartridge	\$1799
Yamaha 4x/2xCDR with Toast & Director	\$829
Yamaha 4x/4xCDR with Toast & Director	\$1199

Optical Cartridges

OEM 128MB	\$8.99
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**



SyQuest & ZIP Drives

ZIP 100 External/with cart	\$139* <small>SALE</small>
EZ 230 External/with cart	\$295
200MB External/with cart	\$449

SyQuest Cartridges



270MB	\$56
200MB	\$61
88MB	\$39
44MB	\$37

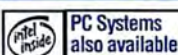
*With \$50 Manufacturers Rebate

**Digital
GraphiX**

Your Value Added Macintosh Source

20695 S. Western Ave Suite 132
Torrance, CA 90501

CIRCLE 33 ON READER SERVICE CARD



PC Systems
also available

800-680-9062

800-680-9062

310-783-1525

310-783-1515

Order from 5:30am - 6:00pm M-F, 10:00am - 2:00pm Sat

SALES. USA & CANADA

FAX

INTERNATIONAL

Prices subject to change without notice. Not responsible for typographical errors. Call for an RMA number before returning equipment.



MacWAREHOUSE

We carry over 6,000 products for your Mac! Plus

**100% MAC-OS COMPATIBLE
SUPER SYSTEMS!**

MOTOROLA

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 3000/180 Mini-tower
180MHz, 32MB RAM, 2.5GB hard drive,
8X CD-ROM/28.8 modem
Ask for item # CPU 0537 **\$1899**

StarMax 3000/200
200MHz, 16MB RAM, 1.2GB hard drive,
8X CD-ROM/28.8 modem
Ask for item # CPU 0449 **\$1999**

StarMax 3000/200 Mini-tower
200MHz, 32MB RAM, 2.5GB hard drive,
8X CD-ROM/28.8 modem
Ask for item # CPU 0450 **\$2199**

3 Ways to Order:

1. Call: 1-800-725-1454
2. FAX: 1-908-905-9279
3. MacWAREHOUSE is now on the



<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 surcharges).
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 ET (weekdays), and we will ship same day for overnight delivery (posting 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
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. All rights reserved and price subject to change without notice. We warrant 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!



Ask for item # BND 1447
Includes Earthlink Total Internet Access
33,600 bps FAXMODEM
Price reflects \$30 mail-in rebate. Price before rebate is \$129.95. Offer good while supplies last.

TURBO Mouse 5.0
KENSINGTON \$99.95
Ask for item # INP 0626
FREE! Holiday Custom Trackball with the purchase of a Turbo Mouse!
Red AAA 0171
Green AAA 0170
*While supplies last.

MacWAREHOUSE EXCLUSIVE OFFER!
UPGRADE to Adobe Photoshop 4.0
for only **\$149.95**
Ask for item # BND 1628
CD-ROM only. Serial number required at time of purchase.
and get Alien Skin Black Box 2.0 **FREE!**
*Alien Skin Black Box 2.0 shipped in promotional packaging via CD-ROM with electronic documentation. Hard copy documentation not included. Offer good while supplies last. Offer does not apply to 5-packs or bundles.

IOMEGA ZIP DRIVE
\$199.95 price before rebate
- \$50 mail-in rebate
\$149.95* Final price after rebate!
Offer exp. 1/31/97
Includes your first disk **FREE!**
Ask for item # BND 1429
*After mfr's \$50 mail-in rebate. In lieu of rebate you can choose Iomega's "Game Pack-to-Go" Bundle. Options specified on rebate coupon included with product box. 1 Zip Tools utility software included on first disk.

SIMMs
as low as **\$19.95**
1MB 30-pin 80ns SIMMs
Ask for item # CHP 0022

NEW! Upgrade to FreeHand 7
for only **\$149.95**
Ask for item # UPG 0531
CD-ROM only. Serial # required at time of order.
BONUS!
500 fonts, 500 templates & 10,000 clip art images on CD-ROM!
Upgrade to FreeHand Graphics Studio 7 for only \$198.95!
Ask for item # UPG 0532 CD-ROM only. Serial # required at time of order.

WAREHOUSE®

FREE!

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.

WHILE SUPPLIES LAST!

a full line of Macintosh™ and Mac OS computers!

GET MYST FREE!
when you buy a 12X CD-ROM Drive for \$249.95 only

ASUPE FAST

Ask for item # BND 1727

WHILE SUPPLIES LAST!

*Shipped in promotional packaging on CD-ROM.

JAZZ DRIVE
Store up to 1GB on one 3.5" cartridge!

\$499.95
Includes your first 1.0GB cartridge*

Ask for item # ORI 1119

*Jaz Tools Utility Software included on first cartridge.

Jam-packed with 12 FREE software titles!

1-Year On-Site Warranty

Mac OS

Monitor not included.

UMAX
Computer Corporation

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!

UPGRADE to ADOBE PAGEMILL 2.0
for only **\$49.95**

PLUS FREE WEB GRAPHICS from PowerDirector

Ask for item # BND 1554

*Photos, illustrations shipped in promotional packaging on CD-ROM. Pagemill 2.0 serial number required at time of order.

RAM Doubler 2
Upgrade For Only **\$29.95**

Ask for item # UTI 0986

*Price reflects \$25 mfr's mail-in upgrade rebate. Price before rebate is \$54.95.

NEW VERSION!

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.

SuperMac C600
SuperMac C600/180MHz/603e
1.2GB HD/16MB RAM/8X CD-ROM
Item # CPU 0555...**\$1599**
SuperMac C600/200MHz/603e
2.1GB HD/16MB RAM/8X CD-ROM
Item # CPU 0556...**\$1899**
SuperMac C600/240MHz/603e
2.1GB HD/24MB RAM/8X CD-ROM
Item # CPU 0554...**\$2199**

1-Year On-Site Warranty

Monitor not included.

DeskWriter 680C
B&W: 600dpi! Color: 300 x 600dpi!

ONLY \$299

Ask for item # INP 0672

HP HEWLETT PACKARD

Upgrade WAREHOUSE!

SAM 4.5
Ask for item # UTI 1009 **\$29.95***
*Price after 140 Manufacturers mail-in upgrade rebate. Price before rebate is \$69.95.

Speed Doubler 2—Upgrade Only
Ask for item # UTI 1052 **\$29.95***
*Price after 25 Manufacturers mail-in upgrade rebate. 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) **\$369.95**
Ask for item # UP 3348 (Win. CD-ROM) **\$369.95**

Macromedia Director Multimedia Studio 2 Upgrade
Ask for item # UPG 0249 (Mac CD-ROM) **\$468.95**
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**

\$20 REBATE when you buy **10 Zip Disks!**

Ask for item # MED 0165
Rebate coupon: AA 0574

1-9 disks **\$18.95 ea.** 10-19 disks **\$16.95 ea.** 20+ disks **\$14.95 ea.**

1GB Jaz Cartridges
Ask for item # MED 0177

1-4 carts. **\$124.95 ea.** 5-9 carts. **\$99.95 ea.** 10+ carts. **\$89.95 ea.**

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 0201. All programs work with System 7.

Upgrade to Adobe Pagemaker 6.5

NEW VERSION

for only **\$99.95***

Ask for item # UPG 0560

Trade up from QuarkPress for only \$129.95! Ask for item # SID 0381. Proof of ownership required. Call for details.

*Serial Number required at time of order.

To order, call toll-free 24 hours a day, 7 days a week
1-800-725-1454

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.)

☐ 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!

FREE CATALOG!

MACWAREHOUSE
MACINTOSH POWERPC SLASH!
\$899!

FREE!
WITH ANY PURCHASE
OF \$49.95 OR MORE
CALL 1-800-725-1454



CIRCLE 157 ON READER SERVICE CARD

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.

186-193

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.

194-216

BUSINESS CARD

A forum for innovative, unique, low-cost and hard-to-find Macintosh hardware, software, and miscellaneous products and services.

217

HARDWARE

	Premier	Classified
Bar Coding		194
Boards/Components/Chips	186	194
CD-Rom		195
Computer Systems		196
Disk Drives	190	
General		
Input/Output Devices		
Multi-Media		
Peripherals	191	
Powerbook Products	189	

SOFTWARE

Bar Coding	191	194
Business		

CAD/ CAM

CD-Rom		
Communications/Networking	191	
Education	190	
Entertainment/Games		
General	192	214
Graphics/Fonts		212
Multi-Media	192	
Music/Midi	192	
Programming Tools/Languages		
Scientific/Engineering		
Security		
Utilities		
Adult		216

SERVICES

Computer Insurance		213
Data Conversion/Data Recovery	193	210
Desktop Publishing	193	
Digital Output		
Disk Duplication		
Online Services	192	
Repair Services		212
Slide Imaging		

MISCELLANEOUS

Accessories		
Supplies		212

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
--	--

Introducing the VST ZIP100 Drive for the PowerBook® 1400

VST zip™ 100 Drive

VST Technologies is proud to announce the new VST Zip100 Drive for PowerBook 190 and 5300 and for the PowerBook 1400. Finally, you can have the convenience and storage space of an Iomega® Zip100 drive in the expansion bay of your PowerBook.

- Plug-N-Play simplicity — boots up right out of the box
- Compatible with desktop Zip drives and cartridges
- Part #ZIP5000, \$349.95 (for PowerBook 190/5300)
- Part #ZIP1400, \$349.95 (for PowerBook 1400)



**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>

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

Run Your Mac Faster and Save!

See Us
Mac Expo
Booth 4451
North Hall

PREMIER



Accelerate Mac LC, LC II, Color Classic, IIfx, IIsi, IIfx, 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*, IIfx, IIfx, 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, IIfx, 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, IIfx 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.

Power FPU Software. Run 68040 FPU applications on PowerPC FPU.... \$75



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



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.

PCI 10/100BaseTX Ethernet \$99

Wait no longer! Take your ethernet to a blazing 100MHz for only \$99. This 5" card fits in all PCI Macs and auto-senses.



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



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, 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.



Apple 100 MP and DayStar Multiple Processors Improve Performance of After Effects and Photoshop

Digital Video Editing



We Ship Media 100 QX and QXC by FedEx Express Anywhere in the USA

Media 1000X PCI Power Mac 9500-200-96-2000-8xCD \$12450

Media 1000XC PCI DayStar Genesis 360-128-2000-8xCD 15955

With 4 GB UltraWide Array, 17" Monitor, Ext Keyboard, Adobe Premiere

Media 1000X PCI With 8 GB UltraWide Array & Adobe Premiere 6850

Targa2000 PCI Power Mac 7800-132-80-1000-8xCD 10465

Targa2000 PCI Power Mac 9500-200-96-2000-8xCD 12450

Targa2000 PCI Power Mac 9500-180MP-96-2000-8xCD 13500

With 4 GB UltraWide Array, 17" Monitor, Ext Keyboard, Adobe Premiere

Targa2000 PCI With 8 GB UltraWide Array & Adobe Premiere 6850

VideoVision PCI Power Mac 7800-132-80-1000-8xCD \$10465

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 68K, After Effects, Pinnacle VTR

VideoVision PCI With 8 GB Ultra Array, Ext 2.1, After Effects, VTR 6850

Targa2000 RTX Power Mac 9500-200-96-2000-8xCD 19455

Targa2000 RTX Power Mac 9500-180MP-96-2000-8xCD 20505

Targa2000 RTX DayStar Genesis 720-128-2000-8xCD 22555

Above With 8 GB UltraWide Array, 17" Monitor, Ext Keyboard, Scitex SphereOS

Targa2000 RTX With 8 GB UltraWide Array With SphereOS 13855

Video Disk Arrays


**Rock Mountable
RAID Storage For
Macintosh & NT**

 High Performance 19" Rack Mountable RAID Arrays
Hot Swappable Fans and Load Sharing Power Supplies

16 GB UltraSCSI RAIDrack Dual SCSI Cartridges \$9795

32 GB UltraSCSI RAIDrack Dual SCSI Cartridges 14995

72 GB UltraSCSI RAIDrack Dual SCSI Cartridges 23995

RAIDrack to 144 GB • 7200 RPM UltraSCSI Drives


**Wide SCSI-2 & -3
PCI Disk Arrays
For Macintosh**

UltraSCSI-3 Wide-40 is Here

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 8995



Easy to Install Centralized Serial Storage Systems For Digital Video

SSA Network Loops Allows Multiple PCI

Macintosh Workstations to Share Disk

Arrays up to 80 MB/sec • Simple Cables

8 GB - 2 Station Bundle - 2 Desktop Cabinets \$9995

32 GB - 2 Station Bundle - 1 Tower Cabinet 22995

64 GB - 2 Station Bundle - 2 Tower Cabinets 39995

Systems include two PDA/SSA Host Adapters, Two Users Licenses for ImageNET

Management Software, 3 SSA Cables 2.5 Meters Each, and Remote Light Striping

Software Expandable to More Than 1100 GB, Cables and Host Adapters Available

Add-on: 8 GB @ \$3495 • 32 GB @ \$16495 • 64 GB @ \$33495



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 99¢ 100 Pack 799¢



ProMax Custom Configures New or Existing Computers For Digital Video Editing or Pre-Press Applications

Ask About DayStar Genesis & nPower Processors to 720 Mhz

DayStar Genesis 360 & 720

nPower 360+ & 720+ Processors

Power Macintosh Computers:

7600-132-32-1000-8xCD

9500-200-128-2000-8xCD

9500-180MP-128-2000-8xCD

Data Translations Media 1000X & QXC

VideoVision PCI by Radius

NEW: Radius Thunder 3D Accelerator

Truevision Targa2000+ Pro+RTX+DTX

16, 32, 64 MB Memory - DRAM

ATI 4 MB Video Display Cards

RGB and NTSC Studio Monitors

Call us About Configuring Existing Power Macintosh Computers

Adobe Premiere

Adobe Photoshop

Adobe After Effects

After Effects Production

Boris Effects

Scitex SphereOS 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

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

NEW 2.6 and 4.6 GB Magneto Optical Systems

Pinnacle Vertex 2.6 GB System with Cartridge \$1495 Media: 2.4 GB 1 Pack \$79 5 Pack \$389

Pinnacle Apex 4.6 GB System with Cartridge 1995 Media: 4.2 GB 1 Pack 129 5 Pack 629

NEW Sony SDX-300C AIT Backup System

High Speed Fast/Wide SCSI-2 Interface • Optional Adapter: 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-13N AIT Blank Tape Cartridge - 25 to 50 GB of Storage Space • 1 Pack \$80 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



16 Technology Drive • #106 • Irvine, California 92618

TEL: 714-727-3977 • 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 173 ON READER SERVICE CARD

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...\$1995

7600 120MHz 16/1.2GB/8x/CD/L2...\$2095

7600 132MHz 16/1.2GB/8x/CD/L2...\$2195

8500 150MHz 16/2GB/4x/CD/L2...\$2695

8500 180MHz 32/2GB/8x/CD/L2...\$3495

9500 180MP 32/2GB/8x/CD/L2...\$4699

9500/200 32/2GIG/8x/CD/L2...\$3899

ALL APPLE WORKGROUP SERVERS...CALL

PERFORMAS

6360 160MHz/16/1.2GIG/BXCD/28.8...\$1399

6320CD 16/1.2GB/4x/CD/15" Monitor/

kb/mouse/28.8/software...\$1699

6400/180 16/1.2GB/BXCD/ 28.8...\$1699

6400/200 16/1.2GB/BXCD/ 28.8...\$1899

SCANNERS

Apple ColorOne 1200/30...\$785

Apple ColorOne 600/27...\$585

UMAX Vista S-8 w/Trans/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

KEY BOARD

Apple Extended Keyboard...\$145

Apple Design Keyboard...\$75

MACally Extended Keyboard...\$72

POWER BOOK

1400CS 12mb/750mb/dual-scan...\$2295

1400CS 16mb/750mb/6x/CD/dual-scan...\$2695

1400CS 11mb/1GIG/6XD/active-matrix...\$3295

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 172 ON READER SERVICE CARD



PowerBook Docking Stations



Slide in to convert your PowerBook to a complete desktop system, slide out for portability!



BE1400



BE5000



BE500E



MSIA Monitor Stand



BE148

BookEndz™ Docking Stations... thousands in use around the World!

- Eliminate the need for a desktop computer
- Fast, reliable connections every time
- Dock/Undock in seconds
- Prevent cable/port damage
- Eliminate cable confusion
- Eliminate file synchronization problems
- Support all rear ports
- Assemble in minutes
- Adds only 3" to rear of PowerBook when docked

- 30-day money-back guarantee
- Volume discounts available
- Same day shipping
- Dealer inquiries welcome

PowerBook™

BookEndz™

NEW I400 seriesBE1400-\$199

5300/190 seriesBE5000-\$189

500 seriesBE500E-\$175

140-180(c)BE148-\$129

Monitor Stand

Most notebooksMSIA-\$69.95



Call for a FREE Notebook Enhancements Catalog! 800-682-4987

Pilot Technologies, Inc. • 9703 Valley View Road • Eden Prairie, MN 55344

Phone: (612) 828-6002 • Fax: (612) 828-6806 • Email: pilottech@aol.com • WWW <http://www.pilot-tech.com/>

jaz  **zip** 

\$469 external w/ disk
\$379 internal w/ disk
Jaz cartridge (qty 5+) **\$89.80**

1  **iomega**

\$129 after \$50 rebate
Zip cartridge 10-pack **\$115** after \$20 rebate

Anything else? 

visit www.microhut.com call **800-966-0188** **Micro Hut**

CIRCLE 174 ON READER SERVICE CARD

if you were thinking of expanding your storage or adding a CD-ROM, you might want to give us a call.

We specialize in expansion housing, from one 3-1/2" portable, or one 5-1/4" "Mac" ZFP all the way up to eighteen 5-1/4"HH.

WX525F-7B **WX525F-2B** **WX525F-4B** **WX525F**

Special \$55

CALL US FOR A PORTFOLIO TO ORDER 800-75-WETEX
OUTSIDE CALIFORNIA 93839

WETEX INTERNATIONAL (USA) CORP.
624 S. Hambledon Ave., City of Industry, CA 91744
Tel: 818-854-6600, Fax: 818-854-6611

CIRCLE 175 ON READER SERVICE CARD

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.

For ordering or information:

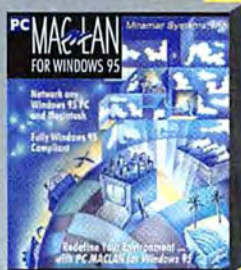
800-862-2526

e-mail: sales@miramarsys.com

Web: www.miramarsys.com

Visit us at: Macworld S.F. — Booth # 942

COMDEX / PacRim '97—booth # 3563



NOVEMBER, 1996

Macworld STAR Rating
★★★★ 7.5

Miramar Systems, Inc.
Intelligent networking between P.C.s and Macs

CIRCLE 176 ON READER SERVICE CARD

Affordable PostScript Solution for Macintosh!!



