Super Fast Software

Power Mac App Performance Soars, Page 86

Word Processors
Lean Contenders Outrun the Heavies, Page 116

High-Bit Scanners
A New Level of Image Quality, Page 96
EVERYONE CAN USE A
THAT'S WHY WE BUILT ONE IN
You're never alone with the most popular spreadsheet for the Macintosh: new Microsoft Excel 5.0 for the Macintosh and Power Macintosh. Because inside every single box, you'll find an experienced guide.

We call it IntelliSense™ technology. Simply put, IntelliSense senses what you want to accomplish, then helps you get it done.

All of a sudden, your everyday spreadsheet tasks become automatic. And complex tasks are a whole lot easier. For instance?

Say you're looking for a shortcut through a forest of data. The PivotTable™ Wizard comes to your rescue. It helps you assemble a clear summary table. From there, use PivotTable dynamic views to see data from any point of view you want. Whether by category, quarter or region. You decide.

You'll stay on the right path thanks to the TipWizard™ assistant. This handy IntelliSense feature observes how you work, then offers tips on quicker and easier ways to do things in the future.

Then consider the direct route to chart changes. Called Hands-on-Charting, it lets you instantly resize or reformat any part of your chart.

Noticing a trend? IntelliSense technology makes it easier for you to work on your spreadsheet. Period. Letting you focus on your analysis, not your data.

And while working inside Microsoft Excel is easy, working with other Microsoft Office programs is also a cinch. You'll drag and drop Microsoft Excel charts right into Word. You can even make changes to charts without leaving your Word document. OfficeLinks makes it all happen.

For friendly directions to a retailer located near you, just call (800) 871-3268, Department Y3N.

Then upgrade to new Microsoft Excel 5.0. It's not only the leader among Macintosh spreadsheets, it even knows how to lead you.
At this very moment, it's our job to dazzle you, persuade you, and sell you on this great idea we have.

Of course, you already have that job, every day.

And that's exactly why you should consider the new NEC SuperScript® Color 3000 printer for Windows® and the SuperScript Color 3000M for Macintosh®. If you make overheads, if you make slides, if you make graphic presentations, they simply make your work look clear, precise, and professional.

You see, the SuperScript Color 3000 is a thermal transfer printer. And, when it comes to color, it is far superior to an ink-jet printer. Ink-jet printers can leave you with washed-out colors. Not so with thermal transfer.

What's more, this NEC printer allows you to choose between three different modes of printing. That's because, as you know, color printing can get expensive, and there are times when you need a color print but not a deluxe photographic-quality print. The SuperScript Color 3000, unlike most printers out there, gives you a choice.

Photo Color™ mode gives you the ability to print incredibly sharp, vivid photographic-like color images. In short, professional-looking images that will add polish to any presentation.

With our Graphic Color mode, the size of the dots on the page are controlled to give you near-photographic quality, but at less cost per page than the Photo Color mode. Finally, the Thermal Transfer mode is ideal for charts, graphs and...
A COLORFUL, DRAMATIC INKING PRESENTATION.
RE ABOUT TO GIVE YOU.

The retail division has expanded beyond its original "niche" category to offer the complete range of glass designs to both consumer and corporate clients. Seeing a growing need in the corporate environment for glass sculpture and design, C&M now maintains ongoing relationships with 115 companies.

GRAPHIC COLOR MODE

diagrams. And you can use it to make rough color drafts, which will certainly save money over the long haul.

On the subject of saving money, the NEC SuperScript Color 3000 will cost you less than $1,000. For a color printer with three different printing modes, that price, quite simply, is just hard to beat. (We invite you to compare.)

Well, that concludes our presentation. Now it's time to close the sale. For additional information regarding SuperScript color printers, simply call 1-800-NEC-INFO. Or have information sent to you, via fax, by calling NEC FastFacts at 1-800-366-0476. Request document #7723000 for Windows or #7723006 for Macintosh.

©1994 NEC Technologies, Inc.
Contents

Features

Power Mac Software Soars
BY JIM HEID
When does it make sense to upgrade your software to PowerPC? Macworld Lab tests 28 applications to uncover the big performance winners.

Scanning Beyond 24 Bits
BY STEVE ROTH
Can a few extra bits make a real difference in the image quality? Yes—Macworld shows how with six 30- and 36-bit flatbed scanners.

Word Processing Powerhouses
BY ROBERT C ECKHARDT
Macworld turns a critical eye on high-end word processors to help you pick the right tool for the job.

Lean Writers
BY DAVID POGLE
We pick the best among four midrange word processors for those who prefer lean, mean—and inexpensive—writing machines.

Desktop CD-ROM Publishing
BY JIM FEELEY AND SUZANNE STEFANAC
Does CD-R have a place on your desktop? Macworld Lab gives you the lowdown on publishing CDs without using a service bureau.

News

MacBulletin

First Mac Clones • Faster Power Macs • Online piracy ring, and more

Power Mac News
Dawning of a Power Mac replacement? • Newly native apps: Canvas 3.5, LabVIEW 3.1, and more

New Products

Opinion

State of the Mac
BY ADRIAN MELLO
Intel's flawed logic.

Letters

The Desktop Critic
BY DAVID POGLE
Macros for fun and profit.

The Iconoclast
BY STEVEN LEVY
The bloat surrounding Word 6.

Conspicuous Consumer
BY DEBORAH BRANSCUM
What "suggested retail" really means.

Wise Guy
BY GUY KAWASAKI
Apple, will you ever learn?

Published your own CD?
Macworld Lab shows you how, page 122.

Desktop digital video under $100 in Review, page 73.
Graphics

130 News  Umax 30-bit scanner • Macromedia FreeHand 5.0 • Plug-ins for Adobe Illustrator, and more

132 Expert Graphics  BY CATHY ABES  Graphics professionals share their secrets.

At Work

134 News  Point-'n'-click SQL queries • Real-time conferencing • Newton MessagePad 120, and more

137 Working Smart  BY JIM HEID  Business information via modem.

143 Quick Tips  BY LON POOLE  Tips, tricks, and shortcuts.

Networks

148 News  Apple's Open Transport • PACE-enhanced Ethernet • LANsurveyor's new look, and more

151 PowerBook Notes  BY CARY LU  Is your battery running out of time?

Buyers' Tools

163 Editors' Choice  Top picks from our comparative articles.

165 Star Ratings  Hardware and software reviews at a glance.

179 Streetwise Shopper  Hardware and software bargains: discounts, bundles, upgrades.

Reviews

50 Power Macintosh 8100/110  Macintosh computer

52 LaserWriter 16/600  Workgroup printer

53 Nisus Writer 4.0  Word processor

55 PixelPaint Pro 3.01  Color paint program

57 Apple PCMCIA Expansion Module  Expansion option for PowerBook 500 series

59 Adobe Acrobat 2.0  Portable-document software

61 Ray Dream Designer 3.1.1  3-D graphics program

63 DigiTrax 1.1  Audio-recording software

65 Performer 5.02: Vision 2.08  Music software

67 Brainstorm Accelerator for the Macintosh SE  Upgrade kit

69 French Assistant 1.0; Power Translator 2.0  Foreign-language translators

71 StarTrack Deluxe 3.5  Compression utility

73 QuickCam  Digital video camera

73 Bookends Pro 3.1  Reference-creation tool

75 DiskGuard 1.0.1; DiskGuard Remote  Security software

77 Paneflight 2X  LCD panel

77 ACT 2.0  Contact manager

79 MacDraft 4.0  2-D CAD software

79 Statistics/Mac 4.1  Statistical software

81 A.D.A.M. The Inside Story  Multimedia anatomy program

81 WarPlanes  Multimedia military-flight CD-ROM

83 Mouse Deluxe Mac  Three-button mouse

83 Kids World 1.01  Screen-saver creator
Let's talk scanners.

Whatever you buy a scanner for — document management, desktop publishing, graphic arts — you want the best scanned image possible, the most advanced features and the highest value for your hard-earned dollar.

A Reputation for Innovation.

While many of the names in today’s scanner market were still making computers, laser printers... or even radios, of all things, Microtek was racking up an impressive array of firsts.

Microtek brought the first halftone desktop scanner to market in 1984. Microtek was also responsible for the first 256-tone grayscale scanner, the first affordable desktop color scanner, the first affordable 35mm slide scanner. With the recent introduction of Dynamic Color Rendition (DCR), Microtek produced the first automated color calibration and correction system. And now, with the ScanMaker III and ScanMaker 45t, we’re the first to market with honest 36-bit desktop color scanners.

High Quality Made Highly Affordable.

Don’t need color scanning capabilities? Then don’t buy them. The Microtek ScanMaker II G is a great text and grayscale scanner with software enhanced resolution up to 1200 x 1200 dpi and a street price around $400.

Want color but don’t want to spend big bucks? Look into the ScanMaker II — you get 24-bit color flatbed scanning and Adobe Photoshop LE for around $550.

Looking for a fast, single-pass scanner for office and graphic applications? The ScanMaker II SP, winner of two Editors’ Choice Awards from PC Magazine and Imaging magazine, has software enhanced resolution up to 1200 x 1200 dpi and a street price around $750.

For more sophisticated applications, there’s the ScanMaker II HR. You’ll get resolution up to 2400 x 2400 dpi — which makes it very popular with graphic artists — and a price from around $800 to $1100, which makes it very popular, period.
With 36-bit color resolution, the ScanMaker III and ScanMaker 45t generate far more information than any 24- or 30-bit scanners. A palette of 68-billion colors means unparalleled richness, clarity of detail and color accuracy that rivals scanners costing thousands of dollars more.

The award-winning ScanMaker III is a fast, single-pass flatbed scanner with DCR color calibration, software enhanced resolution up to 2400 x 2400 dpi and a street price under $2700, even with its Transparent Media Adapter. You read it right, under $2700!

For the most demanding work, the ScanMaker 45t offers photographers and graphic artists software enhanced resolution of 2000 x 2000 dpi for scanning transparent images up to 5" x 5" at a street price around $6500. It offers a level of quality that, until now, was only available to professionals using costly drum scanners.

**FIRST NAME IN VALUE.**

No matter how much money you want to invest, you'll find your best value is with Microtek. For example, most Microtek scanners include Adobe Photoshop LE, Micrografx Picture Publisher or Caere's OmniPage Direct OCR (optical character recognition software) at no extra cost.

Microtek is the world's largest desktop scanner manufacturer. For over a decade we've made more scanners and have a history of more scanner awards and innovations than anyone else. And since we don't divide our attention between computers, photocopiers, printers and miscellaneous electronic products, we can concentrate on making the finest scanners in the business.

For current scanner prices, the nearest authorized Microtek reseller, or for your free copy of our scanning primer *The Scanned Image* call 800-654-4160 or fax a request to 310-297-5050.
Now, make your Quadra faster than a Power Macintosh 8100!

Introducing the 100 MHz PowerPro 601 from DayStar.

This new upgrade card will make your Quadra 610, 650, 700, 900, 950, 800 or Centris 650 faster than a 90 MHz Power Macintosh 8100 for considerably less than a new machine. DayStar has taken the superfast 100 MHz PowerPC processor and built an upgrade card for Quadra users. This card provides the same unsurpassed compatibility as our PowerPro with RAM expansion, only without the RAM. You get pure, no-compromise speed, in a simple to install upgrade card that also allows you to run your older applications in 68040 mode!

Lower prices for Quadra users. DayStar's PowerPro 601 with RAM expansion has a new low price too! You can get Power Macintosh performance with the ability to install up to 128 MB of additional RAM: for even less.

Plus, PowerPC for entry level Mac's. DayStar's new PowerCard 601 will transform the Quadra 605 and others into a Power Macintosh. It comes with its own installation kit so that you can be up and running at PowerPC speeds in minutes in your home or office.

DayStar lets you plug in new speed. Now you have even more upgrade choices, that deliver blazing PowerPC speeds, at lower prices than ever before.

Call DayStar and go faster... 800-962-2077!
more performance.

same compatibility.

same quality.

costs less.

any questions?

The smart *NEW* PaintBoard Prism and PaintBoard Prism GT from RasterOps, provide simple solutions for real world graphic problems.

While the others are bogged down with confusing options and high prices, RasterOps offers you the easy choice. Run the applications you use everyday. It doesn't take a propeller-head to see the difference.

RasterOps/Truevision. It's so simple, it's brilliant.

Call us at 1-800-SAY-COLOR.

legal stuff:

MADE IN USA. All rights reserved. PortaBoard and PaintBoard are trademarks of RasterOps. Truevision is a trademark of RasterOps, Inc. All other trademarks are property of their respective owners.

Suggested retail prices as of 1994. Prices subject to change. Performance comparisons based on subjective tests performed against a video frame buffer using QuarkxPress and Adobe Illustrator.

Circle 124 on reader service card
As far as Apple is concerned, only one table can support the family.

Apple's calls it "The perfect place to put your computer to work." It's sturdy, ergonomic and carefully designed around Apple's modular footprint to fit the Mac family plus peripherals. Call today for a free catalog of our complete line.

PowerTable
More quality for your money.

Macworld
March 1995

PowerTable design is patented pending.
PowerTable is a trademark of ScanCo Design Computer Furniture, Inc. Apple is a trademark of Apple Computer, Inc.
Okay, so you have no trouble getting paper out of your Mac. But what do you do with the articles, letters, receipts, and business cards—the important papers—that cross your desk every day? You use PaperPort, that's what! The first truly simple, super-small input device that converts your paper documents into electronic ones. Always ready to go. Just plug PaperPort into your Mac’s printer or modem port and then feed in a piece of paper. PaperPort grabs the paper, scans it and launches the software automatically—there isn’t even an ON button! Instantly useful. At six seconds per page, PaperPort begins to display your documents on the screen even before you’re through entering them!

Now you’ve got permanent electronic copies that you can retrieve at any time, using PaperPort’s easy-to-use search tools.

Streamline your work. With PaperPort’s direct links to word processors, OCR software (included!), printers and fax modems, you can file, edit, annotate, print and send your documents directly to others. Want to find out more? Call us at 800-787-7007, ext. 200.

PaperPort. It’s the in thing for your Mac.
“The Best Mac Desk Ever.”

• Ergonomic
• Fully Adjustable
• Strong
• Guaranteed
• VAR Inquiries
• Welcome

Free Catalog! 800.688.2446

Do You Have $100,000 To Spend On Document Imaging?

We Didn’t Think So.

FINALLY...a cost-effective, full-featured document management solution. Discover today how scanning, OCR, and full-text search will increase organization and productivity for your workgroup.

IMAXIS

Call 1-800-IMAXIS-0
1-800-462-9470 or 703-204-2114

Circle 88 on reader service card
Announcing Columbia House CD-ROM Direct.
Everything from games to reference to "real-world" entertainment.

Take 2 CD-ROMs for $9.95 each.
Plus 1 more at great savings! (See details below.)

A whole new way to get the most exciting CD-ROMs - games, reference, education and more - all at great prices! Just write in the numbers of the 2 CD-ROMs you want for $9.95 each, plus shipping and handling. In exchange, you agree to buy more CD-ROMs in the next 2 years, at our regular prices (currently as low as $39.95, plus shipping and handling) - and you may cancel membership at any time after doing so. What's more, you can get one more CD-ROM right now for the low price of $9.95, plus shipping and handling. In exchange, you agree to buy just 1 more CD-ROM at your regular price within the next 2 years.

For faster service, use your credit card and call us toll-free 24 hours a day.
1-800-647-7000
Dept. XAM
Circle 125 on reader service card

Columbia House CD-ROM Direct
Dept. XAM, 3105 Canterbury Court, Bloomington, IN 47404-1495

Yes, please enroll me under the terms outlined in this advertisement. As a member, I need buy just 4 more CD-ROMs at your regular prices within the next 2 years.

Send my CD-ROM selection form (check one only): [ ] PC (1) [ ] Macintosh (3)

Write in the selection #s below:

# #

Buy your first selection now and have less to buy later!

[ ] Also send my first selection for $19.95 plus $1.75 shipping/handling
[ ] I then need to buy only 4 more (instead of 5) in 2 years.

Please check how paying:
[ ] Charge my introductory CD-ROMs and future CD-ROM Direct purchases to:
[ ] MasterCard [ ] DINers Club [ ] AMEX
[ ] Discover [ ] Other

Account Name [ ] Exp. Date [ ] Signature

My main CD-ROM interest is (check one):
[ ] Entertainment [ ] Education
[ ] Reference [ ] Computer

Name [ ] Address [ ] City [ ] State [ ] Zip

Phone [ ]

Important! Did you remember to choose PC or Mac? Were offered a limited number of PC or Macintosh titles, you did not?

Plus Columbia House reserves the right to request additional information to line up membership or reject any application, to cancel any membership. Offer limited to residents of the contiguous United States. Residents of Alaska, Hawaii, Puerto Rico, U.S. territories are please write for separate offer.

Columbia House receives the right to request additional information to line up membership or reject any application, to cancel any membership. Offer limited to residents of the contiguous United States. Residents of Alaska, Hawaii, Puerto Rico, U.S. territories are please write for separate offer.

©1995, The Columbia House Company
POWERBOOK® 500 SOLUTIONS

With the high energy demands of the 500 series, runtimes are always shorter than you would like. Mobile-Mac users constantly need more power. VST Power Systems, Inc. offers award-winning products to keep your POWERBOOK® UNPLUGGED™.

**CHARGER 500**

VST's **CHARGER 500** is the first external charger compatible with PowerBook 500. It fully charges two batteries in under one hour, getting your PowerBook running sooner so you can work longer. The charger implements all required Apple EMM protocols for Smart-Charging, and monitors state of charge, charge rate, and temperature parameters. **CHARGER 500** is available alone, or bundled with an Apple AC Adapter. Includes EMMpathy™, VST's Smart Battery diagnostic software.

**PbTOOLS** version 2.0 is the first software package to include Apple's new Control Strip and Modules. It is compatible with all PowerBook models. **PbTOOLS** helps conserve power with user definable screen, CPU and drive timeouts, providing longer runtimes. Version 2.0 features new **PbTOOLS** Control Strip modules, including Switch-A-Roo, a module designed to switch all your screens between any two modes quickly. **PbTOOLS** 2.0 offers full support for the new PowerBook 500 series with its dual intelligent batteries.

**NEW PRODUCT** - VST Auto Adapter 500 $99.95

VST Power Systems • 1620 Sudbury Rd. • Concord, MA 01742
(908) 287-4060 fax (908) 287-4068

---

**Keep the Flame Alive**

The lamp of freedom and the light of learning can take many forms.

Your company’s used computers, laser printers, modems, and other surplus equipment can help empower young minds in America, and advance the emerging democracies around the world.

The East West Foundation takes your surplus or used equipment and distributes it to American schools and charities and to democratic and educational institutions in Eastern Europe, Africa, Asia, the Commonwealth of Independent States, and Latin America—wherever it can make a difference. And it does make a difference.

Donating used or overstock computer equipment to the East West Foundation can make a difference to you, too—at the bottom line. Because all donations are tax-deductible. And all types of computer equipment are welcome.

To arrange for a donation or for more information, please call:

EastWestFoundation
49 Temple Place
Boston, MA 02111
(617) 542-1234
Fax (617) 542-3333

---

**EastWest EDUCATIONAL DEVELOPMENT FOUNDATION**

A Not-For-Profit Corporation

---

**Macworld**

HOW TO CONTACT MACWORLD

SUBSCRIPTION QUESTIONS
Maintained USA
800/286-8488
All other locations
303/604-1465

MACWORLD ONLINE
Contact Macworld editors directly via the Macworld areas on America Online and eWorld. On these services, readers can search current and past issues, exchange messages with editors and other readers, and attend live online events. Readers can also send electronic mail via CompuServe (70370,702), MCI Mail (294-9078), AppleLink (Macworld1), or Internet (macworld@macworld.com).

MACWORLD IN MICROFORM
Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

COPY ISSUES OF MACWORLD
Write to Back Issues of Macworld, c/o Sandy Nelwill, P.O. Box 7048, San Francisco, CA 94114-7048; $6 per issue ($20 overseas). Payment in U.S. funds necessary. Make checks and money orders payable to Macworld Magazine.

MACWORLD EDITORIAL
MAIL ON COURIER Macworld Communications, Editorial Dept., 5th floor, 501 Second St., San Francisco, CA 94107; 415/243-0565.

AppleLink: Macworld1 Compuserve: 70370,702 Fax: 415/442-0766

LETTERS TO THE EDITOR
All written comments, questions, and suggestions regarding any aspect of this magazine are read by our editor. We reserve the right to edit all submissions; letters must include your name and address. Direct all correspondence (by mail or electronically) to Letters to the Editor.

QUESTIONS AND QUICK TIPS
Direct questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to Quick Tips, Lon Poole. Please include your name and address.

CONSUMER ADVOCATE
Been burned? Really steamed? Direct your concerns (by mail or electronically) to Conspicuous Consumer, Deborah Branscum.

NEW PRODUCTS AND UPDATES
Direct press releases and product announcements (by mail or electronically) and shrink-wrapped software upgrades (by mail or courier) to New Products Editor.

BUGS & TURKEYS
Mail in descriptions of turkeys (flaws in conception or design of bugs (defects or flaws in execution); copies of correspondence with vendor or telephone contact notes (if any); and your telephone number, mailing address, and T-shirt size.

STREETWISE SHOPPER
To obtain an application for inclusion of special product promotions in Streetwise Shopper, vendors and resellers should contact Charles Barrett (by mail or electronically) at Reprints and Photocopy Permission, Macworld, 1620 Sudbury Rd., Concord, MA 01742. Reprints and Photocopy Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of $1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 227 Congress St., Salem, MA 01970.

Address requests for reprint orders and for permission to copy editorial for other purposes to Reprints and Permissions, Editorial Dept.

WRITING FOR MACWORLD
Do not send us unsolicited manuscripts. If you're interested in writing for Macworld, send a stamped, self-addressed envelope along with a request for our writer's guidelines. Direct (by mail) to Writer's Guidelines, Editorial Dept.

FOR FURTHER INFORMATION:
Please call 1-800-286-8488.

DEBORAH BRANSCUM
CONSUMER ADVOCATE
415/442-0766

Macworld is a publication of Macworld Communications, Inc. Macworld is an independent journal, affiliated with Apple Computer, Inc. Macworld, Macworld Interactive, Macworld Shopper, AMW, MV Lab, MV Shopper, Desktop Critic, Desk Tips, Star Ratings, and Conspicuous Consumer are registered trademarks of International Data Group, Inc. Power PC World is a trademark of IDG, APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1995 Macworld Communications, Inc. All rights reserved. Macworld is a member of IDG Communications, the world's largest publisher of computer-related information.

IDG

The magazine are read by our editor. We reserve the right to edit all submissions; letters must include your name and address. Direct all correspondence (by mail or electronically) to Letters to the Editor.

QUESTIONS AND QUICK TIPS
Direct questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to Quick Tips, Lon Poole. Please include your name and address.

CONSUMER ADVOCATE
Been burned? Really steamed? Direct your concerns (by mail or electronically) to Conspicuous Consumer, Deborah Branscum.

NEW PRODUCTS AND UPDATES
Direct press releases and product announcements (by mail or electronically) and shrink-wrapped software upgrades (by mail or courier) to New Products Editor.

BUGS & TURKEYS
Mail in descriptions of turkeys (flaws in conception or design of bugs (defects or flaws in execution); copies of correspondence with vendor or telephone contact notes (if any); and your telephone number, mailing address, and T-shirt size.

STREETWISE SHOPPER
To obtain an application for inclusion of special product promotions in Streetwise Shopper, vendors and resellers should contact Charles Barrett (by mail or electronically) at Reprints and Photocopy Permission, Macworld, 1620 Sudbury Rd., Concord, MA 01742. Reprints and Photocopy Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of $1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 227 Congress St., Salem, MA 01970.

Address requests for reprint orders and for permission to copy editorial for other purposes to Reprints and Permissions, Editorial Dept.

WRITING FOR MACWORLD
Do not send us unsolicited manuscripts. If you're interested in writing for Macworld, send a stamped, self-addressed envelope along with a request for our writer's guidelines. Direct (by mail) to Writer's Guidelines, Editorial Dept.

FOR FURTHER INFORMATION:
Please call 1-800-286-8488.

DEBORAH BRANSCUM
CONSUMER ADVOCATE
415/442-0766

Macworld is a publication of Macworld Communications, Inc. Macworld is an independent journal, affiliated with Apple Computer, Inc. Macworld, Macworld Interactive, Macworld Shopper, AMW, MV Lab, MV Shopper, Desktop Critic, Desk Tips, Star Ratings, and Conspicuous Consumer are registered trademarks of International Data Group, Inc. Power PC World is a trademark of IDG, APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1995 Macworld Communications, Inc. All rights reserved. Macworld is a member of IDG Communications, the world's largest publisher of computer-related information.
Now A Compact Hard Drive
Without Compromises...
Plus Joule's Valuable
System Compatibility.

Why buy a conventional hard drive when you can get all the advantages of a Joule for no more? In our competitive trials Joule is the smallest, the lightest, the quietest, and the most portable full-size drive. Only Joule gives you the added value of stand-alone operation, portability or integration into the acclaimed Joule Modular Storage System.

Joule Portable drives give you all the features you expect and more: Quickset™ adapters for easy plug and play, La Cie Term™ switchable active SCSI termination for a clean signal, up-front switch and activity lights, dual connectors for daisy chaining, and SilverLining™ 5.6 disk management software. Available exclusively from La Cie, a Quantum company, Joule drives offer a superior warranty and Quantum's Fortune 500® stability so you can buy with confidence.

FREE with purchase:
SilverLining 5.6
$99 value

To order call toll free:
800-999-1353

LaCie Limited
A Quantum Company

See Us At
MacWorld Expo
Booth # 1907
The Joule Advantages

Joule Portable Hard Drives

Expandable storage and portability in a uniquely versatile system.

<table>
<thead>
<tr>
<th>Joule Portable with Dock</th>
<th>Joule Module with Mount</th>
<th>Internal Drive with Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5'' HARD DRIVES - Quantum</td>
<td>2 or 5 Year Warranties</td>
<td></td>
</tr>
<tr>
<td>170MB</td>
<td>$219</td>
<td>$159</td>
</tr>
<tr>
<td>270MB</td>
<td>$259</td>
<td>$189</td>
</tr>
<tr>
<td>340MB</td>
<td>$269</td>
<td>$209</td>
</tr>
<tr>
<td>540MB</td>
<td>$319</td>
<td>$259</td>
</tr>
<tr>
<td>730MB</td>
<td>$379</td>
<td>$319</td>
</tr>
<tr>
<td>1080MB</td>
<td>$669</td>
<td>$599</td>
</tr>
<tr>
<td>1337MB</td>
<td>$1069</td>
<td>$999</td>
</tr>
<tr>
<td>1400MB</td>
<td>$879</td>
<td>$819</td>
</tr>
</tbody>
</table>

2.5'' HARD DRIVES - Quantum - 2 Year Warranty

| 170MB                    | $299                    | $239                        |
| 256MB                    | $369                    | $299                        |
| 340MB                    | $449                    | $389                        |
| 514MB                    | $569                    | $499                        |

Joule Portable Dock without drive

3.5'' ZERO FOOTPRINT CASE HARD DRIVES - Quantum - 2 or 5 Year Warranties

| 2100MB                   | $1199                   | $1139                       |
| 2148MB                   | $1269                   | $1199                       |
| 4300MB                   | $2569                   | $2499                       |

Joule Base Drives

Joule Base Drives stand alone or serve as the foundation to a uniquely expandable Joule Tower. Bases are available with Hard Drive, Optical or SyQuest® mechanisms and include all the Joule advantages.

<table>
<thead>
<tr>
<th>3.5'' HARD DRIVES - Quantum</th>
<th>2 or 5 Year Warranty</th>
</tr>
</thead>
<tbody>
<tr>
<td>340MB</td>
<td>$319</td>
</tr>
<tr>
<td>540MB</td>
<td>$369</td>
</tr>
<tr>
<td>730MB</td>
<td>$429</td>
</tr>
<tr>
<td>1080MB</td>
<td>$719</td>
</tr>
<tr>
<td>1337MB</td>
<td>$1119</td>
</tr>
<tr>
<td>1400MB</td>
<td>$929</td>
</tr>
</tbody>
</table>

REMOVABLE DRIVES - SyQuest®

| 105MB                     | $419                 |
| 270MB                     | $549                 |

REMovable drives include 1 FREE Cartridge

Joule - A Simple System

Stack up to 6 storage modules upon a Joule Base or use modules alone with a portable Dock.

To order call toll free: 800-999-1353

Mon-Fri, 5AM-7PM & Sat. 8AM-MIDNIGHT PST  •  International 503-520-9000  Fax 503-520-9100 (24 hrs.)
“La Cie’s new stackable design for storage devices offers several benefits over standard external case designs.” MacWeek – October 1994

- Support hard or removable drives.
- Simple, easy installation.
- Easy SCSI ID switching and digital active SCSI termination.
- Single surge protected power supply supports all modules.
- All modules removable without reconfiguring system.

**Joule RAID**

Joule’s unique tower arrangement makes it easy to create large RAID systems for power users. Configured with levels RAID-0, RAID-1, RAID-4, and RAID-5.

- **$2999**
  - 4.28GB
- **$8999**
  - 16.8GB

**NOW MAKE YOUR OWN QUALITY SEPARATIONS**

**SILVERSCANNER III**

**PACKAGE 1**

- Silverscanner III with Color It! & Read-It OCR Pro.
- **$1499**

**PACKAGE 2**

- Silverscanner III with Photoshop & Read-It OCR Pro.
- **$1799**

**Upgrade Options**

- Transparency Adapter
  - **$799**
- Sheet Feeder Attachment
  - **$499**

**PC COMPATIBLE**

**ALL NEW!**

- 2400 dpi scanning power!
- 10 bits per color!
- One pass scanning!
- Dynamic color preview!
- Electronic densitometer, automatic tone adjustment & color histogram – all interactive in preview!
Now get all the Joule advantages in popular removable media drives.

Make La Cie your source for removable media drives. Our selection now includes Joule's modular system advantages and portability in SyQuest®, Fujitsu Optical, DAT and Tape Drives. Choose the stand-alone Joule Portable or stackable Modules with Mount to extend your Joule Base. Or select an internal drive for use in your Mac.

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SyQuest</td>
<td>$499</td>
<td>Portable Joule Drive (for use with Base)</td>
</tr>
<tr>
<td>230MB Fujitsu Optical</td>
<td>$799</td>
<td>230MB SFUJITSU OPTICAL - With FREE 3.5&quot; Cartridge</td>
</tr>
<tr>
<td>105MB</td>
<td>$369</td>
<td>SYQUEST DRIVES - With 1 FREE SyQuest Cartridge</td>
</tr>
<tr>
<td>270MB</td>
<td>$499</td>
<td>88MB &amp; 200MB SyQuest Drive available in Zero Footprint and internal versions only. Add $50 for Zero Footprint Case configuration.</td>
</tr>
<tr>
<td>88MB</td>
<td>$459</td>
<td>200MB TAPE DRIVE - Includes 1 FREE DAT Tape &amp; Comes With Retrospect™</td>
</tr>
<tr>
<td>DAT</td>
<td>$789</td>
<td>DAT TAPE DRIVE - Includes 1 FREE DAT Tape &amp; Comes With Retrospect™</td>
</tr>
<tr>
<td>Tape Drive</td>
<td>$1199</td>
<td>8.0GB SILVERLINING 5.6 - Hard Disk Management Software</td>
</tr>
<tr>
<td>44MB</td>
<td>$79</td>
<td>REMOVABLE CARTRIDGES</td>
</tr>
<tr>
<td>88MB</td>
<td>$89</td>
<td>44MB SyQuest</td>
</tr>
<tr>
<td>160MB</td>
<td>$69</td>
<td>88MB SyQuest</td>
</tr>
<tr>
<td>200MB</td>
<td>$79</td>
<td>200MB SyQuest</td>
</tr>
<tr>
<td>210MB</td>
<td>$79</td>
<td>200MB Optical</td>
</tr>
</tbody>
</table>

Fujitsu 230MB Optical With FREE 3.5" Cartridge $799

To order call toll free:

800-999-1353

*Call for prices, conditions, limited menu, back guarantees, etc. online. Prices do not include shipping and taxes apply to products shipped within the continental United States. Add sales tax where applicable. Check, Visa, MasterCard, American Express, COD. and approved purchases only. Order may be cancelled at any time. All prices subject to change without notice. 

Circle 52 on reader service card.
FEW YEARS AGO THERE WAS quite a furor when children around the country pulled the string on the back of Teen Talk Barbie and their favorite doll said, "Math class is tough." The marketers at Mattel, no dummies they, now offer Astronaut Barbie, whose box is printed with the motto "We girls can do anything." Now that Mattel has improved its attitude toward the very young women who use its products, it's time for Intel and Microsoft to show that they respect their customers, too.

After the floating-point division problem with Intel's Pentium became a hot potato (see "Pentium Dementia," MacWorld, February 1995), there was another surprise: the Calculator applet (small application) in Microsoft Windows 3.1 and Windows for Workgroups—used by nearly 60 million people—can't do arithmetic properly with some small numbers. Perhaps when balancing his checkbook, Bill Gates got too used to adding up numbers that have at least six zeros in them and failed to notice that 2.01 minus 2.00 is not 0.00. Perhaps Intel and Microsoft should have heeded Teen Talk Barbie's warning to us all on the inherent difficulty of mathematics.

To be fair, math is hard, especially on computers. Digital binary math can only approximate some numbers that can be written easily and accurately on paper—1/2 or π, for instance. A computer could spend its life calculating .3333333 for the first example, or 3.14159... for the second. At some point a computer has to round off, so there's a trade-off between accuracy and speed. For certain very sophisticated math, an entire cottage industry is dedicated to creating algorithms that help computers do specific kinds of calculations more accurately.

Nor has the Mac been problem-free: witness the spotty history of SANE (the Macintosh Way of Math). The PowerPC family has also had some flaws. For example, the version of the 601 that ships in Apple's upgrade cards has some problems with transcendental calculations. The PowerPCs that ship in complete Power Macs are fine, but that situation may explain why Apple has been remarkably low-key, not yet openly criticizing Intel.

Like Intel with its Pentium flaw, Microsoft has known about the Windows math problem for some time and planned to fix it in the next version. Unlike Intel's corrected Pentium, however, which is shipping now, Microsoft's Windows 95 (or is it Chicago 95? I get confused) is not due until April or May or now maybe August. An embarrassed Microsoft said at press time that it would post a repair patch online on January 6, 1995. But what's really remarkable about the Intel and Microsoft imbroglio is that both companies knew about their problem, and neither said anything to the public until the bits hit the fan.

As I write, reports are coming in of companies in the world, Intel will recover. But stumbles like this—and pride before and after the fall—have led juggernauts such as IBM to tumble from the PC heights. And Intel vastly underestimates users' capacity for outrage when their concerns are dismissed in a high-handed way. Intel's early policy of replacing chips only if the company judged it necessary was outrageous. Although Grove apologized for the problem, the company dragged its heels before relenting. That may cost it a sum of lost prestige that is incalculable. As one of the strongest technology companies in the world, Intel will recover. But stumbles like this—and pride before and after the fall—have led juggernauts such as IBM to tumble from the PC heights.

Ship in Haste, Repentium at Leisure

In personal computers, a new generation comes every two years or less. For this reason, computer juggernauts crash faster than those in other industries. Faced with new competition from the PowerPC and others
from clones, Intel adopted several strategies to regain its virtual monopoly. It rushed the Pentiums to market—as it had done with earlier generations of the 80X86 family—as if it were too anxious to leave the competition behind. Also, the seeming point of using the trademarked name Pentium, instead of the expected name 586, was to prevent competitors from using an Intel designation—as the courts said those competitors could use the term 486, for instance.

Intel also used other monopolistic strategies: it dropped prices on the Pentium rapidly, came out with speedier chips more quickly, promised a next generation that would be even more powerful, and spent around $100 million promoting its chips to the general public. That raised the company's profile and exposed it to more brickbats. This pattern of behavior shows that, like Microsoft, Intel is constitutionally incapable of tolerating rivals. Sadly, those who feel a need to crush their competitors often succeed only in creating real enemies. The Intel arrogance is now clear to the public, and that revelation has filled the company's rivals with new hope and determination. Soon after the issue broke, several prominent commentators in major daily newspapers suggested that their readers consider the Macintosh.

Also, as operating systems move to support multiple processors, there will be no guarantee of customer demand for any one chip architecture. Although it is unlikely, should any future generation of Intel chips have some grievous flaw, or more to the point, should the PowerPC prove a dominating competitor, Microsoft would be able to move its software to the next champion among chips. Microsoft has already spent a great deal of money to make Windows portable by creating Windows NT, which can run on several microprocessors, including Pentiums and PowerPCs. With this kind of portability in the offing, and with the Apple/IBM/Motorola converged platform a year or so away, no one should take anything for granted.

Intel's Andy Grove should be proud of his company's success over the years, and he should be ashamed of this episode. It's time for a lot of soul-searching for Intel, and time will show how seriously the company takes this debacle to heart. This is clearly an opportunity not only for the makers of chips designed to work like Intel processors (IBM, NexGen, Advanced Micro Devices, and Cyrix—that's a lot of competition nipping on Intel's right heel while the PowerPC nips at the left), but also for the Mac and PowerPC. But one question remains: is Apple poised to take advantage of this windfall? Even before the Pentium problem, the PowerPC Macs had proved worthy competitors. And when Copland (System 8) gets rid of the System 7.X overhead that makes a PowerPC merely as fast as a Pentium, watch out. Unfortunately, Copland has also been delayed—to mid-1996. Apple needs to grab this chance, and the company is slipping already.

A word to Apple chief Michael Spindler: the stars are in alignment. If you don't plan to at least double Apple's shipments in the next year, you aren't planning to succeed. I've covered both Apple and the PC-compatible world over the years, and my experience tells me that the well-marketed mediocrity of PC-competibles has succeeded beyond its merits. There's an opportunity now for that to change. I say, may the best Mac win.

Senior associate editor TOM MORAN contributed to this report.
YOUR ONE-STOP GRAPHICS SHOP

CANVAS Does it All!

- Newsletters and Flyers
- Logos and Advertising Design
- Free-form Drawing and Painting
- Business Graphics, Flow Charts & Diagrams
- On-Screen Presentations and Slides
- Retouch, Color or Trace Scanned Images
- Color Separations
- Spectacular Special Effects

"With CANVAS", 10,000 clip art images, 2,000 fonts and Power Mac™ acceleration, you’ll always finish first."

THE EASY-TO-USE DRAWING PROGRAM FOR BUSINESS, DESIGN, TECHNICAL ILLUSTRATION AND MORE!
Canvas gives you the power to complete any graphics project without bouncing around between half a dozen applications. With its award-winning, intuitive interface, Canvas lets you draw, layout, paint, present, apply a multitude of sophisticated special effects — and take your work all the way to finished film.

EXCLUSIVE NEW CD-ROM JUMP STARTS YOUR CREATIVITY
Canvas comes with a premium CD jam-packed with 10,000 clip art images ready-made for your newsletters, signs, sales presentations and diagrams. These fully editable images make a perfect starting point for any graphics project! You also get over 2,000 professional TrueType™ text, display and novelty fonts — more than any other package at any price!

SO WHAT ARE YOU WAITING FOR?
Run today to your favorite software retailer or call us and get your hands on the best graphics software buy around.

EXCLUSIVE "TEN SECOND" PREMIUM DVD
Canvas includes a "10-Second" Premium DVD with 10,000 clip art images and 2,000 fonts on one powerful CD. You can't beat the price! Power Mac™ acceleration makes Canvas blazingly fast on your Power Mac™.

$269
Comprehensive List Price

$149.50
Competitive Upgrade Price

CANVAS INCLUDES
- Unlimited Free Technical Support
- 60-Day, Risk-Free Money-Back Guarantee
- CD-ROM with 10,000 clip art images & 2,000 TrueType Fonts

COMPETITIVE UPGRADE
- Simply show us proof of ownership of any Macintosh graphics program and chop nearly $200 off Canvas' already low $269 price! Call today...

1-800-733-6322

©1994 Deneba Systems, Inc. Canvas is a trademark of Deneba Software. All other trademarks are the property of their respective owners. Offer valid in the United States and Canada and is subject to termination or change without notice. This offer is not valid with any other promotion or offer.

Circle 57 on reader service card
Over the years, the myth has arisen that only scientists and the artistically inclined need big screen displays. The fact is, anyone whose work requires a lot of scrolling around (like Gloria Joyce) will get more done with an Apple Multiple Scan Display. The Multiple Scan 20 Display, for instance, lets you see two pages at a time, whether it's a magazine layout or Columns A to Z on your spreadsheet. And the Multiple Scan 17 Display has a full 70% more viewing area than a 14-inch screen. Better still, both the 20- and 17-inch displays use state-of-the-art Trinitron technology, resulting in a noticeably brighter, high-resolution picture.

The large, high-resolution picture is perfect for designers, art directors and engineers.

Not to mention Gloria Joyce, who can finally see all 26 columns of her spreadsheet simultaneously.

Apple Multiple Scan Displays
sharper picture. To minimize eyestrain, each 75 Hz screen is specially coated to cut down on glare and static. The flat screen shape reduces distortion and reflections from office lights. Another plus: quick resolution switching, which lets you enlarge images to fill the screen (perfect for graphics and multimedia professionals) or shrink images and see the big picture (perfect for—well, everyone). Of course, Apple displays are designed to work seamlessly with Macintosh computers. We’ve also included a PC adapter, allowing PC users to enjoy the same plug-and-play compatibility. So no matter who you are, you can see all of what you’re working on. Which is a pretty smart way to work.
Explore the Internet!

Delphi Internet* offers you full access to the Internet and now you can explore this incredible resource with no risk. You get 5 hours of evening and weekend access to try it out for free!

Use Delphi Internet’s mail gateway to exchange messages with over 30 million people at universities, companies, and other online services such as CompuServe® and MCI Mail®. Download programs and files from all over the world using FTP or connect in real-time to other networks using Telnet. You can also meet people on the Internet. Internet Relay Chat lets you “talk” with people all over the world and Usenet News is the world’s largest bulletin board with over 20,000 topics!

To help you find the information you want, you’ll have direct access to powerful search utilities such as Gopher, Hytelnet and WAIS. If you aren’t familiar with these terms, don’t worry; Delphi Internet has expert online assistants and a large collection of help files, books, programs, and other resources to help get you started.

Over 850 local access numbers are available across the country. Explore Delphi Internet today. You’ll be amazed by what you discover.

Five Hour Free Trial!*  
Dial By Modem 1-800-365-4636. Press return until you get a prompt
At Username, enter JOINDELPHI. At Password, Enter MW395

*Free offer applies to new members only; limit one per household; and is valid for a limited time. A valid credit card is required for immediate access. Free time may be used only during the remainder of the calendar month of becoming a member. Telecom surcharges apply during business hours (6 am to 6 pm weekdays) via Tymnet or SprintNet and for access outside the mainland U.S. New members must agree to Terms and Conditions of membership when joining. Complete details and other restrictions are provided during the self-registration. DELPHI INTERNET is a trademark of Delphi Internet Services Corporation.

Attention Current Internet Users: See what DELPHI can offer you! Stock quotes, Grolier’s Encyclopedia, newswires, and hundreds of other services are just a few keystrokes away. Telnet to delphi.com and enter the username and password above for a free trial.

**9,600 bps available in most local areas via Tymnet and Sprintnet. 14,400 bps available by dialing direct to Cambridge, MA.

Questions? Call 1-800-695-4005. Send e-mail to INFO@delphi.com

Circle 173 on reader service card
It's the Interface, Stupid!

As a Live Picture early adopter, I've been using Live Picture since January 1994, and I could not believe your December 1994 review. To describe Live Picture as limited implies a very limited understanding by the reviewer of how to work with the program. Admittedly, the layers were befuddling at first. But Deke McClelland reports HSC describing Live Picture as a whole new way of working. Might not one, therefore, expect some befuddlement at the beginning?

Deke says undoing is a problem, but you can wipe away brushstrokes incrementally, giving you more power and control over your editing, and you can always delete an entire layer. Also, I've used Silhouette with great success to create complex masks very quickly from multihued images.

According to Deke, not being able to change the size of the composition window limits positioning of an imported image. But because of the way Live Picture works, the size and position of the image when you insert it isn't that important. You can plop the image in anywhere at any size and easily and quickly scale and position it later.

He further criticizes Live Picture for not having the Macintosh Clipboard features available, but the layers are essentially a clipboard. You can "paste" things there and use them anytime, edit them, move them, delete them, or temporarily hide them.

Finally, Deke says you can apply gradients only to rectangles, but this is not true. You can make a gradient and apply a stencil of any shape.

Deke spent several pages describing a piece of software that operates like no other image-editing program and demonstrating by his comments that he didn't fully grasp the program. Then he concluded that Live Picture does not measure up to HSC's claim that the application is a totally new way to approach image editing.

Warren Morgan
Portland, Oregon

Reviewers Deke McClelland missed his prunes the day of his Live Picture review. Anyone composing letter-size images for CMYK output in a publication is working with 40MB per image. Composite just two of these images together, and you are at 80MB. Photoshop (and other pixel-based programs) requires three times the file size in available RAM, but current Macs can hold only a maximum of 256MB, so you're at the wall and into the scratch disk, waiting on hard-drive access times. Live Picture works at the same speed whether it's chowing on a 65MB or 500MB file.

Gary Skilling
via America Online

In response to Deke McClelland's review of Live Picture, "expensive" is relative. Ask the Scitex and Eclipse owners to do a 3000-pixel airbrush. After working with Live Picture for a year, I find myself using it daily and doing things that in the past would require a high-end dedicated system or lots of time in Photoshop. If you scared anyone any from purchasing it, let's hope it's my competition—I'd buy it again.

Paul Figura
Jacksonville, Florida

If a change is a change for the better, I'm all for it; if not, I'm against it. I do expect some learning time when using any new program, but Live Picture's interface distinctions are sometimes arbitrary and do not well serve the user. The Sharpen/Blur layer, the one-direction Silhouetting function, and the gradient tool are all examples of incomplete functions that—while different—fail to deliver as well as tools in less expensive programs. The standard window size button is inoperable exclusively when importing an image; otherwise it works fine. This does not suggest a considered feature, but rather an oversight. Regardless of its intention, no purpose is served by turning the function off.

Similarly, no function is served by turning the Macintosh Clipboard off, as the purpose of the Clipboard is to allow you to move elements between documents. By disabling the Clipboard functions and prohibiting you from opening multiple compositions at the same time. Live Picture makes it impossible to swap images between documents. Suppose you have two compositions and you want to transfer images from the first into the second. Presently. Live Picture provides no mechanism for doing this.

As I stated in the review, Live Picture is well equipped in the technology department. The program is lightning fast at most operations, especially on the Power Mac, and it allows you to open and edit fantastically large images. In fact, if speed and access to enormous images are all you expect for your $4000, then Live Picture will not disappoint. However, if you want a flexible interface combined with professional-caliber tools, then the program still has a ways to go.—Deke McClelland

Modelers Not Picture Perfect

Since I am in the middle of trying to figure out which new program to buy, I was pleasantly surprised to see...
Payroll For Quicken?

NOW! $49

Aatrix PayCheck

limited time offer, Reg. $299

Works with: Quicken®, MYM®, CheckWriter Pro™, MYOB®, MacMoney, A4® and most other software!

PayCheck offers

• Easy to use, Icon interface
• Simple Installation & Setup
• Process Checks in 2-4 seconds
• 30 Day Money Back Policy
• Built-In Time Card Calculator
• Calculates all Taxes
• Calculate Deducts/Employer items
• Calculates SUTA, FUTA, SDI
• Child Support Deduction
• Prints Tax Reminder Calendar
• Prints detailed Paychecks/Stubs
• Prints W2's and W3
• Reports: 940, 941, 942, YTD, more

Payroll adds

• Up to 1000 Employees
• Prints complete 941, 942, 943, W2
• Custom Report Creation
• More deductions & income

Ultimate Payroll has more!

• Review/Reprint/Check Info
• Check Register, prints tax checks
• Vacation/Sick Tracking
• Payroll Information
• Optional California DE3
• Optional Electronic W2 exporting
• Optional Direct Deposit (ACH)
• School & Payroll Service versions

Aatrix Payroll Software is Macintosh payroll developer since 1985. There is no payroll situation Aatrix can’t handle! In fact we’re so sure that you’ll love it, we have a 30 day money back policy.

Information or Orders 800-426-0854

* $49 price is guaranteed by calling Aatrix directly.

Aatrix Programs are Macintosh trademarks are property of their respective manufacturers.

Two-Line Fax Solution

I HAVE A SOLUTION TO THE ONE-LINE phone/fax problem that is elegant and nearly foolproof but is hardly ever mentioned in articles, including your “Fax or Fiction?” piece (December 1994). Call your phone company and order the service that gives you a separate number on your line, each with a distinctive ring (usually two short rings on the second number, one long ring on the main number). In my area this costs $3 per month for residential lines, $7 for business. I have a box, smaller than your normal ham-and-cheese sandwich, that can tell if the phone is ringing one long or two short and switch the call to different devices, phone and fax or fax modem. The box I bought three years ago is called a Ring Leader, manufacturer unknown, but I have heard them called ring discriminators and they can probably be found at Radio Shack.

David Pyle
via America Online

Web Junkies, Unite!

I THOROUGHLY ENJOYED STEVEN Levy’s Iconoclasm column in the December 1994 issue, on surfing the World Wide Web with Mosaic. Anybody who doesn’t understand the importance of knowing the airtimes of “Babylon 5” episodes in Singapore just doesn’t get it.

Mr. Levy accurately pointed out the major frustration with Mosaic: the need for speed. He also mentioned that high-speed connections such as ISDN or T1 would cost a lot. But while some regional Bell operating companies retain Paleolithic attitudes toward ISDN pricing, continues...
The New Pinnacle RCD-1000 is 3 Drives in 1

1 Recordable CD System
2 Double-speed CD-ROM Player
3 Tape Backup Replacement

The RCD-1000 is virtually 3 drives in 1 - making it the ultimate storage device for only $1995.

With the flexibility of Pinnacle's RCD-1000, the applications are endless. As a CD Recorder, the RCD-1000 allows you to master your own CD that can be easily transported across town - or to the end of the world. As a double-speed CD-ROM player, it can read virtually thousands of educational, multimedia or audio CDs. And, with Pinnacle's own Backup Software Utility, you can now replace your tape drive with a system that provides a more reliable solution and fast random access to your data for only $29 per disc or 4 cents per megabyte. Each disc holds 650 MB of data, audio and video storage.

The RCD-1000 is perfect for creating and mastering your own multimedia titles, interactive games or even mixing your own audio CD of your favorite tunes. You can backup accounting records, business plans, charts and graphs, or confidential information on CDs for decades - safe and secure.

The RCD-1000 system is simply the best way to store, archive, distribute and create information. Best of all, it's now affordable. You can spend more money on three different systems, or call one source for all your needs.

Pinnacle Micro. The Optical Storage Leader.

---

1 Recordable CD System
- CD maker
- Double speed recorder
- Supports standard recordable CD media, 74 min./650 MB
- 5.25" half-height internal or external
- 1 MB buffer to ensure hard disk compatibility
- Pinnacle record software for ISO9660, Red Book audio
- Records data, audio and video

2 CD-ROM Player
- Double speed player/multimedia compliant
- Reads standard CD-ROM titles
- Dust resistant design
- Data rate 320 KB/Sec.
- Seek Time 300 milliseconds
- One-year limited warranty

3 Tape Backup Replacement
- Random access
- Faster than tape
- More reliable than tape (RCD media-100-year shelf life)
- Bootable disk
- RCD media is readable in most CD-ROM drives
- Pinnacle backup utility for Windows and Mac
- Low cost media-$29 per disk

All trademarks and Registered Trademarks of Their Respective Owners.

TO REACH THE PINNACLE CALL: 800-553-7070
714-789-3000 • FAX 714-789-3150

Circle 115 on reader service card
AnthroCarts®!

AnthroCarts will knock your socks off! Imagine how great it’ll be when you find the perfect furniture for your equipment — just the right size, tough as nails construction and dozens of accessories.

And you’ll find our service so real and responsive, you’ll get a kick out of ordering direct!

Call for a free catalog!

800-325-3841
6:00 AM to 6:00 PM PST, M-F

10450 SW Manhasset Drive
Tualatin, OR 97062
Fax: (800)325-0045

Letters

JUST FINISHED READING YOUR INTERESTING article on Mosaic in the December issue (“Taming the Internet”). As a former member of the team that developed Cisco Systems’ Web Server (http://www.cisco.com), I agree with everything you said concerning the present failings of the Mosaic client software.

But I was sad to see that Mosaic Communications’ Web browser Netscape didn’t receive any print whatsoever. Although it is still in beta form, Netscape is more stable and feature-rich, uses less memory, and performs up to ten times faster over a modem connection than Mosaic. It is available free for personal use from ftp.mcorn.com under the /netscape/mac directory. There are versions for Windows and five different variations of Unix.

Fernando Lazo
via the Internet

Unfortunately, when I wrote that article, Netscape hadn’t even been named, and Mosaic Communications was still getting up to speed. I agree that Netscape is a better browser, and I currently use it on my Macintosh.—Joel Snyder

The 1994 index to Macworld articles is available by mail. To receive a copy, send a self-addressed legal-size envelope with 64 cents postage (two 32-cent stamps) to Index, Macworld, 501 Second St., San Francisco, CA 94107. The 1994 index is also available in the Macworld forums on America Online and eWorld, or you can send a request via the Internet to macworld@macworld.com to receive an electronic copy.

Letters should be sent to Letters, Macworld, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (Macworld), eWorld (Macworld), AppleLink (Macworld1), or via Internet (letters@macworld.com). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of Macworld.
Now the only thing you have to do with your hands is click on a button. Because there's new mPOWER™ for the Macintosh: Multimedia presentation software with the simplest, most logical push-button interface you've ever seen.

Sure, you can do the usual text, backgrounds and charts. But how about a full-blown interactive multimedia extravaganza, using clips and images from VCRs, laserdisc players, CD-ROMs and video cameras? And how about doing that without wading through manuals, menus and timelines?

The only thing as easy as using mPOWER is getting our demo. So pick up the phone.

INTRODUCING mPOWER. MULTIMEDIA PRESENTATIONS AT THE TOUCH OF A BUTTON.

Call for a CD-ROM demo disk. It's free.
So what’s to lose? 1-800-921-9493.
(Hey, if you’re already sold, why wait? Call now and buy it direct for just $295.)
The EPSON ActionScanning System gives you creative freedom without creative financing.
Everything you need to scan and edit text and graphics for under $699.

Easy and affordable scanning for the Macintosh is here. It's called the EPSON ActionScanning System. EPSON makes it simple to put text and images in your documents.

With 1200 dpi and 24-bit color, the ActionScanning System captures crisp, clear images. Great results are easy to achieve with EPSON's exclusive built-in controls.

The ActionScanning System comes complete with everything you need for productive scanning—including top-ranked image editing software Adobe Photoshop 2.5 LE, TextBridge OCR, ScanTastic plug-in module & desk accessory, and SCSI system cable. All this makes the ActionScanning System ideal for your home or office.

Considering that the entire system is available under $699, buying an ActionScanning System is as easy as using one.

To see how far your creativity can go, visit your local authorized dealer or call the number below.

©1994 EPSON AMERICA, INC., 20770 Madrona Ave., Torrance, CA 90505. For dealer referral or warranty details, call 800-BUY-EPSON (800-289-3776). In Canada, call 800-GO-EPSON. In Latin America, 305-265-0092. EPSON, TextBridge, ScanTastic, and Adobe Photoshop are trademarks or registered trademarks of SEIKO EPSON CORP. Xerox Imaging Systems, Inc., Scecond Glance and Adobe Systems, respectively. Prices may vary. Do not scan published material without permission of the copyright holder.
Don’t let your hardware limit your creativity.

Big ideas often require big images. But are you and your Mac up to it? This poster for the television show “Newton’s Apple” contains over 40 layers of images and effects, totalling over 75 MB of data. Normally, working with this much material would slow your machine down to a crawl: move one image (wait), rotate another (wait), make a shadow (wait, wait). And if your client asks you to make any major changes, you’ll probably have to start over (wait, wait, wait). Your creativity gets held hostage by the watch cursor. But Specular Collage is different. Collage works with proxies of your hi-res artwork, so you can instantly change anything, at any time, from the position of the apple to the depth of a shadow. Layout tools like grouping, alignment, and a measurement palette make revisions simple and effortless. Specular Collage frees you to do the creative work, leaving the grunt work for the computer. And you don’t have to be hit on the head with an apple to see the value of that.

Specular Collage 2.0
The Image Composition Tool For Adobe Photoshop
Call 1-800-433-SPEC for info.

Want to learn to fly, but afraid to leave the nest?

So, you’ve always wanted to experiment with 3D, but felt too intimidated to take that first step. Well, stop dreaming and start making your own 3D animations. Before you know it, Specular LogoMotion will have you creating dazzling QuickTime movies, whether for presentations, desktop video, or just for fun! LogoMotion automatically turns any text or EPS logo into 3D. By adding backgrounds, animated props, lights, and camera motions from LogoMotion’s built-in collection of StageHands, you’ll instantly have a professional, fully-editable animation that’ll make your eyes pop! MacWEEK raved that “for the money, you can’t get a better introduction to 3D illustration and animation.” So what are you waiting for? Wings?

Specular LogoMotion 1.5
Create Instant 3D Flying Logos For Under a Hundred Bucks!
Call 1-800-433-SPEC for info.
**First 040 Mac Clones**  
Drive reseller Cutting Edge plans to ship the first clones of 040-based Macs by February 1995. The Quatro 850 uses Apple’s Quadra 650 motherboard but comes in a tower case that holds up to three 5 1/4-inch and two 3 1/2-inch drives. The Quatro is available in 25MHz and 33MHz versions. Prices vary by configuration. Cutting Edge also plans to ship Power Mac clones later in the year. 619/441-6992.