Image Alchemy PS for Macintosh

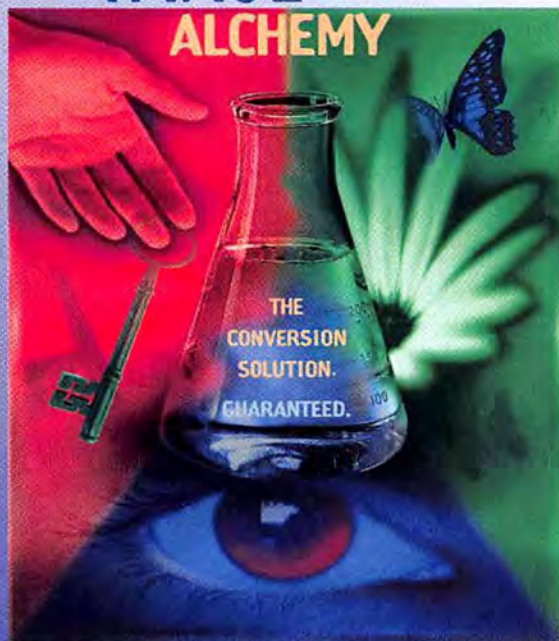
PostScript, Encapsulated PostScript, and Adobe Acrobat's PDF image files can now be converted to over 75+ supported formats, affordably!

Other features include:

- ✓ **JPEG compression**
- ✓ **Image viewing**
- ✓ **Scripting**
- ✓ **Batch conversions**
- ✓ **Scaling with no size limitations**
- ✓ **Color management**
- ✓ **Palette options**
- ✓ **Specify DPI**
- and more...**

IMAGE

ALCHEMY



You can reach Handmade Software, Inc. directly at:

Tel +1 510 252 0101 • Fax +1 510 252 0909 • sales@handmadesw.com • www.handmadesw.com

RECORD CDS

NEW!

A/D

CD RECORDERS



\$499

2X/4X CD-R

- Stackable Design
- Convenient On/Off
- Includes Toast Pro

(4X CD-R \$899)

JAZ/CD-R DUO



\$999

We used our two Extremes to burn over 100 CDs... We couldn't have finished our project on time without the Extremes!" - Greg Loboda, McDonnell Douglas

...I am absolutely floored! An amazing piece of hardware!" - John Mazzione, Macietel

MEDIASTORE...has produced a real excitement in my product line. The Extreme fits an important need for my customers" - Edward Craig, Craig Systems

MEDIA SPECIALS

MORE CD-R BLANKS

\$5.99

w/ purchase of CD-R Drive
limit 10 - 7.49 by themselves
Kodak • TDK • Verbatim • Mitsui

CD-R PRINTER

\$1495

- CD's, Paper, or Cards/stock
- 720 DPI
- Brilliant Color

CD LABELER

- Interactive CD of Templates
- 100 Labels and Jewel Cards
- 100% Accurate Label Applicator

Only \$79

CD-R Safe Pens \$4.95

OPTICAL

128MB	\$10.99
230MB	\$14.99
650MB	\$29.99
1.3GB	\$39.99
2.6GB	\$69.99

SYQUEST JAZ & ZIP

44MB	\$33
88MB	\$37
200MB	\$55
105MB	\$45
270MB	\$52
JAZ 1GB	\$95
ZIP 100MB	\$14.99

CD DUPLICATION SYSTEM

16 CD's per hour
(see our website under Changers)
or ... **CALL**

JAZ Removable HD

DLT 30 GB \$2895

DLT 40 GB \$4895

- Lowest Cost per MB
- Highest Capacity
- Fastest Transfer

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 digitalsign \$499
- 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 UNDER SOLD!

JA 714-478-1131 • FC 714-279-1080

CIRCLE 177 ON READER SERVICE CARD

Celebrating...

LaserLite™ & DuraTrax™



The Next Generation

Get tough... Get metal!

Join the party as we celebrate two hot new products! LaserLite—the smallest portable laser bar code reader on the market! And DuraTrax—the first portable reader to fully integrate Touch Memory® and bar code technology. Call for your free information kit!

Videx

1105 N.E. Circle Blvd., Corvallis, OR 97330
541-758-0521 • Fax 541-752-5285 • <http://www.videx.com>

CONNECT Windows® & Windows® 95

to APPLETALK



NEW Educational Pricing Available

PCTalk Personal MACLAN Kit

\$299

1-800-767-4858

<http://www.apextech.com>

INSTANT PC TO Mac NETWORKING

- 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.

CIRCLE 178 ON READER SERVICE CARD

FREE CHILDREN'S SOFTWARE CATALOG



Includes McGee® NO WORDS Software series!

1-800-421-4157

LAWRENCE PRODUCTIONS

CIRCLE 179 ON READER SERVICE CARD

2 things our customers say about...

LaserMerge Electronic Paper

before they buy...

"I can't believe I get all this!"

after they buy...

"I can't believe I got all this!"

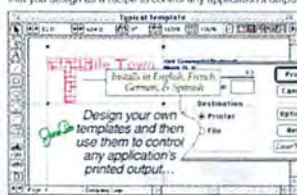
and all for only \$40

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.



Design your own templates and then use them to control any application's printed output...

Order from us Direct VISA MasterCard or thru MINDGATEHOUSE 800-255-6227 800-248-0800

MindGate, LaserMerge, Electronic Paper & their logos are registered trademarks and "This is the Button you Push" is a salesmark of MindGate Technologies, Inc.

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) 937-6836 Fax Orders (615) 937-6801



MindGate Technologies, Inc. 164 Oliver Smith Road, Franklin, TN 37055-5335

CIRCLE 180 ON READER SERVICE CARD

Practica Musica 3

Your Personal Music Tutor! MW ★★★★★

"The best music education program for the Mac" (MacUser) is now available in Solo, Family, and Site editions. (retail \$99, \$140, and \$450). The most complete music training package for both beginners and advanced students.

Kidmusic A LITTLE

NEW! Fun music learning and entertainment for kids. Tap keys to play with automatic accompaniment, play rounds, learn pitch and rhythm notation, write or record tunes. Expandable library of traditional songs. \$75

ARS NOVA • (206) 889-0927 • (800) 445-4866 • FAX (206) 889-0359 • www.ars-nova.com

\$19.95 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 181 ON READER SERVICE CARD

\$299 Director 5.0	\$169 Freehand 5.5	\$215 Painter 4.0	\$239 Infini-d 3.5	\$79 Utilities 3.2
\$79 Wordperfect	Student-Teacher-School Discounts!!			
\$315 MiniCAD 6	ArchicADD 5 \$495	Final Draft 3.0 \$125	Now Utilities 6.5 \$59	OmniPage Pro 6 \$249
	AutoCAD R12 \$189	Fontographer 4.1 \$159	Quickkeys 3.01 \$84	Ram Doubler 2.0 \$54
	Clarix Works 4.0 \$99	Japan Language \$125	SAM 4.0 \$59	SoftWindows 3.0 \$228
	Coda Finale 3.7 \$249	Kai's PowerTools \$78	Studio Pro 1.75 \$429	The Black Box \$75
	Code Warrior 9 \$128	KPT Bryce 2.0 \$78		
	Conflict Catcher \$59	Live Picture 2.5 \$468		
	Decl/SourceEdit \$249	Mathematica \$145		
	FileMaker Pro 3 \$129	MiniTab Rel. 11 \$249		

Software Plus Academic Inc. 377 Route 17 South #116 Hasbrouck Heights, NJ 07604 Tel: 201-288-7441 Fax: 201-288-7442

Software Plus Academic Inc. 377 Route 17 South #116 Hasbrouck Heights, NJ 07604 Tel: 201-288-7441 Fax: 201-288-7442

MiniCAD+6 Orders (800)261-8524 Call for Adobe & Microsoft Products!!

Full Color Business Cards & More

Direct From Your Computer Files, from NōNEG 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
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 182 ON READER SERVICE CARD

Do you think pleasure is sinful?

Mac, Windows, and audio CD players compatible

We know... not! That's why we created The Art of Touch, a friendly, interactive encyclopedia of massage on CD-ROM. You'll learn... (and while you learn!)

Whether your desire is stress relief, weight reduction, prevention of RSI, or just putting that zing into your relationship, The Art of Touch does it all!

The Art of Touch is the ultimate companion for the curious and the adventurous. Call right now and we will include 23 minutes of music FREE, to inspire a luscious full body massage anywhere, anytime! What else do you need to celebrate the simple pleasures of life? A partner! (Not included with this CD-ROM).

Only \$44.99, 60 day money back guarantee

Call Right Now Toll Free: 1-888-THE-CD-ROM

Visit our web site at <http://www.digifilm.com>

Produced by The Fischinger Corporation, Santa Cruz, CA

"MACUSER MARKETPLACE HAS BEEN A GREAT PLACE FOR US TO COMPETE AND SUCCEED. IT'S HELPED US GROW FROM A BASEMENT OPERATION TO A MULTI-MILLION-DOLLAR ENTERPRISE."

— Alan Kaplan, CEO Mac Sale International

PUT YOUR AD HERE AND WRITE YOUR OWN MACUSER SUCCESS STORY.

CALL 800-825-4237 TODAY!

World's
Smallest

40% Smaller 4"X 1"X 8"

New!

Ultra-Portable Multi I/O Disk Drives-Power Supply Inside

Web page: <http://www.libertyinc.com>

30 Series

- New 4.3, 2.1, & 1 Gig
- Jaz Removable.1G,
- SyQuest 270/230MB & 1.3Gig
- Fujitsu. Optical 230/640MB
- Nomi/MCD 540MB Cart. Drive
- SCSI-2 & SCSI-2 Wide
- Built in power supply
- High impact 75 G Shock

Multi I/O: 15MB/sec PCMCIA Card
SCSI 2, SCSI 2 wide, Parallel port,
& Printer pass through (all units)

- SCSI 2 only both ports (25 or 50pin)
- SCSI 2 wide both ports
- PCMCIA both ports
- SCSI 2 & Parallel
- Parallel & Printer pass through
- Parallel & PCMCIA

Possible Combinations
More combinations on
50 Series and 70 Series

15MB/sec PCMCIA Type II Card

- 4-6-8 CD-ROM (PCMCIA)
- 2x4 or 4x4 CD Recorder
- 1.3 - 2.6 - 4.6 Gig MO

9.0 Gig 8 ms

70 Series

- 4-16 Gig DAT

Smart Fan
Climate Control

Liberty drives are not for everybody.

If you are not price sensitive and need sub-sized hardware then read on. The JAZ drive & power supply, as an example, is 97 cubic inches, the Liberty is 36 cubic inches. That is 37% or approximately 1/3 the size of what most people consider a small drive. That is Liberty's whole story, Liberty just repeats it for every storage device on the market. We might add that some Liberty drives have battery, UPS capability, and work on the COMBINED SCSI, PCMCIA Card & Parallel ports.

Removables

50 Series



The 50 Series has all the drives of the 30 Series but provides for battery & UPS options.

ph: (408) 983-1127

fax: (408) 243-2885

<http://www.libertyinc.com>

120 Saratoga Ave. #B2, Santa Clara, CA 95051

Liberty
Systems

TOTAL INTERNET

\$15.95*

MONTHLY



IDT Internet

TO SIGN UP/GET INFORMATION CALL ANYTIME:

1-800-792-8438

The lowest flat monthly national Internet rate

Macintosh™ and
Windows™ 3.x/95 compatibility

No per minute charges

Unlimited tech support 24 hours a day

Internet access available in most U.S. cities

UNLIMITED! UNCENSORED!

FULLY
GRAPHIC!
FREE
Netscape™

http://www.idt.net/				
6090				
SAVE UP TO 99% MONTHLY WITH IDT	Monthly Usage	CompuServe™	AT&T™	IDT™
	1.5 Hours per day	\$73.70	\$19.95	\$15.95
	3 Hours per day	\$161.45	\$19.95	\$15.95
	All day	\$1,389.95	\$19.95	\$15.95

For Web Page Design
and Domain Designation call (201) 928-1000 x4640

For 56K or T1 please call (800) 573-9438

With IDT's EXCEL long distance calling plan (\$19.95 without) With AT&T phone service (\$24.95 without). IDT phone rates are up to 50% below AT&T. Pricing as of July 1996 and subject to change. IDT is a trademark of IDT Corp. All other trademarks are the property of their respective owners.

Bar Code Pro™

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 221 ON READER SERVICE CARD

**1-800-832-8802**

603 W. 13TH ST. SUITE 1-H AUSTIN, TEXAS 78701
call M-S 8-7 pm CST

BEST PRICES ON SHIPPING!
BEST PRICES ON MERCHANDISE!
NO HIDDEN COSTS!

scanners

UMAX Vista S6E	\$ 295
Alfa StudioScan IIsi	\$ 615
Alfa Arcus II 600dpi	\$1785
Microtek Scanmaker E3	\$ 315
Microtek Scanmaker E6	\$ 545
Microtek Scanmaker III	\$1435

Call or visit our web site for more products

memory lifetime warranty!

memory

TOP QUALITY 2-K MEMORY!

60ns	SIMM 72pin	DIMM 168pin	POWERBOOK 30-PIN
4 mb	\$ 23	\$ ---	\$ ---
8 mb	\$ 41	\$ 53	\$ 89
16 mb	\$ 84	\$ 91	\$ 139
32 mb	\$179	\$179	\$ 269
64 mb	\$CALL	\$349	\$ ---

Call for latest best price & EDO DIMMs

systems

UMAX	BUY	LEASE*
C500/160 16/1.2Gb/CD	\$1375	\$ 59
C600/180 16/1.2Gb/CD/28.8	\$1705	\$ 73
C600/200 16/2.1Gb/CD/28.8	\$1885	\$ 81
C600/240 24/2.1Gb/CD/28.8	\$2225	\$ 96
I700/150 16/2.1Gb/CD	\$2685	\$103
I700/180 24/2.1Gb/CD/28.8	\$2985	\$114
S900/150 16/2.0Gb/CD	\$3345	\$128
S900/180 32/2.1Gb/CD	\$3465	\$132
S900/200 32/2.1Gb/CD	\$3655	\$140
S900/180x2 32/2.1Gb/CD	\$4385	\$168

ALL ITEMS ARE NEW! • 30-DAY COMPATIBILITY GUARANTEE • PRICES SUBJECT TO CHANGE • ORDER ON-LINE!!!

*36-MO. BUSINESS LEASE

<http://www.io.com/arcomp>

OVERNIGHT SHIPPING AVAILABLE

CIRCLE 222 ON READER SERVICE CARD

monitors

NEC	
XV15+	\$ 415
M500	\$ 495
M700	\$ 795
XV17+	\$ 815
P750(17)	\$1045
P1550(21)	\$2015

Sony	
15SXI	\$ 385
15SFII	\$ 455
17SFII	\$ 755
17SEII	\$ 995
20SFII	\$1645

two day air shipping on monitors & storage

VISA / MASTERCARD

ABSOLUTELY NO SURCHARGES ON CREDIT CARDS

modems

U.S. Robotics Sportster	
33.6	\$146 ³
w/voice	\$160 ³

Global Village	
33.6	\$169
33.6 Int.	\$199

Supra (33.6)	
Express	\$129
FaxModem	\$195
SupraSonic	\$239

top quality at the best prices!

storage

iomega JAZ Ext.	
Int.	\$465
Zip Ext.	\$139 ³

*AFTER MFG. REBATE

Bar Coding

Call us for info

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

WHY IS THE COMPETITION SHAKING?

BECAUSE 1-800-4-MEMORY IS HERE
"WE CAN BEAT ANY PRICE IN COMPUTER SHOPPER"

WE SELL / BUY ALL MEMORY
SIMMS . DIMMS . NOTEBOOKS . MODULES

- LIFETIME WARRANTY
- FREE TECH SUPPORT
- NO CREDIT CARD SURCHARGE
- NO RESTOCKING FEE
- MOST ORDERS PROCESSED SAME DAY
- TRADE YOUR OLD MEMORY FOR CASH OR NEW MEMORY
- WE EVEN BUY BROKEN MEMORY
- CALL AROUND THEN CALL US

WHAT MORE COULD YOU WANT !!

CALL: **1-800-4-MEMORY** FAX: 908-238-4404
Trade-ins accepted too!

CIRCLE 223 ON READER SERVICE CARD

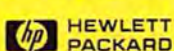
Powerbook Memory Specialists!

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, Cache

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 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

Graphics: Memory for
Plus: 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 manufacturer's lifetime warranty. Prices subject to change. Please call for current pricing.

Design, Print and Apply CD Labels for \$79⁹⁵

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 • 203-456-5170 • Fax 203-456-5178
Europe: +44 (0)990 561571 • Fax +44 (0)181 932 0480
See us at: <http://www.neato.com>

CIRCLE 228 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

POWERBOOK RAM
500/5300/190/2300

1MB.....	\$15
2MB.....	\$22
4MB.....	\$27
16MB.....	\$129

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!

COMPUTING

CALL/LOGIN FOR LATEST PRICING!

(800) 900-4599

Voice 954/725-9777 • Fax 954/725-9777
<http://www.sourcecomp.com>

VISA MasterCard FedEx

GOVERNMENT & EDUCATIONAL INSTITUTION NET POs WELCOME!

NO CREDIT CARD SURCHARGES!

PRICES SUBJECT TO CHANGE W/OUT NOTICE

LIFETIME WARRANTY

CIRCLE 227 ON READER SERVICE CARD

THESE ADS ATTRACT BUYERS WHO BUY AGAIN AND AGAIN!

ON AVERAGE, THEY BOUGHT 10 DIFFERENT TYPES OF PRODUCTS MORE THAN ONCE FROM MARKETPLACE ADS IN THE LAST 12 MONTHS.

ADVERTISE HERE, WHERE BRAND SPECIFIERS BUY DIRECT! CALL 800-825-4237 TODAY!

Source: 1996 MacUser Marketplace Subscriber Study

On the Web at <http://www.macsales.com>

OtherWorldComputing

Serving the Mac Universe Since 1988

800-275-4576

ORDER TOLL FREE TODAY

PowerMac Speed Bumps Here Now!