**Copland Clarified**  
The development team for the next-generation Mac Operating System, code-named Copland, has told *Macworld* that the emphasis in the new OS, due in mid-1996, will be on rewriting much of the core to make it faster, more efficient in its use of resources, less idiosyncratic in how it deals with low-level system components, more accessible to developers seeking to exploit the full power of the Mac, and less subject to unexpected quits and system crashes. Apple will also revamp the user interface. The Copland developers say they will emphasize user customization, active help, and active assistance. They also promise the new Mac OS will be more “fun.”

**Copland, Windows 95 Delayed**  
Apple has announced that Copland has slipped from late 1995 to mid-1996. Apple says that Copland’s delay is due to changes needed to better support the converged PC platform under development by Apple and IBM and due in late 1996. Microsoft says Windows 95 will now appear in August 1995, not June, so the company can ensure compatibility with the wide range of PC systems and add-on hardware; Windows 95 is now running more than two years behind schedule.

**Windows Clients Debut**  
Apple will ship Windows client software for AppleShare with its Workgroup Servers, and Windows client software for AppleSearch with AppleSearch 1.5 ($1799 for one server and unlimited clients) by the end of February 1995 for no extra charge. The AppleShare client is based on an AppleTalk protocol stack licensed from Miramar Systems. The stack is a 32-bit Windows virtual-device driver (VxD), so it should also work in Windows 95. 408/862-3385.

**ATI Enters Mac Market**  
A leading developer of video-display cards for the PC, ATI Technologies, has formally announced that it will ship cards soon after the first PCI-based Power Macs ship, which is expected to be in June. The ATI Mac cards will be based on the well-regarded Mach 64 line for PCs, whose prices range from $300 to $800. A preview of the PCI cards shows them to be competitive in performance with current NuBus-based Mac cards that cost two to three times as much. ATI has no plans to release cards for NuBus-based Macs. 905/882-2600.

**Macworld Expo Highlights**  
Among the top product announcements at the Macworld Expo in early January were the following:

- STF Technologies’ OptiServe, a tiny box that will turn a fax modem into a networked fax server, even over Apple Remote Access. Expected by April, OptiServe should cost less than $500. 816/463-7972.

- Cypress Research’s MegaPhone, a $50 program that automates many telephone tasks such as redialing and changing dialing patterns when you travel. It also includes answering-machine software and full-duplex speakerphone capability. MegaPhone is expected to ship in February 1995. Apple will bundle a limited version of MegaPhone with its new GeoPort Telecom Adapter Kit. Cypress, 408/752-2700; Apple, 408/996-1010.

- Software Ventures’ Snatcher, a $50 scriptable FTP client for the Mac that logs on to remote FTP sites to download text and binary files, presents all host information with a Macintosh interface. 510/644-3232.
First Power Macintosh Clones Debut

Power Computing Corporation and Radius have become the first companies to announce Power Macintosh clones. Both companies plan to offer first systems in the spring, perhaps as early as March. The as-yet-unnamed Power Mac clones will run System 7.5 under license from Apple Computer.

**Radius** Known for its monitors, video-display cards, and motion-video cards, Radius will offer NuBus-based Power Macs configured with Radius products to be complete digital-video production and color publishing systems. The initial Radius Macs will use motherboards either bought from Apple or manufactured from Apple designs (in either case, likely the 8100 motherboard) and add Radius peripherals. For example, a digital-video system might include the VideoVision Studio or VideoVision Telecast video-capture card, a Spigot AV video-display card, VideoFusion software, a RAID system designed using AV hard drives, and a monitor. Pricing, names, and final configurations were not set at press time.

Radius will later offer systems aimed at color publishers. After Apple ships its first PCI-based Power Macs in June or July, Radius expects to offer PCI Power Macs as well, and it is investigating whether to offer a Macintosh with both PCI and NuBus slots (Apple has no plans for such a Mac).

**Power Computing** The start-up company Power Computing plans to make motherboards for use in other companies' Power Mac clones, complete Power Mac clones for resale by other companies, and its own brand of Power Mac clones. The first Macs from Power Computing are due in the spring, the company says. Power Computing will sell in both the United States and abroad. The company plans first to sell clones equivalent to the current NuBus-based Power Mac 7100 for less than what Apple charges. Although the amount of discount has not yet been set, the company says it may offer configurations for as little as $1000. Later, the company will sell Macs based on in-house designs.

The year-old Power Computing, based in Milpitas, California, is funded largely...
by Olivetti, the giant Italian computer maker.

More to Come While Power Computing and Radius are the first companies to announce an authorized Power Mac clone, Apple says that it has granted licenses to several other companies, which have yet to identify themselves. Among those rumored to have an agreement or be seeking an agreement to produce clones with Apple are Acer, Motorola, Toshiba, Germany's Vobis, and Zenith.

Apple Speeds Up Power Mac Line

Apple Computer has replaced the PowerMacintosh 6100/60, 7100/66, 8100/80, and their AV variants with faster models. The current models are now the 6100/60, 7100/80, and 8100/100. (The number after the slash indicates the Mac's CPU speed in megahertz.)

Although Apple has increased the speed of its Power Macs, it has not increased their estimated prices; according to Apple, a base-model 6100/66 will cost the same as a base-model 6100/60. Apple estimates that a base-model 6100/66 will cost $1819; a base-model 7100/80, $2899; and a base-model 8100/100, $3699.

The Power Macs will be available in several configurations. The base-model 6100 will ship with 8MB of RAM, built-in video circuitry, a 350MB hard drive, an Apple mouse, and System 7.5. The base-model 7100 will have 8MB of RAM and a 500MB hard drive. The base-model 8100 will include a 700MB hard drive. For the first time, a 256K cache card will be standard on the 6100 and 7100; the 8100 will continue to have the cache card. Options include more RAM, an AV card, a larger cache card for the 8100, and a CD-ROM drive. Apple also will sell a $2500 6100 system with a PC coprocessor card (see Power Mac News, January 1995).

Apple Won't Fix NuBus Flaws

One effect of the clones may be to help the NuBus expansion-bus standard survive longer, says Radius CEO Chuck Berger, since clone makers are likely to use NuBus after Apple abandons it this June in favor of PCI. The attractions of NuBus to clone vendors are the proven system designs that exist now for them to use and the large installed base of NuBus cards.

The initial Mac clones differ from the converged-platform PC that Apple and IBM are developing for release in late 1996 (see "IBM, Apple Move to Joint Platform," Power Mac News, Macworld, January 1995). Radius's Berg­ er sees the Mac clone makers quickly moving to the converged platform when it becomes available.

Power Computing, 408/526-0500; Radius, 408/434-1010—Galen Gruman and Charles Piller

Apple Won't Fix NuBus Flaws

EYES ON THE PCI PRIZE

Apple recently confirmed that one reason the Power Mac 8100/80 has fewer problems with high-performance NuBus cards than other Power Mac models is due to that Mac's bus speed. (All Power Macs but the 8100/110 have flawed controller circuitry and ROMs that can reduce the effective speed below that of the highest-end Quadras, see "Video Hits Roadblocks," Power Mac News, Macworld, September 1994.)

The NuBus bus runs at 20MHz, for which the 8100/80's 40MHz system bus speed is an even multiple. Other Power Macs' system bus speeds are not even multiples of NuBus's 20MHz, and this causes synchronization problems that affect high-speed NuBus performance. (The Power Mac 7100/66 and 6100/66 use a 33MHz bus, the 6100/60 a 30MHz bus, the 8100/100 a 33.33MHz bus, and the 8100/110 a 36.7MHz bus.) According to Jim Gable, Apple's Power Macintosh product-line manager, the new 7100/80 should work better with high-performance NuBus cards than did the old 7100/66, since the 7100/80 also has a 40MHz bus. However, the 8100/100 and 8100/110 may have problems with some NuBus cards that the 8100/80 did not.

Because Apple is about to replace NuBus with the Peripheral Component Interconnect (PCI) bus, no fixes are planned for the current Power Macs, Gable says.

—Galen Gruman

In Brief

Apple Drops AV Quadras

Both the Quadra 840AV and the 660AV have been removed from Apple's price list, leaving only two Quadra models, the Quadra 950 and Quadra 630, still shipping in Apple's 68040-based desktop line.

More DayStar Power Mac Cards

DayStar plans to ship several Power Mac accelerators in January 1995: a PowerPro (for most Quads); a PowerPro (for the Centris 650 and Quadra 610); and an PowerCard 601 (for the Iici). DayStar expects the PowerCard's price to drop after initial demand has been satisfied. Also, several mail-order companies have been charging $679 to $749 for DayStar's PowerCard 601 accelerator for the Quadra 630 and 660, LC 475 and 575, and Performa 630—not DayStar's original $599 estimate. 404/967-2077.

Low-Cost Dye-Sub

NEC has announced the Super-Script Color 3000A, a combination thermal-transfer-and-dye-sublimation color printer. Print speeds vary from 1 ppm in thermal-transfer mode to 1 page every 10 minutes in dye-sub and variable-dot modes. The QuickDraw printer comes with color-matching software. The $995 printer should be available in February 1995. 708/860-9500.

Portable 1000MB Removable Drive

Iomega has announced the Zip drive, a portable drive that accepts 1000MB or 25MB removable cartridges. The 3-by-5-inch drive may have a street price as low as $200, the company said, with the 1000MB cartridges going for $19.95 each and the 25MB cartridges going for $9.95. The drive and cartridges are expected to ship in the first quarter of 1995. 801/778-1000.
**News**

**Two 8100 Speeds**

The arrival of the Global Village and the Internet have increased the demand for high-speed connections. The Macintosh 8100/100, introduced in November 1994 (see News, January 1995), Apple expects to continue selling the 110MHz version to multimedia authors, motion-video editors, and pre-press users who want both the fastest possible Macintosh and compatibility with NuBus. The 8100/110 fixes the Mac's ROM and NuBus control circuitry, which used to slow down throughput to sub-Quadra levels. The new Macintosh 6100/66, 7100/80, and 8100/100 continue to use the flawed NuBus circuitry.

The new Power Macs also do not use the smaller variant of the PowerPC 601 CPU that the 8100/110 does. The 8100/110 uses circuits that are 0.65 microns wide (a micron is a millionth of a meter), while the other Power Macs use 0.5-micron-wide circuits. IBM Microelectronics cannot produce enough of the 0.5-micron-circuit CPUs to assure Apple of sufficient supply for general Power Mac use, and the benefits of the 0.5-micron CPU—faster speed with reduced heat buildup and power consumption—are critical for the current Power Macs' design, since their motherboards can handle 0.65-micron-circuit CPUs at speeds up to 100MHz. The 8100/110, the 8100/100 uses a clock-tripped PowerPC chip, which means the bus runs at 33.3MHz. For that reason, some operations, such as communications with high-speed NuBus cards, will not run as fast as on an 8100/80, which has a 40MHz bus.

**Replacement Boards, Performas Not Boosted**

Apple says it has no plans to speed up its PowerPC-based Performa 6100 series or its Power Mac motherboard replacements to match the speed of the new Power Mac systems. Apple now lets dealers replace the motherboard in some older Macs with a Power Mac motherboard. For example, you can replace the motherboard in an 1xv, Centris 650, or Quadra 630 with a Power Mac 7100/66 motherboard, for about $1500. Because Apple is not changing the speed of these replacement motherboards, an Ilv owner, for example, will not be able to upgrade the Ilv to a Power Mac 7100/80.

---

**In-house Internet Servers**

**ACCESS TO THE INFOBahn**

Connecting your company to the Internet still isn't a task for the faint of heart, but Global Village Communication, BBB Internet Services, and InterCon are working to ease companies onto the world's largest network.

Global Village's One-World Internet provides E-mail and dial-up Internet access to small and medium-size businesses over their existing LANs. The OneWorld server uses a 28.8-Kbps ISDN modem connected to a company's QuickMail or Microsoft Mail server that in turn connects via phone line to Global Village's GlobalCenter, which provides the Internet connection. The package also includes server software, MacTCP, and a World Wide Web (WWW) browser.

According to a OneWorld administrator, a one-domain name (so that users can receive E-mail sent to user@company.com); Global Village and the InternNIC (the Internet Network Information Center) automatically check the chosen name. When GlobalCenter receives E-mail, it automatically calls the OneWorld server once and hangs up, prompting the server to call GlobalCenter toll-free to receive the mail. Global Village says that not allowing incoming calls to OneWorld increases security.

The OneWorld administrator can control the frequency at which the server connects to GlobalCenter; the amount of Internet access each user can have; and the ability to send urgent mail immediately.

With MacTCP installed, OneWorld users can run Internet client applications, such as the popular Fetch, TurboGopher, and Mosaic clients, as well as the included Global Village Web browser. The 28.8-Kbps QuickMail version of the server should ship by the time you read this; the ISDN and Microsoft Mail versions will follow. Global Village has not decided if it will offer a One-World product for Lotus's cc:Mail and has no plans to offer a PowerTalk product. The company says it will

---

**How the New Power Macs Stack Up**

<table>
<thead>
<tr>
<th>Overall Score</th>
<th>CPU-Intensive</th>
<th>FPU-Intensive</th>
<th>Disk-Intensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Mac 8100/100</td>
<td>3.4</td>
<td>2.8</td>
<td>4.7</td>
</tr>
<tr>
<td>Power Mac 8100/100*</td>
<td>3.2</td>
<td>2.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Power Mac 8100/70*</td>
<td>2.9</td>
<td>2.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Power Mac 8100/66*</td>
<td>2.7</td>
<td>2.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Power Mac 8100/56*</td>
<td>2.5</td>
<td>2.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Power Mac 6100/66*</td>
<td>2.3</td>
<td>2.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Power Mac 6100/60*</td>
<td>2.1</td>
<td>2.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Power Mac 6100/56*</td>
<td>1.9</td>
<td>1.9</td>
<td>2.5</td>
</tr>
<tr>
<td>Power Mac 5600</td>
<td>1.7</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Power Mac 630</td>
<td>1.5</td>
<td>1.5</td>
<td>2.1</td>
</tr>
<tr>
<td>Power Mac 650</td>
<td>1.3</td>
<td>1.3</td>
<td>1.9</td>
</tr>
</tbody>
</table>

---

**BEHIND OUR TESTS**

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

---

**Macworld Lab**

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

Macworld Lab tested several functions in eight key programs plus the Finder to determine real-world performance for the three critical performance areas faced by most users: basic processing ability (the CPU-Intensive score), math processing ability for specialized applications like modeling and data analysis (FPU-Intensive score), and hard drive performance (the Disk-Intensive score).

---

**36 March 1995 Macworld**
release a more fully featured Web browser in the future. The company expects the server to cost $1,500 to $2,000 and monthly fees to be less than $100 for small LANs with light Internet use. Hourly connection fees should be between $6 and $10 per hour.

For larger companies with heavier usage needs, BBN Internet Services offers the Internet Server, a turnkey Unix server that can be managed from a Mac or a Windows PC. The Internet Server provides incoming and outgoing E-mail, newsgroups, WWW, Gopher, and FTP. The standard system lists for $9,995 and includes a Pentium-based Unix PC with 16MB of RAM, a 500MB hard drive, an Ethernet card, and a tape drive. BBN also offers Internet connections, or the company will work with customers and their Internet-service providers to configure a new server. For $1,450 per year, users can buy a contract that includes server-software updates plus round-the-clock support. Purchasers must supply their own client software.

Providing another in-house Internet option, InterCon Systems recently agreed to distribute Pipeline, a client-server Internet-connection package that emphasizes ease of use for the end user (see "A New Mac Pipeline to the Internet," News, October 1994). The latest version of Pipeline, expected to be available by the time you read this, provides full incoming and outgoing Internet-access services, including E-mail, WWW, Gopher, and FTP. The package requires a Unix server; clients are available for Macs and Windows machines, with OS/2 in the works. The annual server license lists for $7,500 plus $50 per user; InterCon will customize the front end and provide assistance with server setup. Quantity discounts are available. Global Village Communication, 408/523-1000; BBN Internet Services, 617/873-8730; InterCon, 703/790-5500.

When signing on, the ring members provide phony names, addresses, and credit card numbers. Because a genuine card number can be initially verified through a mathematical test, the pirates use a small application to generate numbers that pass the verification test. Once online, the "new member" mails commercial programs to himself or herself.

The ring members then trade with one another by simply forwarding their own E-mail messages. No re-uploading is necessary. The list of pirated programs includes over 200 items, such as Adobe fonts, Word 5.1 and 6.0, Macromind Director, ElectricImage, System 7.5, PageMaker, games, and the Holy Bible. To protect their E-mail from possible surveillance by America Online administrators, many of the pirates use an encryption program to encode their messages.

An AOL spokesperson said that AOL could act only on solid proof, and that the messages do not constitute such proof.—David Pogue

In Brief

Apple Mobile Message System
Apple has put together the Apple Mobile Message System, an all-in-one-box wireless messaging system that works with Newtons and PowerBooks or any Mac or Windows PC with a PCMCIA slot. The bundle’s PCMCIA card is from Socket Communications, the software is from Ex Machina, the wireless communications service is PageNet, and an unnamed company will provide support. The Apple bundle’s software can plug data into Aldus DateBook and TouchBase. It should cost $450 and have a monthly basic service fee of around $20. 408/996-1010.

StyleScript for LaserWriter 2400
Version 1.1 of GDT Softworks’ StyleScript software provides true Adobe PostScript Level 2 configuration to work with Apple’s Color StyleWriter Pro and the more recent Color StyleWriter 2400. The software works with all Type 1 and TrueType fonts, and ships with 13 PostScript fonts. It lists for $149 and requires at least 8MB of RAM, at least 5MB of free disk space, and System 7 or later. 604/473-3616.

Mini-CD Data Drives
Sony has announced its first MD (Mini Disc) data drives. The $699.95 MDH-10 is a battery-powered portable offering 140MB of storage with data-transfer rates equal to those of first-generation CD-ROM drives (150 Kbps). The drives work with any computer using a SCSI interface, and Sony bundles drivers and formatters for Macintosh, MS-DOS, and Windows. The drives can be powered by a $50 rechargeable lithium-ion battery pack, three AA alkaline batteries, or an AC power adapter. Apple is rumored to be considering using the MD drives in a future PowerBook. Sony, 800/352-7669.

BUGS & TURKEYS

Adobe Photoshop 3.0.1’s gamma control panel doesn’t work with the Power Macintosh Upgrade Card. Adobe hopes to provide a fix soon. In the meantime, users can (1) open both the Monitor and gamma control panels, (2) change colors to 256 or thousands, (3) adjust the gamma control panel, (4) reset the colors to the desired level, and (5) close both control panels. Oh—do this every time you restart your Mac.

Although made by the same company, STF’s Faxstf 3.0 crashes if Powerfax Gateway for System 7.5 is installed—despite what the Powerfax Gateway manual says. Users who purchased STF’s AutoPack OCR software can get the update free; those who didn’t will have to pay $39 for the Faxstf 3.1 upgrade, which includes the OCR portion. In both cases the upgrade is available only by calling STF Technologies at 816/463-7972.

Macworld will send you a Bug Report T-shirt if you are the first to inform us of a serious, reproducible bug that we report in this column, or a Turkey Shoot T-Shirt if we shoot your turkey in this space. See How to Contact Macworld.
FIRST WE CHALLENGED
THE COMPETITION.
THEN WE CHALLENGED
OURSELVES.

Presenting the new Agfa Arcus II.

With all the praise the Arcus family has won, you'd think we'd rest on our laurels. Think again. The Agfa Arcus II is a completely new, 600 x 1200 ppi, 36-bit color scanner with an integrated transparency module. It's also designed to be the best machine you can put on your desktop.

Compared to other "desktop" scanners, the new Arcus II can capture more highlights and shadows, thanks to its 3.0 dynamic range. That's the kind of image quality you used to have to send out for.

Plus, no other top-of-the-line "desktop" scanner comes with Agfa FotoLook scanning software, Agfa FotoTune color management software, and full Adobe Photoshop® software built in.

And no one else can offer you our new, 42-page Introduction to Digital Scanning, which takes you step by step through a variety of scanning situations.

Truth is, with everything we added to the Arcus II, we're expecting some more awards. But the real prize winner will still be you.

Call 1-800-685-4271 to find out more information on Agfa's new scanners.
Apple/IBM Effort to Replace Mac
MAC LINE WILL NOT BE SPLIT

The current Power Mac hardware platform will eventually be phased out in favor of the new platform standard being developed jointly with IBM and Motorola, according to Jim Gable, Power Macintosh product line manager at Apple Computer. “We plan to merge [the current Power Mac platform into the new specification], though it won’t happen overnight,” he says.

Gable predicts that the new platform will spawn midrange to high-end machines initially, but will eventually absorb the whole Macintosh product line. He suggests that the first common-platform-based Macintoshes will probably hold the greatest appeal for large businesses that want to take advantage of the ability to run multiple operating systems from a single computer in cross-platform computing environments.

The common-platform specification will be published this spring, after major peripherals developers and system licensees have had a chance to comment on the current draft, Gable says. Those developers want assurance that their own development work will be fast and straightforward on the new platform. “It’ll be like building your own PC today—you pick the processor, the storage, the video subsystems you want, networking systems, and the OS,” Gable says. “It is highly modular, partly because it’s based on PCI,” the Peripheral Component Interconnect bus that Apple will replace NuBus with in the next-generation Power Macintoshes, due this spring.

Gary Griffiths, director of business development for IBM Power Personal Systems, says that products based on the converged platform should emerge sooner than analysts have been predicting; Griffiths expects to see machines on the market by late 1995. But computers that run the Macintosh Operating System—one of the most difficult systems to port to the new platform—would not be available until several months later. Apple’s Gable says he expects no converged-platform Macintoshes from Apple until late 1996, but separately licensed Mac-only clones will appear earlier (see News elsewhere in this issue).

It is likely that the converged-platform computers will have a slot to accept a Mac ROM, so users can add the Macintosh Operating System (for the same price as Windows, Gable says) later to systems that didn’t ship with it.—CHARLES PILLER

Software’s Third Wave
RISE IN NATIVE POWER MAC SOFTWARE

First came the early adopters, who shipped native Power Mac software on the heels of the March 1994 release of the first Power Macs. Aimed largely at relatively small groups of users who most needed the Power Mac punch, such as people who work with CAD, these programs were often developed with prerelease programming tools, since Apple was slow in developing such tools. Then came the wave of software in late summer that was aimed at the broader market, everything from publishing to disk recovery. And in late fall 1994 came the third wave: programs from a broad assortment of companies preparing for announcements during the crucial Christmas season and the January Macworld Expo. Here’s an alphabetical list of companies that expect to ship their products by the time you read this.

- CACheScientific’s WorkSystem, a $29,990 system for molecular modeling. It is not available for 680X0-based Macintoshes. 503/531-1800.
- Common Knowledge’s Arrage 2.0, a $295 personal information manager. 415/325-9900.
- Deneba Software’s Canvas 3.5, a $399 illustration program. 305/596-5644.
- Inspiration Software’s Inspiration 4.1, a $129 idea developer. 503/245-9011.
- Language Systems Corporation’s LS Object Pascal, a $399 compiler. 703/478-0181.
- Macromedia’s Director 4.0, a $1195 multimedia authoring tool. 415/252-2000.
- Microspot USA’s Photo Fix, a $249 image editor. 408/253-2000.
- Multi-Ad Services’ Multi-Ad Creator, a $995 ad layout tool. 309/692-1530.
- National Instruments’ LabVIEW 3.1, a $1995 instrumentation program. The S2395 LabSuite package also includes the native version of the Iliq mathematical-analy­ sis software. 512/794-0100.
- Npath Software’s S299 Tableworks Plus 2.0, a table-creation plug-in for QuarkXPress. 206/192-7745.
- SAS Institute’s JMP 3.1, a $695 statistical-analysis tool. 919/677-8000.
- SoftArc’s FirstClass 2.6, a BBS and electronic-conferencing system. Prices vary based on configuration. 905/415-7000.
- Thursby Software Systems’ TSNet 2.6.1, a $295 connectivity and terminal-emulation program for DECnet networks. 817/478-5070.
- Vamp’s $1095 McCAD Tracker 3.2, a circuit­board design program. 213/466-5533.
- WaveMetrics’ Igor Pro, a $15 data-analysis package upgrade. 503/620-3001.
- Xerox Corporation’s TextBridge 2.0, a $99 OCR program. 415/813-6800.

—GALEN GRUMAN

MACWORLD March 1995 3
There's the one
where you're suddenly standing onstage
at the senior prom wearing only really
big underwear and a fez.

And everyone is laughing hysterically,
including Mr. Dimnitz,
your guidance counselor.

Then there's the one
where your computer's
hard drive fries 30 minutes before the big
presentation, and you've
lost everything.

Hey, we can't help you avoid nightmares at night, but we can help with the daytime ones. Check out Retrospect. It automatically backs up all files on your Macintosh. Whether it's power loss, theft, fire, or dopyness, it'll save you hours of recreating and waiting in unemployment lines. Restores are quick and complete. It backs up data to any storage device, and has optional compression and encryption. Plus, just add a remote 10-pack and you have network capability. Wake up. Call 1-800-223-4800 for more information.

Circle 26 on reader service card
**New Products**

**THE LATEST MACINTOSH RELEASES**

by Cameron Crotty

**HARDWARE**

**CCL 600ES and 1200ES**

Sure, we trust our electronic documents, but they’re never as satisfying as good old hard copy. The CCL 600ES is a 16-pmm, 600-by-600-dpi laser printer that can print quickly on paper up to 11 inches by 17 inches. The CCL 1200ES has the same engine speed and imaging area but can print 1200 by 600 dpi. Both printers come with 65 Type 1 fonts and support HP PCL5, HPGL/2, and Adobe PostScript Level 2. The 600ES ships with 8MB of memory (expandable to 40MB), while the 1200ES ships with 16MB of memory (expandable to 48MB). Both printers have simultaneous active serial, parallel, and AppleTalk interfaces, and both can accept an optionally available Ethernet Interface. CCL 600ES $3550; CCL 1200ES $3995; Ethernet Interface: $495. CalComp, 714/921-2000, 800/932-1212; fax 714/921-1932.

**CD/Mxet-4x**

You can put over 4GB of data on your network server through a single SCSI ID with seven quad-speed (600-Kbps) CD-ROM towers. Optical Access loads the CD/Mxet-4x with seven quad-speed drives (600-Kbps data-transfer rate). The tower includes an internal controller to help arbitrate multiple requests and ships with the company’s SuperCache CD-ROM caching and driver software. $7395. Optical Access International, 816/373-5800, 800/435-2373; fax 816/488-3077.

**CD7-Mac**

Piles and piles of data are yours for the accessing when you install this tower of seven quad-speed (600-Kbps) CD-ROM drives. The CD7-Mac contains a controller card that arbitrates input and output, so the entire device takes up only one SCSI ID. The controller card also accepts control and page sizes in real time for each drive, to help achieve maximum performance. The drives all support Mac HFS, Audio CD, High Sierra, ISO 9660, and multimode Kodak Photo CD formats, $6500. Proxcom Technology, 714/852-1000, 800/800-8660; fax 714/852-1221.

**DiMOCache Quadra Cache Cards**

It’s not a faster CPU, but you can give your Quadra 700, 800, 900, or 950 a boost with one of these 128K PDS cache cards. The cards use fast static RAM and your Mac’s internal RAM to speed up many system operations, especially screen redraw. Quadra 700 and 900, $129; Quadra 800 and 950, $199. DiIMO Systems, 512/335-0421, 800/503-4466; fax 512/335-1429.

**DiIMO Slot-Free Cache Card**

Satisfy your need for speed without blowing a slot on a cache card. These 128K static RAM cards plug into the processor socket on the motherboard of Quadra 610, 650, 660AV, 700, 800, 900, 950, and Centris 610 and 650 computers. A card for the LC 475 is also available, and all cards ship with control panel software for turning the cache on and off. Prices range from $199 to $249. DiIMO Systems, 512/335-0421, 800/503-4466; fax 512/335-1429.

**ELP-3000**

When using this multimedia projector, you can choose screen sizes from 21 inches to 300 inches in diagonal measurement, to best fit your presentation environment. The ELP-3000 is a complete, self-contained projector with an active matrix color LCD screen that can show 160 by 480 pixels, with up to 1.4 million colors, a light source, and a lens for focusing the display. The projector automatically senses the type of video input, whether Macintosh or PC, and accepts composite (NTSC, PAL, and SECAM) video-in. $8999. Epson America, 310/782-0770, 800/289-3776; fax 310/782-4214.

**GCD-1000**

Designed for the digital-sound enthusiast or professional, this double-speed (300-Kbps) SCSI CD-ROM drive features an S/PDIF digital output for transferring digital audio to digital inputs on samplers and digital audio workstations. The drive can also pipe digital audio from a CD directly into your Macintosh via the SCSI bus, using the included Direct Sound software. The drive supports audio CD, Mac HFS, MPC-2, ISO 9660, High Sierra, CD-ROM XA, and Kodak Photo CD multisession formats. A rack-mount model (GCD-1000R) is also available. GCD-1000 $395; GCD-1000R $495.