7200/120 8/1.2GB/CD.....	\$1679
7200/120 16/1.2GB/CD.....	\$1839
7600/120 16/1.2GB/CD.....	\$2299
7600/120 64/2.2GB/CD.....	\$2799
8500/132 16/1.2GB/CD.....	\$2999
8500/150 16/1.2GB/CD.....	\$3899
9500/150 16/2GB/CD.....	\$4399
9500/150 64/4GB/CD.....	\$4999

** INCLUDES 2MB ATI VIDEO CARD

CALL FOR CUSTOM CONFIGS, PBOOKS & PC COMPATIBLES

Performa 6320.....\$2299
Performa 6300.....\$1649
Performa 5260.....\$1499

OWC 130-210 MHz AfterBurner604 POWER MAC ACCELERATOR

Now you can accelerate your 72/75/76/85/9500 PCI PowerMac from 120 up to 210 MHz! Unlike other accelerators, once installed, the speed of the OWC AfterBurner604 can be easily adjusted without removing the processor card!

Up To 210 Mhz.!

OWC Rocket Accelerator
84Mhz for PMac 6100s, 7100/66, Performa 6100x \$49.95

BUY MEMORY NOW!

SIMMS
72 PIN 60ns

4mb 70ns	\$35
8mb 60ns/70ns	\$59
16mb 60ns/70ns	\$115
32mb 60ns/70ns	\$239

Call for 1/2/4mb 30 pin SIMMS

DIMMS
60ns

8mb	\$75
16mb	\$129
32mb	\$239
64mb	\$479

VRAM
PMac 7200/7500, 7600, 8500
1mb \$59
PMac 9500
2mb ATI \$159

CACHE
PMac 72/75/7600, 8500
256k \$99
512k \$159

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 SCALL
SEAGATE AND MICROPUS DRIVES SCALL
CALL FOR IDE INTERNALS FOR POWERBOOK & PERFORMA

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 & ADJ. WATT POWER.

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 226 ON READER SERVICE CARD

FINALLY...**Build Your Own PowerMac Clone and SAVE !!!**

3160 603e/160MHz...\$ 999
 3200 603e/200MHz...\$1,099
 4200 604e/200MHz...\$1,499

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 (up to 160MB)
 5 PCI slots
 VRAM slot upgradable to 4MB
 SVGA monitor port
 Level 2 Cache upgradable to 512K
 SCSI & E-IDE Bus (for HD & CD ROM)
 ADB & PS2 port (for KB & Mouse)
 2 High-Speed 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
 Assembly and Testing add...\$50

Processor Upgrade Cards

604/150.....\$399
 Dual 604/300mp.....\$999
 604e/200.....\$1299
 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)

Infiniti Series**NOW SHIPPING!****3160 Smart Bundle...\$1399**

16MB EDO DRAM
 1.3 Gb Hard Drive 8x CD-Rom Drive
 2MB VRAM
 Keyboard and Mouse
 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@pwrttools.com
 www.pwrttools.com

CALL for our GREAT prices on thousands of Mac related products

CIRCLE 229 ON READER SERVICE CARD

**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

POWERON
 COMPUTER SERVICES
(800) 673-6227
 (916) 652-1880 • (916) 652-1881 FAX

CIRCLE 230 ON READER SERVICE CARD

MacGlobal

SYSTEMS AND PERIPHERALS SALES AND SERVICE

Performas	Powerbooks
410/466/476 Call	160/165/170/180 Call
\$50 5/10/CD \$799	150 4/240 \$550
580 5/500 \$850	520 4/240 \$750
631 8/500 \$950	520C 4/240 \$1,100
6200 8/gig \$1,100	540C 4/320 \$1,650

Power Macs	Quadrax
7200 8/500 Call	630 4/250 Call
7500 16/500 Call	650/800/840/950 Call
8500 18/500 Call	

Printer	Monitors
StyLW 1200 \$185	14" App Color \$235.00
Laser 300 \$285	15" App Mtr \$275.00
Laser 320 \$450	17" 1705 \$685.00
Laser 4600 Call	20" GS \$550

TOP DOLLAR paid for used memory, hard drives and CPUs!

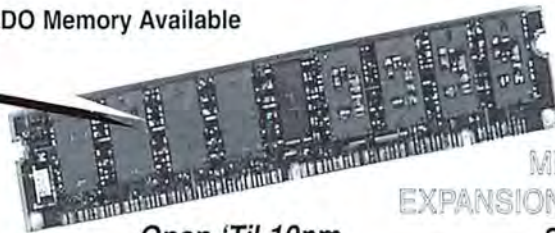
Call us!
 Phone: 1-800-722-8864
 Fax: [408] 997-1400

MacGlobal

CIRCLE 231 ON READER SERVICE CARD

MAC MEMORY**LIFETIME GUARANTEE**

EDO Memory Available



Open 'Til 10pm

MEMORY
 EXPANSION MADE
 SIMMple

SIMMS - DIMMS - VRAM - CACHE - CPUs - FPU's PowerBook Memory

University, Government & Corporate P.O.s w/ Approved Credit

DMS

Data Memory Systems, Inc.
 24 Kossway Drive
 Salem, NH 03079
 Tel: 603-898-7750
 Fax: 603-898-6585
 Web Page: www.datamem.com/datamem

1-800-662-7466

SAVE on RECONDITIONED MACS & 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: DataTechRem@aol.com
 Visit our Web Site:

<http://www.datatech-rmk.com>

DataTech Remarketing, Inc.
 471 Myatt Dr., Madison, TN 37115
 615-860-4122 • Fax 615-860-0390

CIRCLE 232 ON READER SERVICE CARD

BIG MAC

1-800-761-1999

POWERMAC'S

9500/200M 32/2GB/CD	3895
9500/180MP 32/2GB/8xCD	4995
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

POWERBOOKS

5300CE 32/1.2GB	3750
5300C 8/500	2595
5300C 16/750	3189
DUO2300C 20/1.2/MD	2295
190CS 8/500	1495
1400CS 12/750	2750

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

1831 Pontius Ave., Los Angeles, CA 90025
Tel: (310) 235-1780 • Fax: (310) 235-1790
Toll Free: (800) 761-1999

CIRCLE 233 ON READER SERVICE CARD

MEMORY

BEST PRICES!

VISA/MC/AMEX No Surcharge

DIMMS

8mb	\$ 45
16mb	\$ 78
32mb	\$ 170
64mb	\$ 340

72 Pin SIMMS

4mb	\$ 25
8mb	\$ 39
16mb	\$ 78
32mb	\$ 165

PwrBook 500/5300

8mb	\$ 80
16mb	\$ 145
24mb	\$ 210
32mb	\$ 270

30 Pin SIMMS

1mb	\$ 15
2mb	\$ 20
4mb	\$ 30
16mb	\$ 110

Storage Specials

Iomega Zip	\$170
LaCie Jaz	\$450
IBM 540 mb	\$175
Quantum 2 gig	\$399

Cache/VRAM

61/71/81 256k	\$ 35
72/85 256k	\$ 70
72/85 512k	\$100
1 mb VRAM	\$ 38

We'll do our best to beat any price. All prices are subject to change. Limited to stock on hand.

WE BUY USED MACS AND MEMORY! (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

TRADE-INS WELCOME. WE BUY MACS & MEMORY. CALL FOR A QUOTE.

CIRCLE 234 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 162MB DIMMS
512K SIMMS

POWERBOOK MEMORY

ALL SERIES AVAILABLE

PRINTER MEMORY

MAJOR BRANDS AVAILABLE

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
INTERNATIONAL 1-310-826-3363
RETURN ITEMS ARE SUBJECT TO APPROVAL AND RESTOCK. FEE. PRICES SUBJECT TO CHANGE

TERMS: VISA, MC, AMX, DISCOVER,
PRE-PAID, C.O.D. & APPROVED P.O.s

<http://www.dnm.com/hbr/>

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, IIsx and Mac II built in video.
- MAC TO VGA universal Mac to PC adapter connects any PC monitor to your Mac.



Dealer and quantity pricing available.

Tel 615/255-0990 • Fax 615/255-8040 • Grifcom@aol.com

**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 easiest way to record your own CDs!

Recordable, Finally Affordable!

2X4X CD-R

2X Write/4X Read

WITH TOAST (MAC) SOFTWARE

EXTERNAL

\$459

External Kit includes:

- External 2x4x Drive
- Power & SCSI Cables, Terminator
- Toast Mastering Software
- Manual, Registration Card
- One 74min blank media

INTERNAL

\$409

Kit includes:

- Toast software
- 1 piece of blank media

4X4X CD-R

4X Write/4X Read

WITH TOAST (MAC) SOFTWARE

EXTERNAL

\$879

External Kit includes:

- External 4x4x Drive
- Power & SCSI Cables, Terminator
- Toast Mastering Software
- Manual, Registration Card
- One 74min blank media
- CD caddy

INTERNAL

\$849

Kit includes:

- Toast software
- 1 piece of blank media
- CD caddy

**74min
CD-R Blank Media**

\$5.99 each

up to 10 pcs. when you buy
a 2X4X or 4X4X Drive
\$7.99 by itself

• NEC 4X SCSI
CD-ROM \$84

• NEC 8X SCSI
CD-ROM \$199



MICROSYNERGY

A Subsidiary of Innovative Diversified Technologies, Inc.

Price & Availability may change without prior notice

1-888-877-6777 ask for extension 301

(714) 727-3092 • FAX (714) 727-3565

CIRCLE 239 ON READER SERVICE CARD

**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 240 ON READER SERVICE CARD

THESE ADS WORK!
71% OF THOSE WHO
READ MARKETPLACE
ADS BUY OFF
THE PAGE.

ADVERTISE
HERE, WHERE
MAC BUSINESS
BUYERS BUY
DIRECT! CALL
800-825-4237
TODAY!



PROFESSIONAL INC.

800.244.4622

FAX 818.719.9115

LOCAL & INTERNATIONAL ORDERS 818.719.9200
6430 VAREL AVE. #106 WOODLAND HILLS, CA 91367

ALL PRODUCTS CARRY MANUFACTURER'S FULL WARRANTY. ALL PRICES ARE CASH/DEBIT/CARD & SUBJECT TO CHANGE. WE ACCEPT VISA/MC/AMEX. NO TAX OUTSIDE CA. CONSULTANT, DEALER & INTERNATIONAL SALES WELCOME.

• GOVT, FORTUNE 1000 & SCHOOL P.O.'S. WELCOME • LEASING AVAILABLE •
• WE GUARANTEE BEST AVAILABILITY, PRICE, SERVICE, DELIVERY & SUPPORT •
• WE SPECIALIZE IN CUSTOM MADE CONFIGURATIONS SINCE 1988 •

POWER MACS

7200/120	16/1.2-CD	1475
7200/120	32/2000-CD	1685
7600/132	16/1.2-CD	2125
7600/132	48/2000-CD	2425
8500/132	16/1000-CD	2495
8500/150	16/2000-CD	2695
8500/180	32/2000-CD	3385
9500/180 MP	32/2000-CD	4595
9500/200	32/2000-CD	3995

PERFORMAS

6400/180	16/1.6-CD	1695
6400/200	16/2.4-CD	1895
6360/160	16/1.2-CD	1450
5200/75	8/1000-CD	1295
5260/100	16/800-CD	1495

SUPER MAC

5900L225	32/2000CD	3888
5900L200	32/2000CD	3444

MONITORS

APPLE 15/1710/AV	389/899/999
SONY 15SF / 200SF	399/777
SONY 17SE II / 20SF II	999/1695
RASTEROPS MC 17	888
RASTEROPS 21HR	HOT! 1995
BARCO 21PERSONAL CALIBRATOR	3888
RASTER OPS MC 20	1395
RADIUS PRESS VIEW 21SR	3099
RADIUS PRECI VIEW 21	2275

CALL FOR YOUR FREE CATALOGUE

POWERBOOKS

5300 CE	32/1000	3799
5300 C	8/500	2359
5300 CE	8/500	1995
NEW POWER BOOK 1400 SERIES		CALL

POWER BOOKS

NEW COMPLETE LINE CALL

DIGITAL VIDEO

MEDIA 700	QX	3950
	QX/component	CALL
TARGA 2000		2650
TARGA 2000 PRO		3350
RADIUS VIDEO VISION 2.0		3450

DIGITAL CAMERA

POLAROID PDC 2000		CALL
KODAK DC 20/25		288/444
KODAK DC 40/50		549/849
CASIO QV10A/QV100		399/639
CASIO QV300 NEW		699

FACTORY REFURBISHED

7500/100	16/500-CD	1695
7500/100	32/1000-CD	1895
PERFORMA 640 12500-CD		880
STYLE WRITER 2400		211

DRIVES

IOMEGA ZIP DRIVE	175
IOMEGA JAZ DRIVE	479
EZ DRIVE	119
YAMAHA 4X CDR W/TOAST	999
PINNACLE VERTEX 2.6	1399
8/16 GIG DISK ARRAY	2750/5550

**SCANNERS**

AGFA ARCUS II	CALL
AGFA STUDIO STAR	795
UMAX S6E / S12	299/795
UMAX POWER LOOK II	CALL
UMAX MIRAGE 11X17	5550
NIKON SUPER COOL SCAN	1895
LINOTYPE HELL SAPHIR	1850
LINOTYPE OPAL	5350
MICROTEK SCANMAKER III WITH PAINTER & LIVE PICTURE	1395
POLAROID SPRINT SCAN 45	7995
POLAROID SPRINT SCAN 35	1469
NIKON LS-450AF	7895
UMAX POWER LOOK 2000	2888
NIKON LS-20 35MM	1195

PRINTERS

STYLEWRITER 1200	CALL
STYLEWRITER 2400	249
STYLEWRITER 2200	CALL
STYLEWRITER 2500	333
LASER 4/600/12/640	755/1499
APPLE COLOR LASER 12/600	5495
EPSON STYLUS 500	299
PERSONAL LASER 320	555
HP 6MP	899
HP 5M	1699
EPSON STYLUS PRO XL	1649
GCC ELITE 600 w/ ETHERNET	1125
GCC ELITE XL 608	2099
GCC ELITE XL 808 (800 dpi)	2650
GCC ELITE 1208	3655
GCC ELITE 1208 supersize	4825
GCC 616 16 ppm 11x17	2495



• CALL FOR LATEST PRICING • BUSINESS & PERSONAL LEASING SPECIALIST •

CIRCLE 241 ON READER SERVICE CARD

8500/180
16/2G/8XCD
ON SALE!

\$3199

- 8500MHz AT (LAMBDA)
- VIDEO IN/OUT
- AUTO VIDEO SHOT
- 32MB CACHE
- 2000 SLOTS
- 1000000 LANE

COMPU
AMERICA
"The Computer Specialist"

PERFORMA 6400
16/1.6G/8XCD
2 PCI SLOTS!

\$1579

- 100MHz CPU
- Software bundle
- 101 Keyboard
- INTERNET IN/OUT
- 2000 FAX/MDM
- Perfect for Home

7600/120
16/1.2G/4XCD
ON SALE!

\$1699

- 7600MHz AT (LAMBDA)
- VIDEO IN
- AUTO VIDEO SHOT
- 32MB CACHE
- 1000 SLOTS
- 1000000 LANE

1800-533-9005
HTTP://WWW.COMPU-AMERICA.COM

(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.

DUO 2300C
8/750 \$1499
20/1.2G/14.4 \$1899

PRICE WAR!!!

- 100MHz CPU
- 101 Keyboard
- Light/Weight
- Over 1000
- Active Matrix
- Extra Screen

PowerComputing PowerComputing PowerComputing PowerComputing

PowerTower Pro 225MHz 604e

ULTRA GRAPHICS WORKSTATION!

BASE UNIT

- 225MHz 604e CPU!!!
- 16MB RAM (8DIMM SLOTS)
- 1MB LVL 2 CACHE
- 8MB IMS Twin Turbo Card
- INTERNAL 8X SPEED CDROM
- TOWER WITH 6PCI SLOTS
- ETHERNET BUILT IN
- TONS OF FREE SOFTWARE!
- KEYBOARD AND MOUSE
- MAC OS 7.5.3

BUNDLE!

- 128MB RAM UPGRADE
- SONY 205FII 20" DISPLAY
- IOMEGA 1GB JAZZ DRIVE
- UMAX VISTA S-12 SCANNER
- WACOM ART 2 II TABLET
- FULL ADOBE PHOTOSHOP
- QUARK EXPRESS
- ADOBE ILLUSTRATOR
- ADOBE DIMENSIONS
- ADOBE GALLERY EFFECTS



\$4995 + \$4999 = \$9,999

PowerCenter 150MHz 604

INTERNET & MULTIMEDIA SYSTEM!

BASE UNIT

- 150MHz 604 CPU
- 16MB RAM (4DIMM SLOTS)
- 512MB LVL 2 CACHE
- 1MB ON BOARD VIDEO
- INTERNAL 8X SPEED CDROM
- LOW PROFILE CASE
- ETHERNET BUILT IN
- TONS OF FREE SOFTWARE!
- KEYBOARD AND MOUSE
- MAC OS 7.5.3

BUNDLE!

- 32MB RAM UPGRADE
- SONY 175FII 20" DISPLAY
- IOMEGA 100MB ZIP DRIVE
- 3 MONTHS FREE NETCOM
- ALTEC LANSING SPEAKERS WITH SUB WOOFER
- ADOBE Pagemill
- HP 870CXI COLOR PRINTER
- EXTERNAL 33.6 FAX/MDM
- ALL CABLES INCLUDED!