**Graphx Z**

Graphx Z automatically senses the type of video input and configures itself for proper display. The panel weighs 5 pounds and comes with a hard-shell carrying case. $139.95. nView Corp., 804/873-1254, 800/736-8489; fax 804/873-2153.

**Hammer PE 350 and 700**

Sporting a Fast SCSI-2 interface, these hard drives both have a sustained data-transfer rate of 2.6MBps. As their names imply, the Hammer PE 350 and PE 700 can hold 350MB and 700MB of data, respectively. Both drives ship with FWB’s Hard Disk Toolkit Personal Edition disk management software for updating, formatting, partitioning, and testing SCSI drives. PE 350 internal $379, external $469; PE 700 internal $549, external $639. FWB, 415/474-8055; fax 415/775-2125.

**HR 6000**

You can create slides and prints from your desktop with this SCSI slide printer. The HR 6000 can produce slides with 4000 lines of resolution from 24-bit color continues.
New Products

images, and supports 35mm film backs (included), 3½-by-2¼-inch, 4-by-3-inch Autofilm, and 4-by-5-inch film formats. The Macintosh Interface Kit (required, but sold separately) includes the Digital Palette Chooser driver. $599.95; Macintosh Interface Kit: $49.95. Polaroid Corp., 617/786-2000, 800/816-2611, ext. 9; fax 617/786-9339.

LANForce-5
Airing your data might get dumped? Don't get down, get fault-tolerant. The LANForce-5 is a seven-drive SCSI array that supports RAID 0, 3, and 5. With RAID 5 active, you can hot-swap a failed drive, and the array rebuilds the data without interrupting user access. For further insurance, the unit also has redundant, hot-swappable power supplies. Prices range from $11,995 to $49,695, depending on configuration. Procom Technology, 714/852-1000, 800/800-8600; fax 714/852-1221.

Master CD
With this CD-recording drive, you can cut your own discs for backup, distribution, or other purposes. The Master CD is a SCSI device; it supports Macintosh HFS, CD-ROM XA, ISO 9660, Mixed Mode, and CD Audio formats, and ships with mastering software. $2,995. MicroNet Technology, 714/453-6000; fax 714/453-6001.

MRR-7
This SCSI-2 CD-ROM drive puts up to 4.7GB of data on your desktop. The MRR-7 uses a single, double-speed (300-MHz) data-transfer rate drive and a magazine of seven disks. The drive can switch between adjacent disks in 2.5 seconds. The drive supports the ISO 9660, Mac HFS, CD Audio, CD-ROM XA, and Kodak multimedia Photo CD formats. $6,495. Nakamichi Peripherals, 714/373-9989; fax 714/373-9979.

MR/20
For the few who really need 84GB of online storage (and you know who you are), we mention this 20-drive RAID array. The MR/20 has a SCSI-2 Fast and Wide interface, comes fully loaded with 4.2GB drives, and supports RAID levels 0, 3, and 5. The array can achieve sustained data-transfer rates of 15 MBps; has dual redundant hot-swappable power supplies and fans; and can be equipped with a variety of options, including up to 128MB of on-board cache memory, a tape-backup module, and a paper-notification module. $20,200. MegaDrive Systems, 310/247-0006, 800/322-4744; fax 310/247-8118.

TechJet Color
Talk about seeing the big picture—the TechJet Color plotter is available in both D-size (Model 5324) and E-size (Model 5336), producing prints on cut-sheet media up to 24 inches and 36 inches wide, respectively. The two models can also produce plots up to 50 feet long on D- and E-size roll-feed media, respectively. Both plotters print 360 by 360 dpi in color and 720 by 720 dpi in black and white. Both models support CALS G4, HPGL, HPGL/2, and HP-RTL data formats and come with parallel and serial interfaces. Macintosh users will need to purchase a separate connection kit from CalComp. D-size: $5995; E-size: $6595. CalComp, 714/821-2000, 800/932-1212; fax 714/821-2832.

ViewMagic Touch Screens
Equipped with a resistive touch panel, mouse driver, controller, and cables, this line of touch-screen monitors ranges from 10 inches to 17 inches in diagonal measurement. The touch panels provide 1024-by-1024-point resolution and read touches at up to 200 points per second. VM-10T $999; VM-13T $949; VM-17T $1749; ETC Computer, 510/226-6250; fax 510/226-6252.

ViewSonic 21PS
This 21-inch color display features a 0.25mm dot pitch, and produces resolutions up to 1600 by 1280 pixels at a 72Hz vertical refresh rate. The 21PS features an on-screen control system for adjusting image brightness, contrast, size, and positioning. Users can also fine-tune color temperature and intensity. The monitor complies with the Energy Star standards and meets the Swedish MPR II guidelines. $1995. ViewSonic, 909/969-9797, 800/888-8583; fax 909/869-7998.

SOFTWARE

Absolute Zero
You know you're having a bad day in the year 2374 A.D. when the surface of Jupiter's moon Europa erupts with hostile aliens, instantly killing a third of the miners in your colony. In this space-war simulator, you can choose to fight on the side of the colonists or the aliens, piloting one of 12 different vehicles in a battle to the finish. 5MB min. memory; requires Power Macintosh, System 7, 8-bit color. $9.95. Domark Software, 415/513-8929, fax 415/571-0437.

ASAP
Are you putting yourself through BBS-administration hell when all you need is a way to transfer files? This software puts drop boxes (both in and out) on every user's desktop. Users drag, drop, and address files, and ASAP automatically continues.
NEWEST IN THE RUNAWAY HIT SERIES OF KAI'S POWER TOOLS®

KPT Convolver™

REAL TIME RELIEF ANGLE
DIRECTIONAL SHARPEN
REAL TIME UNSHARP MASK
HUE SHIFT & TINING

“We put in the Kitchen Think…”

HSC SOFTWARE PRESENTS ESSENIAL.IMAGING CONTROLS “KPT CONVOLVER”
STARRING CORRECTIVE TOOLS TO SHARPEN AND CLEAN CREATIVE INSTRUMENTS TO EXPLORE DETAIL
AVAILABLE AT COMPUTERWARE 800/326-0092 MACWAREHOUSE 800/255-6227 MAC ZONE 800/248-0800

HSC SOFTWARE 6303 CARPINTERIA AVE. CARPINTERIA CA 93013
TALK TO US: 1-800-999-1111; KEYWORD “KPT” on AMERICA ONLINE.

© 1993-1996 Software Company, Inc. All rights reserved. All trademarks are the property of Kai Software Company. Reproduction in whole or part in any form is strictly prohibited without the express written consent of the copyright owner.

Circle 5 on reader service card
New Products

compresses them, transmits them via LAN, dial-up connection, or WAN, and decompresses them at the destination. Users can add comments to files they send, and the software keeps a log of all transactions. One receiver and unlimited sender clients $695. Microbeam, 813/546-2727, fax 813/541-3728.

BreakThru

This Tetris-style arcade game invites you to indulge your destructive urges and tear down the wall. Players are required to raze a wall, brick by brick, in a set time limit. By clicking on a brick, the player eliminates it, along with any other bricks of like color that it is touching. To make matters more interesting, additional bricks occasionally drop from the sky onto the wall. Users can play alone or simultaneously with a friend in split-screen mode. $44.95. Spectrum Holobyte, 510/522-3584, 800/695-4263; fax 510/522-3587.

C.A.Facilitator

At once the bane and heart’s blood of business, meetings always beg for improvement. C.A.Facilitator is a software support package that provides tools for better meetings. With C.A.Facilitator, the conference moderator plans and structures the meeting, and then the software provides an open forum over a network, where participants can share thoughts and ideas—annonymously if so desired. Meeting participants can put ideas up for a vote, create lists of action items, and print out the complete notes from a meeting. All meeting information is also stored and cross-referenced in C.A.Facilitator’s database. Server requires 25MHz 68030, 6MB min. memory, System 7.1; client requires 16MHz 68030, 2.5MB min. memory, System 7.1, 640-by-100-pixel display. Three concurrent users on a single server $2995; each additional concurrent user $1000. McCall, Steady & Associates, 805/682-6993, 800/423-8890; fax 805/682-6279.

Just Dingbats, Volumes 3 and 4

These volumes of clip art are contained in fonts, making it possible for you to live up your documents without dealing with importing images. Volume 3, Holiday Symbols, has 101 images of traditional American holidays and special occasions, from Christmas to Saint Patrick’s Day to Martin Luther King Jr., Day. Volume 4, American Politics, contains 115 images, including banners, hats, flags, political party symbols, and caricatures of American presidents. $69.95 per volume. The Communications Shop, 716/473-1650, 800/733-1650; fax 716/473-5201.

Loony Labyrinth

Light ‘em up, ball-jockey. The maker of Tristan and Eight Ball Deluxe is back with yet another simulated Mac game table. While you pursue the elusive Loony Stone, you have to deal with a maze, three flippers, 3-D ramps, and multiball play. 4MB min. memory; requires 13-MHz processor; 8-bit color. $59.95. StarPlay, 303/447-9562, 800/203-2503; fax 303/447-2739.

MACLAB

If you’re in the market for a program that can create models of dynamic mathematical and statistical systems, then this package might do the trick: MACLAB can handle curve-fitting and differential equations, and has over 400 statistical and mathematical functions. The software includes a programming language, facilities for branching and looping, 3.5MB min. memory; requires Mac II. $429.95. Civilized Software, 301/652-4714, 800/672-6532; fax 301/656-1099.

MPower

Creating a static slide-show presentation isn’t a problem, but easily adding audio and video can be. Within MPower, users can create traditional presentations with backgrounds, text, graphs, and animation, and along the way add multimedia elements with help from the software. With the appropriate hardware, MPower can control external audio and video devices and can digitize signals from those sources. Users can also add buttons to create interactive presentations. 6MB min. memory; requires 640-by-480-pixel color monitor, System 7. $295. Multimedia Design Corp., 704/523-9493; fax 704/523-9938.
Free CompuServe membership kit for *Mac World* readers.

For more information on this special offer or to order, just mail this card, or call 1 800 881-8961 and ask for the *MacWorld* representative.

Name

Company Name

Address

City, State

Zip

Day Phone

Evening Phone

DOS 3.5 ___ 5.25 ___ *Mac* ___ Windows 3.5 ___ 5.25 ___

MCW3/95
WHY JOHN NAGY’S MAC LOVES COMPUSERVE.

From: John Nagy
To: Bruce Car
Subject: Changes

John:
How are you doing now? I’m afraid I’m anything important I think about this.

E-mail.

It’s because CompuServe makes John’s life so much more exciting.

John talks with friends all over the world about everything from gardening to how to connect his printer. He meets far more, and far more interesting, people than he’s ever met before. He shops for clothes, tries software demos, and checks the weather where his sister lives. He even learns new and better ways to use his Mac in CompuServe’s Mac forums.

All this excitement makes John happy, and keeps John’s Mac busy. Which is why you should contact CompuServe too, at 1-800-861-8961 (514-529-1349 for international inquiries) for your free CompuServe membership kit. Because, as we all know, a busy Mac is a happy Mac.

CompuServe
The information service you won’t outgrow.

Circle 66 on reader service card
software (Chooser, control panels). Administrators can set up both individual and group accounts. $59.95; 5-user pack $339.95; 10-user pack $629.95; Power On Software, 216-735-3116, 800/344-9160; fax 216-735-3136.

Overture
Get the funk out of you, into your Mac, and onto paper. With this package, users can create musical scores, complete with dynamic markings, lyrics, rehearsal marks, indices, and footers. Overture also plays back scores via MIDI devices, and users can edit all performance parameters, including note durations, attack times, key velocity, and pitch bend. Requires Mac II, System 7. $299. DataStream Imaging Systems, 606/255-6868; fax 606/259-1541.

CD-ROMs

Paper Planes
With this disc spinning in your Macintosh, you can build complex models with heavily researched flight dynamics—out of paper. There’s a large assortment of dart, glider, and stunt planes to choose from, and animations walk users through each step of construction. There’s a full glossary of flying and folding terminology, and each plane’s instructions include an animated preview of the projected flight path. 2.5 M8 mem. memory; requires Color Classic, System 7, double-speed CD-ROM drive. $29.95. WordPerfect Corp., 801/255-5000, 800/451-5151; no fax.

Rand McNally Children’s Atlas of the United States
What fun is memorizing lists of states and their capitals by rote? This atlas teaches kids about every state in the union, their geography, history, local industries, statistics, and points of interest. The disc includes over 200 digitized pictures, 6 games designed to encourage kids to use the atlas as a reference, and music from different parts of the country. Also, younger kids can click and have all of the atlas’s text read aloud to them. $59.99. Gametek, 305/393-3995, 800/426-3835; fax 305/392-8651.

QuickMail Internet Access Kit
You can put your company in play on the Internet in a limited way with this E-mail connection package. The heart of the QuickMail Internet Access Kit is a QuickMail package with server software and a ten-pack of software clients. CE Software then adds StarNets’s MailLink Remote gateway software that mail-system users can send and receive messages directly through the Internet once you establish a connection between your mail server and an Internet services provider. The package also includes an offer from UUNET Technologies for a free one-month subscription to its dial-up UUNET UCUP service, and ten hours of free connect time. Client and server require 2 MB min. memory. $795. CE Software, 515/221-1801, 800/523-7638; fax 515/221-1806.

QSketch Pad
When you’re on a page in QuarkXPress, you want to take the time to fire up a separate graphics program just to create a simple graphic element? QSketch Pad is an XPress XTension that provides full-featured illustration software within Quark. New features for this version include improved text handling within graphics; a new measurements palette; and new skewing, mirroring, and masking tools. Requires QuarkXPress 2.11, $29.95; Power Mac native $259. DataStream Imaging Systems, 606/255-6868; fax 606/259-1541.

Understanding Exposure
Do you know the difference between an f-stop and an ASA rating? Are you sure? This software walks users through a series of lessons teaching them how to get better results out of their single-lens reflex (SLR) cameras. The disc includes a virtual photo lab, where you can experiment with aperture, exposure, and film speed, and see how your choices would affect an actual photograph. 4 MB min. memory; requires 8-bit color. $79.95. Diamar Interactive, 206/340-5975, 800/234-2627; fax 206/340-1432.

VST Auto Adapter 500
Pulling power from your PowerBook batteries when you’re in a car and thus have a perfectly good power supply available is irritating. With the Auto Adapter 500, you can plug into a standard cigarette lighter for DC power. $99.95. VST Power Systems, 508/287-4600; fax 508/287-4608.

VST Charger 500
You can reduce your traveling downtime with this charger for PowerBook 500-style batteries. The VST Charger 500 can charge or condition two batteries at once in about an hour. The charger ships with Empathy software that helps maintain the Energy Monitor Module within the PowerBook 500 smart batteries. $179.95. VST Power Systems, 508/287-4600; fax 508/287-4608.

Mosaic User’s Guide
This volume invites the reader to explore the World Wide Web and the Internet, combining a basic tutorial with reference work. Written by Bryan Pfeiffer-Bing, the book includes instructions for obtaining, installing, and configuring Mosaic, as well as guidance on establishing a SLIP or PPP connection. 350 pages. $34.95. MISPress, 212/886-9000, 800/489-5233; fax 212/615-0748.

Network and Internetwork Security
The first part of this book concentrates on the principles of network security, including confidentiality, authentication, digital signatures, intruders, viruses, worms, and conventional encryption. The second part of the book describes network security practice, covering algorithms and applications that are either in widespread use or are getting to play widespread use in the future. 480 pages. $55. Prentice Hall Computer Publishing, 201/592-2000, 800/547-7700; fax 215/284-2607.
Feel The Power Of FreeHand 5.

Can you feel it? Ultimate power and unlimited freedom in design and illustration. It's all here in the new Power Macintosh native FreeHand 5. And right now, you can feel the power for free. Because on our new Showcase CD, we'll show you what FreeHand power can do for digital designers just like you. You'll see cutting edge work from artists, designers, desktop publishers, illustrators and multimedia maven's that will not only show you what's possible, it'll inspire you to turn your vision into reality.

Feel the speed of working in the fastest WYSIWYG preview mode—faster than Illustrator and all the others!

Feel the power of page layout with text style sheets, spelling checker, columns, search & replace, copyfitting, linked text blocks, even multi-page support!

Feel the precision of "snap-to" grids, guides, and points—plus magnification of up to 25,600% on a massive 22'' x 22'' pasteboard!

Feel the flexibility with dozens of new plug-in tools and palettes. Even use existing Illustrator plug-ins right within FreeHand!

Feel the possibilities of special effects like Fisheye Lens, 3-D Rotation, Multi-color gradients, Calligraphy Pen, even Drag & Drop color!

New FreeHand 5

Upgrade to the power of FreeHand 5.0: Only $149 for current FreeHand users; $199 competitive upgrade for Illustrator, Canvas & MacDraw users. ** Call 1-800-989-3762

So go ahead, call for our free Showcase CD or upgrade offer. And feel the power of FreeHand 5 for yourself.

FREE SHOWCASE CD-ROM®
1-800-326-2128

ASK FOR OPERATOR #714

MACROMEDIA

Circle 86 on reader service card
Clark Christensen
Rochester, New York

MARRIAGE AND FAMILY THERAPIST
WORDPERFECT FOR MACINTOSH USER
We all have some pretty strange things in our past.


Hmm. Makes you think. Especially with new WordPerfect 3.1. It’s System 7.5 savvy and accelerated for the Power Macintosh. It’s time to get out of the past. And into WordPerfect.

$99 introductory offer. Visit your reseller or call (800) 526-7820.
Power Macintosh 8100/110

Macintosh Computer

**Pros:** Top-of-the-line speed; improved NuBus circuitry; wide availability of Power Mac-native software. 

**Cons:** Top-of-the-line price; single configuration. 

**Company:** Apple Computer (408/996-1010). 

**Company's Estimated Price:** $56379.

**Company's Rating:**

---

**Conclusion**

**New Chip**

The 8100/110 employs the 601+ PowerPC processor, a slightly improved version of the 601 chip that the other Power Macs use. The 601+ is smaller, uses less power, and runs cooler than the standard PowerPC 601 processor (see "Apple Pushes Power Mac to 110MHz," *Macworld*, January 1995). The 110MHz chip runs at three times the 8100/110's motherboard speed of 36.7MHz.

The 8100/110 edged out the 8100/100 by less than 10 percent in all Macworld Lab tests, and the 8100/110 beat the 8100/80 by about 20 percent. Though in some ways it's like comparing apples with oranges, any edge that the 8100/110 might claim over 90MHz Pentium machines is lower than you might expect, given the 20MHz difference in clock speed between the two chips (see "Power Mac vs. Pentium PC," *Power Mac News*, February 1995). This is particularly true for operations that involve accessing disks and peripherals that rely on the parts of System 7.5 still running under 680X0 emulation. In those instances, a Pentium computer beats the 8100/110 by a wide margin.

**Fixing the NuBus Problem**

One of the few mistakes Apple made in its very successful transition to the PowerPC chip was changing the NuBus implementation on the Power Macs. Apple removed certain NuBus toolbox routines from the Power Macs' ROM, and then a bug in the NuBus controller chip compounded the problem. As a result, high-end users—such as digital-video editors and multimedia authors—have found that the Power Mac's NuBus does not deliver the high-speed data transfers they require.

The 8100/110 includes some very specific fixes to the Power Mac line that desktop-video people lobbied for. Apple improved the handling of third-party NuBus video cards and RAID systems by redesigning the NuBus controller (the Bart21 chip) and correcting the NuBus routines in the 8100/110's ROM. The 8100/110 allows burst-mode data transfers, which are common with video-editing cards, and also reduces some of the bus-timing errors that can affect large data transfers across NuBus. Apple hasn't solved all the problems with the timing errors and admits that some low-level bugs remain. Users who demand the very highest NuBus performance will want to test their NuBus cards before committing to the 8100/110.
Another change that will please digital-video editors is the 8100/110's support for superslot addressing, which was designed to increase the amount of data that can move across NuBus slots. While these fixes don't speed up NuBus transfers on the Power Macintoshes, they do increase the amount of data that can travel across the bus.

All the other Power Macs—including the 6100/66, 7100/80, and 8100/100 that Apple announced in January at Macworld Expo—contain the NuBus flaws, which in some cases make NuBus performance on the Power Macs fall below that of the Quadra machines. Apple doesn't believe that most users will be affected by these bus problems, and the company doesn't plan to correct the flaws or offer trade-ins or upgrades for the original Power Macs. While this might not be a Pentium-size error, it won't please some Power Mac owners who bought their computers for high-end video work, only to find that some of the NuBus cards will not work properly with their machines.

**Single Configuration**

Apple offers only a single configuration of the 8100/110: 16MB of RAM (8MB soldered onto the board, with two 4MB SIMMs preinstalled), expandable to 264MB; a 2GB hard drive; and a double-speed CD-ROM drive. The 8100/110 also ships with a 256KB cache card (which Apple is now including in all Power Macs); this increases the 8100/110's tower case provides a great deal of expansion flexibility. In addition to the 2GB third-height 3½-inch hard drive and 3½-inch floppy drive, the tower case has room for another full-height 3½-inch drive (or two half-height drives) and has a 5¼-inch removable-media bay that houses the included CD-ROM player. The single configuration may not completely satisfy the 8100/110's target audience, who tend to demand custom configurations for their machines. Many users may end up taking out the 2GB hard drive or the CD-ROM player to configure the 8100/110 with a larger hard drive, a RAID system, or a Syquest or optical drive.

**The Second Wave: PCI**

If you are thinking about buying an 8100/110, you ought to consider the looming PCI (Peripheral Component Interconnect) expansion-bus standard, tentatively scheduled for inclusion in all new Power Macs due to ship in the first half of 1995. Apple conservatively estimates that the first generation of PCI slots in the Power Macs will be twice as fast as NuBus. With that bandwidth, digital-video professionals will be able to capture and play back video at a much higher data rate, getting QuickTime video-transfer rates of 10 to 12 megabytes per second. The PCI standard will also open the Macintosh market to PC board vendors, and it's possible that will mean lower prices and more expansion-board choices for users.

But not everyone is willing to wait until Apple unveils Power Macs with PCI slots. Apple developed the 8100/110 for high-end users who have invested big money in high-performance NuBus cards and who probably aren't thrilled at the prospect of abandoning their investment in NuBus in order to use PCI.

**The Last Word**

There are now more than 300 Power Mac-native applications, offering two to five times the performance of their 680X0 counterparts. Those users who adopted a wait-and-see attitude toward the Power Macs should now feel comfortable making the jump to the PowerPC platform. Desktop publishers and others who need top-of-the-line Macs will want to take a hard look at the 8100s.

But unless you need the NuBus fixes that the 8100/110 provides, buy a Power Mac 8100/100 instead. For most functions, the effective speed difference between the two machines is less than 10 percent. You can get an 8100/100 with the same configuration as the 8100/110 for about $800 less. Or consider the 7100/80, whose price/performance ratio and expandability make it one of the most attractive and powerful desktop machines you can buy.

With the ultraspeedy PCI expansion bus on the horizon, people thinking of moving to Power Macintosh—based video and high-end publishing may want to hold out. But users who have invested heavily in NuBus cards can protect their investment with this very fast version of the 8100. Apple continues to lower prices as it boosts the speed and configuration of the Power Macs, trying hard to keep the machines in the same price range as the latest Pentium systems. It's a buyer's market, but don't buy more Macintosh than you really need.

—MATTHEW HAWN AND DANNY LEE
LaserWriter 16/600 PS

**Workgroup Printer**

**PROS:** Excellent performance; PostScript fax options; attractive pricing. **CONS:** Unimpressive print quality. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** $2399.

Apple's latest workgroup printer, the LaserWriter 16/600 PS, is designed to replace the popular LaserWriter Pro 630 and the more expensive LaserWriter Pro 810. While the 16/600 looks and costs almost the same as the 630, the 16/600's new engine and faster controller offer improved performance.

**Technical Specs**
The LaserWriter 16/600 PS is based on the 16-pages-per-minute, 600-dpi, Canon LBP-ZX engine. It features Adobe PostScript Level 2 and HP's PCL 5 emulation, and includes optional PostScript fax capabilities. It also ships with Apple's latest QuickDraw GX driver.

As with most newer workgroup printers, the 16/600 supports automatic port switching and protocol sensing. This means that all ports and protocols are simultaneously active. The 16/600 has bidirectional parallel, serial, and LocalTalk ports, as well as an Ethernet interface that supports EtherTalk, Novell NetWare IPX, and TCP/IP. The 16/600 works with DOS and Windows PCs, Macs, and Unix systems.

The LaserWriter 16/600 PS sports a SCSI interface for storing fonts on a hard disk. The optional internal hard disk, which is extremely easy to install, has a capacity of 245MB and an estimated price of $399. This is a bargain compared with Apple's LaserWriter Pro 810 and the more expensive LaserWriter 630, the 16/600's new engine and faster control offer improved performance.

**Blazing Performance**
The LaserWriter 16/600 is a much better performer than its predecessors were, due to the faster RISC processor and the higher-speed engine. For raw performance, the 16/600's engine is rated at 17 ppm for letter size and 16 ppm for A4 size —4 ppm more than the LaserJet 4MPlus and 8 ppm more than the LaserWriter 600 series.

Macworld Lab used a multiple-page text document with one font to test engine performance; the 16/600 clocked in at 41 percent faster than the Pro 630 and 19 percent faster than the 4MPlus. For processor-intensive tasks, such as printing complex PostScript documents, Macworld Lab tests showed the 16/600 to be 22 percent faster than the Pro 630 and a few percentage points faster than the 4MPlus. At the moment, the LaserWriter 16/600 is one of the fastest workgroup printers in its price range.

**Unimpressive Output**
The printout quality of the 16/600 is another story. A Macworld Lab line-art test file revealed that the 16/600 PS can't produce as fine a line as the LaserJet 4MPlus and the Optra LX. In fact, the 16/600's line-art output doesn't even look as good as that of the Pro 630 it replaces. For text output, the 16/600's FinePrint text looks as good as its HP Resolution Enhancement Technology and Lexmark counterparts at normal reading distance, but on closer examination it's not as crisp as the Optra's.

**How Fast Is the Apple LaserWriter 16/600 PS?**

<table>
<thead>
<tr>
<th>Printer</th>
<th>Multiple Fonts</th>
<th>Single Font</th>
<th>Adobe Illustrator 5.5</th>
<th>Adobe PageMaker 5.0</th>
<th>TrueType</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaserWriter 16/600 PS</td>
<td>63</td>
<td>101</td>
<td>241</td>
<td>79</td>
<td>41</td>
</tr>
<tr>
<td>HP LaserJet 4MPlus</td>
<td>85</td>
<td>124</td>
<td>246</td>
<td>90</td>
<td>45</td>
</tr>
<tr>
<td>LaserWriter Pro 810</td>
<td>135</td>
<td>170</td>
<td>346</td>
<td>90</td>
<td>67</td>
</tr>
<tr>
<td>Lexmark Optra LX</td>
<td>112</td>
<td>186</td>
<td>346</td>
<td>158</td>
<td>67</td>
</tr>
</tbody>
</table>

Macworld Lab installed another 4MB of memory in the 16/600 in order to use PhotoGrade, which should improve output quality for scanned images. Unfortunately, while PhotoGrade enhances the Pro 630's output, it doesn't help the 16/600 much at all.

The LaserWriter 16/600's paper tray is a minor annoyance. It holds only 250 sheets of paper, or 350 with the multipurpose tray—not enough for a true workgroup printer. I recommend adding the optional 500-sheet cassette. Both cassettes support letter, A4, B5, and U.S. legal paper sizes. An envelope feeder that can automatically feed up to 75 envelopes is also available.

Setup of the LaserWriter 16/600 is straightforward. It took me less than five minutes to get the printer online and printing. The manual is nicely illustrated and easy to follow. The fax modem and RAM took only five minutes to install. And with only one screw to remove, the 16/600 PS is easy to upgrade.

As an Energy Star-compliant device, the 16/600 reduces power consumption and goes into hibernation after a predetermined time of inactivity.

**The Last Word**

All this for $2399—about half the cost of the LaserWriter Pro 810 and the same price as the much slower Pro 630. Apple has delivered another fine printer within a reasonable price range. If speed is what you need, the 16/600 is it. However, if you need to use your printer for better-quality work, check out the higher-dpi printers.—Mark Hurlow and Danny Lee
Nisus Writer 4.0

**Word Processor**

**PROS:** Unlimited undo; ten clipboards; powerful macro and find/replace functions; strong multilanguage skills. **CONS:** Seriously flawed table editor, antique mail merge; mediocre table-of-contents, index, and cross-reference functions; poor page-layout abilities. **COMPANY:** Nisus Software (619/481-1477). LIST PRICE: $495.

Now renamed and greatly revised, Nisus Writer 4.0 retains the trademark features that distinguished its predecessor, Nisus, from other word processors on the market. Unfortunately, it also remains a mixed bag.

**Particular Powers**

Nisus can undo/redo an unlimited number of past actions. It allows you to select noncontiguous pieces of text. It has a powerful macro language—two languages, actually: a less powerful but more comprehensible Command Dialect, and a full-featured, rather daunting Programming Dialect. There's also a watch-me macro-recording mode and a large library of useful, annotated, ready-to-use macros. Nisus Writer also retains Nisus's legendary and still unequaled find-and-replace functions. The program offers three kinds of find and replace, in fact, so basic users won't be overwhelmed with detailed, power-user codes. And Nisus Writer, like its earlier incarnations, has powerful multilanguage skills found in no other word processor.