\$2095 + \$2299 = \$4394

POWERMAC

7200/75	8/500/CD	999*
7200/90	8/500/CD	1099*
7200/120	16/1.2G/4XCD	1299
7200/120	16/1.2G/8XCD	1449
7200/120	16/1.2G/4XCD/PEN	1899
7200/120	16/1.2G/8XCD/PEN	1999
7500/100	16/1GIG/CD	1599/1379*
7600/120	16/1.2G/4XCD	1699
7600/132	16/1.2G/CD	1999
8500/120	16/1GIG/CD	1899*
8500/132	16/1.2GIG/CD	2199
8500/150	16/2GIG/CD	2599
8500/150	16/1.2/8XCD	2599
8500/180	16/2GIG/CD	3299
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	3299
9500/200	16/2G/CD	3899
6100/66	16/500/CD/DOS	999*
8100/100	8/700	1599*
8100/110	16/2GIG/CD	2399*

MOTOROLA

RISC PC PLUS DTP603E/100	CALL
POWERSTACK DT-603/66	CALL
POWERSTACK MT-604/133	CALL
POWERSTACK II PRO 3000 200MHz	CALL

GCC

GCC ELITE XL 808	2599
GCC ELITE XL 416	2349
GCC ELITE XL 608	2099
GCC ELITE XL 1208	3899

POWERBOOKS

1400C/133	16/1GIG/CD	CALL
1400C/117	16/1GIG/CD	CALL
1400CS/117	16/1.2/CD	CALL
1400CS/117	12/750	3799
5300CE/117	32/1GIG	2799
5300C/100	16/750	2299
5300C/100	8/500	2299
5300CS/100	16/750	2299
5300CS/100	8/500	1799
5300/100	8/500	1399
190CS/66	8/500	CALL
190/66	8/500	899
520	4/240	CALL
520C Ref.	12/240/FAX	CALL
540C	4/320	1999*
DUO 2300C20/1.2GB/14.4		1899
DUO 2300C8/750		1499
DUO 280C	4/320	1199

Apple Printers

SW 1200/2400	169*/199*
SW 2200	349
SW 1500/2500	249/349
Apple LaserWriter Select 360	599
Apple LaserWriter 4/600PS	1199
Apple LaserWriter 12/640/PS	1449
Apple LaserWriter 12/600PSC	5299
Apple LaserWriter 12/600PSC	4999
Apple LaserWriter 16/600PS	2099

VIEWSONIC

VIEWSONIC 15GA/17GA	469/699
VIEWSONIC GT770/P770	689/789
VIEWSONIC GT800/810	1399/1599

PERFORMAS

6400/200V	16/2.4/8XCD	2199
6400/200	16/2.4/8XCD	1899
6400/180	16/1GIG/8XCD	1599
6320/120	16/1GIG/CD	1249
6300/100	16/1.2G/CD	1099*
6360/160	16/1GIG/8XCD	1399
6290/100	8/1.2G/CD	1099*
6220/75	16/1GIG/CD/TV	999*
6205/75	8/1GIG/CD	899*
6200/75	8/1GIG/CD	899*
6116/66	8/700/CD	949*
640DOS	12/500/CD/DOS	829*
5260/100	16/800/CD	1399
5320/120	16/1.2/4XCD/15"	1579
5200/75	8/800/CD	1099*
631/66	8/500/CD	749*

APPLE Monitors

Apple MS 14"	279/249*
Apple MS 15"	379/299*
Apple 1705 17"	649
Apple 1710AV / 1710	899/799
Apple Multiscan 20"	1699/1199*

SONY Monitors

Sony 155F2 / 175F2	479/769
Sony 155x/1425	429/299
Sony 175E2 / 205FII	949/1599
Sony 205E2	1899

NEC Monitors

NEC 15XV+ / 17XV+	489/749
NEC M500 15"	499
NEC M700 17"	799

PRINTERS

5M color	10ppm color Laser	6999
55IMX	24PPM LASER	3799
5M	12ppm 600dpi laser	1779
6MP	PS 600DPI Laser	899
4MV	11x17 Laser	2699
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	1699

RADIUS

PRESSVIEW 21SR 21"	3099
SUPERMATH 21TXL	1199*
PRECISION VIEW 21"	2249
RADIUS 15" COLOR PIVOT	399*

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
S900L180MP 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
ISTA S&E Photo Shop LE	329
VISTA S6 FULL PHOTO	499
VISTA S12 PHOTOSHOP LE	629
VISTA S12 MAC PRO II	699
POWERLOOK II	1799
GEMINI D-16 FULL PHOTO	1099
POWERLOOK 2000	4499

All prices are subject to change without notice. All prices are cash discounted. An Asterisk *** reflect refurbished.

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 Mouter 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



Power Macintosh 9500/225 Ultimate Graphics Workstation

- PowerPC 9500/225MHZ or PowerTower Pro 225MHZ
- Internal 8x CD-ROM
- 272MB RAM
- 2.2GB internal AV hard drive
- Extended keyboard
- SONY 20SFII 20", 1280 x 1024 Color monitor
- IMS Twin Turbo Graphic accelerator card, 1280x1024, w/BMB
- Agfa Arcus II w/ Trans, 36-bit color
- External combo drive combo w/Jaz drive, Quantum 540, SQ270MB
- GCC Elite 600ET 600dpi, printer w/one cartridge and two connectors
- Active SCSI terminator
- One 25/50 SCSI cable, five 50/50 cables
- UPS Battery Back-Up
- Image Solutions Extended Services

No Payments
90 Days!

DSC Jaz
\$449



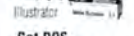
\$199!



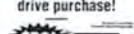
\$249!



\$199!



\$29!



\$127!



\$51!



\$51!



\$51!



\$51!



\$51!



\$51!



\$51!



\$51!



\$51!



\$51!

Ext. H/D, DAT Tape, MO, SyQ & CDR Devices (Minus \$50 for Internal Drive)

	Ext. Turbo	Ext. Turbo
Quantum 540MB/750MB	\$189/\$239	\$49
HP / IBM 1.0/1.2GB	\$289	\$309
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
MicroPlus Seagate 9.0GB Elite	\$1749/\$1919	\$289
SONY SOT-5000 8-15GB DAT Dr.	\$849	\$1049
ExtraByte 5GB Tape Dr.	\$1199	\$1249
DLT Tape Ext. Drive 30GB/40GB	\$2099/\$4999	\$999
SyQuest 270/200MB Ext. Drive	\$229/\$399	\$25
SyQuest EZ135/EZ230	\$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	\$459	\$499
FVB SONY CDR w/Toast	\$549	\$599
JVC CDR 4X/2X w/Toast	\$599	\$649
Yamaha CDR 4X/2X w/Toast	\$699	\$749
Yamaha CDR 4X/4X w/Toast	\$899	\$1079

Ext. Jaz/Zip & DiskArrays

	Ext.	Turbo
IOmega Zip ext. Dr. w/Cart.	\$127*	\$165
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	\$3449	\$3599
4GB F&W DiskArray	\$8949	\$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 XLS1645	

SONY CD-ROM Recorder FWB w/ Toast Software



\$549!



\$9.99!

IOmega

\$12*!

IOmega

\$94

\$12*

\$94

\$12*

\$94

\$12*

\$94

\$12*

\$94

\$12*

\$94

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
- Sony 17" still multisync monitor
- Microtek ScanMaker E3, 300 x 600 dpi, scanner
- Iomega Jaz drive
- Apple Color StyleWriter 2500 (w/ toner cartridge and two AppleTalk connectors)
- ISDN digital modem
- Adobe PageMill
- Extended Services

\$0 Down!
\$189
PER MONTH
\$6.30 A DAY!



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

	\$62!	\$41!
270MB	\$51	
200MB	\$62/\$54	
EZ 135	\$19	
88MB	\$41/\$35	
44MB	\$33/\$32	

IOmega

	\$99!	\$12*!
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

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

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

36 MONTH LEASE RATES (FMV)					
\$3000	\$5000	\$7000	\$10000	\$12000	\$15000
\$108	\$165	\$231	\$314	\$377	\$471

3 YEAR EXTENDED WARRANTY					
\$351 to \$700	\$701 to \$1200	\$1201 to \$2000	\$2001 to \$3000	\$3001 to \$4000	\$4001 to \$5000
\$79.95	\$139.95	\$169.95	\$199.95	\$229.95	\$259.95

POWERMACS		
9500/200	32/2GB/8XCD/ATI	\$3899
9500/180	MP 32/2GB/8XCD/ATI CALL	
9500/132	16/2GB/4XCD/ATI	2700
8500/180	32/2GB/8XCD	3479
8500/180	16/2GB/8XCD	3295
8500/150	16/1.2GB/8XCD	2650
8500/132	16/1.2GB/8XCD	2200
7600/132	16/1.2GB/8XCD	2149
7600/120	16/1.2GB/4XCD	1825
7500/100	16/500MB/4XCD	1475
7500/100	16/1GB/4XCD	1795
7200/120	16/1.2GB/4XCD	1400
7200/120	16/1.2GB/8XCD	1425
7200/120	8/1.2GB/4XCD/DOS	2150
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	2660
8550/132	24/2GB/CD/Dat/As	5275
8550/200	32/2GB/CD/Dat/As	5700
8000/132	32/2GB/CD/Dat/Unix	8995
700/130	32/1GB/CD/UNIX	9940
700/150	48/4GB/CD/Dat/Unix	12300
UMAX / SUPREMAC		
5900D/150	16/0/CD/KEY	\$2775
5900L/150	16/2GB/6.7C/KEY/VCard	3479
700L/150	16/2GB/6.7C/KEY/VCard	2775
5900L/180	32/2GB/8.0C/KEY/VCard	4275
5900L/200	32/2GB/8.0C/KEY/VCard	3985
PowerBooks		
190	8/500	\$895
190CS	8/500	1499
5300CS	8/500	1895
5300CS	16/750	2345
5300C	8/500	2295
5300CE	16/750	2725
5300CE	32/1GB	2699
DUO2300C	8/750/Modem	1545
PERFORMAS		
6320/120	16/1.2GB/CD/Key/28.8/TV Tun	\$1645
6360/160	16/1.2GB/CD/Key/28.8	1445
6400/180	16/1.2GB/8XCD/28.8/Key	1749
6400/200	16/1.2GB/8XCD/28.8/Key	1929
CPU MEMORY		
4MB	SIMMS 72 PIN	\$30
8MB	SIMMS 72 PIN	40
16MB	SIMMS 72 PIN	60
32MB	SIMMS 72 PIN	160
8MB	DIMMS	45
16MB	DIMMS	80
32MB	DIMMS	165
64MB	DIMMS	345
8MB	POWERBOOK 5300/190	85
16MB	POWERBOOK 5300/190	135
32MB	POWERBOOK 5300/190	270
48MB	POWERBOOK 5300/190	CALL
1MB	VRAM	30
256K	L2 CACHE	89
512K	L2 CACHE	139
CD ROMS		
Apple	600E Quad Speed	\$159
Apple	600I Quad Speed	165
Apple	600I or 300I Mounting Kit	25
Seven Bay	CD ROM Tower	1399

Due to publication time advertising prices may vary. All prices includes cash discounts.
Not responsible for typographical errors. Shipping and service fees are not refundable.
No sales tax outside of CA. All returns subject to 15% restocking charge.
All returns must have an authorization number (R.M.A.)

CD ROM RECORDERS		
Phillips	CD-200 CDR	\$ 999/1069
Pinnacle	RC1000 2X w/Toast & 2 CD's	615
Sony	CDR 2x w/Toast	999/1069
Yamaha	100E CDR 4X w/Toast	1149/1249
MONITORS		
Apple	Multiscan 14"	\$ 295
Apple	Multiscan 15"	375
Apple	Multiscan 15" (AV)	469
Apple	Multiscan 1705 17"	699
Apple	Multiscan 1710 17"	799
Apple	Multiscan 1710AV 17"	929
Apple	Multiscan 20"	1239
Hitachi	Superscan MC 17S 17"	739
Hitachi	Superscan MC 20"	1399
Hitachi	Superscan MC 21"	1775
Hitachi	Diamond Pro 17TX	759
Mitsubishi	Diamond Pro 21TX	1599
NEC	XV15- 15"	469
NEC	XV17- 17"	775
NEC	XP21 21"	1649
NEC	XP21 21"	1979
Radius	Precisionview 21"	2265
Radius	Pressview 21" HR	CALL
Sony	CPD15SX 15"	425
Sony	CPD15SE 15"	799
Sony	CPD17SE 17"	999
Sony	GD20SE2 20"	1649
Sony	GD20SE2 20"	1875
Viewsonic	17GA (AV) 17"	699
PRINTERS		
Apple	Color StyleWriter 2400 Refurb	\$ 230
Apple	StyleWriter 2500	360
Apple	LaserWriter 4/600 PS	750
Apple	LaserWriter 12/600 PS	1449
Apple	LW 12/600PS/Color PS	5600
Epson	Stylus Color 200	175
Epson	Stylus Color 500	269
Epson	Stylus Stylus Pro XL (11x17)	1750
HP	DeskJet 1600CM (11x17)	1925
HP	LaserJet 4M Plus	1415
HP	LaserJet 4MV (11x17)	2765
HP	LaserJet 5MP	920
HP	LaserJet 5M (Color PS L2)	7180
HP	755 CM Deskjet Plotter	8749
SCANNERS		
AGFA	Arcus II	\$ 1745
AGFA	StudioStar	949
AGFA	StudioScan IIsi	675
AGFA	Action Scanner II	360
Epson	ES-1200C LE	CALL
Epson	ES-1200C Mac Pro	1095
Microtek	Scannermaker E3	295
Microtek	Scannermaker E3 Phishp	839
Umax	VistaS6E Mac Deluxe	280
Umax	VistaS6E Pro Mac	540
Umax	VistaS12 Mac	615
Umax	VistaS12 Mac Deluxe	695
Umax	Powerlook II	1875
Umax	Page Office	225
Visonier	Paperport VX	149
Visonier	Paperport	149
Visonier	SCSI Adapter	60
MESSAGE PADS		
Apple	Newton Message Pad 130	\$ 799

Email: Sales@MicroOutlet.com
Visit us on the World Wide Web at:
<http://www.microoutlet.com> C.O.D. / P.O.

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 245 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		
Ilcx 5/40/Video.....\$149	Ilisi 1/0.....\$99		
Ilci 4/80.....\$199	Ilfx 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.....\$149	ClarisWorks 3.....\$399		
FileMakerPro 2.1.....\$49	Other software.....Call		
30- and 72-pin SIMMs: BEST PRICES!			

TOLL FREE (888)466-2271 M-F 9-5 MST
e-mail: MGSales@MediaGuide.com • Fax (303) 788-0651

CIRCLE 246 ON READER SERVICE CARD

Computer Discounters

WE WILL SAVE YOU MONEY - THE TOTAL HARDWARE SOURCE!! NEW, REFURBISHED and DEMO EQUIPMENT IN STOCK.
MAC PRINTERS, COMPUTERS & POWERBOOKS IN STOCK NAME BRAND PENTIUM SYSTEMS from \$899 to \$1995

WANT TO BUY - USED MAC HARDWARE	
Mac II series/Quadas.....CALL	
Logic Boards/PowerSupplies, etc.....CALL	
Powerbooks.....CALL	
PowerMac Series.....CALL	
HP 17"/21" UltraSVGA.28NI.....\$499/\$1099	
Memory/DAT/HD/Optical.....CALL	
HP Color Laserjet.....\$2795	
Lexmark OPTRA R/Rx/Lx 1200 DPI.....\$995/CALL	
Laserwriters.....CALL	
1GB SCSI 9ms HD.....\$259	
SONY Multisync SVGA 20" GDM2036.....\$995	
HP Scanjet 3C 30-Bit Flatbed 2400DPI.....\$685	
MEMORY 48/16/32MB 72 pin.....\$65/149/249/525	
MEMORY 30 pin 1/4MB.....\$18/75	
Monitors 14" - 17" - 20".....CALL	

Printers	Computers	Monitors
HP Series 2, 3, 4	AST Premium	Sony
Tektronix	IBM Valuepoint	NEC
Canon	Hewlett Packard	Mitsubishi
Olivetti	Compaq 486	Compaq
Lexmark/IBM	Misc. 486/386	14"/17"/20" SVGA

Scanners/Plotters	Notebooks
Hewlett Packard	IBM Thinkpad
ScanJet 2P/2C/2CX	NEC
Draft Pro/Draft Master	Toshiba
Design Jet	Compaq
7475A/7550A/7550B	Macintosh

Postscript, Jet Direct, Memory and Optional Accessories available IN STOCK!

NEW STORE LOCATION:
8383 Leesburg Pike, Vienna, VA 22180
10543 Ewing Road, Beltsville, MD 20705
Tel: (301) 595-0500 Fax: (301) 595-5112

CIRCLE 247 ON READER SERVICE CARD

VL PROMAC, Inc.

8001 NW 36th 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/11/7 32/1GB	\$3949	
5300cs 16/750	\$2649	
5300ce 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	\$409	
INT	EXT	
1.2 GB	269	330
2.1 GB	434	499
4.3 GB	849	919

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 248 ON READER SERVICE CARD

HEY, WE'VE GOT UPGRADES!



Performa 6200/75

- factory refurbished
- 75MHz PowerPC™ 603
- 8MB RAM
- 1GB hard drive
- 4X Apple CD600i
- AppleDesign Extended Keyboard
- Apple 15" MultiScan Display
- Internal Global Village 14.4 modem

\$1379 COMPLETE
\$1079 CPU ONLY



Performa 6300/100

- factory refurbished
- 100MHz PowerPC™ 603e
- 16MB RAM
- 1.2GB hard drive
- 4X Apple CD600i
- AppleDesign Extended Keyboard
- 15" Apple MultiScan Display
- Internal Global Village 14.4 modem

\$1599 COMPLETE
\$1249 CPU ONLY



PowerMac 7500/100

- factory refurbished
- 100MHz PowerPC™ 601+
- BUILT-IN A/V
- 16MB RAM
- 1GB hard drive
- 4X Apple CD600i
- AppleDesign Extended Keyboard
- 15" Apple MultiScan

\$2299 COMPLETE
\$1649 CPU ONLY



PowerMac 9500/120

- BRAND NEW 9500!
- 120MHz PowerPC™ 604
- 16MB RAM
- 1GB hard drive
- includes 2MB ATI™ video card
- 4X Apple CD600i
- AppleDesign Extended Keyboard
- 17" AppleVision Display refurbished

\$2679 COMPLETE
\$2149 CPU ONLY

TRADE-IN VALUES

SE/30	\$200
Ilisi	\$110
Mac Iix	\$110
Mac IIfx	\$200
Mac Ilex	\$85
Mac Ilii	\$150
Mac Iivx	\$165
Mac LC	\$95
Mac LCII	\$105
Mac LCIII	\$165
Quadra 605	\$300
Quadra 610	\$225

\$5.00/MB trade-in on extra ram
Trade-in values apply only to systems pictured at left



Apple Color Printer

- SUPPORTS MAC OR WINDOZE
- TRANSPARENCIES
- COLOR SYNC™
- 360 DPI

\$699

Brand New!