Nisus Writer of course has all the basic writing and formatting tools, plus smart cut and paste (which adds or removes spaces as needed), smart quotes, easy-to-edit and automatically expanding glossaries, and a ten-compartment clipboard. It does not, however, offer a built-in outliner, as-you-type error correction, or drag and drop between documents—all present in the current versions of Microsoft Word and WordPerfect. It can number lists, but the process is cumbersome. It has tool bars, but they aren't customizable, they float (and thus get in the way on a small screen), and many of the tool icons are indecipherable. Nisus Writer has both paragraph and character styles, but you can't define styles by example; and Nisus doesn't use styles intelligently to, for example, automatically apply styles to footnotes, table-of-contents entries, or indexes. And like previous versions, Nisus Writer 4.0 suffers from a poor, inefficient interface design.

Though it lacks a grammar checker, Nisus Writer comes with a collection of high-end editing tools. Its spelling checker is fast and efficient (see "Spelling Is a Pain"), and its thesaurus is among the best. But because you can't edit its rules, Nisus Writer's hyphenation feature is definitely not high-end.

Nisus Writer is unique among word processors in that it can also read aloud, with proper pronunciation, your English, French, Spanish, German, or Italian text. It also supports WorldScript and allows you to write in any number of languages—whether they run left to right or right to left—in one document. For right-to-left scripts, Nisus has matching rulers and footnotes. Oddly, you cannot mark roman text as French, Spanish, or whatever, so that the program will automatically use the appropriate spelling checker, hyphenation file, and thesaurus.

**The Last Word**

Still a David among the Goliaths of high-end word processing, Nisus Writer is difficult to assess concisely. It is a poor choice for many typical high-end uses, including long or multicolumn documents, table creation and editing, and mail merge. In a few specialized areas, however—such as mixing English and other non-Romance languages (Japanese, for example), and its complex find and replace—Nisus Writer is unmatched. If your word processing needs closely match Nisus Writer's limited strengths, go for it. If not, head for Word (5 or 6) or WordPerfect.—ROBERT C. ECKHARDT

Spelling Is a Pain Although it's quick and easy to use from the keyboard, Nisus Writer's spelling checker dialog box is a textbook example of poor design. As shown here, the definition dictionary (sold separately) just makes a bad design worse.

More than Words Can Say

With the program's built-in, small-scale drawing program you can draw directly on the page. You can also import graphics in PICT, EPS, TIFF, and MacPaint formats, as well as QuickTime movies. Nisus Writer can insert graphics behind text to create a watermark and can use a Nisus Writer page as a graphic within another page. It allows only one column format for the entire document, and all columns must be the same width. Because the only view that displays graphics and multiple columns as they will print is not editable, creating complex, multicolumn layouts is a considerable chore.

Nisus Writer maintains menus of recently used files and user-specified "essential" files, and has a convenient Catalog window from which you can open or print files in batches. Nisus Writer files are readable by most other word processors (as unformatted text), and the program can read any file format for which it has an XTND filter (only MacWrite II, RTF, and Word 4 and 5 filters are provided). Its five manuals come to 1100 pages, are poorly organized, and have no central index.

The Long and Short of It Nisus Writer can insert both footnotes and endnotes, but not both within a document. It can generate single-level tables of contents, but generating additional lists for the same document, such as a figure list, is unnecessarily difficult. Cross-referencing other parts of the document is also more difficult than need be. Nisus Writer can compile indexes (single-level only) from marked words (marked manually or using a handy find-and-replace option) or from a concordance, which it can help you create by generating a list of all the words in the document.

Nisus Writer comes with Design Science's MathType 3.0, a highly regarded equation editor. Nisus's table editor (Macreations' Tycho TableMaker), however, is seriously flawed, primarily because it cannot create tables more than one page long; nor can it split a table over two pages. Also, many Nisus features—such as unlimited undo and noncontiguous selection—don't function within a table, and you cannot mark table text for a cross-reference or index or table-of-contents entry. Another disappointment is Nisus Writer's mail merge function: as with most antiquites, hard manual labor is the only thing that makes it work.

$895

MACWORLD March 1995 53
To succeed, you need a winning program. And as Bo will tell you, a little muscle doesn’t hurt either. XANTE® offers both with the NEW Accel-a-Writer® 812. This high-resolution laser printer is engineered with print-intensive workouts in mind. With 1200 x 1200 dpi, and true Adobe® PostScript® combined with a fast 33 MHz AMD 29030 RISC processor, you’ll have all the power and flexibility you need to stay ahead of the competition — and at a price that won’t weigh you down. So, if your success depends on the quality of your output, you better get with the program.

**XANTE’s Winning Program**

- 1200 x 1200 dpi for exceptional halftones and incredibly smooth text and graphics
- Adobe PostScript Level 2 to guarantee peak performance, quality, and software compatibility
- Fast processing with a 33 MHz AMD 29030 RISC processor, 16 MB of RAM and XANTE’s advanced controller architecture
- Halftone Calibration Technology that adds more definition to your halftone images
- Simultaneous interfacing between LocalTalk®, Centronics® parallel, and RS-232 serial
- HP PCL® V and HP-GL® 7475A emulations
- Ethernet® networkability, with concurrently active EtherTalk® and TCP/IP, as an option
- Supports letter, legal, A4, B5, and executive paper

XANTE’s Accel-a-Writer 812 — it has our competition scrambling for the gym!

For immediate output results call XANTE today.

**1-800-926-8839**
Dealers call ext. 2116
Fax 334-476-9421

XANTE
Innovations In Output

Adobe PostScript

Circle 112 on reader service card
PixelPaint Pro 3.01

Color Paint Program

**PROS:** Excellent Wet Paint and PixelLayers features. **CONS:** Sluggish performance when using built-in virtual memory. **COMPANY:** Pixel Resources (404/449-4947). **LIST PRICE:** $379. **MW**

ALTHOUGH IT WAS ONE OF THE first Mac color painting programs, PixelPaint has languished in recent years. But after major renovations by its original developers, PixelPaint Pro 3 offers professional-level painting and image processing tools at an attractive price.

**Not Just a Maintenance Upgrade**

In version 3.01, those niggling little bugs that hampered release 3.0 have, as far as I could determine, been squashed. Also, support for pressure-sensitive tablets, such as those from Wacom, has been improved. And time-consuming operations, such as rotating images, moving layers, and applying special effects, have been optimized, making the program more responsive.

However, beyond tweaks and fixes, PixelPaint Pro 3.01 adds compatibility with System 7.5 and full support for the Pantone Open Color Environment (POCE), a color-selection and -management system. Consequently, this version constitutes a fairly significant upgrade, especially for professional users needing precise color matching.

**Pantone Open Color Environment**

Matching screen colors to printed output has always been a problem, due to the inherent differences between the way computer monitors and printing devices reproduce color. With POCE, you select colors using the new Apple Extensible Color Picker, which lets you switch between color models. Pantone provides two models: one for the Pantone Matching System and another for the Pantone Process Color System. The colors in the Pantone pickers are calibrated to the monitor and output device you select using the Apple ColorSync Profile and Pantone Profile control panels. Slider gauges tell you if a chosen color is out of gamut, letting you correct color problems conservatively sized floaters. Extra brushes, gradients, patterns, papers, and color palettes are available as plug-in extensions either from floating palettes or by using keyboard commands.

**PixelPaint Pro 3's Expressionist Brush floater is particularly impressive. These brushes produce many different painting and rubber-stamping effects, and they're completely editable, letting you alter their size, angle, and various other parameters.**

Also excellent is PixelPaint Pro 3's Wet Paint feature. It lets you edit brushstrokes as objects before painting with them. Like an illustration program, **Wet Paint object, you must set it down on the page, select it, and then transform it into a layer. The ability to define a PixelLayer directly from a Wet Paint object would be a slick enhancement.**

In addition, PixelPaint Pro 3 provides a useful array of filters for image processing functions and offers a scripting capability that allows you to record command sequences (but not brushstrokes) and replay them on other images. You also manage both imaging filters and scripts as plug-ins, letting you easily customize the program's feature set.

**A Traditional Interface**

Bucking the trend toward natural-media simulation, PixelPaint Pro 3 doesn't even pretend you're working with real materials. Without apology, it offers a traditional Mac environment that relies on unobtrusive tool icons and functional, right- at-home PixelPaint Pro 3’s traditional-looking Macintosh environment organizes most functions into floating palettes that you can toggle.

**Running the Gamut**

PixelPaint Pro 3’s Pantone color pickers let you know instantly if the selected color is out of gamut with the chosen output device.

PixelPaint Pro 3 lets you define selections as floating objects, called PixelLayers. These remain active until you drop them onto the document image. With the Layer Control palette, you can soften the edges of a PixelLayer to composite images without telltale edges. PixelLayers can be created only by specifying areas with the selection tools. So if you build a Wet Paint object, you must set it down on the page, select it, and then transform it into a layer. The ability to define a PixelLayer directly from a Wet Paint object would be a slick enhancement.

In addition, PixelPaint Pro 3 provides a useful array of filters for image processing functions and offers a scripting capability that allows you to record command sequences (but not brushstrokes) and replay them on other images. You also manage both imaging filters and scripts as plug-ins, letting you easily customize the program's feature set.

PixelPaint Pro 3's manual is well-organized, readable, and a good source for background information. If you're a color-imaging novice, reading this manual provides a quick education. The program's built-in virtual memory scheme for document management makes it usable with RAM-challenged Macs, but relying on virtual memory makes for slow going. One solution is a fat memory allocation (a minimum of 8MB to 12MB). Another is to get the fastest Mac you can afford. My recommendation, especially for professional users, is to do both. By the way, the Power Macintosh-native version should be available by the time you read this.

**The Last Word**

Although surpassed by Adobe Photoshop in imaging prowess and by Fractal Design Painter in natural-media simulation, PixelPaint Pro 3 strikes a good balance between the artistic demands of color painting and the technical precision of image processing. That balance, and first-rate color-matching resources, make PixelPaint Pro 3 an excellent choice for professional artists and illustrators.

—CARLOS DOMINGO MARTINEZ
Today, CD-ROM discs are engineered with high quality sound. To fully enjoy it, you need multimedia speakers made by a company that really knows sound. Speakers like the new MediaMate computer speakers from Bose.

They deliver full, lifelike sound from a compact design. From the screeches of a prehistoric pterodactyl to the softest passages of a song, the special built-in amplifier and equalizer deliver robust lows and sparkling highs even at low volume.

And magnetically shielded MediaMate speakers work with all multimedia hardware. Dual input allows you to hear two sources (such as your computer plus a musical instrument) simultaneously.

A multimedia system can be a fantastic adventure for entertainment and games, as well as a valuable tool for education, business presentations or professional MIDI applications. So don't shortchange yourself on your speakers. Call for the name of a dealer near you, and hear an ear-opening demonstration.

1-800-444-BOSE Ext. 509
Apple PCMCIA Expansion Module

Apple's PCMCIA Expansion module for the PowerBook 500 series is a well-integrated, well-designed unit that offers 500-series users an efficient and easy, albeit expensive, way to add features to their PowerBooks.

A Little Background
PCMCIA is an acronym for Personal Computer Memory Card International Association. This association developed a set of standards designed to make computer expansion easy. PCMCIA cards (ironically rechristened PC Cards by the PCMCIA in November) are credit card-size peripherals, like memory and modems. They are power-efficient, lightweight, and fast, making them ideal mobile-computing products.

As with a lot of DOS and Windows expansion options, though, you had a better chance of winning the lottery than of configuring these cards with anything short of divine intervention. Developers were sloppier in their first implementations of the PC Card standards, rushing to get their products to market before the competition. The PCMCIA has now worked out the kinks, though, and PC Cards are hitting their stride. They're already a standard expansion option on many PC laptops and the Newton, and you can expect to see slots for PC Cards on almost every laptop made in the next few years, including Apple's PowerBooks.

Pick a Card, Any Card
Apple's wallet-size expansion module slips into the left-hand battery bay of PowerBook 500's and provides slots for two smaller (Type I or Type II) PC Cards or one larger (Type III) card. Built into the module is a 16MHz Motorola 68010 processor that plugs into the PowerBook's PDS slot. A PC Card slides into the slot much like a floppy into a drive.

Initially, the most common type of card available for the module will be Flash ATA memory cards (mostly Type II cards). Flash memory is solid state memory, as opposed to slower, rotating, magnetic memory like that of floppies or hard drives. Flash memory cards work a lot like RAM disks, saving power and increasing performance by avoiding hard-disk or floppy access. But you'll pay top dollar for these cards: a 5MB flash memory card costs about $400.

Modem PC Cards are as common as flash memory on PC laptops, but because the 500 series reserves space for an internal modem, these Type II cards probably won't be as popular with PowerBook 500-series users. Prices are comparable to internal modems (about $300), but you need to factor in the module's price.

Another type of storage for the module is Type III PC Card hard drives. These are miniature versions (1.8 inches across) of standard hard drives that you can use as removable media. They aren't cheap either: a 130MB Type III hard drive is about $500.

Apple expects other PC Cards to be available in the next year, including pager cards, wireless network cards, global positioning cards, and Token Ring connection cards. Apple hasn't mentioned ROM cards, like those the Newton uses, but third-party vendors could offer read-only files (like street maps or restaurant reviews) that benefit from the speed and low power requirements of ROM cards.

Most PC Cards now available are made with DOS and Windows laptops in mind, but PC Cards are designed to be platform-independent. While the module won't support all the PC Cards out now, Apple says it will offer updated software to handle fancier cards as they become available. A general software update should be available before summer, at the same time that Apple releases a developer kit that will allow developers to write drivers for their PC Cards.

Using the Module
The first Macintosh PCMCIA product is an elegant example of how PC Cards should work. I slid the module into the battery bay, turned on the PowerBook, dropped a control panel and two extensions into the System Folder, and was ready to go. The module supports hot swapping, which means you don't have to power down or restart the computer after you insert a PC Card.

Memory cards appear in the desktop as icons. You can eject them in one of three ways: drag the icon to the Trash, or use the PCMCIA control panel or the PCMCIA icon in the PowerBook Control Strip. Modems don't appear on the desktop, but the communications programs I tried (including Aladdin Systems' SITcomm, America Online, and a variety of fax software) had no problem recognizing the modem as a regular modem choice in their control panel dialog boxes.

This is a far cry from PC Card implementation for most PC laptops. The documentation included with the PC Cards listed page after page of complex directions for a variety of DOS notebooks. Apple's version of the PC Card software/hardware, however, is nearly seamless. This isn't to say you won't have to configure some PC Cards for the PowerBook, but the configuration won't require an advanced computer-science degree.

The Last Word
Do the PowerBook 500's need a PC Card expansion option? The 500's already support Ethernet and LocalTalk, and have space for internal modems and ports for external drives and peripherals. But PC Cards do offer some advantages. You can be sure that Apple will include PC Card slots in its future laptops (see "Apple's Secret PowerBook Plans," News, Macworld, February 1995), in some desktop machines, and even in printers.

If you can overlook the early-adopter prices (a big if), the PC Cards are great expansion options—lightweight, low-power, and high-performance. When prices come down and Apple has the support of third-party vendors, PCMCIA on the Macintosh will be more than just a flashy card trick.—MATTHEW HAWN

The installed PCMCIA module with More's Mini-Stor 130MB drive, Sundisk's 1.8MB flash disk, and Motorola's CELLect 14.4 fax modem.
Simple Scheduling.
Impressive Power.

"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

FastTrack Schedule™

No other scheduling tool is as easy-to-use or as powerful as FastTrack Schedule. There's no need for cumbersome project management packages, spreadsheets, or time-consuming drawing programs. Simply click and drag—or use your keyboard—to create presentation quality schedules in no time. And if you have questions, the extensive on-line help can assist, tutor, or remind you of every step.

Need more power? FastTrack Schedule can track scheduled, revised, and actual dates, calculate durations based on a custom work calendar, outline your projects, and link activities to show dependent tasks. Further enhance your schedules with custom bars and milestones, flexible timeline scales, and colorful graphics. And because FastTrack Schedule runs on either Windows or Macintosh, files built on one platform can be opened on the other.

To order, for more information or for a demo call today!
1.800.450.1982

AEC Software, Inc., 22811 Markey Court, Building 113, Sterling, Virginia 20166 • Telephone 703.450.1980 • ©1994 AEC Software, Inc. All rights reserved.

Circle 203 on reader service card
Adobe Acrobat 2.0

**Portable-Document Software**

**PROS:** includes freely distributable viewer, works across platforms.

**CONS:** Font fidelity is uneven; software is fairly resource-intensive; creating hypertext documents is difficult; poor technical support.


**WORKGROUP EDITION:**

**SINGLE-USER EDITION:**

**T HIK E N T H E O NCE LUS H F O R E S T S**

of the Pacific Northwest, now rendered into vast, depleted tracts with lonely spotted owls searching fruitlessly for shelter and sustenance. Think of the pages and pages that spew forth from your laser printer and copier. Think of the time it takes to prepare, deliver, and sort your mail. There must be a better way, and Adobe Systems is convinced that its Acrobat family of software is it.

Acrobat 2.0 has been redesigned to become more of a document-management and -annotation tool. (Adobe product managers have privately admitted that the environmental message didn't do too much to boost sales, so now the emphasis has turned to business productivity and collaboration.)

Unfortunately, Acrobat 2.0's emphasis on corporate document sharing may make the product less useful for the other major component of the portable-document market: the electronic distribution of forms, catalogs, lists, newsletters, and the like.

The Acrobat Family Tree

Exactly what does Acrobat do? At its basic level, it adds a print driver to the Mac (or Windows PC) that lets you "print" any document from any program into an Acrobat-format file that contains the text and images of the original file for viewing and even searching by users who don't own the originating program or fonts. This basic function is handled by Acrobat Exchange, the core product in the Acrobat family and the program that makes up the $195 Acrobat 2.0 single-user package.

If you have a bunch of PostScript print files—say, CAD drawings from Windows AutoCAD or technical manuals from Unix Interleaf—you can convert them to Acrobat format with Acrobat Distiller, a program that comes bundled with Acrobat Exchange in the $595 Acrobat Pro 2.0 package.

If you want your whole company to go Acrobat, you can get the $195 Acrobat Workgroups 2.0, which includes ten licenses for Acrobat Exchange and one for Distiller (both Mac and Windows software is included for each), plus the Acrobat Catalog program, which creates search indexes over a network, so you can search for, say, information on Macworld in all documents on the Media server, rather than open each file and search its contents separately.

**To Thine Own Self Be True**

These options sound great, but the execution leaves something to be desired.

The most frustrating part of Acrobat is the fidelity of the portable documents it creates, or actually its unevenness. Acrobat 1.0 did not do well with many fonts, and Acrobat 2.0 does only a little to correct this. The problem is in how Acrobat represents fonts. When you create a portable document, Acrobat uses Adobe Type Manager's font database to match the fonts you use against the fonts ATM knows about. When you display an Acrobat document on a system that doesn't have the font, ATM uses its Multiple Master technology to emulate the font. For decorative, symbol, nonroman, and highly stylized fonts, this approach doesn't work.

Understanding this problem, Adobe has now given Acrobat the ability to embed fonts in the document, so they move to the recipient's system with the document (but just for viewing that document). This approach increases the document size—the amount depends on how many characters are used per font—but helps ensure fidelity.

But the font-fidelity issue is not solved that easily. For some fonts—including some of the symbols that ship with the latest version of ATM—Acrobat substitutes a bitmapped representation (a graphic) of the text in the portable document. These bitmaps greatly slow down scrolling, although they do ensure decent-quality output. But because the text is converted to bitmaps, you can't search it or cut and paste it into other programs. There's no way to know which fonts will be converted to graphics until you open the portable document.

The other significant problem in working with fonts and Acrobat is that the recipients must have ATM 3.6 or later installed on their system (ATM 2.6 or later for Windows). Acrobat Reader, which you can give to people who don't own Exchange, comes with a limited-edition version of ATM 3.8.1. If the recipient does not own a copy of ATM, he or she must install this limited edition of ATM to launch Reader. Fine, but to emulate fonts (the whole point of Acrobat's reliance on ATM) Reader requires that the full-version ATM 3.6 or later be installed—even if the limited edition is installed. That makes no sense.

**Bloated Requirements**

The need for ATM on every recipient's system points to another concern users should have with Acrobat: resource requirements. Reader's installation program takes about a megabyte, so you can share Reader with others via floppy. But it's too fat for routine downloading from a BBS or for E-mail transfer over a network. Once you install Reader, it will have consumed 3MB of your hard disk. Exchange—the program you'd use if your company has standardized on Acrobat as a document-exchange system—takes 4MB, plus another 4MB for ATM 3.8.1, which it comes with.

Other portable-document software is more efficient. No Hands Software's Common Ground 1.1.2 ($189, 415/802-5800) takes only about 1MB—and it doesn't require ATM or any other such technology. Nor does Common Ground require a viewer program: you can embed...
Our new personal Mac® laser printer lets you say what you want to say, exactly the way you want to say it.

That's because the Silentwriter 640 is a true laser printer with 300 dpi resolution, our patented Sharp Edge Technology and Microfine toner, for crisper characters and richer, darker blacks.

And because it has 17 resident Adobe® Type 1 fonts, 35 professional TrueType® fonts and built-in TrueType and Type 1 rasterizers.

Plus, Adobe PostScript® Level 2.

An AppleTalk® interface. And a 2-year limited warranty. All for about $800. Interested? Call 1-800-NEC-INFO. For details via fax, 1-800-366-0476, #79640.

Thank you. And you. And you.
If you use Acrobat Catalog to index documents (Catalog creates a word list with pointers to documents that Exchange's search facility can use to find text across several documents), you'll have more flexibility in your searches. This method is particularly helpful for documents archived on a server that everyone in a department will want to search, since it allows for variations in how each person specifies the search.

For example, you can have Acrobat search for words that sound like the word you entered. (If you enter went and use the Sounds Like option, Acrobat will find went.) Or you can search for variations of a word based on verb tense or other grammatical variations. (For example, enter go, and Acrobat will find went, going, and gone.) Anyone who has Exchange can do these searches, but only for documents that were indexed by Acrobat Catalog. For nonindexed documents, you have just basic search facilities (whole word, case-sensitive, backward, and forward) to choose from.

Unfortunately, Acrobat Catalog runs only on Windows servers, and it does not work with Farallon Computing's PlaneNet software, which adds the AppleTalk protocol to a PC. You must use Novell NetWare or another networking protocol to have Catalog index Acrobat files on a Macintosh client. Catalog also makes users choose which indexes they want to search; that requirement will baffle users who expect Acrobat to find all search instances automatically.

The Last Word

If you're looking at Acrobat Exchange to make it easier to exchange documents, you may just find it simpler to standardize on a set of fonts and programs—like the word processor in which you create your documents—and avoid the need for Acrobat altogether. Just print your files and use real Post-its.

If you're looking for a collaboration tool, Acrobat for Workgroups makes more sense. With ten copies of Exchange, one copy of Distiller, one copy of Catalog, and an unlimited license to distribute Reader to Macintosh and Windows users, Acrobat for Workgroups is cheaper than buying everyone their own copy of Exchange. You can easily set up centralized shared documents with Acrobat.

Adobe is pushing Acrobat into the shared-document market, which has been largely based on proprietary, expensive tools. Brining a fairly open program into that market should benefit many corporate users. But if you're looking for less-ambitious sharing, look elsewhere.

—Galen Gruman

SECOND LOOK

Ray Dream Designer 3.1.1

3-D-Graphics Program

PROS: Useful modeling tools and excellent rendering at an affordable price.
CONS: Poor error trapping can still lead to unstable operation.
COMPANY: Ray Dream
LIST PRICE: $349.

WHEN WE LEFT OUR story (Reviews, Macworld, July 1994), Ray Dream Designer 3.03 offered improved modeling tools, enhanced access to surface-shader parameters, a better-coordinated interface, and a lower price. But alas, it also had fallen prey to unstable operation and various nagging bugs.

In this chapter, our protagonist exhibits a general improvement in character. The offending bugs are largely under control, and the optimized code results in faster performance, even on standard Macs. Although still subject to occasional lapses, Ray Dream Designer 3.1.1 has largely mended its ways.

Ray Dream Designer is a 3-D-program that provides competent (if sometimes awkward) modeling tools, offers excellent surface-texturing capabilities, and produces high-quality ray-traced renderings. Although traditionally schooled illustrators may require a period of adjustment to learn to use the program effectively, Designer is well suited to the needs of graphic artists.

Designer 3.1.1's speed improvements make it usable on 680X0 Macs. However, it now runs in Power Mac-native mode, so if you can, go with a Power Mac. The performance gain makes building complex models and scenes more efficient and pleasurable.

Designer 3.1.1 still misbehaves occasionally. For example, error trapping remains suspect. Even simple things, such as canceling dialog boxes, can sometimes cause Designer to quit. But such problems are less common than in the previous version.

Ray Dream Designer 3.1.1's combination of useful 3-D modeling tools and first-rate rendering at an affordable price make it an excellent value.

—Carlos Domingo Martinez

MACWORLD March 1995 61
Finally, accounting software for the rest of us.

The check screen looks very familiar because it looks just like a check. The invoice screen—like an invoice. But even though QuickBooks is easy, it does all the things a complete accounting program should—accounts receivable, accounts payable, inventory, payroll and more. No surprise it's from the makers of Quicken.

Even if you don't like paying the bills, we can at least make it fast and easy.

How easy? When your bills come in just click your mouse on "enter bills" and fill in the screen with things like the amount and the terms. When it's time to pay the bills, just select the ones you want to pay. That's it. QuickBooks will even remind you to pay them when the time comes. (Sorry.)

Purchase Orders? Like everything with QuickBooks, they're no hassle.

There's no learning curve. Just fill out your P.O.'s and let QuickBooks track them until you receive your inventory. QuickBooks even handles partial receipts with no hassle.

QuickBooks graphs give the best insight. No question. It's a lot easier to make intelligent business decisions when the "big picture" is right in front of you. QuickBooks also creates all the reports you need for instant access to any part of your business. With all that knowledge, your business will be looking better in no time.

Try QuickBooks for only $8.00!

Pay only shipping and handling to try QuickBooks. If you decide to keep using it after 30 days, pay just $119.

24 hours a day, 7 days a week: 1-800-781-6999 Ext. 700 291

Also available for Windows and DOS. Features vary. Offer expires 9/30/95. Credit card orders only. Please have card ready. International shipping extra. ©1995 Intuit Inc. Quicken and QuickBooks are registered trademarks of Intuit Inc.
DIGITRAX TURNS A QUADRA 660AV or 840AV into a digital audio deck that can record and play up to six tracks of CD-quality sound. You can overdub parts to create a complete arrangement, you can electronically slip a fiddled word or rearrange a sentence or musical phrase, and you can mix, or bounce, multiple tracks to a single track without degrading the sound quality.

Among digital audio programs, Digitrav is a relative newcomer, having shipped nearly a year after its closest competitor, OSC's Deck II (see Reviews, Macworld, June 1994). The two programs make for some interesting comparisons. Although Digitrav falls short of Deck II in many areas, it more than holds its own in others.

Similar Styles
Digistrax and Deck II share similar operating styles. Each program provides a mixer window with sliders and volume meters for adjusting sound levels; a transport window with play, pause, record, rewind, and fast-forward buttons; and a time-line window that graphically displays the audio waveforms in each track. By and large, I found Digitrav's look and feel to be a bit more polished than Deck II's. Also, Digitrav's Transport window adds a feature that lets you control an audio CD—which is handy for recording tracks from an existing CD.

DigiTrax also lacks Deck II's array of track processing options, which simplify creating smooth fade-ins and fade-outs as well as cross-fades, in which one or more tracks fade out while others fade in. But Digitrav provides a powerful built-in parametric equalizer, which lets you boost or attenuate certain frequencies to compensate for shortcomings in an original recording or just enhance the overall sound. Digitrav also provides other sound-altering filters, such as flanging and chorusing, but these are of limited practical use.

An important tool for sound editing is a scrubbing feature, which lets you slowly play a recording backward and forward in order to locate an exact spot. One of Digitrav's biggest shortcomings is its lack of true scrubbing; it can play a recording at half speed, but not backward. In Deck II, you can scrub a recording backward or forward, and at continuously variable speeds.

Both Digitrav and Deck II allow you open QuickTime movies and add to and alter their sound tracks. Both also support a live-video window, which can display the video feed from a camcorder or video deck. Both programs can also work alongside a MIDI sequencer program such as Mark of the Unicorn's Performer or Opcode's Vision. Deck II's MIDI support goes well beyond Digitrav's, however: Deck II can import and play standard MIDI files, while Digitrav can only synchronize its audio playback with that of a MIDI sequencer.

An AV to Enter
DigiTrav runs only on the 660AV and 840AV (and on NuBus-equipped Macs containing ARTA-compatible cards, such as Spectral Innovations' NuMedia card). Deck II also runs on Power Macs and on Macs with audio hardware such as Digidesign's AudioMedia II and Pro Tools systems. Deck II also works more smoothly with other audio tools, such as Digidesign's Sound Designer II software.