\$499

REFURBISHED

66MHz
PowerPC Upgrade Card
for '040-based Macs
Genuine Apple



AppleVision 1710AV Display

REFURBISHED
AppleVision 1710 Display
Only \$599
REFURBISHED

We Specialize in Parts
[HTTP://www.shrevesystems.com](http://www.shrevesystems.com)

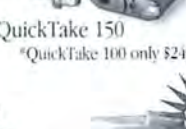


New and Old Style

\$129

800/840AV/8100
NEW POWER SUPPLIES
GENUINE APPLE

\$199



QuickTake 150

*QuickTake 100 only \$249

Quadra 950
8/500

\$1199

REFURBISHED



PowerBook 180c 4/80

• active-matrix color LCD
• supports external video
• 33MHz MC68030

Only \$1199

REFURBISHED



Portable StyleWriter 2200

REFURBISHED

POWERPORT MERCURY™
FOR THE POWERBOOK® 500 SERIES
19,200 bps INTERNAL FAX/MODEM

\$199

Brand New



LaserWriter Select 360

REFURBISHED



TELEPORT GOLD II

REFURBISHED



Color StyleWriter Pro

TRADE-IN YOUR STYLEWRITER
OR STYLEWRITER II FOR THIS
GREAT SALE PRICE! **REG. \$249**

\$99

REFURBISHED

TRADE-IN SPECIAL!

Color StyleWriter Pro

TRADE-IN YOUR STYLEWRITER

OR STYLEWRITER II FOR THIS

GREAT SALE PRICE! **REG. \$249**

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99 EXCHANGE

Brand New!

• RISC PROCESSOR

• POSTSCRIPT™ LEVEL II

• SUPPORTS MAC AND PC

ONLY \$99

MacMarket

LOWRATES
BUSINESS
LEASING AVAILABLE
BELL Memory

DIMMS 64BIT•168PIN
8MB \$69 #M1720
16MB \$99 #M1625
32MB \$199 #M1621
64MB \$359 #M1619

SIMMS 32BIT•72PIN 60NS
8MB \$79 #M1598
16MB \$99 #M1595
32MB \$219 #M1604

PowerBook Memory
5300 8MB #M1387 \$119
& 190 16MB #M1390 \$159
32MB #M1393 \$269

1400 PB Memory
8MB #M1837 \$109 16MB #M1841 \$159
12MB #M1839 \$139 24MB #M1841 \$209

DAYSTAR
nPOWER 2 on One Card
2-200MHz Processors
for PPC 7500,7600,8500,9500,UMAX Clones
400+ CALL #A4414
360+ \$1348 #A4413

100MHz PowerPro 601 .. \$1159 #A4500
Quadra Series, C610, C650 (610 needs an adapter)
100MHz Turbo 601 \$1139 #A4509
IIC, IIS, IIVx, IIVi and Performa 600

Polaroid
SprintScan/LE \$709 #S8555
SprintScan/ES \$1469 #S8547
SprintScan+ \$1869 #S8550

PINNACLE MICRO
\$999 RCD 4x4 4 Speed
Read & Write
#E7260 With Toast Pro
Tahoe 640 \$699 #E7257
Vertex 2.6GB \$1436 #E7253
RCD 5040 \$719 #E7248

Nikon
SuperCoolScan \$1849 #S8503
CoolScan II \$1159 #S8500

radius PCI Cards
ThunderColor 30/1600 \$1859 #V9102
Thunder 30/1600 \$669 #V9108
ThunderPower 1920 .. \$1159 #V9197

AGFA
Arcus II 600x1200 dpi
w/Photoshop \$1729 #S8482
SnapScan \$349 #S8492
StudioStar LE \$779 #S8493

GLOBAL VILLAGE
PlatinumPro28.810Base-T .. \$429 #F8147
PowerPort Platinum 28.8 \$269 #F8150
TelePort Internet Ed.33.6 .. \$159 #M8127
TelePort SpeakerPhone Ed. \$259 #M8128

800-223-4622
Fax: 818-708-6399

✓ See us at MacWorld Expo Booth 4271
San Francisco, CA. JAN. 7-10 1997
✓ Call for Our Latest Catalog
✓ Get the latest prices from our
Web Site: www.macmarket.com

PowerBook 1400s 117MHz
CS12MB/750MB #A1720 \$2369
CS16MB/750MB/6xCD #A1722 \$2729
C16MB/1-GB/6xCD #A1724 \$3459
C16MB/1-GB/6xCD/133MHz #A1720 CALL

9500 200MHz
\$3999 32MB/2GB/8xCD/
ATI-2MB-VRAM
#A1699
Dual Processor
2-180MHz 604e
32MB RAM/8xCD/Video \$4,699
2GB Hard Drive #A1708
(With Daystar's nPOWER 2-180MHz Processor)

7600 132MHz
16MB RAM
1.2GB Hard Drive
8xCD/L2 Cache
\$2159 #A1684

Performa Systems
6360/160MHz #A1105 \$1429
6400/180MHz #A1199 \$1729
6400/200MHz #A1189 \$1940
6320/120MHz w/15" mon. #A1197 \$1995

8500 180MHz
32MB RAM
2GB Hard Drive
8xCD/L2 Cache
Audio/Video in/out
\$3369 #A1688

7200 120MHz
16MB RAM
1.2GB Hard Drive
8xCD/L2 Cache
\$1499 #A1651

We Carry The Complete Line of Motorola Computers
Motorola Computer Systems
StarMax 3160 Desktop Model
160MHz•16MB RAM•1.2GB Hard Drive
8xCDROM•Keyboard & Mouse•28.8 Fax/Modem
Mac OS \$1,495 #A1020

RASTEROPS OPTICOLOR 128
128-BIT Architecture/Wide Bus Design
This true 128BIT processor handles today's most
demanding applications with ease. Resolutions up to 1600 x 1200.
Opticolor 128 4MB \$559 #V8253
Opticolor 128 8MB \$1129 #V9251

S900L Before \$300 Rebate*
604e 225MHz #A1642 \$4,295

S900L Before \$300 Rebate*
604e 200MHz #A1639 \$3,795

S900L Before \$250 Rebate*
604e 180MHz #A1641 \$3,595

S900LDP Before \$350 Rebate*
2-604e 180MHz #A1637 \$4,595

C500L After \$50 Mfr's Rebate*
603e 166MHz #A1647 \$1,295

C600L #A1645 \$1,695
603e 180MHz

J700L Before \$200 Rebate*
604 150MHz #A1633 \$2,795

J700L Before \$200 Rebate*
604 180MHz #A1634 \$3,095

*MacMarket Instant Rebate applies to the purchase of any additional items which MacMarket carries.

miroMOTION DC20
Real-Time and Full image video capture edit.
special effects and output for NTSC, S-Video,
PAL, SECAM, Motion-JPEG Hardware
compression. Special Effects such as overlays,
Titles, fades in software. 10-fold acceleration for
Adobe Premiere
miroMOTION DC20 w/9250 \$599

C600L #A1643 \$1,995
603e 200MHz

C600L Before \$100 Rebate*
603e 240MHz #A1649 \$2,295

MacMarket
Instant Rebate
On
UMAX
Computers

Free
APC UPS Back-UPS or
Get Microsoft Word or Excel for only \$49
APC Offer good till Jan. 17 1997



RASTEROPS
SuperScan
Mc801HR
\$1899 #M6521
SuperScan 17" (26) \$789 #M6504
SuperScan 20" \$1349 #M6525
SuperScan 21" \$1699 #M6702

EPSON Printers
StylusColor ProXL \$1639
12" x 18" 720 dpi Color #P3291
StylusColor Pro InkJet \$399 #P3288

UMAX
Powerlook 2000 CALL #S8559
Powerlook II Full \$1829 #S8520
Powerlook II LE \$1749 #S8522
Vista S6E PhotoDeluxe \$299 #S8439
Vista S6E Photoshop Full \$529 #S8431
Vista S12 Photoshop LE \$619 #S8564
Vista S12 Photoshop Full \$689 #S8565

Newer
TECHNOLOGY
DIMMS
MAXpower 64BIT 60ns
with 604e Processors
Designed for 7500,
7600, 8500 & 9500
200MHz \$919 #A4416
180MHz \$757 #A4416
8MB \$99 #M1448
16MB \$129 #M1451
32MB \$239 #M1454
64MB \$419 #M1457

NUPower PB500 167MHz
Upgrades PowerPC
CPU Only \$619 #A4560
w/8MB RAM \$849 #A4564
117MHz 8MB RAM \$525 #A4544

HEWLETT
PACKARD
680c 600X300 \$326 #P3465
6MP 600dpi \$939 #P3348
4MV 11x17600dpi \$2649 #P3235
DeskJet 1600CM \$1899 #P3410

SONY
15 SF2 ... \$459 #M6436
17 SF2 ... \$759 #M6560
20 SF2 ... \$1649 #M6574

radius Monitors
PressView 21SR .. \$3049 #M6609
PrecisionView 21 .. \$2229 #M6614
PressView 17SR .. \$1869 #M6600

International Call: 818-708-6388/ Customer
Service & Technical Support Call: 818-708-6388
MacMarket is Located at: 6924 Carby Ave. Unit #104
Reseda CA. 91335 / M-F 8AM-6PM (Pacific)
Fax: 818-708-6399

All Prices reflect a Cash Discount. Any other method is 2%
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 accepted from U.S. Govt.
Schools & Corporations. Not responsible for typographical



**we beat any price
advertised in this magazine!**

**FREE 8MB of RAM!
A \$60 VALUE GIFT.***

**Super Special Offer
Apple Performa 5320
16MB/1.2GB/CD/28.8Modem**

FOR ONLY \$1,589
mouse & keyboard included!



Apple CPUs

**SPECIAL OFFER
8500¹⁰⁰ 16/2gb/CD**



Power Macs

7200 ¹⁰⁰ 16/1.2MB/8XCD.....	\$1,459.00
7200 ¹⁰⁰ PC 16MB/1.2GB/8XCD/Pent.100.....	\$2,159.00
7600 ¹⁰⁰ 16/1.2GB/8XCD.....	\$2,149.00
8500 ¹⁰⁰ 32/2GB/8XCD.....	\$3,449.00
9500 ¹⁰⁰ 16/2GB/CD.....	\$2,899.00
9500 ¹⁰⁰ 32/2GB/8XCD.....	\$3,899.00

Performas

5320 ¹⁰⁰ 16/1.2GB/CD/28.8mdm/15".....	\$1,589.00
5400 ¹⁰⁰ 16/1.6GB/CD/28.8mdm/15".....	CALL
6320 ¹⁰⁰ 16/1.2GB/CD/28.8Modem.....	\$1,299.00
6360 ¹⁰⁰ 16/1.2GB/CD/28.8Modem.....	\$1,399.00
6400 ¹⁰⁰ 16/1.6GB/8XCD/28.8M.....	\$1,699.00
6400 ¹⁰⁰ 16/2.4GB/8XCD/28.8M.....	\$2,199.00
6400 ¹⁰⁰ w/Avid Cinema board.....	CALL

APPLE SERVERS

**INTERNET READY!
w/All The Software You Need!**



**Apple Server
7250¹²⁰
16/1.2GB/CD**
ONLY \$1,699.

8550 ¹⁰⁰ 16/2.0GB/CD/Software.....	\$3,999.00
8550 ¹⁰⁰ 16/2.0GB/CD/Software.....	\$4,999.00
NetWork Server 500/700.....	CALL

MOTOROLA CPUs

**SPECIAL OFFER
StarMax ADT3160
16/1.2GB/8XCD/28.8Modem**



ONLY \$1,490.

StarMax Line

AMT3160 ¹⁰⁰ 2/2.5GB/8XCD/28.8M.....	\$1,890.00
ADT3200 ¹⁰⁰ 16/1.2GB/8XCD/28.8M.....	\$1,990.00
ADT4160 ¹⁰⁰ 16/1.2GB/8XCD/.....	\$2,199.00
ADT4200 ¹⁰⁰ 16/1.2GB/8XCD/.....	\$2,499.00

Mouse and Keyboard included!

PRINTERS

**SPECIAL OFFER
StyleWriter Color 2500**



\$339.

Apple	
Color StyleWriter 1500.....	\$249.00
Laserwriter 4/600.....	\$739.00
Laserwriter 12/600.....	\$5,299.00
Laserwriter 12/640.....	\$1,439.00
Canon	
BJC-4550 bubble jet.....	\$479.00
HP	
DeskJet 870CXI.....	\$499.00
DeskWriter 1600CM.....	\$1,879.00
LaserJet 5MP.....	\$1,019.00
Epson	
Stylus Color 500.....	\$269.00
Stylus Color.....	\$379.00
Stylus Color Pro.....	\$399.00
Stylus ColorPro XL.....	\$1,639.00
HP	
DeskJet 870 CXI.....	\$465.00
DeskWriter 1600CM.....	\$1,879.00
LaserJet 6MP.....	\$869.00
QMS	
Magic Color CX.....	\$3,299.00
Tektronix	
Phaser 140i.....	\$1,479.00
Phaser 350.....	\$3,199.00
Phaser 350 Ethernet Int.....	\$569.00
Phaser 550 Color Laser.....	\$6,599.00
Phaser 600 Color Laser.....	CALL
Xerox	
XPrint 4915 Color Laser.....	\$4,499.00

MEMORY

16 MB

ONLY \$99.

	DIMM	SIMM
8Megabytes.....	\$55.00	\$55.00
16Megabytes.....	\$99.00	\$99.00
32 Megabytes.....	\$199.00	\$199.00
64 Megabytes.....	\$399.00	

MULTIMEDIA

**SPECIAL OFFER
Connectix Color
Quick Cam**



FOR ONLY \$159.

Apple Powered Speakers II.....	\$76.00
Apple Quick Take 150 Dig. Cam.....	\$539.00
Nakamichi Sp-3d Speaker System.....	\$129.00
Kodak DC20 Dig. Camera.....	\$299.00
SONY DKC-ID1 Digital Camera.....	\$1,699.00
QuarkXpress Publish Soft.....	\$619.00



FOR ONLY \$399.

*After manufacturer rebate!

MEDIA

**SUPER SPECIAL OFFER
IOMEGA ZIP DRIVE**



FOR ONLY \$135.

Iomega	Drive	Cartridge
ZIP.....	\$135.00	\$13.00
JAZ.....	\$369.00	\$9.00
Syquest/Microtech	Drive	Cartridge
EZ 135.....	\$109.00	\$19.00
EZFlyer 230.....	\$279.00	\$29.00
88 Megabytes.....	\$44.00	
200 Meg.....	\$339.00	\$65.00
270 Meg.....	\$219.00	\$46.00
Pinnacle		

**SPECIAL OFFER
RCD 4X4
Recordable
CD Drive**

Tahoe 640MB™.....	\$759.00	\$55.00
Vertex 2.6GB™.....	\$1,499.00	\$109.00



FOR ONLY \$949.

MODEM

**INTERNET READY!
Supra Simple - 33.6**



ONLY \$129.

Farallon	
Netopia™ ISDN Modem.....	\$299.00
Global Village	
Global Teleport Platinum 33.6.....	\$165.00
TelePort Speakerphone 33.6.....	\$239.00
Powerport Platinum PC Pro.....	\$469.00
Hayes	
*Accura 288 v.34 (Ext.).....	\$149.00
*Optima 288 (Ext.).....	\$269.00
Supra	
SupraSonic™ V34 33.6.....	\$239.00
Supra Express V34 33.6.....	\$119.00
Supra Fax Modem 288 33.6.....	\$179.00
U.S. Robotics	
*Sportster 33.6 Fax/Modem.....	\$165.00
Sportster Voice 28.8 Voice/fax/MS.....	\$189.00

*After manufacturer rebate!

MONITORS

**SPECIAL OFFER
Sony S1 17"**



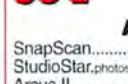
ONLY \$729.

Multiscan 15".....	\$379.00
Multiscan 1705.....	\$699.00
Multiscan 1710.....	\$859.00
Multiscan 1710AV.....	\$959.00
Multiscan 20".....	\$1,799.00
NEC	
XV 15".....	\$455.00
XV 17+.....	\$779.00
XE 21".....	\$1,739.00
XP 21".....	\$2,099.00
Sony	
SX1 15".....	\$379.00
SF2 15".....	\$445.00
SF2 17".....	\$729.00
SE2 17".....	\$929.00
SF2 20".....	\$1589.00
SE2 20".....	\$1829.00
GDM 2000 CT.....	\$3,089.00
MAG	
DX1495.....	\$245.00
DX1595.....	\$379.00
DX15T.....	\$379.00
DX1795.....	\$639.00
DX700T-M 17".....	\$799.00
MXP17F.....	\$839.00
MX21F.....	\$1,689.00
ViewSonic	
15GA AV 15".....	\$459.00
GT 1770 17".....	\$749.00
17GA 17" AV.....	\$739.00
17EA 17".....	\$659.00
GT800 20".....	\$1,469.00
P810 21".....	\$1,699.00
PT810 21".....	\$1,859.00

*not Pictured

SCANNERS

**SPECIAL OFFER
UMAX
VISTA
S6-E**



ONLY \$279.

Agfa

SnapScan..... \$319.00 |

StudioStar.photoshop LE..... \$789.00 |

Arcus II..... \$1,769.00 |

Apple

Apple Color One..... \$549.00 |

Apple Color One 1200/30..... \$759.00 |

Epson

ES-1000C-LE Mac..... \$579.00 |

Expression 636™photoshop LE..... \$879.00 |

Expression 636™ ARTIST..... \$1,329.00 |

Microtek

35T 35MM Slide..... \$649.00 |

ScanMaker E3..... \$259.00 |

ScanMaker E6..... \$529.00 |

ScanMaker III..... \$1,299.00 |

Umax

Super Vista S6-E..... \$279.00 |

Super Vista S12..... \$709.00 |

PowerLook II MacPro II..... \$1,869.00 |

Power Look Pro..... \$1,299.00 |

Visioneer

Paperport Vx™..... \$265.00 |

CALL 1-800-404-9976

SCHOOLS and US GOVERN are WELCOME

* w/ purchase of any Mac System with fax/modem and Printer & Monitor.