For professionals, Digitrav is a second-place finisher to Deck II. But many amateur audio buffs, schools, and home-studio musicians may not need Deck II's advanced features, and they will appreciate Digitrav's built-in equalizer and its support for lower sound-sampling rates. Digitrav also costs less, retailing for $349 compared with Deck II's $399.

The Last Word
Audio- or video-production professionals will want Deck II's larger array of features. But if you're an amateur musician or a multimedia producer with more modest sound-recording needs—and if you have a Quadra 660AV or 840AV—consider Digitrav. What it lacks in features it makes up for in simplicity and a lower price tag. At press time, Opcode Systems announced that it had acquired distribution rights to Digitrav, although Alaska Software will continue to develop new versions. A native Power Mac version of Digitrav is scheduled to ship in the first quarter of 1995.
I want a full-featured, proven market leader which can handle any job: 2D, 3D, cost estimation and client presentations.

I want a program that runs on both the 68K-based Macintosh and the Power Macintosh. At no extra charge!

I want a CAD program that is tailored to my needs, with specialized tools for architecture, mechanical engineering and design.

I want an expandable CAD program which can be customized for specific solutions easily and inexpensively.

I don't want to spend a lot for training or experience an enormous learning curve.

I want an established company with constant R&D funding, so that my investment stays safe.

MiniCad 5 offers all of the above and more. The award-winning software has been hailed as the "features champion" by Macworld Magazine. Graphsoft is dedicated to aggressive investment in CAD R&D. Graphsoft customers stay more productive than their competitors because Graphsoft supports both the latest technology and evolving user needs. MiniCad has long been the price/performance leader in Macintosh CAD. Don't be scared away from MiniCad by VARS who want you to buy high-priced CAD products that are hard to learn and only do a few things well. The VARS won't tell you that MiniCad ships with a multi-media training CD, or that you receive 18 months of free technical support with Graphsoft products or upgrades. In short, MiniCad keeps more of your money in your pocket. Buy MiniCad 5 and save!

MiniCad 5 also includes: speed increases up to 100% over 68K-based Macintoshes, a Claris CAD conversion program including a $495 competitive upgrade price, a Claris CAD translator, and a helpful conversion guide. Translators for importing and exporting to the other major CAD products, an upcoming Windows version, multi-media training CD, 18 months of free technical support, and a no-hassles 45-day money-back guarantee through authorized dealers. Contact Graphsoft today for detailed literature. To order immediately, call MacWarehouse, MacConnection, or your local dealer.

Mechanical, Architectural, & Advanced Design Modules Included.

Also from... Graphsoft Inc.

Azimuth
The ultimate map creation tool, including nine cartographic projections and more! Used by US News & World Report. 4 mice

Blueprint
Full-featured 2D drafting. Experience ease of use, high precision and an affordable price. 4 mice. MacWorld Editor's Choice!

10270 Old Columbia Road, Columbia Maryland 21046 Ph:410-290-5114 Fax: 410-290-8050

Power Macintosh is a trademark of Apple Computer Inc. MiniCad, Blueprint, and Azimuth are trademarks of Graphsoft Inc. Claris CAD is a trademark of Claris Corp.
Two MIDI Sequencing Programs

Music Software

**Performer 5.02**

**PROS:** Colorful, redesigned interface; improved sheet-music view; lucid manual. **CONS:** Copy protected; complicated setup; heavy hardware requirements. **COMPANY:** Mark of the Unicorn (617/576-2760). **LIST PRICE:** $495.

**Vision 2.08**

**PROS:** Colorful, redesigned interface; endless-count-off feature; useful triggerable subsequences. **CONS:** Copy protected; complicated setup; heavy hardware requirements. **COMPANY:** Opcode Systems (415/856-3333). **LIST PRICE:** $495.

**T**HINK OF THE FAMOUS SOFTWARE rivalries, like QuarkXPress/PageMaker or FreeHand/Illustrator. With each successive upgrade, these programs become more complex, require more horsepower—and grow more alike. That's precisely the case with the two leading MIDI recording programs, Performer and Vision.

Their latest upgrades require 5MB of memory and a fast Mac (in addition to a synthesizer—or several—and a MIDI interface box). Each program offers a new or beefed-up editable sheet-music view. Both programs now have a groove-quantize feature that applies any of a folderful of rhythm feels to your music (great for rap or driving-rock pieces, but of little value in other genres). Most significantly, Performer and Vision now offer almost identical menu and window layouts. There are tape-recorder-style transport controls in a floating upper window and, below the window, a list of tracks, complete with a measure-by-measure map of the composition.

Both feature lists have grown over the years. Both programs can lock onto your piece. Both provide help mechanisms that are like balloon help but illustrated, and they work even in System 6. With either Performer or Vision, you can record music without the metronome, then tap in the beats afterward; the program generates the appropriate tempo and bar-line data automatically.

But not all of the similarities are glad tidings. As before, both programs are copy protected. If you want to avoid reinserting the key disk once per start-up, you must install the program on a specific hard disk—and remember to uninstall it before running a disk optimizer.

Worse, both programs now force you to use their own, mutually incompatible system extensions—OMS for Vision, FreeMIDI for Performer—plus an accompanying program that retrieves (instrument) names from your synthesizers. This software web is designed to accommodate the professional's multiinterface, multisynthesizer MIDI studio. For nonprofessionals, the extensions make installing and hooking up software an unforgettable, evening-long headache.

If your installation struggle succeeds, you gain one useful new feature. Whenever you record music into a track, you can choose an instrument sound for it from a handy pop-up list. You're spared the usual hassle of scrambling from your Mac to your synthesizers to make their setups match.

**Something Borrowed,**

**Something Purple**

Vision's new design parallels Performer's. In the case of the new track-overview window, that's good news—it's far more intuitive than the previous segment-centric organization of your music. You can now (at last) rearrange tracks by dragging them. Tiny Performer-esque menus, containing commands unique to each track, now grace every title bar.

Vision, like Performer, now offers a standard-overwriting editing view. The manual's disclaimer "Vision is not a music notation application" hints at the disappointments to come: what you get is barely readable as sheet music. It suffices to help you find wrong notes and recognize chords, but it's certainly not useful enough to print out.

On the other hand, Performer now sports several features formerly found only in archival Vision. For the first time, the program makes use of color—in some places, good use, as when darker shades of purple indicate denser music in the measure overview.

But Performer's notation view is so improved it's almost a brand-new feature. With a single click of the mouse, the tracks of your choice appear as sheet music laid out on a page, complete with beaming and stemming. Thanks to a visual-only quantizing scheme, the notated music instantly becomes more readable than a literal transcription would be. However, even Performer is not a notation program; for example, there's no way to add repeats, articulation marks, or even slurs. But it's a glorious way to edit your recordings. And in a pinch, for simple music, you can use Performer's printouts as sheet music.

**Personality Split**

Despite their identical-looking spec sheets, Performer and Vision still have distinct personalities. The interiors of Performer's windows, part of the program's sleek, three-dimensional graphic design, are now light gray. Together with Performer's use of tiny type, text boxes, and check boxes, the tinted windows give the program a precise, heavy, almost Wagnerian feel.

Performer's piano-roll editing view is still superior to Vision's; only in Performer can you adjust the height of the strip chart (where you can paint in values for tempo, pitch bend, key velocity, and so on, as a graph over time). Performer also offers the profoundly useful...
COREL GALLERY
Add flair to your word processing and presentations

10,000 CLIPART IMAGES MACINTOSH OR WINDOWS ON CD-ROM

$34.99*
1-800-222-2808
Part # 66461
Source Code IX30CT61
*ELIG funds plus applicable taxes.

Also found as clipart images in CorelDRAW 4 and Corel Ventura 4.2

Circle 78 on readers service card
Brainstorm Accelerator for the Macintosh SE

**Upgrade Kit**

**PROS:** Increases SE performance by two to three times; easy to install, stable. **CONS:** Costly relative to resale value of SE; precludes other slot-based expansion; limited to built-in video and 4MB of RAM. **COMPANY:** Brainstorm Products (415/988-2900). **LIST PRICE:** $199; for education market $129; 25 units or more $99 each; installation kit $19.

**MW**

Sometimes, the less said about a product, the better. In the case of the Brainstorm Accelerator for the Macintosh SE, that’s praise. This upgrade does precisely what it should: make your SE faster and otherwise remain invisible. In this day of the Power Mac, accelerating an SE might seem absurd. Yet many SEs still lead serviceable lives in schools, homes, nonprofit organizations, and small offices, for which acceleration may be more practical than replacement.

The Brainstorm consists of an accelerator card that fits into the SE’s expansion slot, and a Brainstorm Bus Accelerator (BBA) chip. The card contains a 16MHz 68000 processor—twice the speed of the SE’s stock 8MHz 68000. The unique part of the Brainstorm package is the BBA. It replaces the SE’s 8MHz bus controller with a proprietary 16MHz chip, increasing the speed with which data shuttles between memory and SCSI peripherals (such as hard drives) on one side, and the processor on the other. The result is an SE that approaches a Classic II in overall performance.

Installation is only slightly more complex than with card-only accelerators. A novice can do it in 15 minutes. You remove the logic board from the SE and use a chip extractor to remove the SE’s bus controller. Then just snap in the BBA, plug in the card, and reassemble the SE.

The installation kit comes with all you need to install the Brainstorm, including a well-written and well-illustrated manual. The user’s guide for the Brainstorm is also clear and informative, with tips on troubleshooting and generally getting the most from your SE. All the code necessary to support the Brainstorm is in firmware on the card, which you can update via floppy disk. That’s it: no extensions, no patches. Clean.

**Performance**

The company claims that the Brainstorm not only more than doubles the SE’s speed but outperforms competitive 68030-based accelerators. Benchmarks and Macworld Lab’s real-world tests confirm that these are no idle boasts.

I had no compatibility problems—something I can’t say about most 68030-based SE accelerators I’ve tested. Unlike the Brainstorm, some of those units support a floating-point unit (FPU), an external monitor, and/or up to 16MB of RAM. Then again, they’re more expensive—and, tellingly, most of the companies that made them are now out of business.

Brainstorm’s $199 price isn’t much lower than the net cost of selling an SE and buying a used SE/30, a faster and more expandable Mac. Still, weighing the bulk discounts on the accelerator against the difficulties of buying used gear in quantity, the Brainstorm is a winner for those who have a large investment in SEs.

**The Last Word**

Even with a Brainstorm, your SE will never be a Power Mac, or even a IIx. But if you’re happy with your trusty SE save for the speed, and your budget won’t buy a new Mac, you couldn’t do better than the Brainstorm.—PETER M STOLLER

---

**Reviews**

Solo button, which lets you hear one track clearly while all others play at half volume. Performer’s tape-recorder metaphor is arguably easier to learn than Vision’s, too. This head start is amplified by Performer’s well-written manual—but is diminished by the continuous busy signal of Mark of the Unicorn’s technical-support line.

Vision, whose interface feels bright and airy, offers some exclusive goodies of its own. Among them is the indispensable scrubbing feature; you hear the music as you drag across it. Another plus is the eternal-count-off feature: when you want to record, Vision clicks its metronome indefinitively and begins recording only when you start playing. You don’t have to come in after a specified number of beats. And only Vision has play quantization, which cleans up your recorded rhythmic inaccuracies during playback, but preserves the original recorded data.

Finally, Vision remains the superior control center for live musical performance. You can adjust the tempo by tapping a computer key as the music plays. And Vision’s subsequence feature allows you to compose an infinite number of musical building blocks within a single Vision file. Each subsequence plays when you press a letter key on your Macintosh keyboard. You can easily experiment with different arrangements of a song’s sections, simply by typing, say, AABAC. Or, in live performance, you can play a vamp (a repeated introductory phrase) over and over again by typing AAAA... until the performer is ready to begin—and only then trigger the first verse (by typing a B).

**The Last Word**

Except for their annoying system extensions, both programs easily merit buying the upgrade; version 5 is the most worthwhile Performer overhaul in years, and Vision’s, too. This head start is amplified by Performer’s well-written manual—but is diminished by the continuous busy signal of Mark of the Unicorn’s technical-support line.

---

**MACWORLD**

March 1995 67
Introducing Delrina Fax PRO™ for Macintosh. You’ll wonder how you ever faxed without it.

Now you can use your Mac to send, receive and manage faxes - thanks to new Delrina Fax PRO for Macintosh. With Delrina Fax, sending faxes is as easy as printing a document - and you can fax directly from any Mac application. Simply select Delrina Fax in your File menu, type in a name and number - or choose a name from the built-in address book - then click on the “Send” icon and your fax is quickly on its way.

Don’t try this with a fax machine.

Delrina Fax also delivers stunning 16-shade gray-scale sharpness and clarity on-screen, as well as to any fax machine or printer. And, since it works in the background, you can send and receive faxes without leaving the application you’re working in and designate faxes to print automatically on receipt.

Delrina Fax automatically keeps a detailed log of all the faxes you send and receive, and it has built-in Optical Character Recognition (OCR) that lets you easily convert your faxes with text into documents that are ready to be edited. There’s even a custom scheduling feature that allows you to schedule long distance faxes when phone rates are lower.

Support that can’t be beat.

Delrina Fax supports all fax modems for the Mac, as well as all Powerbook Express™ modems and AV GeoPort Telecom™ adapters. And installation is virtually automatic.

With over 4 million fax products sold worldwide, and industry-acclaimed tech support, Delrina is the leader in the fax software market. To put this experience to work for you, call the number below and order Delrina Fax PRO for Macintosh today. Once you do, you’ll wonder how you ever faxed without it.

Delrina and Delrina Fax PRO for Macintosh are trademarks of Delrina (Canada) Corporation. Macintosh is a registered trademark of Apple Computer, Inc. All other product names are trademarks of their respective owners. © 1993-1994 Delrina (Canada) Corporation. All rights reserved.
**Two Translators**

**Foreign-Language Translators**

**French Assistant for Macintosh 1.0**

**PROS:** Easy to use; has interactive option; opens most files; prints out source text sentence-by-sentence with translated text; inexpensive; decent documentation. **CONS:** Slow; limited lexicons. **COMPANY:** Globalink (703/273-5600). **LIST PRICE:** $59.95.

**Power Translator for Macintosh 2.0**

**PROS:** Zippily produces first-draft translations; easy to use; over 250,000 entries in dictionaries; allows multiple-word entries. **CONS:** Memory hog; no interactive option; opens only ASCII files; cannot print translated text juxtaposed to source text. **COMPANY:** Globalink (703/273-5600). **LIST PRICE:** $249.

EVEN WITH BRILLIANT PROGRAMMING and extensive lexicons, language-translation software cannot equal the skill of a person who is multilingually fluent. Language is too complex, subtle, and occasionally illogical for that. What software can do, at best, is accelerate producing first-draft translations that need minimal editing; at worst, it bogs down that process.

**Power Translator 2.0 (PT)** addresses general translation needs of students and professionals. In a recent merger with MicroTec Software, Globalink acquired the low-end Language Assistant series, targeted at casual users with limited requirements. The company's high-end Power Translator Professional ($595; not reviewed here) offers multiuser network access to the translating engine and optional add-on dictionaries covering subjects such as business, finance, and computers. Language Assistant is available for French, Spanish, German, and Italian; Power Translator, for French, Spanish, and German. This review is based on French Assistant (FA) and the French versions of PT.

**Lexical Logistcs**

FA's bilingual dictionaries each contain about 100,000 single-word entries; PT's lexicons boast more than 250,000 entries, including phrases. Both programs let you alter dictionaries; any additions or changes you make are saved to a separate file that the program seeks first when it runs a translation.

When adding entries, you must enter certain lexicographical information, such as part of speech, case, and gender. For example, when adding an adjective in FA, you choose from a list of adjectives, each of which models a unique inflection rule—the feminine form of *joli* [pretty] is *jolie*, for example. (FA omits the less-common model that *fruits* [fruit] follows, becoming *fräiti* in the feminine.)

FA's inflection tool provides conjugations for over 3000 verbs in all but the rarest tenses, and FA's manual includes a helpful chapter on English grammar (lacking in PT's generally weak manual). But PT has perhaps the most useful translation tool: a semantic-unit dictionary, which allows you to add definitions for idiomatic phrases.

**Automatic Translating**

To translate a document in FA, you choose New English Project (English to French) or New French Project (French to English) under the File menu. PT, on the other hand, is really two applications—English-French and French-English—that operate from a common set of dictionaries. To begin translating you choose one or the other; because each application requires such an enormous amount of operating-system resources and RAM, you'll crash if you try opening both at once.

When you begin a translation in PT, an oversize Untitled document appears (needlessly occupying most of the width of a 17-inch monitor). You open the desired file or paste text in, select the text you want to translate, and choose the Translate command located, oddly, in the Special menu. PT then displays the source text and the translated text side by side in two smaller windows.

PT shows the source text above the translated text in two halves of one window. You can type in the window, but it's much faster to import files. PT reads HTML, ClarisWorks, Microsoft Word, and WordPerfect files; PT opens only ASCII files (to open a Word file, you must save it as text-only), though Globalink plans to rectify this. In either program you can paste in text via the Clipboard. Both let you format and print out translations, but FA neatly lets you print out source and translated text juxtaposed and numbered, sentence by sentence.

FA can translate a whole document at once or one sentence at a time. In my tests, both of these options yielded nearly incomprehensible translations, with French-to-English results only slightly better than the reverse. The interactive mode, whereby FA pauses on words that have multiple meanings and you select the best one, is more accurate but dreadfully slow. And alas, FA's dictionaries often lack the desired definition.

PT, in contrast, can only translate an entire document at once, though you can pause a translation midstream and update the window. Puzzlingly, PT also features English audio output, which allows you to hear your English translation in electronically eerie enunciations. (Globalink plans to include both interactivity and foreign-language voice output in a future release of PT.)

**Requirements and Results**

Although FA's documentation calls for a 68030 Mac with 4MB of RAM and System 7.0, Globalink's tech support con-

**Interactive Translating**

French Assistant's slow but more accurate interactive option lets you choose the correct definition for words that have multiple meanings.

**MACWORLD** March 1995 69
Before you buy a color printer, you'd better double-check your facts.

<table>
<thead>
<tr>
<th>Standard Features</th>
<th>Tektronix Phaser 440/480</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Technology</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Adobe PostScript Level 2</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>33 MHz RISC Processor</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>135 Adobe Type 1 Fonts</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Auto Trim</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

Action: (Automatically cuts paper/OHP)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Hard Disk</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>(No additional RAM needed)</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Color Full-Bleed Printing</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>(Right out of the box!)</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry-Standard Color Management</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DCS File Support</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

Do the research and you'll discover that the Professional ColorPoint 2 is twice the printer of any of its competitors. It has all the features you want standard, so you can print full-bleed, 4-color pages right out of the box. Plus, with Selko-Instruments unique Dual Technology, it's like getting two printers for the price of one.

Dual Technology means the Professional ColorPoint 2 can output both thermal wax transfer and dye sublimation prints. Use the thermal wax transfer mode to output inexpensive ad, collateral, and packaging comps, or rough drafts of brochures and presentations. Then switch to dye sublimation mode when you're ready to print high-quality, photorealistic final output. So instead of being tied to the higher cost of materials with a dye sub-only printer, you'll save thousands of dollars on supplies by using thermal wax transfer during your proofing stages. Check it out for yourself. For free sample output and a brochure on how the Professional ColorPoint 2's Dual Technology can save you up to forty thousand dollars a year in output costs, or for a free demonstration, call 800-888-0817.

Circle 99 on reader service card
StuffIt Deluxe 3.5

Compression Utility

**Pros:** Excellent selection of compression tools; good efficiency and speed. **Cons:** Space Saver utility requires a large amount of RAM.

**Company:** Aladdin Systems (408/761-6200)

**List Price:** $129.95

**Version 3.5 of StuffIt Deluxe brings Power Macintosh acceleration, easier ways to compress files, and tighter compression.**

The StuffIt Deluxe application allows you to create or decompress archives. The StuffIt format is an industry standard and is widely used by online services. StuffIt Deluxe is compatible with many other programs. The program offers extensive AppleScript support and comes with sample scripts for AppleScript and UserLand Software's Frontier. It is both scriptable and recordable, and the manual details the available scripting commands. The package also includes Stuff and Unstuff extensions for CE Software's QuickKeys and for Claris's XTND file-conversion scheme, and you get a stack with XCMDs for HyperCard. The company claims that the package is PowerTalk-compatible, but I did not test this feature.

The revamped StuffIt SpaceSaver is a control panel that transparently compresses files and folders on your hard disk. The compressed items keep their original icons, and you work with them as if you would if they were not compressed. SpaceSaver can compress automatically when your computer is idle or upon receiving a command from Magic Menu, located in the Finder. (Magic Menu also creates and decompresses StuffIt archives.) SpaceSaver makes compression and expansion easy in other ways, too. You can set SpaceSaver so it triggers when you change the name of a file. To turn a file into a StuffIt archive and delete the original file, you simply add .sit to the end of the file name. SpaceSaver occupies approximately 475K of memory, which can be inconvenient.

The package is now accelerated for Power Macs, and the conversion to native mode boosts StuffIt Deluxe's speed significantly. On average, the program compressed twice as quickly using a PowerPC processor compared with a 68040. Compression efficiency was good; a 384K folder of applications and documents squashed down to only 125K.

Aladdin includes several utilities that it offers as shareware or freeware. StuffIt Expander is a drag-and-drop application that decompresses StuffIt archives as well as several other types of compressed archives. DropStuff with Expander Enhancer lets you create StuffIt archives by dragging files or folders onto the DropStuff icon. DropCompress works the same way but compresses using the SpaceSaver method. DropConvert converts archives from other compatible compression utilities to StuffIt Deluxe format; it also converts earlier versions of StuffIt-compressed files to the current version. Owners of Aladdin's commercial packages are automatically registered for the included shareware and need not send in a separate shareware fee.

StuffIt Deluxe is the best compression package for net surfers because of its built-in translators for BINARY4; Compact Pro; the DOS ARC and ZIP formats; and the Unix bzip2/zbzip2, tar, uuencode/decode, and Unix Compress formats. (StuffIt Expander can also handle these formats, except tar and bzip2/zbzip2.) A few notable formats are beyond StuffIt Deluxe's reach, however: none of its utilities can expand files compressed with competing products from Symantec (DiskDoubler) or Now Software (Now Compress and Now QuickFiler).

The Last Word

StuffIt Deluxe gives you a better range of compression tools than does Norton DiskDoubler Pro and costs only a little more. Aladdin's drag-and-drop applications, Magic Menu, and file translators make it easy to integrate compression into your routine. If you are looking for a compression solution, you should look at StuffIt Deluxe.—**Tom Negriano**

**Crunching Compared**

<table>
<thead>
<tr>
<th></th>
<th>Compressed Size (Original folder size 38440)</th>
<th>Compression Time (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power Macintosh Upgrade Card</td>
<td>25MHz 68040 (Centris 650)</td>
</tr>
<tr>
<td>StuffIt Deluxe</td>
<td>120K</td>
<td>125K</td>
</tr>
<tr>
<td>StuffIt SpaceSaver</td>
<td>100K</td>
<td>110K</td>
</tr>
<tr>
<td>Norton DiskDoubler Pro (AD1)</td>
<td>1208K</td>
<td>1315</td>
</tr>
<tr>
<td>Norton DiskDoubler Pro (AD3)</td>
<td>2104K</td>
<td>1315</td>
</tr>
<tr>
<td>Now QuickFiler (Faster)</td>
<td>100K</td>
<td>84150</td>
</tr>
<tr>
<td>Now QuickFiler (Smaller)</td>
<td>1256K</td>
<td>64188</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67130</td>
</tr>
</tbody>
</table>
Imagine this: Once every 15 seconds someone in the USA buys a new CTX color monitor.

That's a million last year alone - more even than sold under big names like NEC, Sony, IBM and Mitsubishi*.

And that's before the international experts started raving about our bigger, new, high-performance 1765GM and 1785GM 17-inch "green" monitors:

"Best 17-in. monitor" (Monthly PC Magazine, Japan).
"Best overall performance" (Soft & Micro Magazine, France).
"One of the best monitors...bright, sharp display and excellent colors" (Windows Magazine, Sept. '94). "Symbol of Excellence Award" (CETDC/ Business Week Asia, Taiwan).
"Best Display Products" (Computex/Byte, Taiwan).

Not only does the larger, flat-square tube give you more display area for Windows, an ultra-fine .26mm dot pitch and flicker-free 1280 x 1024 at 75Hz resolution bring your graphics to life as never before.

Users thrive on the ergonomic design; anti-glare, anti-reflection, anti-static screens; and its front-mounted, full-featured digital touch-panel.

These new low-radiation (MPR II-compliant) "green" monitors use only five watts of power when "on" but inactive. That's six times better than even the US EPA's own Energy Star guidelines.

So how did we get so big so fast? Simply by giving you more for less. For more information, call your nearest CTX office.
QuickCam

**Digital Video Camera**

**PROS:** Tiny; fun to use; inexpensive. **CONS:** Needs better frame rate for larger window sizes. **COMPANY:** Connectix Corporation (415/571-5100). **LIST PRICE:** $99.95.

Connectix Corporation, already known for its strong utility software, has introduced another winner with its first hardware product, the QuickCam. The QuickCam is a 4-bit, gray-scale (16 shades) video camera that's slightly smaller than a billiard ball. (Connectix expects to ship a color version in early 1995.) Although not a serious contender as a videoconferencing camera, for as little as $99 (street price) the QuickCam lets users experiment with video input for making QuickTime movies or capturing still video images.

The QuickCam weighs a mere 3.3 ounces and tethers to your Mac with a 5-foot serial cable that also supplies power to the camera (less than 2000 milliamps of current). Inside the QuickCam is a fixed-focus lens (18 inches to infinity at f1.9), a single CCD (charge-coupled device), and a microphone.

The QuickCam is the first digital-to-digital video camera. It captures video as digital data and sends it directly to your Mac via the modem or printer port. As a result, it needs no additional hardware to digitize video. This represents a major advantage over other cameras that require some sort of analog-to-digital conversion, usually done through a card such as the VideoSpigot or through an AV Mac.

Unfortunately, the QuickCam's performance is constrained by the bandwidth of the serial port. The maximum window size the QuickCam can capture at 15 frames per second (fps) is small—only 120 by 160 pixels. You can get a 320-by-240-pixel movie, but your frame rate drops to 7 or 8 fps at best. On an 040 Mac you can still achieve a decent 15 fps on a 120-by-160-pixel window with sound, but only if the sound is captured through the Mac's microphone jack and not through the QuickCam. Your frame rate will drop slightly if you capture sound through the QuickCam's internal microphone.

One caveat: the 500-series PowerBooks do not generate enough power for the QuickCam to produce an image, and users of those machines will need to purchase a flow-through ADB cable ($9.95), which supplies additional power. However, then PowerBook users can run the QuickCam off their machines, rendering it a portable digital camera that can be used anywhere. Imagine creating your own in-flight movie!

The QuickCam comes with a basic, easy-to-use QuickTime recording application, called QuickMovie. With QuickMovie you can record, edit, and assemble them into a QuickTime movie just by clicking the mouse button. With Time Lapse, you can record single frames at specified intervals—a nifty feature if you'd like to monitor the area around your desk.

The Last Word

The QuickCam isn't in the same league as the more-serious digital cameras, such as VideoLabs' FlexCam (see Reviews, December 1994): the limited bandwidth of its serial connection and small video-window size make it unsuitable for videoconferencing. However, as a low-cost, gray-scale camera, it's great. It's tiny, fun, easy to use, and incredibly inexpensive, and you can even run it from your PowerBook.—Danny Lee

Bookends Pro 3.1

**Reference-Creation Tool**

**PROS:** Speedy performance; handy formatting, search, and automatic reference-creation features. **CONS:** Lacks online help; minor quirks. **COMPANY:** Westing Software (415/435-9343). **LIST PRICE:** $129.

Bookends Pro is a comprehensive database program that catalogs and stores all of your reference material—actual quotes as well as citations. You can enter your references via the keyboard directly into the program's data entry window, or import them from other sources, such as a tab-delimited text file, or an online technical database such as Compact Cambridge or the Illinois Bibliographic Information Service. The program can also search a word processing document for citations and bring them into its database.

In addition to maintaining a database of all your reference information, Bookends Pro offers a rich set of search tools, so you can quickly and easily locate the references you need and copy them into your document.

The program's interface is very much like a HyperCard stack, complete with a handlike pointer. Menu-bar commands, buttons, and pull-down menus are all clearly labeled as to function, but there is no online help to guide you through rough spots, not even balloon help. To get up to speed with Bookends Pro, you should keep the manual on hand, and follow the tutorial chapter carefully before you build your own reference database.

Once you create your database, Bookends Pro makes easy work out of incorporating your references into your manuscript. The search tool can look up a reference based on categories such as author name, source, or date of a reference, as well as text within an abstract that you've entered or imported, or from a list of keywords that you can establish for each entry. Once you locate the reference...

MACWORLD March 1995 73
Introducing The New SQ5200C Drive. The Biggest Reason Yet To Join Our 5.25" Family.