* ALL PRICES ARE CASH DISCOUNTED & SUBJECT TO CHANGE WITHOUT NOTICE

CIRCLE 272 ON READER SERVICE CARD

FEBRUARY 1997 / MacUser 205

MACWORLD EXPO SPECIALS

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

9500/200

32/2GB/CD
w/2MB ATI

\$3999

KEYBOARD & MONITOR SOLD SEPARATELY

8500/180

16/2GB/CD
w/2MB VRAM

\$3199

8500/150 16/2GB/CD

\$2599

KEYBOARD & MONITOR SOLD SEPARATELY

7200/120

16/1.2GB/CD/256L2

\$1749

KEYBOARD & MONITOR SOLD SEPARATELY

7600/120

16/1.2GB/CD

\$1899

5260/100	16/800/4xCD	\$1399
6100/66	16/500/CD/DOS	\$1099*
7100/S		SCALL
7200/75	8/500/4xCD	\$999*
7200/90	8/500/4xCD	\$1099*
7200/120	16/1.2GB/4xCD	\$1299
7200/120/P10016	1.2GB/CD	\$1899
7500/100	16/1G/4xCD	\$1599/1379*
7600/132	16/1.2GB/8xCD	\$1999
8100/100	8/700	\$1599*
8100/110	16/2GB/2xCD	\$2399*
8500/120	16/1GB/4xCD	SCALL
8500/132	16/1.2GB/4xCD	\$2199
9500/120	16/1G/4xCD	\$2099*
9500/132	16/2GB/4xCD	\$2299*
9500/150	16/2GB/4xCD	\$3299

WorkGroup Servers

7250/120	16/1.2GB/CD	\$2399
7250/120	16/1.2GB/CD/AS	\$3099
8150/110	16/1G/CD/DAT/AS	\$3299
8550/132	24/2GB/CD/AS	\$5599
8550/132	24/2GB/CD/INT	\$4999
8550/132	24/2G/CD/DAT/AS	\$5999

PERFORMAS

Performa 6400CD



180MHz! \$1579

16/1.6GB/8xCD/28.8Kbps
No Cache, No Monitor

200MHz! \$1899

16/2.4GB/8xCD/28.8Kbps
256K L2Cache, No Monitor

Performa 5320CD

120MHz!

16/1.2/8xCD

CPU, KEYBOARD,
MOUSE, &
15" MONITOR

\$1549

5200/75	8/800/CD 15"	\$1099*
6116/66	8/700/CD No Mon	\$949*
6200/75	8/1GB/CD No Mon	\$899*
6220/75	16/1GB/CD/NoMon	\$999*
6300/100	16/1G/CD/NoMon	\$1099*
631/33	8/500/CD/NoMon	\$749*
6320/120	16/1.2GB/CD/TV/No Mon	\$1299
640/33	12/500/CD/DOS	\$849*

APPLE MONITORS

14" MultiScan	\$249*/289
14" AV	\$299
15" MultiScan	\$389/299*
1705 17" MultiScan	\$649
1710/1710AV MultiScan	\$829/929
20" MultiScan	\$1299*/1699
RADIUS SuperMatch 21TXL	\$1199*
RADIUS PressView 21SR	\$3099*
SONY 15SF2 15"	\$469
SONY 17SF2/17SE2 17"	\$769/999
SONY 20SF 17"	\$759
SONY 20SF2 20"	\$1599

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 S6E w/LE Photo	\$329
Umax Vista S6 w/Full Photo	\$499
Umax Vista S12 w/LE Photo	\$629
Umax Vista S12 w/Full Photo	\$699
Umax Gemini V-16	\$1099
Umax Powerlook II	\$1799
Umax PowerLook 2000	\$4499

POWERBOOKS

NEW SERIES POWERBOOKS

1400C/133	16/1GB/CD	\$CALL
1400C/117	16/1GB/CD	\$CALL
1400CS/117	16/1GB/CD	\$CALL
1400CS/117	16/750	\$CALL
5300CE	32/1GB	\$3699
5300C	16/750	\$2799
5300C	8/500	\$2299
5300CS	16/750	\$2299
5300CS	8/500	\$1799
5300 Grayscale	8/500	\$1499
540C	4/320	SCALL
520C	12/240/MOD	SCALL
520	8/240	SCALL
190CS	8/500	SCALL
190	8/500	\$899
150	8/250	\$749
DUO2300C	8/750/MOD	\$1599
DUO2300C	20/1.1GB/MOD	\$2199
DUO250	4/200	\$599*
DUO250	12/200/MOD	\$999*
DUO280C	12/320/MOD	\$1299*
DUO280	12/240/MOD	\$1099*

PRINTERS

LaserWriter Pers 300/320	\$499/599
LaserWriter 4/600	\$749
LaserWriter Select 610	SCALL
LaserWriter 12/640/PS	\$1449
LaserWriter 16/600/PS	\$2099
COLOR LW 12/600/PS	\$5299
StyleWriter 2500/1500	\$349/249
StyleWriter 2400	\$279/199*
StyleWriter 1200	\$169*
Star Color Printer XJ144MC	\$99
HP LaserJet 6MP	\$899
HP LaserJet 5M	\$1779
HP LaserJet 5M Color	\$6999
HP LaserJet 4MV	\$2699
HP DeskJet 870Cxi	\$499
HP DeskJet 680C	\$299

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	\$329
Powport Plat. Pro 28.8+ Enet	\$479

Diamond Modems

SupraExpress 33.6	\$149
-------------------	-------

ACCESSORIES

Iomega ZIP 100 w/1cartridge	\$179
Iomega JAZ w/1cartridge	\$449

Visit Us At Our Web Site <http://www.lacc.com>

24Hrs A Day -- On-Line Catalog & Ordering

E-Mail us at: lacc@lacc.com

GE 4 YEAR ON SITE WARRANTY!

ASK YOUR SALES REP REGARDING GE EXTENDED ON SITE WARRANTY					
\$1000 to \$2500	\$2501 to \$5000	\$5001 to \$10000	\$10001 to \$20000	\$20001 to \$50000	\$50001 to \$100000
\$49.95	\$79.95	\$139.95	\$169.95	\$199.95	\$259.95

FedEx NEXT DAY AND SAME DAY SHIPPING
AVAILABLE. WE SHIP WORLDWIDE!

* Reflects Refurbished Units. Prices Subject To Change Without Notice. CALL FOR LATEST PRICE. ALL PRICES REFLECT A 3% CASH DISCOUNT. Credit Cards Will Be Verified For Fraudulent Use.

200 MHz 604e Processor Upgrade From \$995

POWERMAGS

9500

200MHz 32/2GB/CD	\$3990
180MHz MP 32/2GB/CD	\$4799
150MHz 16/2GB/CD	\$3199
150MHz 0/0/CD	\$2499
132MHz 16/2GB/CD*	\$2199
120MHz 16/1GB/CD*	\$2199

8500 ▶ 180MHz 32/2GB/CD	\$3290
180MHz 16/2GB/CD*	\$2399
150MHz 16/2GB/CD	\$2590
120/132MHz 16/1GB/CD*	\$1990/2199

7600 ▶ 132MHz 16/1.2GB/CD	\$1899
120MHz 16/1.2GB/CD	\$1749

7200 ▶ 120MHz 16/1.2GB/CD/L2 Cache	\$1399
120MHz 16/1.2GB/CD/DOS Compatible	\$2099

8100, 7100, 6100	Call
------------------	------

UPGRADES

WITH ORIGINAL APPLE LOGIC BOARD & PARTS

950, 900 to Workgroup Server 9 50/120	\$1550
8100s to 8500/120/132/150	\$1300-1550-1830

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	\$1299-1499

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	\$990-990
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	\$325-1729
MACROMEDIA FreeHand v2.0	\$399

FRACAL DESIGN Painter v4.0	\$349
QUARKXPRESS v3.3.2	\$359

CALL FOR PRICES ON OTHER TITLES

LOWEST PRICES ON
WORKGROUP/NETWORK
SERVERS

6150, 7250, 8550, 9550, 500 & 700

ICN

INNOVATIVE COMPUTER & NETWORKING INC.

MOTOROLA

STAR MAX 3000/200 32/2.5/8X CD/256K	\$1979
STAR MAX 3000/160 16/1.2GB/8X CD/256K	\$1579
STAR MAX 4000/200 32/2.5/8X CD/512K	\$2999
STAR MAX 4000/160 16/1.2GB/8X 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/128 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/117MHz/12/750	\$2359
1400cs/117MHz/16/750CD	\$2399
1400c/117MHz/16/750CD	\$3399
5300ce 32/1.1GB	\$3295
5300c 8/500	\$2290
5300cs 8/500	\$1959
Duo 2300c/20/1GB/Mod	\$1799
520-520c Available	CALL
540-540c Available	CALL

SCANNERS

AGFA Arvus II Transp/Full Photoshp	\$1749
AGFA Studiotech IISI Photo. LE	\$649
UMAX Vista S6E Full Photoshp	\$599
UMAX Vista S12 Full Photoshp	\$399
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
ScanMaker III 600dpi/36 Bit/Transp./Live Pict.	\$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

Duo 2300 Upgrade Kit

From Duo 200 to Duo 2300 (PPC 603e, 100MHz)

\$895

APPLE PARTS

8x-CD-ROM Apple	\$245
9500/8500 LOGIC BOARD	\$395-799
150/132/120 MHz 604 PROCESSORS	\$399-499-299
200/180 MHz 604e PROCESSORS	\$1595-975
Q840AV LOGIC BOARD	\$439
Q800 LOGIC BOARD	\$349
1.44 Floppy Drive	\$125

PERFORMAS

LC 580 8/800/14" Built-in/KB	\$875
5260/75 16/1GB/CD/15" Built-in Mon/KB	\$1399
6200/75 8/1GB/CD/14.4 Mod/KB	\$399
6320/120 16/1GB/CD/28.8 Mod/KB	\$1299
6360/160 16/1.2GB/CD/28.8 Mod/KB	\$1459
6400/180 16/1.6GB/8x-CD/L2 Cache/28.8 Mod/KB	\$1699
6400/200 16/2.4GB/8x-CD/L2 Cache/28.8 Mod/KB	\$1899

CALL FOR PRICES ON OTHER MODELS

MONITORS

APPLE 15" Multi	\$365
APPLE 15" AV Multi	\$499
APPLE 1705	\$629
APPLE 1710Vision	\$799
APPLE 1710AV	\$949
APPLE 20" Multi	\$1599
NEC XV15+/XV17+	\$439-739
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	\$449-739
SONY 17 SE2/20 SE2	\$999-1869
VIEWSONIC 17GA/P770	\$449-779
VIEWSONIC P810/P811S	\$999-1869

CALL FOR PRICES ON OTHER MODELS

PRINTERS

APPLE LaserWriter 12/640	\$1439
APPLE LW 4/600	\$739
APPLE Color 12/660	\$5390
APPLE SW 2500	\$379
APPLE SW 2400	\$299
GCC XL608 600dpi/8ppm/11.7x20	\$2339
GCC XL808 800dpi/8ppm/11.7x20/Ethernet	\$2399
GCC XL616 600dpi/16ppm/11.7x20/Ethernet	\$2549
GCC XL1208 1200dpi/8ppm/11.7x20/Ethernet	\$3390
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

CALL THE MAC EXPERTS!

Providing complete Macintosh solutions for graphics, pre-press, and video professionals



MacUser Labs Says:

"Four Mice! 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!"

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!

PowerMax Trinitron™ Monitors

Model PM14T 25 mm dot pitch-up to 1024x768	\$319
Model PM15T 25 mm dot pitch-up to 1280x1024	\$419
Model PM17T 25 mm dot pitch-up to 1280x1024	\$749
Model PM17TE+ 25 mm dot pitch-up to 1600x1280	\$989
Model PM20T 30 mm dot pitch-up to 1600x1280	\$1649
NEW! Model PM20T+ W/ 25 mm dot pitch!	\$1849

Wacom Tablets

ArtPad II 4x5 w/erasing Ultra Pen	\$139
ArtPad II 4x5 w/erasing Ultra Pen w/Dabber	\$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! You won't find anyone who knows more about Wacom!

The Printer Corner

Apple Color StyleWriter 2400- special ref. package!	\$229
Apple Color StyleWriter 2500	\$359
Apple LaserWriter 4/600 w/toner	\$799
GCC Elite 600 10PPM 600 dpi w/4 Mb ram	\$1428
GCC Elite 600e/10PPM 600 dpi w/6 Mb ram	\$1798
Epson Stylus Color Pro 11x17 Inkjet	\$1899
GCC Elite XL 608 11x17 800/600 dpi w/6 Mb ram	\$2348
GCC Elite XL 616 16PPM 600 dpi w/8 Mb ram	\$2648
GCC Elite XL 1208 11x17 1200 dpi w/24 Mb ram	\$4198

Need a scanner? We stock: Apple • Agfa • Epson • Hewlett Packard • Microtek • Nikon • Linotype Hell • Polaroid • Umax Call one of our PowerMax scanner experts about your specific needs. We can recommend one that's just right for you: all the latest models at the nation's best prices!

As low as \$299!



Save hundreds of dollars on these specially priced bundles! Or call for your own custom configuration, usually with same day delivery!

Professional Graphic Production Station

PowerMac 8500/180 with 80 Mb Ram, 2 Gig Drive, internal 8X CD, Ext. Keyboard, 17" PowerMax Trinitron Monitor, Zip Drive, Adobe Illustrator, Vector Effects, Quark Xpress, Epson Expression Scanner and Adobe Photoshop. Only \$7250, or just \$265 per mo!



PowerComputing Publishing Package

PowerComputing 604/150 with 32 Mb Ram, 1 Gig Drive, 8X CD Rom, Keyboard, 4 Mb Vram, Int. Zip Drive, 17" PowerMax Trinitron Monitor, Quark Xpress, Xpress Training CD. Only \$4150 or just \$159 per mo!



PowerMax External Hard Drives



540 Meg External
Only \$199!

We specialize in complete arrays!

• Atto • Micronet
• FWB • Optima

PowerMax External 540 Mb Drive	\$199
PowerMax External 2.0 Gig Drive	\$419
PowerMax External 4.0 Gig Drive	\$949
PowerMax External 9.0 Gig 7200 RPM Tomahawk	\$2099

We also stock hundreds of factory refurbished Apple CPUs! Call for pricing and availability on these limited time offers!

Why Buy From PowerMax?

- Over 90% of our orders ship within 24 hours. We stock every major brand of Mac product from Apple to Zoom!
- We speak plain English- no technobabble or high pressure sales tactics!
- We offer flexible terms, and are experts on easy leasing!
- We consult with you, we want to make sure what you buy is what you need.
- Unlike most catalog outlets who try to keep prices low by limiting service options- we are a dealer who actually offers more expertise and service than most local full-priced dealers! We keep prices low through aggressive purchases, high volume and years of experience!
- All we ask is that you call a couple of the other guys first- then call us. You'll really appreciate our difference! We stock all the lines below!
- Adobe • Agfa • Atto • 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 • Xerox

Receive FREE with every CPU:

Canvas 3.5, Comptons Encyclopedia CD, Netscape Navigator, and one month free internet access!

WHILE SUPPLIES LAST!

Pre-Configured Apple Systems

PowerComputing Power 100 100MHz 3 Nubus	\$Call!
PowerCenter 120MHz closeout!	\$Call!
Performa 6360 160 16/1.2/8X CD	\$1498
Performa 6400/180 16/1.6 Gig/CD	\$1799
Performa 6400/200 16/2.4 Gig/CD	\$2088
Performa 6400/200 Video Editing System	\$2650
PowerMac 7200/120 16/1.2 w/Pentium/8X CD	\$2169

Bare Bones Macs- Have Them Configured Your Way!

PowerMac 7200/120 8 Ram/8X CD	\$1227
PowerMac 7500/100 16 Ram/4X CD	\$1588
PowerMac 7600/120 16 Ram/4X CD	\$1684
PowerMac 7600/132 16 Ram/8X CD	\$1891
PowerMac 8500/150 16 Ram/4X CD	\$2288
PowerMac 8500/150 16 Ram/8X CD	\$2472
PowerMac 8500/180 32 Ram/CD	\$3059
PowerMac 9500/200 32 Ram/CD	\$3586
PowerMac 9500/180MP 32/2000/CD	\$Call!

New Apple Powerbooks!

Powerbook 1400CS 12/750	\$2477
Powerbook 1400CS 16/750/CD	\$2889
Powerbook 1400C 16/Gig/CD	\$3467

Motorola StarMax Compatibles

Complete 603e-based systems, starting at	\$1595
Complete 604e-based systems, starting at	\$2150

Power Computing

We carry the complete line- call for details! \$Call!

Umax SuperMac Compatibles

SuperMac C500 L160 16/1.2/CD/28.8 Modem	\$1396
SuperMac C600 L180 16/1.2/CD/28.8 Modem	\$1754
SuperMac C600 L200 16/2 Gig/CD/28.8 Modem	\$1939
SuperMac C600 L240 16/2 Gig/CD/28.8 Modem	\$2241
SuperMac J700 L150 16/2 Gig/CD	\$2697
SuperMac J700 L180 24/2 Gig/CD	\$2987
SuperMac S900 L150 16/2 Gig/CD	\$3373
SuperMac S900 L180 32/2 Gig/CD	\$3470
SuperMac S900 L200 32/2 Gig/CD	\$3662
SuperMac S900 L225 32/2 Gig/CD	\$4145
SuperMac S900 L180 W/2 604E Processors	\$4435



Confused? Only PowerMax will give you the straight scoop on the pros and cons of each model and manufacturer!



**POWER
MAX**
Knowledge is Power

800-613-2063

Call today for your free PowerMax Catalog!
Local line: (503) 624-1827 • Fax (503) 624-1635

HTTP://WWW.Illuminatus.Com/PowerMax • E-Mail: PowerMax@Europa.com

Prices subject to change without notice. Prices reflect cash discount.

We accept educational and corporate purchase orders, and are experts in financing for virtually any size business!





Que Computers 612-623-0903

Mac/PC, New/Used, Buy/Sell/Trade

RAM Specials (life time warranty)

1x8 (30-pin 1mb-used) \$7.99
PowerBook 5xx 8mb \$75
4/8/16/32mb 72 pin, 60 ns EDO
Call for Best Price

Peripherals

Global Village Gold II Modem \$49.95
StyleWriter 1200 (New) \$189
Apple ImageWriter II \$75
Apple LaserWriter IIInt/IIIntx \$399/\$499
High Density Floppy int. \$75, ext. \$99
800K Floppy int. \$25, ext. \$35
IIci Cache card \$25, IIci NuBus adaptor \$49
Ext. hard disk case (SCSI cable extra) \$39
105 SyQuest drive int. new (SCSI) \$49
13"/14" Apple RGB color monitor \$199/\$225
16" Digital Trinitron \$299
20" SuperMac Color Monitors from \$699

Package deal:

IIci 5/80, 13" RGB, ext. kbd, mouse \$399
IIci 5/80, 13" RGB, ext. kbd, mouse \$379
Upgrade to 230 HD for \$50 more

Mac CPUs

SE 4/20 \$199 Classic 4/40 \$249
ClassicII 4/40 \$349 Mac IIcx 4/80 \$149
Mac IIsi 5/80 \$175 Mac IIci 5/80 \$195
Mac IIvx 5/80 \$299 Mac IIci 8/330 \$325

Performa 6200 8/1Gb/CD - ref. \$999.95

w/keyboard, 28.8Fax modem

Call for prices on new machines too!