The SQ5200C delivers big in data-intensive applications such as desktop publishing and multimedia, with 200MB of storage, hard drive performance, and full read/write compatibility with all SyQuest 44MB and 88MB cartridges. Plus all the advantages of removability, like unlimited capacity, off-line storage, system sharing, fast backup, and unbeatable data security and transportability.

If you're a SyQuest user, it's the best way to migrate to the next level of storage. If you're looking to SyQuest for the first time, it's the biggest reason yet to join the world standard. To find out how to get more mileage out of your demanding applications, call 1-800-245-2278.

Sales of more than 6 million cartridges and 1 million drives have made SyQuest the world standard in removable storage.
you want to use, you can copy the citation in your database, then paste it into your word processing document.

Bookends Pro supports most popular word processing formats, so it's easy to bring formatted text into your document. You can choose from over 90 standard reference styles or create one of your own. In addition to creating fully formatted footnotes and endnotes, the program can build a full bibliography based on the entries you select. A hot-links feature lets you quickly switch to Bookends Pro from a word processing program (if it's open), by pressing a predefined keyboard command and clicking on a "hot spot" corner you establish on your Mac's screen. The shortcut doesn't work for the return trip to your word processor, however.

The program is a little slow to get going if you have a large font library (it took about 50 seconds to launch on my Power Mac 8100/80), but once under way it runs speedily and reliably. One notable quirk: When you close your database, the program tells you if you need to compact it. You can also compact the database via the File menu. Also, the program doesn't highlight search "hits" within a database entry. This is not a problem if your search string contains just titles, author names, or keywords, but if your match is part of a long text abstract, you may waste time reading through the material to find out what the search string located.

If you run into trouble, technical support for Bookends Pro is a toll call (the manual gives you a toll-free number, but it refers you to the regular phone number for support). The technical support staff is courteous, patient, and very knowledgeable about the nooks and crannies of the program.

The Last Word

Bookends Pro can do wonders to bring order to your reference material. Although you have to keep the manual handy till you get the hang of it, it is a useful tool that all researchers and writers will appreciate.—Gene Steinberg

Security Programs

Security Software

DiskGuard 1.0.1;
DiskGuard Remote

PROS: Rock-solid hard drive protection; flexible installation options. CONS: Minor bugs; does not work on drives compressed with driver-level compression software. COMPANY: ASD Software (909/624-2594). LIST PRICE: Single user $129; remote five-pack $449; ten-pack $799.

DiskGuard AND DiskGuard Remote from ASD Software are flexible tools that help you protect your valuable data from prying eyes and theft. The programs work at the disk driver level (so you cannot defeat the programs by using another start-up drive or floppy disk), and you can set them to protect either an entire hard drive or individual partitions on a drive.

DiskGuard functions are controlled through a control panel. You can establish passwords and privileges on two levels. The system administrator uses the master password. A separate user password customizes the protected disk for use by anyone else. You can restrict user access to certain days of the week, or to a specific time frame on those days. You can also set a password to a given number of days, after which it becomes invalid and the system administrator must reestablish it. And you can prevent users from creating new passwords.

Other DiskGuard features include a screen-lock capability, which puts up a screen saver after a specified interval of inactivity. Once the screen saver activates, users need to type a password to wake up the computer. Additional security options prevent users from saving files to the protected disk and prohibit floppy disk insertion. These features make DiskGuard especially useful if a Mac is used in a classroom or is on public display (for example, at a store or a trade show).

DiskGuard is not just a business-related tool. If you have children around the home who want to use your Mac, you can exert your parental rights by giving them a user password and configuring DiskGuard to make your Mac available to them only during the days and times you want. I've taught my nine-year-old son to use his password to gain access to his dad's computer at the agreed-upon hours so he can play his favorite games.

DiskGuard is serialized for use on a single Mac. If you want to install DiskGuard on more than one Mac, you'll need to purchase DiskGuard Remote.

DiskGuard Remote

DiskGuard Remote, which comes in five- and ten-user packs, extends the same levels of disk protection across your Mac network. The network version of the program includes two installer files: one for the network administrator, the other for users. The network administrator can establish separate levels of user access to individual Macs on a remote basis. Updates to DiskGuard software can also be done at the network level.

DiskGuard Remote adds a Set Clock feature that allows you to synchronize the clocks of all networked Macs. Since Mac clocks always seem to be a few seconds off, administrators need to run this procedure periodically; clocks do not adjust automatically.

The versions of DiskGuard and DiskGuard Remote that I tested do not support the IDE drives used in some entry-level Macs, such as the Quadra or Performa 630 series and the PowerBook 150. (An update, due to be released by the time this review is printed, should include support for these drives. ASD Software also promises to offer individual folder-level protection in a future release.)

I was able to isolate one direct conflict with the DiskGuard control panel. A popular freeware utility called Appli-Windows (which allows you to hide application windows automatically when switching to another application) stopped working when I installed the DiskGuard control panel. I was able to resolve this conflict by changing the start-up loading order of the two extensions (so DiskGuard loaded first).

The Last Word

I found DiskGuard and DiskGuard Remote to be rock-solid, flexible disk protection tools. If your Mac or Macs are accessible to others to whom you don't want to expose your valuable data, you should seriously consider these products.—Gene Steinberg
When Life Moves Fast... We Move Faster
UMAX designed the new Vista-S6 to give you the speed you need. At a mere 9 seconds for a black and white image, the Vista-S6 scans so quickly it leaves the competition idling on the runway. Whether your deadline involves managing documents, publishing a newsletter or editing images, Vista-S6 gets the job done and gets it done fast.

Save Time and Money With a list price of under $1000", the Vista-S6 will give you the performance you want at a price you can handle. The Vista's cold cathode lamp and sealed optics design ensure long life and low maintenance scanning. So, go ahead — bring on your biggest project, your most urgent deadline, and leave the scanning to us.

It's Easy The VistaScan user interface is so easy to install and use that you will be up and scanning in no time. VistaScan takes desktop scanning to new heights by automating user controls to a single-step process. With features like AutoDensity to determine highlight and shadow values, Descreen to remove noise patterns from printed material and QualityScan for optimal image quality, it's no wonder VistaScan is considered to be the most intuitive scanner interface available.

Save Money Fast! Call 1-800-232-UMAX (8629) for more information on the new Vista-S6.

MORE BANG FOR YOUR BUCK!
FREE WITH EVERY VISTA-S6
PHOTOSHOP™ 3.0
FULL VERSION and
Kat's Power Tools 5.1
PHOTOSHOP™ 3.0/LE
(BUNDLES VERSION) and
OmniPage® Direct

Vroom.
Panelight ZX

**LCD Panel**

**PROS:** Excellent color quality; relatively inexpensive.

**CONS:** Clarity could be better.

**COMPANY:** Panelight Display Systems

**LIST PRICE:** $249.95

---

**Presenters on the Go Can Choose** from a variety of technologies and products. Using presentation hardware can be complicated and stressful if it malfunctions or you forget a crucial adapter. But if the equipment is reliable and easy to set up, a great presentation is almost guaranteed.

The Panelight ZX is an active matrix LCD panel intended for use with an overhead projector in presentations. Setup is simple, and the ZX requires no software; it plugs directly into a Mac's video port using a VGA-to-Mac adapter. The ZX's 8.4-inch diagonal screen is appropriate for smaller groups, if you need to present to more people, consider a panel with a 10.4-inch diagonal screen—it produces a larger image.

Colors on the ZX are clear and bright. The panel I tested displayed flesh tones, bright colors, and text accurately. But a panel's image quality is inevitably affected by the projector providing the illumination. Macworld Lab tests have shown that overhead projectors tend to be dimmest in the upper left-hand corner of the image. This often means that menu bars are difficult to read, and this was the case with the ZX. A problem related more specifically to the ZX panel was the appearance of faint diagonal lines, which were more noticeable when I displayed a static single-color image.

The video-capable ZX displays NTSC, PAL, SECAM, or S-Video, and plugs directly into a video source. Video displayed on the device from a laser disc player looks smooth and flicker-free. If you don't need this functionality right away, you can buy a data-only version from Panelight for $700 less and add the video capability later.

The lightweight panel can display a maximum of 1.4 million colors, but the actual number of colors it will display depends on the number of colors your Mac can project, which in turn varies if you've added VRAM or a graphics accelerator card.

A panel displaying a washed-out or too-bright image may simply need adjustment, which you can make on the ZX through the included remote control. The small, pleasantly uncomplicated remote works well.

The ZX lacks the built-in speakers that some other panels offer, but in the panels I have tested, the speakers are often of mediocre quality, so I didn't miss their absence. If you want to play high-quality audio during your presentation, bringing your own speakers is your best bet.

**The Last Word** Panelight's excellent, toll-free technical support makes up for the anemic five-page manual. Manufactured for Panelight by nView Corporation (which won an Editors' Choice award for its Z115 in Macworld's January 1995 article on LCD hardware, "Portable Presenters"), the ZX offers vivid images at a comparatively low price. It's a great choice for those peripheral-presenters.—Joanna Pearlstein

---

ACT 2.0

**Contact Manager**

**PROS:** Customizable contact fields; maintains contact history; integrated word processor.

**CONS:** Fixed-size calendar windows; scheduling functions more limited than some calendar programs.

**COMPANY:** Symantec Corporation

**LIST PRICE:** $249.95

---

**ACT Is a Database Program Designed** especially for people who need to track information about their business contacts. With over 70 contact fields to choose from, ACT can handle just about any type of personal data you can throw at it.

You can relabel or hide any field in ACT's detail view, but you can't customize the layout or display font. To help avoid data entry errors, you can define sets of alternative values called Pick Lists; as soon as you've typed enough characters to match an item from a list, ACT enters that item into the field. Unfortunately, you can't tell ACT to add items to a Pick List automatically when you type something it doesn't recognize, such as a new city or state.

ACT provides a suite of functions to help you initiate and track contact-related events. For example, it can dial a phone number for you, time the call, and mark it as attempted or completed. ACT records phone calls in a contact's history file along with meetings and to-do items, so it's easy to check the last time you called a given person. You can compile a list of frequently called numbers for rapid access, but unlike Now Contact's QuickContact, ACT does not let you dial numbers from the list while you're working in another application.

ACT lets you display or print detailed reports using its built-in word processor. While not nearly as comprehensive as dedicated programs like Microsoft Word, ACT's word processor does offer basic text formatting—including a spelling checker—and also lets you create letters, fax cover sheets, and envelopes. (Users with PowerTalk-equipped Macs can send and receive E-mail messages without quitting ACT.)

Calendar events—phone calls, meetings, and to-dos—must be tied to specific contacts, and ACT's scheduling dialog is as quirky as ever. For example, the program blankly accepts "2/56/95" in the date field, interpreting it as "2/1/95." ACT does support recurring events, but not as flexibly as do some other schedulers; you can't, for instance, book a meeting for the third Thursday of every month. And while ACT does let you schedule activities without a specific start time, there are no undated to-do items. Finally, ACT doesn't support special events like holidays at all.

I was also disappointed that Symantec has not remedied one of the previous version's most annoying deficiencies: all three calendar windows remain at a fixed size, and you can't view more than one at a time.

**The Last Word** ACT 2.0's reference guide is alphabetical, an approach I find cumbersome. But the online help is thorough and well implemented, and Symantec provides 90 days of free tech support (but not toll-free). ACT's file-level compatibility with DOS and Windows and its complete contact management make it worth considering if you can live with its weak scheduling functions.—Franklin N. Tessler

---

**Limited View** The small squares in ACT's monthly-calendar window don't leave much room for event text.
Introducing the all new

VISION 3D

3D tools for the professional designer

Vision 3D puts the tools used by designers of award-winning images in your hands. With Vision 3D, you can add stunning 3D effects to your brochures, package designs, logos and illustrations.

Vision's familiar desktop tools give you the flexibility to model 3D images from within the program or from imported Illustrator™, Photoshop™, and FreeHand™ files. Within minutes, you can extrude objects, then quickly apply sophisticated textures and dramatic lighting for amazing 3D effects. Newly integrated features include advanced Boolean Modeling and Vision 3D's Power Extensions—all for the same low price.

Plus, Vision 3D offers animation capabilities for use in video and digital media.

Every Macintosh designer should have Vision 3D in their library of graphic design tools. Call today!

1-800-Strata3d

Circle 223 on reader service card
MacDraft 4.0

2-D CAD Software

**PROS:** Improved editing features; new database with automatic reporting to Excel.

**CONS:** A bit slow; some DXF glitches.

**COMPANY:** Innovative Data Design (510/680-6818). **LIST PRICE:** $449.

I nno vative Data Design (IDD) used to sell MacDraft and a fancier product, Dreams, until the company simplified things by offering everything in a single MacDraft package. Several optional libraries of general-purpose and special architectural symbols might suggest a product oriented toward architects, but most MacDraft users are technical illustrators or engineers.

MacDraft 4.0 has an easy-to-use database that associates spreadsheet-style reports with each drawing. MacDraft can automatically log the number of each kind of object into a report for an inventory or a bill of materials. You can edit and print reports in MacDraft or clone report information directly into Microsoft Excel spreadsheets, where calculations about price, sales tax, and so forth, can help you decide how to bid on a project. Watch in terror as changes in a drawing result in a direct cash loss on a fixed-bid project, or smirk with glee as you improve the bottom line by simplifying materials. Database capability like this is found in Graphsoft's MiniCraft but not in MacDraft's closest competitor, Blueprint 5.0, also from Graphsoft (see Reviews, Macworld, January 1995).

Blueprint, though, is generally faster than MacDraft. Rotating a whole 100K drawing on a Centris 610 took 3.7 seconds in Blueprint and 12.4 seconds in MacDraft; a horizontal flip took 3.2 seconds in Blueprint compared with 7.8 seconds in MacDraft. When I performed these operations on drawings translated from other sources, I found occasional problems reading AutoDesk DXF files into MacDraft. The package comes with a long text file that explains how to prepare drawings in other programs for optimal import into MacDraft, and it's required reading. Both programs are acceptably fast, especially on more-powerful computers. IDD expects to release a Power Mac version of MacDraft in January.

MacDraft finally features floating tool palettes and also provides tools that let you build new objects by joining existing objects or by cutting object sections. Tools for mirroring and duplicating objects, for offsetting objects to arcs and straight lines, and for exact positioning of objects across several layers fill out the tool set.

Resizing of objects is now under keyboard control—a great aid to precision in drawing special curves. Also, you can now call up symbol libraries (including ones you construct yourself) in their own little windows inside a drawing; this feature neatly automates much of the drudge labor in large, complex drawings. All in all, this is a feature-set upgrade that really warrants the jump from version 3.0 to version 4.0.

**The Last Word** The report links to Excel and the clean interface make MacDraft an excellent choice for use in mechanical engineering and construction. Besides, it's probably the easiest real CAD program to learn.—Charles Seiter

Statistica/Mac 4.1

Statistical Software

**PROS:** Exceptionally complete suite of tests; fast; good statistical graphics. **CONS:** Minor Mac interface problems. **COMPANY:** StatSoft (918/983-4149). **LIST PRICE:** $695.

S tatistica/Mac always had a large range of statistical tests; in version 4.1 it offers essentially the scope of the much larger and much more expensive SPSS suite. It's really convenient to get feature-rich time-series, reliability, survival, and cluster analyses all in the same package (Statistica provides different tests under the Stats menu, depending on the module you choose). These are extra-cost options for most other statistics packages—when they're available at all.

Statistica has always been fast, and now its performance is even faster, with genuinely dazzling speed on rotation of 3-D plots. The time-series module's Fourier-transform routine is essentially too fast to benchmark on typical data sets of only a few thousand points. It will be interesting to see what a native Power Mac version of this product (StatSoft says one should be available in early 1995) could do with big spectral-analysis data sets, since the speed of the 680X0 version is exhilarating. Besides this, both 2-D and 3-D plots are attractively designed and can accommodate huge sets of points; Statistics had no problem with large sets (25,000 pairs of points) imported from a Spyglass test suite.

Little parts of Statistica still suggest that the core code was developed first in a non-Mac, non-SANE environment. You can open a data set and click on the Close box, but closing the data set is still an option under File. Whatever the logic, that's not how Mac software should work. The default scaling of axes in graphs can still produce surprises (see "Spinning the Numbers"). These are not major problems, however, and StatSoft's customer support for Macintosh users has greatly improved.

Since SPSS has acquired SYSTAT, the only real competition for StatSoft in the Macintosh marketplace is the newly redesigned SPSS Mac package, which, according to the company, should be available in January. Other Macintosh statistics products are either oriented more toward exploratory data analysis or are primarily graphics-based programs that don't attempt to compete on a feature-by-feature basis. The Statistica/Mac package offers a whole list of traditional tests that will be familiar to most graduates of college statistics courses.

**The Last Word** I would rather use DataDesk or JMP for doing exploratory statistics and StatView for creating presentations, but at present Statistica/Mac 4.1 is the undisputed features-per-dollar champion in the Mac statistics market.—Charles Seiter

**Spinning the Numbers** Why the z-axis in this Statistica/Mac graph runs down to -20,000 in reporting a population is anyone's guess, but this plot can spin at lightning speed.
WHAT OUR ENGINEERS HAD IN MIND WHEN WORKING ON OUR NEWEST SCANNER.

Introducing the Agfa StudioScan II.

Push a button, make a scan. Is it really that simple? With the new Agfa StudioScan II, it can be.

That's because StudioScan II was designed for simple operation. Two levels of scanning software are built in — easy-to-use Agfa FotoSnap and comprehensive Agfa FotoLook. Plus, our exclusive, 42-page Introduction to Digital Scanning will guide you through the scanning process.

What's more, every StudioScan II comes complete with Agfa FotoTune color management software and our IT-8 reference target, along with Adobe PhotoShop "LE and OmniPage Direct" OCR software. All in a 400 x 800 ppi, 30-bit, one-pass scanner. And all for about $1,000.

So if you want an easy way to bring a scanner into your office, all it takes is the new StudioScan II. And your finger. Call 1-800-685-4271 to find out more information on Agfa's new scanners.
A.D.A.M. The Inside Story

Multimedia Anatomy Program

**PROS:** Stunning anatomic drawings and animations; entertaining; educational.

**CONS:** None. **COMPANY:** A.D.A.M. Software (404/980-0888). **LIST PRICE:** $79.95.

A.D.A.M. THE INSIDE STORY, A SPIN-OFF FROM THE VENDOR’S LINE OF ANATOMY software for health-care professionals, teaches about basic anatomy and physiology with a tantalizing mix of sound, graphics, and animation. It’s a multimedia CD-ROM application that really delivers. A.D.A.M. (Animated Dissection of Anatomy for Medicine) contains a self-running demo, a QuickTime catalog introducing the company’s other products, and an installer program. You can either copy just the main application with its support files and extensions to your hard drive (it takes up about 5MB), or do a complete installation, which requires around 500MB of disk space. A.D.A.M. runs on any Macintosh with at least a 16MHz 68030 CPU and a double-speed CD-ROM drive.

A.D.A.M. is divided into two main sections. The first, a sort of do-it-yourself anatomy lab, opens automatically when you launch the program. Most of this window is taken up by exquisitely detailed renderings of the human body (see “An Inside Look.”) A slider lets you peel structures away layer by layer to reveal what lies underneath. Icons let you choose a skin tone, switch between male and female anatomy, and view the body from the front or back. Clicking on any structure identifies it by name and system; you can also locate body parts via a pop-up menu. A.D.A.M. enables you to look at the body’s anatomy all at once or home in on a major organ system by highlighting its components. Either way, the drawings are as good as any I’ve ever seen in medical textbooks. For users who want to hide, ahem, sensitive body parts from view, you can opt to cover genitals and breasts with strategically placed fig leaves.

A.D.A.M.’s other section, a pictorial introduction to physiology and disease called the Family Scrapbook, is even more entertaining. It offers a whimsical look at ourselves, with Adam and his significant other, Eve, as guides. Using a series of clever animations and drawings, the Family Scrapbook shows how our bodies work and what happens when things go wrong.

If you prefer to explore, a menu lets you jump directly to any of A.D.A.M.’s more than 50 animations.

I found A.D.A.M.’s interface intuitive and easy to use. (If you get stuck, the program supports both online and balloon help.) As an incentive to register the software, you get a code that unlocks six anatomic puzzles when you call the vendor’s toll-free number. Solve the puzzles and you’re rewarded with a brief animation.

The Last Word Unlike many multimedia applications, A.D.A.M. left me wanting to see more. If you are the least bit interested in learning more about how the human body works, buy this program.

—FRANKLIN N. TESSLER, M.D.

---

WarPlanes 1.0

Multimedia Military-Flight CD-ROM

**PROS:** Stunning graphics; well-designed user interface; integrated flight simulators. **CONS:** Single window display: no text or graphics export facility. **COMPANY:** Maris Software (800/336-0185). **LIST PRICE:** $69.

WARPLANES IS A PLANNED SERIES of six multimedia CDs, covering worldwide military aviation; Modern Fighting Aircraft, the first edition, covers the post-WWII era. Unlike typical historical CDs, however, WarPlanes offers much more than dry facts sprinkled with a few pictures and movies. Yes, you get pictures and movies—more than 600MB’s worth. But you also get beautifully rendered, rotatable, threedimensional models of many aircraft; an extensive searchable database; campaign maps and historical narrations; live combat audio; and three flight simulators. And it’s all tied together through a well-executed navigation program.

You run the program directly from the CD, which contains both Macintosh and Windows software. The navigation program takes over your screen with a contents overview. From this main panel you can jump to other panels to explore the aircraft and weapons databases, view historical vignettes, or take off in a flight simulator. The navigation tool includes built-in help that describes the function of all buttons as you pass over them.

WarPlanes’ encyclopedic database covers virtually every detail of 530 U.S. and foreign aircraft, from the Bell 47 helicopter used in Korean War MASH units to the F117a stealth fighter that flew in the Gulf War. A sophisticated search engine lets you sort the database and locate specific aircraft by keyword. Each aircraft panel optionally links to photos, movies, or 3-D models. Most of the aircraft have one or more full-screen photos, about one-third have movies, and the most popular birds have 3-D models that you can rotate to view from any angle. Armament-carrying aircraft also include lists of weapons and diagrams showing where they fit on the airframe.

In addition to using the search engine, you can access the database through historical vignettes showing airfield panoramas and strategic maps. Clicking on an aircraft or weapon in these views retrieves the database panel for that item. The vignettes—covering post-Vietnam events only—also include historical videos providing a narrative overview of major conflicts.

Finally, you can fire up one of the three flight simulators: the Soviet Su-27 fighter, the U.S. C-130 transport, or the U.S. A-10 attack plane. The flight simulators have surprisingly good handling qualities, although they are weak on cockpit realism, giving you only a handful of instruments and controls. Still, you get extensive inside- and outside-view capabilities, and the ability to engage an enemy in battle.

The Last Word In spite of WarPlanes’ good looks and excellent organization, I found myself wishing for multiple windows and an export facility for copying text or images. WarPlanes is a wonderful multimedia experience. I’m looking forward to the future editions.—MEL BECKMAN
Run Windows on Performa

MAKE HOME WORK EASIER. AND $AVE.

"I CAN BRING OFFICE PC WORK HOME WITHOUT ANY HASSLES!"

"JUST BRING HOME A FLOPPY DISK FROM WORK. WHAT COULD BE EASIER!"

"AND WE CAN ALL DO OUR HOMEWORK TOGETHER!"

"YEAH, AND I CAN DO HOMEWORK PROJECTS WITH MY FRIENDS WHO HAVE PCs!"

Now For A Limited Time You Can Get SoftWindows® For Your Performa At A Great Price.

Your time at home is valuable. So here's a great value on software that makes doing "home work" that much easier. Introducing SoftWindows for Performa.

SoftWindows for Performa turns your home computer into two computers in one. With just two clicks, it lets you run most of the Windows and DOS applications you and your family use at work and school.

Imagine the convenience of working on files you created at work in Microsoft Office, Excel, Word or Lotus 1-2-3. Think of the fun you could have running Windows multimedia and educational CD-ROMs for the kids.

With SoftWindows for Performa, you can access a world of Windows applications for far less money and with far fewer headaches than buying a separate PC. So don't wait! Time is running out on this special offer. And you've still got home work to do.

See your dealer or call 1-800-848-7677.

© 1995, Insignia Solutions, Mountain View, CA. Insignia Solutions is a registered trademark of Insignia Solutions. SoftWindows is a trademark used under license.
**Mouse Deluxe Mac**

**Three-Button Mouse**

**PROS:** Users can set up buttons for keyboard shortcuts. **CONS:** Relatively high button resistance; shape may not suit some users.

**COMPANY:** MicroSpeed (510/490-1403). **PRICE:** $69.

---

**If you've ever been curious about what Windows users do with the extra buttons on their mice, MicroSpeed's Mouse Deluxe Mac (MDM) gives you an opportunity to find out without abandoning your favorite computer.**

Like Apple's ADB Mouse II, the MDM plugs into the Mac's Apple Desktop Bus (ADB) port. (The MDM's cable is a few inches shorter than the Apple mouse's, but that shouldn't be a problem for most users. Alas, neither cord includes a pass-through connector that would let you attach additional devices without using another ADB port.) The mouse ball stays in place with a thin cover that doesn't lock as tightly as Apple's, although it held steady under hard use. Four plastic feet on the bottom help the mouse glide smoothly over surfaces.

The MDM's external dimensions are almost identical to those of the Apple model, but numbers don't tell the whole story. The MDM's housing sports a more angular contour than the Apple mouse's. I found the MDM tiring to hold for long periods. The buttons also offer more resistance to pressure than I prefer, and the MDM's smooth plastic surface has a slippery feel that makes it hard to grip. (Like other pointing devices, though, mice are personal items; what suits you may not work for someone else. For some basic guidelines on how to choose an input device and set up your work area, see "Safer Computing," *Macworld*, December 1994.)

A sliding switch on the bottom of the MDM lets you control the operation of its three buttons. With the switch in one position (cryptically labeled "MS-2KEY"), all the buttons are equivalent to the one on Apple's mouse. In multibutton mode, the center button acts as if it's still being held down when you click and release it—handy for dragging to select multiple objects or to choose items from hierarchical menus. You use the remaining two buttons for clicking and shift-clicking, and you can swap their functions to suit right- or left-handed users.

To avoid shifting your hand repeatedly from mouse to keyboard, the MDM lets you use combinations of button-clicks to simulate keystrokes. Pressing and holding the center button while clicking the left or right button from one four times sends one of eight predefined commands to the Mac. A control panel that comes with the mouse lets you assign key combinations to mouse-clicks. Whether you find this feature helpful or not is entirely a matter of taste, though. (I didn't.) The control panel also allows you to adjust the MDM's tracking and double-click sensitivity.

**The Last Word**

Although I prefer the ergonomics of Apple's mouse, the MDM's extra buttons do offer several features that Apple's can't match. If you're in the market for a new or replacement pointing device, the MDM is worth a look—just make sure you try it first.

—Franklin N. Tessler

---

**Kids World 1.01**

**Screen-Saver Creator**

**PROS:** Easy to use; fun; modules are compatible with After Dark and UnderWare. **CONS:** Unsophisticated graphics; multiple animations cause jerky playback; limited painting tools.

**COMPANY:** Bit Jugglers (415/968-3908). **ESTIMATED PRICE:** $30.

---

The Latest Offering from Bit Jugglers—Kids World—isn't just a screen saver; it's a screen-saver construction set. Instead of providing you with the usual collection of colorful, witty screen-saver animations, Kids World provides a set of simple tools you use to design screen-saver modules. As its name suggests, Kids World is primarily for children—it features an uncomplicated, kid-friendly interface and simple, cartoonlike graphics—but adults too may find its build-your-own-screen-saver approach mildly addicting.

To create a Kids World document, you begin with a supplied backdrop: a grassy backyard, a prehistoric landscape, or one of several other choices. A richer selection would be nice. (Alternatively, you can use a plain black or white background or use the program's painting tools to draw your own backdrop.) Once you've selected a background, you can decorate it by choosing from more than 200 stamps of objects, plants, animals, and characters. Applying the stamps is easy; you grab a stamp from the palette, drag it onto the backdrop, and click to apply it. Tools for moving, erasing, and horizontally flipping any of the stamps are also included.

Kids World provides a basic, unimitating palette of painting tools, including a pencil; a paint bucket; line, oval, and rectangle tools; and a text tool. You also get a 36-color palette and 16 textures (such as brick and marble) that you can paint onto your scenes.

Kids World's entertainment value emerges after you've created your picture. Many of the stamps are animated and include great sounds, so instead of a static painted scene you get a lively, noisy, animated sequence: rocket ships fly through space, pterodactyls screech and swoop over the landscape, chickens squawk and peck at the ground. (Don't worry; you also have the option of turning off the sound.) Of course, you can mix stamps and backgrounds in any wacky combination you please. The sounds and animations are really quite clever, though you have to be careful about overdoing it; screen savers containing more than just a handful of animated stamps play back jerkily, especially on slower Macs.

To use your newly created screen-saver module, you save your work within Kids World and then open the UnderWare control panel included with the program. (You can also save your Kids World creations as After Dark modules.)