Power supply w/ analog for Plus\$35, SE \$55

Mac II/IIx/IIcx/IIci/IIIfx \$49, for others \$50

Logic board:

SE \$35, SE w/HD \$75, Classic \$75,

Classic II \$199, Mac II/IIcx \$49

IIx \$75, II si/ci \$125, IIvx \$225

Cases:

Plus \$10, SE\$15, Classic \$25, all Mac II \$20

90-Day Warranty on all Pre-owned equipment / fax 612-623-9155

Major credit cards accepted, no extra charge. WWW: <http://quecomp.com>

CIRCLE 257 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 Clementine Street • San Francisco, California 94103

CIRCLE 258 ON READER SERVICE CARD

Apple UMAX HEALTI PACKARD **Infinity Micro** Seagate DAYSTAR

One stop shopping for all your software & hardware needs!

800 • 589 • 1234

POWERMACS	POWERBOOKS	MONITORS	PRINTERS
6100/66 8/500CD 1095.	5300CE 32/1GB 3695.	Apple 14" Multiscan 249.	StyleWriter 1200 149.
6100/66 8/500/DOS 1195.	Duo 280c 12/500M 1449.	Apple 15" Multiscan(R) 299.	StyleWriter 1500 249.
7100/80 8/700 CD 1295.	Duo 2300c 8/750/MDM 1545.	Apple 17" Multiscan(R) 695.	StyleWriter 2500 349.
8100/100 8/700 1645.	5300CS 16/750 14.4 2345.	Apple 1705/1710 645/795.	StyleWriter 2200 269.
8100/100 16/16/CD 2195.	5300CS 8/500 P.B. 2345.	Apple 20" Multiscan 1295.	StyleWriter 2400 199.
8100/110 16/16/CD 2195.	5300CS 8/500 FAX 1895.	PrecisionColor 17 645.	Laser Select 300 445.
8100/110 16/16/CD 2495.	5300 8/500 DNYL 1395.	SuperMac 20TXL 20" 1095.	Personal Laser 320 545.
7200/120 8/16/8XCD 1445.	5300 8/500 675.	ViewSonic PT810 21" 1795.	Laserwriter 4/600 CALL
7200/120 16/1.2/4CD 1495.	150 8/240 \$89.	PressView 17 SR 1795.	Laserwriter 360 1195.
7500/100 16/16/CD 1595.	520 8/240 985.	Intellicolor 20e 1295.	Laserwriter 16/600 2095.
7600/120 16/16/CD 1695.	520C 20/240/19.2 1495.	SuperMatch21TXL 1395.	LaserW. 12/660PS 5395.
7600/132 16/1.2/CD 2095.	540C 20/500/MDM 2195.	PressView21T 1695.	
8500/120 16/16/CD 2295.	6400/180 16/1.2/CD 1695.	Sony 1752F/175FII 445/785.	
8500/132 16/16/CD 2695.	6400/200 16/1.2/CD 1895.	Sony 175e2/205e2 995/1575.	
8500/150 16/25/4CD 3395.	6300 16/16/CD/28.8 1195.		
8500/180 32/25/CD 2195.	6320 16/16/CD/TV 1295.		
9500/120 16/16/CD 2295.	6220TV 16/16/CD 1045.		
9500/132 16/16/CD 2295.	6200 8/16/CD 995.		
9500/150 32/25/CD CALL	6116 8/700/CD/14" 1295.		
9500/200 32/25/CD CALL	5260 16/800/CD 1295.		
9500/180w 32/25/CD CALL	5320 16/1.2/CD 1395.		
	580 8/800/CD 995.		
	640 Duo 12/500/CD 695.		
	636 8/250/CD 699.		

SCANNERS
Epson scanners CALL
PowerLook II 1795.
Agfa Arcus II 1745.
StudioScan IISI 745.

Custom Configuration Specialists 2289 Westwood Bl. LA, CA. 90064 tel 310-470-9426 fax 310-470-1953

CIRCLE 259 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.

800-743-0594

2462 WAYNOKA ROAD COLO SPRINGS, CO 80915 • 719-380-1616 • 719-380-7022 • <http://www.recallusa.com>

CIRCLE 260 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 **★★★★**

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

Bear Rock
TECHNOLOGIES
Bar Code Products
That Mean Business

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



800 232-7625

CIRCLE 261 ON READER SERVICE CARD

MACUSER MARKETPLACE SHOPPERS BUY DIRECT. IN THE LAST 12 MONTHS, TWO-THIRDS OF THE COMPUTER PRODUCTS AND SERVICES THEY BOUGHT, THEY BOUGHT DIRECT.

ADVERTISE HERE, WHERE MAC BUSINESS BUYERS BUY DIRECT! CALL 800-825-4237 TODAY!



Source: 1996 MacUser Marketplace Subscriber Study

LATEST

Mac

S.A.L.E
INTERNATIONAL

SPECIALS

* COMPLETE USED SYSTEM SPECIALS *



Lowest
Prices
Ever!!



Mac IIx 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
WGServe 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



\$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



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

CORP^{art}TM

CORPORATE Logo Clip Art Library

CD-Rom

Only \$74⁹⁵

FREE 2nd Day Shipping

OVER 1150

Logos & Trademarks

- Logos From All Business Categories
 - Hi-Res Illustrator3 & EPS Format
 - Ideal for Laser Printers & Sign Cutters
 - Great For Signs, Ads, Flyers
 - Presentations, Video, Internet
 - Fully Editable & Resizeable
 - High Resolution At Any Size
 - Most Up-to-date Library Anywhere
 - SAVE VALUABLE DESIGN TIME & MONEY
- Works with any application capable of EPS import, Mac & WIN



Grafik Solutionz inc.
The Leader In Grafik Innovations

1-800-670-2245

Outside U.S.A. Call: 818-716-9030 FAX: 818-716-9230

<http://home.earthlink.net/~gsolutionz>



22545 Hatteras Street, Woodland Hills, CA 91367

All logos in this ad are trademarks & logos of their respective owners and copyright holders.

CIRCLE 266 ON READER SERVICE CARD

212 MacUser / FEBRUARY 1997

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



WE CAN SAVE IT!

See us at Comdex - Booth 5741

Call when you need us, or visit DriveSavers at: www.drivesavers.com

400 DEL MARIN KEYS BL., NOVATO, CA 94949, VOICE: 415-382-2000, FAX: 415-883-0780

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.dttservice.com>

DT&T

MACINTOSH SERVICES, INC.

CIRCLE 264 ON READER SERVICE CARD

Mouse Pads



Custom Printed
• Your Logo Design

• Fast Turnaround

• Guaranteed Quality

MicroStoreTM
800-962-8885

FAX: 507-665-2604

LE SUEUR, MIN 56058

Wrist Supports

CIRCLE 265 ON READER SERVICE CARD

ZD Marketplace On The Web

Location: <http://www.zdnet.com/marketplace>

SHOP THE WEB

Go to ZD Marketplace On the Web, a searchable database of hundreds of ads for everything computer related.

<http://www.zdnet.com/marketplace>

ZD MarketplaceTM
ON THE WEB

Never again worry about computer theft or damage

What could be better than full replacement?

By now, you've probably heard or read about SAFEWARE® Insurance for microcomputers. But you may still wonder just what it protects, or whether it's really worth the investment. If you've never lost any part of your computer system or software, you probably don't yet realize the limitations of most standard insurance coverages.

What do you mean it's not covered?

Operating your computer system without SAFEWARE protection is fine as long as you don't have to worry about an accident or loss. But what if you came to your office one morning to find you'd been robbed? Or your home had been ransacked? Or that a pipe had burst and caused water damage? Or that your system had fallen victim to a leading destroyer of computers—a power surge? All events beyond your control. If something like this should happen to you, you're likely to find out the hard way how limited your standard insurance policy's protection really is. No matter how little or how much you have invested in your computer system, discovering that it's not covered can be an expensive lesson.

What's the right coverage?

SAFEWARE's COMPUTEROWNERS™ Policy is a simple, easy-to-understand coverage you can count on. The policy offers full repair or replacement of hardware, media and purchased software, after a low \$50 deductible.

With your COMPUTEROWNERS Policy there's no need for you to schedule equipment or software as you do with "rider" policies. This will be especially important to you if you're ever planning to buy additional equipment or software, even just one peripheral.

No risk offer!

Your COMPUTEROWNERS Policy is a comprehensive plan of insurance, which means that it covers hardware, purchased software and media. Your complete system is protected against theft, fire, vandalism, storms, natural disasters (except earthquake) and accidental damage. Your SAFEWARE Policy even covers damage caused by power surges and accidents... the leading destroyer of microcomputers.

The COMPUTEROWNERS Policy does not cover theft from an unattended vehicle, earthquake or computers outside of the U.S. and Canada. Call for these coverages.

Now, the COMPUTEROWNERS Policy is available on a no risk basis. If you are not completely satisfied with your coverage, you may return the policy for a full refund within 10 days of receiving it.

Press Reports

"Forget cars, bikes and jewelry—that's kid stuff. Felons of the 1990s are targeting your desktop



and notebook PCs. Unfortunately, the same properties that make portables such great traveling companions—they're small and lightweight—make them easy prey for thieves. And a desktop PC is a bonanza for a burglar." *Home Office Computing*, Feb. 96."

"Computer larceny is so rampant in certain parts of the country that some carriers will not endorse home or business PCs for specific types of loss—off premises theft, for instance." *Columbus Dispatch, NY Times Special Features*, Sept. 20, 1996

Tens of thousands have said "yes!"

Since it was first introduced in 1982, tens of thousands of computer owners have said "yes" to SAFEWARE. Owners of systems, from the smallest portable to larger sophisticated business systems, are finding that SAFEWARE offers the most affordable and complete protection. SAFEWARE coverage offers the simplest peace of mind available to ensure carefree computing.

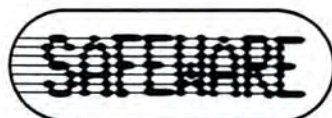
Easy to order!

Choose from two simple ways to pay for your COMPUTEROWNERS Policy: Call the toll-free phone number listed and we'll charge the premium to your VISA or MasterCard. You can also mail the coupon along with your check or credit card payment.

Total Hardware, Media & Software System Value	Annual Premium
Up to \$2,000	\$49
2,001 - 5,000	69
5,001 - 8,000	89
8,001 - 11,000	109
11,001 - 14,000	129

Call toll-free for rates on higher coverage

It is an underwriting requirement that you insure all your computer equipment for full replacement cost.



SAFEWARE, The Insurance Agency Inc.
5760 N. High St.
P.O. Box 656
Columbus, Ohio 43085

1-800-SAFEWARE

NOW AVAILABLE IN ONTARIO!

With your COMPUTEROWNERS policy you get...

- Full repair or replacement coverage.
- Freedom from worries of fire, theft or accidental damage.
- Ultimate in power surge protection.
- Costs as low as \$49 per year.

ACTIVATE A SAFEWARE COMPUTEROWNERS POLICY NOW!

Complete, sign and return with your credit card or check payment. Or, for faster service, call

1-800-800-1492

Internet: <http://www.safeware-ins.com>
E-Mail: safeware@safeware-ins.com
FAX: 1-614-781-0559

YES! MY COMPUTER NEEDS IMMEDIATE COVERAGE.

I understand I have 10 days from receipt of my policy to review terms and conditions. If not satisfied, I can return for a full refund. Photocopy, complete, and mail. Do not cut. Please print clearly.

Name

Address

City

State/Zip

Total System Value \$

Enclosed is my payment for one year

☐ Check enclosed ☐ MC ☐ VISA

Card #

Expiration Date

Signature

Daytime phone

This ad is a general summary of the provisions and qualifications of the insurance benefits included in the policy. Review your policy for full details. Call for coverage in TX, NY, FL, MS and PA. Void where prohibited.

Mail to:
SAFEWARE, The Insurance Agency Inc.
5760 North High St.
P.O. Box 656
Columbus, Ohio 43085

Underwritten by
American Bankers Insurance Company
11222 Quail Roost Drive, Miami, FL 33157

MUS 2/97

Student - Teacher & School Discounts!

WE WILL BEAT ANY ADVERTISED PRICE!!



\$219

Fractal Painter 4
The Amazing
Paint Program



\$179

Canvas 5
NEW VERSION!!



\$129

**CodeWarrior 10
Pro**
Development Tools



\$195

**CorelDRAW 6
Suite**
#1 Graphics Suite



\$219

**Debabelizer
Toolbox 1.6.5**

Graphics
Processing
Toolbox



\$299

Director 5.0.1
The Most Powerful
Authoring Tool!

Graphics
Processing
Toolbox



\$249

**ElectricImage
Student 2.5**



\$129

FileMaker Pro 3.0
The Database for
for Growing Business



\$169

FreeHand 7.0
Tool for Design
& Illustration



\$249

Infini-D 3.5
**Includes
Free Video**

3D Web Workshop 1.0	\$179	Director Multimedia Studio 2.0	\$899
3D World 2.0	\$95	DiskGuard 1.5	\$75
4D First 1.2	\$99	DrawTools 1.0	\$85
4th Dimension 3.5	\$449	DrawingSlate II 12x12	\$209
After Dark 3.2	\$39	DrawingSlate II 12x18	\$269
Agfa Arcus II	\$1849	Elastic Reality 1.2	\$149
Agfa SnapScan	\$359	ElectricImage Broadcast 2.75	\$2395
Agfa StudioScan IISI w/Photo	\$849	Empower Pro 5.1	\$110
Agfa StudioStar w/Photoshop	\$969	Encore 4.1.1	\$249
Alchemy 3.0	\$199	EndLink 2.0	\$55
Alias Sketch! 2.0.2	\$229	EndNote Plus 2.1	\$165
Amapi 2.1	\$199	Envelopes Starter Pack	\$65
ArchCad 5.0 Subscription	\$199	Extreme 3D 2.0	\$199
Astound 2.0	\$99	FastTrack Schedule 4.0b	\$129
Authorware 3.5.1	\$699	Fetch 1.2	\$85
Authorware Interactive Studio	\$1979	FileGuard 3.0	\$119
Autocad R12 w/Ame	\$199	Final Draft 4.0	\$125
Band-In-a-Box 6.0	\$69	FolderBolt Pro 1.0.3	\$75
Blueprint 5	\$149	Fontographer 4.1.3	\$149
Border Fonts Portfolio	\$129	Form Z 2.8 RenderZone	CALL
Boris Effects 2.1	\$125	Form Z 2.8	CALL
Boris Effects Media 100	\$475	Fractal Design Dabbler 2.0	\$39
CD-ROM Toolkit 2.01a	\$49	Ray Dream Designer 4.1	\$95
ChemDraw Pro 3.5 Student	\$149	Fractal Design Detailer 1.0	\$199
ChemOffice Pro 3.5 Student	\$299	Fractal Design Expression 1.0	\$199
Chemistry Explorer	\$69	Fractal Design Jag II	\$55
Claris Draw 1.0	\$119	Fractal Design Paser 1.0	\$95
Claris Emailer 1.1	\$49	Ray Dream Studio 4.1	\$219
Claris HomePage 1.0	\$79	FreeHand Graphics Studio 7.0	\$389
Claris Organizer 2.0	\$59	French Power Trans 1.0	\$99
ClarisWorks 4.0	\$89	German Power Trans 1.0	\$99
Cliff Notes Studyware Calcul	\$35	Glidepoint Desktop Trackpad	\$69
Cliff Notes Studyware Geom	\$35	Grolier 1997 Mpc Encyclopedia	\$59
Cliff Notes Studyware Physic	\$35	Hard Disk Toolkit 2.0	\$109
Cliff Notes Studyware Sat I	\$39	HyperCard 2.3.1	\$89
Coda Finale 3.7	\$249	IdeaFisher Pro 6.0	\$75
Collage 2.0.1	\$69	Infini-D Production Studio	\$379
Color III 3.5	\$39	Infinite Fx	\$65
Color QuickCam	\$239	Inspiration 4.1	\$89
Color Survival Bundle	\$189	IntelliHance 2.0.1	\$85
ColorDrive 1.5	\$99	Internet Connect Kit 1.2	\$45
Conflict Catcher 3.1.0	\$59	Japanese Language Kit 1.2	\$129
Cricket Draw III 2.01	\$79	Jmp 3.1.5	\$329
Cricket Graph III 1.5.3	\$79	KPT Convolver 1.0	\$85
CyberPress 1.0	\$129	KPT Final Effects 3.0	\$349
CyberSound FX	\$85	KPT Final Effects AP 1.0	\$105
Datadesk 5.0	\$369	KPT Power Photos Vol 1,2,3,4	\$85
Debabelizer Lite 1.1	\$79	KPT Vector Effects 1.0	\$85
DeltaGraph Pro 4.0	\$89	Kai's Power Goo 1.0	\$49
Design Workshop 1.5	\$229	Kai's Power Tools 3.0.2	\$85
DesignCad 2D/3D 3.0.1	\$149	Kidpix Studio	\$35

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 video offer ends 1/31/96
 ** Free AOL Starter Kit while supplies last



The
SOFTWARE
Source

1-800-289-3275

1750 Brielle Ave, Unit A-2
 Ocean, NJ 07712
 PHONE (908) 695-2100
 FAX (908) 695-9371
 E-MAIL: SFTSWS@AOL.COM

Student - Teacher & School Discounts!

LATEST VERSIONS & FULL PACKAGES

Killer Transitions.....	\$189	Printshop Deluxe 1.1.....	\$55
Kodak DC20 Digital Camera.....	\$289	QX-Tools 2.0.....	\$85
Kodak DC40 Digital Camera.....	\$569	Quickkeys 3.5.....	\$85
Kodak DC50 Digital Camera.....	\$869	Raid Toolkit 1.8.....	\$249
Kodak Digital Snapshot Scanner.....	\$195	Ram Doubler 2.0.....	\$55
Lets Keep It Simple Spreadsheet.....	\$119	SPSS 6.1 Student.....	\$99
Lightning Draw Gx 1.0.3.....	\$99	Sculpt 3D 4.1.....	\$219
Live Picture 2.5.1.....	\$469	SigmaPlot 5.0.....	\$199
Logomotion 2.0.....	\$69	SoftWindows 3.0.....	\$229
M.Y.O.B 6.0.....	\$49	Sony Multiscan 155F Monitor.....	\$499
M.Y.O.B 6.0 w/Payroll.....	\$90	SoundEdit 16+ Deck II.....	\$269
mTropolis 1.1.....	\$649	Spanish Power Trans 1.0.....	\$99
Mac Academy Tutorial Videos.....	\$35	Speed Doubler 1.1.....	\$55
MacDraft 4.2.1.....	\$199	Spell Catcher 1.5.....	\$49
MacLink+ PC Connect 8.1.....	\$125	Stuffit Deluxe 4.0.....	\$69
MacLink+ Translator Pro 9.0.....	\$95	Stuffit Spacesaver 4.0.....	\$45
Marionet 1.1.....	\$89	Stylist 1.0.....	\$85
Master Trax Pro 6.0.....	\$79	SuperCard 3.0.....	\$199
Math Workshop.....	\$39	SuperCard MegaStudio.....	\$249
MathType 3.1.....	\$99	System 7.5.3.....	\$85
Mathcad 6.0+.....	\$149	TelePort Platinum 33.6.....	\$169
Mathematica 3.0 Student.....	\$169	Texturescape 2.0.....	\$79
Mathlab Student.....	\$99	The BlackBox 2.0b.....	\$69
MediaPaint 1.2.....	\$199	Three X Five 2.0.....	\$55
MediaTool Kit 2.0.....	\$399	Trackman Marble.....	\$85
MeshPaint 3D 1.5.....	\$315	TranJammer Vol 1 or 2.....	\$59
Micro Grade.....	\$69	Tree Professional 3.0.....	\$325
Minitab Release 10Xtra.....	\$249	Turbo Mouse 5.0.....	\$109
Mouseman Cordless.....	\$75	Umax SuperMac S900L CPU.....	\$3249
Mrs. Hart's Water Colors.....	\$99	Umax Vista-S12 Scanner.....	\$869
Nisus Dictionaries Available.....	\$55	Umax Vista-S6E Scanner.....	\$599
Nisus Writer 5.0.....	\$99	Vellum 3D 3.0.....	CALL
Nisus Writer 5.0 w/Lang Key.....	\$149	VersaTerm 5.0.....	\$79
Now Bundle 3.6.....	\$69	Virex 5.6.5.....	\$49
Now Startup Manager 7.0.....	\$49	VirusScan 2.0.....	\$45
Now Utilities 6.5.....	\$55	Wacom Art Z II 12x12.....	\$399
OmniPage Direct 2.0.2.....	\$65	Wacom Art Z II 6x8.....	\$285
OmniPage Pro 6.0.....	\$349	Wacom ArtPad II 4x5.....	\$129
OmniPage Pro 6.0 Upgrade.....	\$129	Wacom ArtPad II w/Dabblar.....	\$149
Opcode MAX 3.0.....	\$249	Walkthrough Pro 2.5.....	\$229
Opcode Overture 1.2.2.....	\$249	Web Animator.....	\$79
Opcode Studio VisionPro 3.0.3.....	CALL	WebArranger.....	\$65
Opcode Vision 3.0.3.....	CALL	WebSights Deluxe.....	\$69
Overdrive 1.0.....	\$85	WebStar WebServer.....	\$289
PageTools 2.0.....	\$85	Wildside Animals MP.....	\$49
PaperPort Vx Scanner.....	\$289	Wildside Armor MP.....	\$49
PhotoTools 1.0.....	\$85	Wildside Bundle.....	\$99
Phototone Alphabets.....	\$129	Wildside Castles MP.....	\$49
Physics Explorer Student.....	\$69	Wildside Designs MP.....	\$49
PlugInfinite.....	\$19	xRES 3.0.....	\$199
PowerPort Platinum Pro.....	\$469		

Artist's Dream Bundle

\$475



Fractal Painter 4 & Wacom Art Z II 6x8



\$89

ClarisWorks 4.0
#1 All-in-one program

\$319

MiniCad 6.0.1
Includes Free Video!

\$85

Kai's Power Tools 3.0.2
Adobe Compatible Plug-In

\$119

KPT Bryce 2.0
Powerful 3D Creation

\$269

SoftWindows 95
Run Windows 95 on your PowerMac

\$549

Strata StudioPro 2.0
New Version!!

\$69

WordPerfect 3.5.1
Word Processing

\$199

LightWave 3D 5.0
Model, Animate & Render

**Free America Online Starter Kit
& 15 Free Hours with every order!**



**CALL FOR
FREE CATALOG!!
(800) 289-3275**

INCLUDES COMPLETE PRICE
LIST & FREE PRODUCT INF.



1-800-289-3275

1750 Brielle Ave, Unit A-2
Ocean, NJ 07712
(908) 695-2100
FAX (908) 695-9371
E-MAIL: SFTSWS@AOL.COM

CHICK PICS
!!!!!!!!!!!!!!!!!!!!

900-267-7427

**Extreme
Intense
Movies**
!!!!!!!!!!!!!!!!!!!!

LIVE BABES
Free Stuff!

www.ics1.com/sexaction

Adults only, 18 years & older

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

PLEASE DO NOT FEED OR TAUNT THE EXHIBITS
RIDES YOU MUST BE 18 YEARS OF AGE AND FREE FROM
BACK CONDITIONS, INHIBITIONS AND GOVT CONTROL



**OVER THREE-QUARTERS
OF MACUSER
SUBSCRIBERS LOOK
AT THESE ADS!**

**ADVERTISE HERE,
WHERE MAC BUSINESS
BUYERS BUY DIRECT!
CALL 800-825-4237
TODAY!**

Source: 1996 MacUser Marketplace Subscriber Study

CIRCLE 268 ON READER SERVICE CARD

ADULTS OVER 18 YEARS

**Beautiful Girls
AT YOUR COMMAND**

**Interactive
Live Video Sex**

LARGEST SCREEN ON NET

CHAT • DOWNLOAD FILMS
HOT PHOTOS • STORIES
LIVE INTERACTIVE • STRIP
SHOW • LEG SHOW • B & B

www.PLATINUMPRIVATE.COM

NO SOFTWARE NEEDED

1-800-4-PLAY-13

**Platinum
PRIVATE**

CIRCLE 269 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

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 270 ON READER SERVICE CARD

**MARKETPLACE SHOPPERS HAVE THE
CONFIDENCE AND COMPUTER SAVVY TO
PURCHASE DIRECT FROM YOUR AD. SEVEN
OUT OF TEN BOUGHT FROM MARKETPLACE
ADS IN THE LAST 12 MONTHS.**

- 65% BOUGHT HARDWARE.
- 55% BOUGHT SOFTWARE.
- 49% BOUGHT SUPPLIES OR SERVICES.

**ADVERTISE HERE,
WHERE MAC BUSINESS
BUYERS BUY DIRECT! CALL
800-825-4237 TODAY!**

Source: 1996 MacUser Marketplace Subscriber Study

HARDWARE/BOARD/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 363 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, Knowledgeable 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 CDNR@aol.com

CIRCLE 364 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 365 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

Reach 510,000 Primary Readers
Finding and reaching serious
Macintosh Business Buyers is the
key to your success. Call your
representative today and learn how
you can
profit from BusinessCard.

BusinessCard Is Direct And Powerful
MacUser Marketplace provides you
with the most cost-effective advertis-
ing opportunity in the Mac
market with a monthly circulation of
510,000.

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.nlssoftware.com

CIRCLE 366 ON READER SERVICE CARD

EDUCATION

Quality Educational Software

- "Bring the world of education into your home."
- Apple II and Mac Software
- Look for us on ExpressNet on AOL
- Receive quick responses by email

Home Educational Software

Phone: 805 388-2722
Email: homedsoft@aol.com

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/photos-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 367 ON READER SERVICE CARD

RELIGION

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

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 Milbourne P.O.,
Edm, AB T6K 4C4 Canada

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 92211, Columbus, OH 43202
1-800-SAFEWARE

CIRCLE 368 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 363 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 369 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 370 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 371 ON READER SERVICE CARD

VIDEO TRAINING FOR MACS

Clearly explained, easy-to-follow lessons. Covers Mac OS, ClarisWorks word 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 372 ON READER SERVICE CARD



ANDY IHNATKO

Sad Mac

AS I DROVE to the big BCS Garage Sale, I saw two hawks circling above the reservoir near Route 128. That's a pretty rare sight: Most of the prey along Boston-area waterways has about the same heavy-metal content as a PowerBook battery. Of course, it was neat to see those proud hunters of the air, who scan the landscape with an unflinching and unsympathetic eye and all that sort of doggerel the PBS narrator goes on and on about before showing us a duck getting it right in the neck. But I'm a columnist, and as such, I'm always on the lookout for lame analogies I can start a column with, so I sort of wish they'd been buzzards. For I was driving to the Boston Computer Society's offices not as a hunter but as a scavenger.

The BCS, the country's oldest user group, is no more. I learned of its demise first thing in the morning, as I groggily collected the past seven hours' worth of e-mail and found one press release from the BCS, announcing the board of directors' decision to disband, and about 18 forwards of that same release courtesy of fellow Former Activists. The name deserves capitalization. We really should have had T-shirts printed up for all the people who, like me, had been Activists (active volunteers) in the organization but had eventually declined even to renew their basic memberships. The comments the FAs added to the press release featured lots of cackling, particularly about the statement that the BCS was folding its tent because it had "achieved its goal of making computers easier to understand." Rumor had it that at the final meeting, the lead agenda item was to discuss whether the remainder of the BCS' operating funds should be used to fund a last-ditch effort to attract more members or to buy Chinese food for the meeting.

The BCS made big contributions to my

personal and professional life. I became an Activist shortly after Rensselaer Polytechnic and I parted ways over a little disagreement regarding the importance of third-semester physics in a computer-science curriculum. The BCS, oddly enough, gave me what I had sought and failed to find at RPI: the opportu-



nity to study computers and hardware. The Mac Group's Somerville office was a clubhouse for me and dozens of other Activists. It was simply the place to be. If you went there, you'd find something new to learn, and if you stood still for four minutes, someone would find some interesting BCS•Mac work for you to do. I gave seminars; repaired hardware; wrote for *The Active Window*, the group's newsletter; designed T-shirts . . . you name it. I helped run the monthly meetings, and one of my presentations there led to my first article in *MacUser*. I even met my sweetheart through the BCS.

But Camelot can never last; at some point, Robert Goulet shows up in his little mustache and starts singing. The BCS' founder and director resigned to get A Real Job, and most Former Activists would agree that it was the resulting change in the group's personality that ultimately led to the mass exodus. Stubbornly dedicated leadership was replaced by a stubbornly dedicated bureaucracy that infiltrated

at all levels. Suddenly, *The Active Window* had ambitions to become a glossy independent magazine and its editors started acting like . . . well, like editors. People who volunteered to give seminars were met not with earnest appreciation but with stacks of forms requesting formal proposals and outlines and equipment requisitions. A couple of years ago, feeling guilty about having practically abandoned the group I owed so much to, I agreed to design another Expo T-shirt. I spent three weeks arguing with different levels of the BCS hierarchy about whether the ears on a superhero's costume should be rounded or pointy.

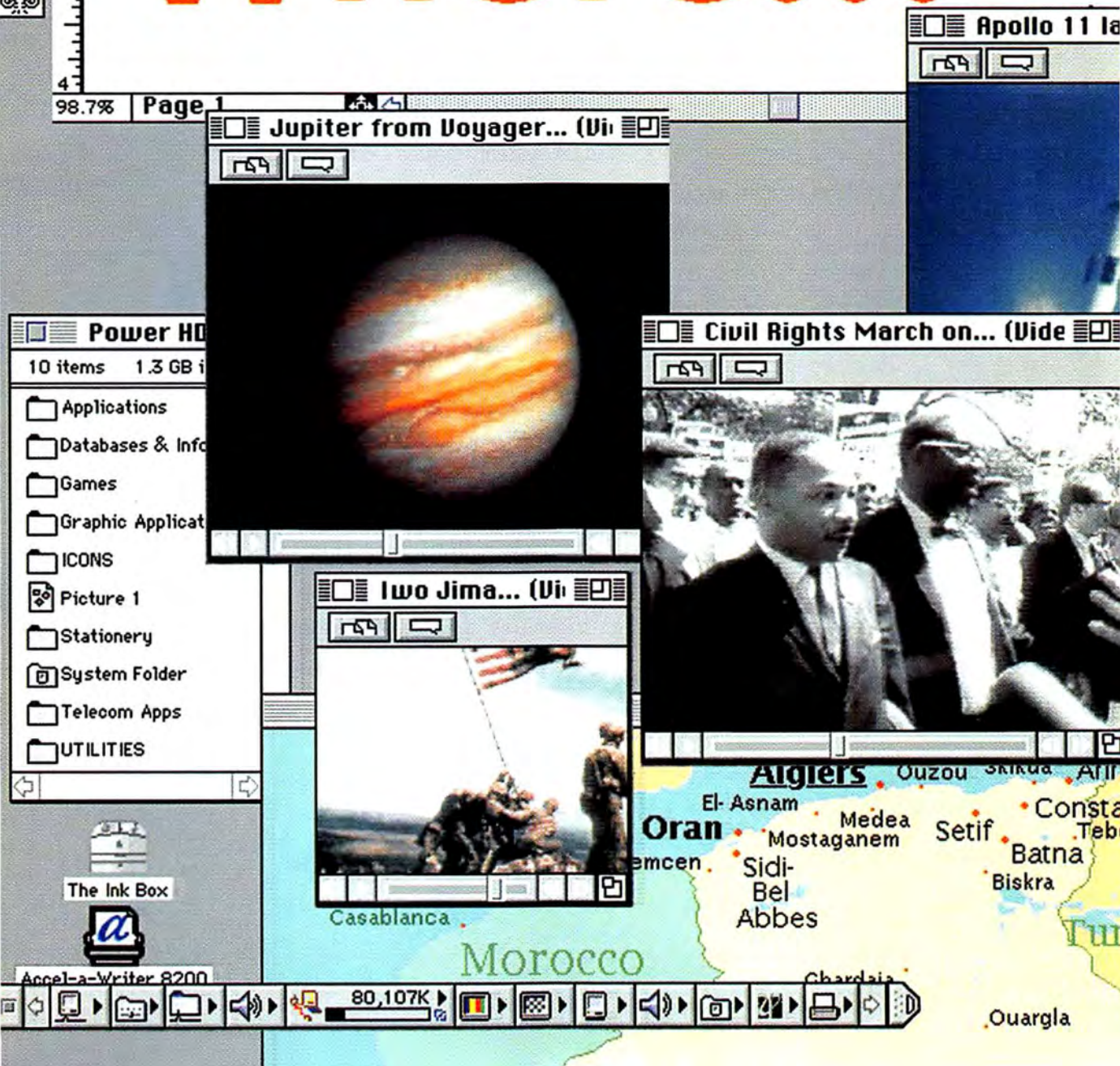
But we Former Activists shouldn't be so smug. The BCS' biggest enemy wasn't itself — it was the direction of the Industry. During its heyday, the BCS gave its members two valuable commodities: information and the opportunity to socialize with fellow Mac-ren. Today, anyone with a Web browser can find any answer or information they need with just a few keywords and users seem content to confine their socializing to the bowling alley, where it belongs.

Buzzards to Roadkill

And so, after years of perceived alienation, it took *this* to finally get all those Activists back to the BCS' offices: the sale of all of the group's equipment, at pennies on the dollar, in order to satisfy creditors. I came out with about a dozen Macs, including a Mac Portable. I remember borrowing it almost ten years ago, marveling at actually using a Mac on a commuter train. And I captured the flag: the BCS•Mac's big trade-show banner, which now adorns a wall of my den.



Afterward, my pal John and I retired to a nearby Burger King to reflect. His BCS Linux subgroup will hum along just fine without the BCS; indeed, it will probably even flourish, he thinks. These are the sentiments of all the subgroup leaders I talked with. Because in the end, it wasn't the members who lost a user group; it was the other way around. ■


This Is Where...





Introducing PowerBase™ from Power Computing. 180, 200, 240MHz Mac™ OS systems starting at just \$1,495.

Meet PowerBase. A machine that begs to be in a classroom. A machine that will mesmerize your kids and make learning history more fun than gym class.

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.

PowerBase is not only the perfect Mac OS system for kids from kindergarten through college, but its powerful feature set makes it the perfect entry-level **PowerPC™** business system. In fact, MacUser Magazine awarded PowerBase their coveted "five mice" rating handily beating out all other 603e-based systems from Apple, Motorola and Umax. 

Our PowerBase systems use upgradeable 180, 200 and 240MHz 603e PowerPC™ CPU's, accelerated 2D/3D video, an 8X CD-ROM, 16MB RAM, plenty of hard drive space, great monitor options and \$1,000 in bundled software. 

Plus, since Power Computing is the only company in the Mac market that offers  custom configuration, you get exactly the system you want. We offer built-in options such as Iomega Zip™ drives, Jaz™ drives, extra RAM, and bigger hard drives without you're having to go through the hassle of doing it yourself.



PowerComputing

To order, contact a Power Computing Consultant
at **1-800-405-7693**

CIRCLE 24 ON READER SERVICE CARD

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



NOW THE FASTEST DESKTOP PC ON THE PLANET IS A MAC™ OS SYSTEM.



THE POWERTOWER™ PRO 225 MHz. SIX PCI SLOTS. INTERLEAVED MEMORY. FAST SCSI. 8X CD-ROM.

Power Computing is fighting to put the Mac OS on top!

We love the Mac, just like you. In fact, most of us here at Power Computing have spent our entire adult lives working

"THE POWERTOWER PRO SERIES SOARS ABOVE ALL MAC RIVALS...MAC POWERUSERS WILL SOON BECOME POWER COMPUTING USERS IN DROVES"—MACWEEK MAGAZINE 7.22.96

for and with Apple Computer - designing and engineering the Macintosh systems you've worked and lived with since 1984.

"POWER COMPUTING HAS THE CLEAR AND UNDISPUTED EDGE OVER APPLE IN BOTH PRICE & PERFORMANCE. YOU WANT A POWERTOWER PRO."
— MacUSER MAGAZINE SEPT '96

Power Computing's goal is simple: provide the Macintosh market with more choice, power and performance. Take our PowerTower Pro series featuring the new PowerPC 604e RISC

♦♦♦♦♦ processor. It's not only the fastest and most expandable
MacWeek

Mac OS system ever, it's also faster than any Intel Pentium™ or Pentium Pro system on the market.



Custom configuration anyway you want it.

Finally, you can customize more than just your desktop icons. Power builds 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. That's the way we do business - direct, from the factory, just like Dell and Gateway.



Order direct from the manufacturer and save.

And best of all, you'll save time and lots of money going direct. Give us a call, and let us help you configure your dream system.



PowerComputing
800-405-7693