**The Last Word**

Kids World's animations could be more fluid, the graphics more sophisticated, and the painting tools more robust, but as a children's program, it still succeeds. It's easy to use, cleverly designed, and can keep kids busy for hours—which is more than you can say about most screen savers.—Joseph Schorr
You got a Mac. And then a few more. You tied them together. People started sharing. Everything...
Funny thing about the Macintosh computer. With little fanfare and an idea known simply as “plug and play,” it turned a whole lot of novice users into networkers.

And is it any surprise? All you have to do is plug a connector into your Macintosh, and you're networked. You can share printers. You can share modems. You can even share files with your peers.

This kind of “peer-to-peer” network is all some workgroups need.

Others, however, soon find they're ready to take the next step: a Workgroup Server dedicated to improving the ebb and flow of vital information.

How do you know if you're ready? Just ask yourself a few simple questions.

**Do I have more than five computers tied together in a peer-to-peer network? Is one printer always backlogged while others sit idle? When people share files, are their systems slowing down? Is there confusion about who has the latest data and where it resides?**

If you answered yes to any of these questions, it's definitely time to consider a Workgroup Server from Apple.

Workgroup Servers provide a centralized place for users to store and share files. Which means your shared files don't get lost, your systems don't slow down and users always have access to the latest information.

A server also gives you a place to put network applications and services—accounting programs, databases, e-mail and more—for everyone to use.

And that's just the start. With every Workgroup Server, you also get Dantz Retrospect Remote, so you can back up every system on the network—clients and servers—automatically. Plus Apple RAID disk mirroring software, so you can rest easy about data reliability.

Want more still? Add FileWave software to your server, and you can easily distribute new programs and upgrades from the server. Or add Apple Remote Access software, and users can access your network from anywhere.

“OK,” you say, “but how difficult is it to use a Workgroup Server?” It’s as easy as using a Macintosh. All you have to do is connect the components, turn on the power, and you're ready to go.

Choosing the right server is just as easy. We have three models based on the new PowerPC RISC chip—the Workgroup Servers 6150, 8150 and 9150.

No matter which one you choose, you're backed by our expert phone support, 24 hours a day, 7 days a week.

And now, for a limited time, you'll get GraceLAN Server Manager software, a $395 retail value, at no extra charge. To get your free Workgroup Server brochure or for more information on our server trial program, simply pick up the phone and call us at 800-538-9696, ext. 430. And unlock the power of your workgroup. The power to be your best.”
Macworld Lab uncovers which software benefits most from the PowerPC boost

Last year Apple took one of the biggest gambles in its history by introducing the Power Macintosh family: new Macs driven by a radically different microprocessor architecture that promises vastly improved performance—provided that developers design their programs to take advantage of it.

Less than one year later, most major Mac software developers have adapted their wares. Have the performance promises been kept? To find out, Macworld Lab pitted 28 native Power Mac programs against their 680X0 counterparts in a variety of application categories, from graphics and design software to digital video to spreadsheets and word processors.

Our goal was not to find the fastest Power Mac application in each category. Instead, we sought to find the programs that show the greatest performance improvements over their twins in the 680X0 world. If you’re now using one of these programs on a 680X0 Mac, our results can help you assess the benefits of upgrading to a Power Mac and native software.

Another goal was to identify the application categories that benefit most from Power Mac performance. Again, if you’re now using a 680X0 Mac, knowing the degree to which various tasks take advantage of native Power Mac software can help you decide when and whether you should take the Power Mac plunge. This decision can be especially difficult if you’re using a fast 68040 Mac, such as a Quadra 840AV.

The Big Performance Picture

In Macworld Lab’s tests, a Power Mac 7100/66 averaged about 2.3 times as fast as a Centris 650. In a range of tests that represent commonly performed tasks, three programs averaged at least 3 times as fast on the Power Mac, and one of those averaged 9.7 times as fast.

The jobs that benefit most from native software are, not surprisingly, those requiring extensive processing, such as rendering three-dimensional images and manipulating complex illustrations. In these tests, the Power Mac 7100/66 averaged about 4 times as fast as the Centris 650.
POWER MAC SOFTWARE SOARS

bad, because imaging professionals spend a good portion of the day opening and saving large images.

Another leading imaging program, Fractal Design’s Painter, averaged 2.1 times as fast as in the Power Mac version. Painter’s Auto Clone feature, commonly used when adding natural-media painting effects to a scanned photograph, was 3.5 times as fast. Like Photoshop, though, the Power Mac version of Painter was hamstrung by the Mac OS’s lack of a native file system, so opening an image file is only slightly faster than in the 680X0 version.

Among illustration programs, Adobe Illustrator was an average of 1.6 times as fast on the 7100/66 as on the Centris 650, while Macromedia FreeHand averaged 2.5 times as fast on the Power Mac. (Again, don’t be tempted to compare Illustrator’s results with FreeHand’s—our tests were designed only to show how a native Power Mac program compares with its 680X0 version.) Illustrator’s showing requires some explanation. The program’s weakness was in a print-to-disk test (creating an EPS file), where the Power Mac 7100/66 was only slightly slower than the Centris 650. In other Illustrator tests, the 7100/66 was consistently 1.6 to 2.3 times as fast as it performed best with one of Illustrator’s mainstay commands, Preview, which did its work in about 19 seconds, compared with about 45 on the Centris 650. Thus, if you’re using Illustrator on a 680X0 Mac, there’s a definite argument for going native Power Mac—but don’t expect to save time on printing related tasks.

For its part, FreeHand seemed uneven, in part because its work in about 19 seconds, compared with about 45 on the Centris 650. Thus, if you’re using Illustrator on a 680X0 Mac, there’s a definite argument for going native Power Mac—but don’t expect to save time on printing related tasks.

For its part, FreeHand seemed uneven, in part because its 680X0 version was 2.5 times as fast on the Power Mac. The basic chore of scrolling was also nearly twice as fast in both programs. Printing to disk was about the same speed on the Power Mac, due to the nonnative file system and printer driver. The file-system bottleneck caused the native version of QuarkXPress to be slower than the 680X0 version when opening a publication file. (Aldus seems to have worked around the problem—the native Power Mac PageMaker opened a publication 1.7 times as fast as the 680X0 version.)

On the Power Mac 7100/66, Frame Technology’s FrameMaker averaged twice as fast as on the Centris 650. In a spot check that involved importing a lengthy Microsoft Word document into FrameMaker, however, the 7100/66 was significantly slower than the Centris 650. The reason: FrameMaker’s Word import filter is written in 680X0 code, so the application actually runs in emulation mode when importing Word documents—or, for that matter, any files that use XTND filters. (FrameMaker’s graphics filters are in native Power Mac code.)

But in tests involving scrolling, changing fonts, and compiling an index in FrameMaker, the Power Mac 7100/66 was 1.9 to 2.8 times as fast as the Centris 650. Thus, the argument for upgrading to a Power Mac and the native FrameMaker is strongest if you do most of your writing within the program, rather than in a separate word processor.

Where native-mode Power Mac upgrades are concerned, desktop publishers have one additional factor to consider: unlike almost all of the other programs we tested, PageMaker and QuarkXPress do not include both Power Mac and 680X0 versions in the same box; you must buy the version appropriate to your platform. And FrameMaker includes upgrades for both platforms only in the CD-ROM version (it has the same list price—$895—as the floppy-based version). Macromedia FreeHand and Engineered Software’s PowerCADD are also sold separately for each platform (see “Tested Power Mac Software”).

Power Productivity
And what of the bread-and-butter programs for which most people buy a computer—word processing and spreadsheet analysis? There isn’t exactly a glut of native Power Mac office-productivity applications. Claris released a Power Mac version of ClarisWorks shortly after the
## Tested Power Mac Software

<table>
<thead>
<tr>
<th>Company</th>
<th>Phone</th>
<th>Product*</th>
<th>List Price</th>
<th>Upgrade Price (from version)</th>
<th>Type of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACI US</td>
<td>408/252-4444</td>
<td>4th Dimension 3.2</td>
<td>$895</td>
<td>free (3.1)</td>
<td>database (analytic)</td>
</tr>
<tr>
<td>Adobe Systems</td>
<td>415/961-4400</td>
<td>Illustrator 5.5</td>
<td>$595</td>
<td>$99 (5.0)</td>
<td>illustration</td>
</tr>
<tr>
<td></td>
<td>800/833-6687</td>
<td>PageMaker 5.0b</td>
<td>$895</td>
<td>$179 (5.0)</td>
<td>publishing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Photoshop 3.01</td>
<td>$895</td>
<td>$149 (2.5.1)</td>
<td>image processing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Premiere 4.0</td>
<td>$795</td>
<td>$129 (3.0)</td>
<td>video editing</td>
</tr>
<tr>
<td>Aladdin Systems</td>
<td>408/761-6200</td>
<td>StuffIt Deluxe 3.5</td>
<td>$130</td>
<td>$35 (2.5)</td>
<td>compression utility</td>
</tr>
<tr>
<td>Ashlar</td>
<td>417/476-1800</td>
<td>Vellum 3D 2.2f3</td>
<td>$2995</td>
<td>$14 (2.3)</td>
<td>CAD</td>
</tr>
<tr>
<td>Claris</td>
<td>408/987-7000</td>
<td>ClarisDraw 1.0</td>
<td>$399</td>
<td>$89 (MacDraw Pro)</td>
<td>illustration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ClarisWorks 3.0</td>
<td>$129</td>
<td>$59 (2.0)</td>
<td>integrated software</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacWrite Pro 1.5v3</td>
<td>$99</td>
<td>$69 (1.5)</td>
<td>word processing</td>
</tr>
<tr>
<td>Dantz Development</td>
<td>510/253-3000</td>
<td>Retrospect 2.1</td>
<td>$249</td>
<td>$20 (2.0)</td>
<td>backup utility</td>
</tr>
<tr>
<td>Engineered Software</td>
<td>910/299-4843</td>
<td>PowerCADD 1.0b</td>
<td>$795</td>
<td>$79 (PowerDraw 6.0)</td>
<td>CAD</td>
</tr>
<tr>
<td>Fractal Design</td>
<td>408/688-5300</td>
<td>Painter 2.0b</td>
<td>$399</td>
<td>$15 (2.0)</td>
<td>image processing</td>
</tr>
<tr>
<td>Frame Technology</td>
<td>408/975-6000</td>
<td>FrameMaker 4.0.4b</td>
<td>$895</td>
<td>$95 (4.0)</td>
<td>publishing</td>
</tr>
<tr>
<td>Bill Goodman</td>
<td>available online</td>
<td>CompactPro 1.50</td>
<td>$25 shareware</td>
<td>not applicable</td>
<td>compression utility</td>
</tr>
<tr>
<td>Graphisoft</td>
<td>415/737-8665</td>
<td>ArchiCAD 4.5+</td>
<td>$4450</td>
<td>free (4.12)</td>
<td>CAD</td>
</tr>
<tr>
<td></td>
<td>800/344-3468</td>
<td>ArchiCAD 4.5+</td>
<td>$4450</td>
<td>free (4.12)</td>
<td>CAD</td>
</tr>
<tr>
<td>Graphsoft</td>
<td>410/250-5111</td>
<td>Blueprint 5.0.0b3</td>
<td>$295</td>
<td>$99 (4.0)</td>
<td>CAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minicad 5.0.1</td>
<td>$795</td>
<td>$150 (4.0)</td>
<td>CAD</td>
</tr>
<tr>
<td>Macromedia</td>
<td>415/252-2000</td>
<td>FreeHand 4.0a</td>
<td>$595</td>
<td>$99 (3.0)</td>
<td>illustration</td>
</tr>
<tr>
<td>Microsoft</td>
<td>206/882-8080</td>
<td>Excel 5.0</td>
<td>$339</td>
<td>$129 (4.0)</td>
<td>spreadsheet (analytic)</td>
</tr>
<tr>
<td></td>
<td>800/426-9400</td>
<td>Word 6.0</td>
<td>$339</td>
<td>$129 (5.1)</td>
<td>word processing</td>
</tr>
<tr>
<td>Novell Applications Group</td>
<td>801/229-5000</td>
<td>WordPerfect 3.1</td>
<td>$395</td>
<td>$69 (3.0)</td>
<td>word processing</td>
</tr>
<tr>
<td>Quark</td>
<td>303/894-8888</td>
<td>QuarkXPress 3.3.1b</td>
<td>$895</td>
<td>$225 (3.3)</td>
<td>publishing</td>
</tr>
<tr>
<td>Ray Dream</td>
<td>415/960-0768</td>
<td>Designer 3.1</td>
<td>$349</td>
<td>$29 (3.0)</td>
<td>3-D modeling</td>
</tr>
<tr>
<td>Specular International</td>
<td>413/253-3100</td>
<td>Infini-D 2.6</td>
<td>$695</td>
<td>$49 (2.5)</td>
<td>3-D modeling</td>
</tr>
<tr>
<td>Strata</td>
<td>601/628-6218</td>
<td>StudioPro 1.5</td>
<td>$1495</td>
<td>$99 (1.1)</td>
<td>3-D modeling</td>
</tr>
<tr>
<td></td>
<td>800/869-6855</td>
<td>StrataVision 3D 3.1a</td>
<td>$695</td>
<td>$99 (3.0)</td>
<td>3-D modeling</td>
</tr>
<tr>
<td>Wolfram Research</td>
<td>217/398-0700</td>
<td>Mathematica 2.2.2</td>
<td>$995</td>
<td>$135 (2.1)</td>
<td>mathematics (analytic)</td>
</tr>
<tr>
<td></td>
<td>800/441-6284</td>
<td>Mathematica 2.2.2</td>
<td>$995</td>
<td>$135 (2.1)</td>
<td>mathematics (analytic)</td>
</tr>
</tbody>
</table>

* All products ship with 680X0 Mac and Power Mac versions in the same box, unless otherwise noted. Different upgrade prices may be available for users of earlier versions; check with the company.
* 680X0 Mac version called PowerDraw.
* 680X0 and Power Mac programs together in CD-ROM version of product only.

Power Macs debuted; WordPerfect, now owned by Novell, also promptly shipped a native version of its flagship word processor. Even Microsoft finally got around to shipping Power Mac versions of Word, Excel, PowerPoint, and FoxPro (although FoxPro and PowerPoint shipped too late to test here).

In our tests, the Power Mac–native Excel 5.0 was, on average, twice as fast as the 680X0 version. When recalculating a worksheet that uses floating-point math, the Power Mac version was 3.3 times as fast, performing the operation in less than 7 seconds, compared with nearly 22 seconds on the Centris 650.

The native Power Mac version of Word 6.0 also shows less promise. If you're among the Word users who have felt like tarring and feathering Word 6 for its sluggish performance on 680X0 Macs (see “Word Processing Powerhouses,” in this issue), the Power Mac version won't lower your blood pressure. The Power Mac version of Word 6.0 was barely faster, overall, than its 680X0 counterpart and substantially slower, on most tests, than Word 5.1 running on a Centris 650. The Power Mac version took a big performance hit on all I/O-related tasks, such as open, and print to PostScript.

Claris has also shipped a Power Mac version of MacWrite Pro. Its performance was uninspiring: in a document-scrolling test, the Power Mac 7100/66 was 2.7 times as fast as the Centris 650, but in other tests the 7100/66 was no more than 1.5 times as fast; and in a file-import test, the 7100/66 was slightly slower than the Centris. The word processor module in ClarisWorks showed similarly lukewarm improvements. The ClarisWorks spreadsheet, on the other hand, was significantly faster at recalulation.

The Power Mac version of WordPerfect showed similarly modest improvements. Its best events were a font-change test (in which the 7100/66 was 1.7 times as fast as the Centris 650) and a search-and-replace test (1.8 times as fast). Scrolling was 1.5 times as fast, but importing a file was slightly slower.

Taken together, these results suggest that if you're using a relatively fast 680X0 Mac primarily to create simple documents, upgrading to a Power Mac and a native word processor may involve more trouble and expense than it's worth. The case for a Power Mac is stronger if you create extensively formatted documents, if you switch constantly between editing and page-preview modes, or if you create lengthy documents containing indexes (which require extensive processing to compile). But by and large, word processing is not the best argument for a RISC machine.

Nor is database management. ACI US's 4th Dimension averaged the same speed on both Macs. Searching a 96,000-record database, for example, took 5 minutes on the 7100/66 and 5 minutes 48 seconds on the Centris 650. Opening the
application took slightly longer on the 7100/66.

A variety of popular utilities benefit from Power Mac performance. Aladdin Systems' StuffIt Deluxe was 1.7 times as fast at compressing and decompressing archive files on the 7100/66. Bill Goodman's shareware Compact Pro was 1.6 times as fast at decompressing and 2.1 times as fast at compressing. Dantz Development's Retrospect backup utility averaged 1.4 times as fast at backing up and restoring 800MB of data in compressed form. Other utilities that sing on a Power Mac include security programs that perform encryption.

The Last Word
Based on Macworld Lab's tests, the functions that benefit from Power Mac performance are, from greatest benefit to least:
- CAD, 3-D rendering, and mathematical analysis
- illustration, image editing, and video compression
- spreadsheet analysis
- page layout
- word processing
- database management

The more processor-intensive your work, the more you'll benefit from a Power Mac and native software. But don't jump to the conclusion that a Power Mac's performance will go wasted unless you're an architect, artist, or a mathematician. A Power Mac provides incidental speed benefits that don't show up on a stopwatch. In native Power Mac graphics programs, for example, free-hand drawing feels more natural—there's less lag between when you move your mouse and when a line appears on the screen. Scrolling a large image in a program such as Photoshop is also smoother on Power Macs.

If you have enough RAM installed, a Power Mac is also better equipped to handle the juggling act of multitasking—it's less likely than a 680X0 Mac to bog down when you're downloading a file or rendering an image in the background. Power Macs support CD-quality sound recording and playback, among 680X0 Macs, only the Quadra 660AV and 840AV do. And in general, a Power Mac just feels snappier—and this comes from someone whose main machine is a Quadra 840AV.

Not that the fast 680X0 Macs are obsolete. If you have one, and if your work leans more toward office productivity than imaging and math, the argument for a Power Mac is less compelling. Indeed, thanks to the 840AV’s DSP chip, some Photoshop operations approach Power Mac performance levels. If yours is a fast 680X0 Mac, you might wait for a future generation of Power Macs, whose performance will settle the debate once and for all.

But if your work does involve those processor-intensive jobs at which Power Macs shine, here's an excellent reason to upgrade now: your time. It makes a dramatic, practical difference in productivity when an artist can render photo-realistic 3-D images in 5 minutes instead of 20, or when an architect can watch an image redraw in 3 seconds instead of 22, or when a video producer can compress a QuickTime movie in 30 minutes instead of 2 hours.

Thanks in large measure to the efforts of third-party developers, Apple's risk has paid off: the Power Macs deliver on their performance promise.

Contributing editor RIA HIID has been working with the 680X0 Mac and Power Macs since before each was introduced. His latest books are Macworld Complete Mac Handbook Plus Interactive CD, third edition, and Macworld Word & Publisher Companion (both IDG Books Worldwide, 1994).
Becky Hatt took off from there.

"Dealing with our money went from being a total pain to something my husband and I actually enjoy — with Quicken.

"Instead of just reacting to money all the time, now we make decisions and choices about it. We quickly saw how we could afford to quit working for others and start our own business. "Now I'm doing all kinds of things I always wanted — like giving tours of the San Francisco Bay Area in this classic DC-3."

What could you do if you managed your money better? Quicken makes it so easy. People write to us every day to tell how it's helped change their lives. They tell us about bigger savings accounts. Nicer vacations. Happier families. Remodeled homes. More secure retirements. And much more.

What's your dream? "There's nothing special about me," says Becky. "I'm just doing what I want to do." So how about you — want to be in the next Quicken ad? Take advantage of this limited-time special offer. Then simply use Quicken each time you sit down to pay your bills.

And be sure to let us know what happens.

Quicken painlessly organizes finances. You take it from there.
Tired of space limitations? Lost data? Expensive cartridges? The old storage technology is just that: Old.

Get wired! With the Fujitsu DynaMO™ optical drive, the new standard in high-capacity data storage, you can reliably store and transport all kinds of large files. Even the most demanding graphics and multimedia applications.

DynaMO's industry-standard, 3.5" 230MB cartridges provide greater storage capacity for about 17¢ per megabyte. So you can save larger files while you save money.

DynaMO also protects your data better. Since it uses magneto-optical media, DynaMO is immune to the problems that plague removable magnetic media. It's simply the most stable medium you can buy for transporting files or storing them.

That's why DynaMO disks come with an exclusive lifetime warranty from Fujitsu, the world's second largest computer company.

And no matter what your application, from color separations to multimedia to backing up, DynaMO is faster than ever before. Up to 60% faster in the Mac version equipped with Turbo MO software.

No wonder DynaMO outsells all other optical drives. Highest performance, lowest cost, unmatched reliability. Get DynaMO and you've got it wired.

1-800-898-1302
The Agfa Arcus II (top) and the Umax PowerLook (bottom).
Scanning Beyond

ARE YOU TIRED OF FIGHTING WITH YOUR
scans? Are you frustrated because you can’t get your
images to look right using the brightness and contrast
tools in your scanning software—or even the Levels
and Curves controls in Adobe Photoshop? Does it
make you crazy that every time you manage to pull
out elusive shadow details, your highlights get blown
out to white? Are you getting the urge to junk this
whole scanner business and buy a new state camera?
Stop. You’re not alone. Even though many scanner
users have abandoned those (useless) contrast and
brightness controls in favor of curve-based adjustment
tools, most people are still hitting the same
wall—especially with images that include subtle
highlight and shadow detail. You can get one or the
other, but it’s difficult to get both.

The problem is GIGO: garbage in, garbage out.
If you don’t start with a good scan—one that captures
the subtle details in highlights and shadows—you’ll
be hard pressed to bring out those details with tonal
correction. Those subtle differences—one pixel
that’s 96 percent gray and one next to it that’s 95 per­
cent gray—are the stuff that detail is made of. If your
scanner can capture those differences, and if you can
use tonal correction to emphasize them, you can pro­
duce images that rival the best in the business.

Unfortunately, most flatbed scanners can’t cap­
ture the whole range of detail terribly well. Theoret­
ically, 8-bit scanners can discern 256 shades of gray
(24-bit scanners just scan 8 bits three times, for red,
green, and blue). But the 7th and 8th bits of data
aren’t terribly accurate; they don’t properly represent
the details in your images.

One of the best solutions to emerge in recent
years is the desktop flatbed scanner capable of cap-
turing more than 8 bits of data—10, 12, or in some cases 16 bits per pixel. As with 8-bit scanners, the last few bits aren't terribly accurate. But the scanner automatically throws away those garbage bits, and you get 8 good bits of data to work with.

Macworld Lab tested six of these low-to midprice high-bit models—from Agfa, Epson, Microtek, Ricoh, and Umax—to see how well the scanners handle gray sensitivity, color accuracy, and speed, among other things (see the table “Scanners Compared,” and the benchmarks “Gray Sensitivity,” “Color Variation,” and “Scanner Speed”). In addition to the scanners we tested, at least three other 30-bit flatbeds should be available by the time you read this (but they weren’t available for our review): La Cie’s 600-by-1200-dpi SilverScanner III ($1499, 503/520-9000); PixelCraft’s 600-by-2400-dpi Pro Image 4000 ($2995, 510/562-2480); and Nikon’s 565-by-1200-dpi Scantouch AX-1200 ($1335, 516/547-4200).

Tapping the Hardware
In our lab tests of the high-bit scanners, we found that the best of them (notably the Agfa Arcus II and Umax PowerLook) deliver greater image detail and more-accurate color than their 24-bit counterparts, so you don’t have to fight with your scans so much. You don’t end up with posterization in the shadows after correction (you avoid big jumps from one gray to another where there should be smooth tonal changes), and there’s still some variation (read: detail) in the highlights. And you don’t have to work so hard to battle the artifacts and anomalies that result from excessive color correction.

The more-accurate data from high-bit scanners is one reason for their higher-quality output, but the ability to perform tonal correction on high-bit data is even more important, because you lose less data in the correction process.

Anytime you adjust the tonal-correction curve, you throw away some data. Typically, you want to bring out the shadow details—making the pixels in the shadow areas more different. But when you do, you make highlight pixels more similar—losing detail there.

With high-bit scanners, the scanning software can download a tonal-correction curve to the scanner, so the scanner can perform the correction on the high-bit data—before converting the data to 8 bits—resulting in less data loss and a better scan to work with.

Scanners Compared

<table>
<thead>
<tr>
<th>Performance Rankings</th>
<th>Agfa Arcus II</th>
<th>Agfa StudioScan II</th>
<th>Epson ES-1200C</th>
<th>Microtek ScanMaker III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray sensitivity*</td>
<td>excellent</td>
<td>fair</td>
<td>good</td>
<td>poor</td>
</tr>
<tr>
<td>Color variation*</td>
<td>excellent</td>
<td>excellent</td>
<td>fair</td>
<td>fair</td>
</tr>
<tr>
<td>Speed†</td>
<td>poor</td>
<td>fair</td>
<td>excellent</td>
<td>fair</td>
</tr>
<tr>
<td>Previewing</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
<td>fair</td>
</tr>
<tr>
<td>Tonal-correction tools</td>
<td>excellent</td>
<td>good</td>
<td>good</td>
<td>poor</td>
</tr>
<tr>
<td>Sharpening controls</td>
<td>excellent</td>
<td>good</td>
<td>fair</td>
<td>not implemented</td>
</tr>
</tbody>
</table>

| Product Details       |              |                    |                |                       |
| Maximum optical resolution (in dpi) | 600 x 1200 | 400 x 800 | 600 x 1200 | 600 x 1200 |
| Bits per pixel         | 12           | 10                 | 10             | 12                    |
| Maximum reflective image size (in inches) | 8.3 x 14 | 8.5 x 14 | 8.5 x 11.7 | 8.5 x 13 |
| Scanning to file       | yes          | yes                | yes            | no                    |
| Multiframe scanning and batch scanning | yes      | yes                | yes            | no                    |
| Descreening while scanning | yes   | yes                | no             | no                    |
| Apple scanner emulation | yes      | yes                | yes            | no                    |
| Scanning software included | FotoLook Photoshop plug-in, FotoLook SA | FotoLook Photoshop plug-in, FotoLook SA, FotoSnap | ScanTastic Photoshop plug-in, ScanMaker III Photoshop plug-in |
| Color-management software included | FotoTune Light | FotoTune Light | none | Dynamic Color Rendition |
| Additional software included | Adobe Photoshop | Adobe Photoshop LE, OmniPage Direct | Adobe Photoshop, Kai’s Power Tools 2.0 |
| Suggested retail price | $3495        | $1100              | $1499          | $3495                 |
| Transparency adapter price | included | $550              | $999           | $699                  |
| Sheet-feeder price     | not available | $600              | $499           | $499                  |
| Phone                  | 500/658-5600 | 508/658-5600       | 310/792-0770  | 310/297-5000          |
| Toll-free phone        | none         | none               | 800/289-3776  | 800/654-4160          |

* See the "Gray Sensitivity" benchmarks for actual test results.  
† See the "Scanner Speed" benchmarks for actual test results.

Toning more than 8 bits of data—10, 12, or in some cases 16 bits per pixel. As with 8-bit scanners, the last few bits aren't terribly accurate. But the scanner automatically throws away those garbage bits, and you get 8 good bits of data to work with.

Macworld Lab tested six of these low-to midprice high-bit models—from Agfa, Epson, Microtek, Ricoh, and Umax—to see how well the scanners handle gray sensitivity, color accuracy, and speed, among other things (see the table “Scanners Compared,” and the benchmarks “Gray Sensitivity,” “Color Variation,” and “Scanner Speed”). In addition to the scanners we tested, at least three other 30-bit flatbeds should be available by the time you read this (but they weren’t available for our review): La Cie’s 600-by-1200-dpi SilverScanner III ($1499, 503/520-9000); PixelCraft’s 600-by-2400-dpi Pro Image 4000 ($2995, 510/562-2480); and Nikon’s 565-by-1200-dpi Scantouch AX-1200 ($1335, 516/547-4200).

Tapping the Hardware
In our lab tests of the high-bit scanners, we found that the best of them (notably the Agfa Arcus II and Umax PowerLook) deliver greater image detail and more-accurate color than their 24-bit counterparts, so you don’t have to fight with your scans so much. You don’t end up with posterization in the shadows after correction (you avoid big jumps from one gray to another where there should be smooth tonal changes), and there’s still some variation (read: detail) in the highlights. And you don’t have to work so hard to battle the artifacts and anomalies that result from excessive color correction.

The more-accurate data from high-bit scanners is one reason for their higher-quality output, but the ability to perform tonal correction on high-bit data is even more important, because you lose less data in the correction process.

Anytime you adjust the tonal-correction curve, you throw away some data. Typically, you want to bring out the shadow details—making the pixels in the shadow areas more different. But when you do, you make highlight pixels more similar—losing detail there.

With high-bit scanners, the scanning software can download a tonal-correction curve to the scanner, so the scanner can perform the correction on the high-bit data—before converting the data to 8 bits—resulting in less data loss and a better scan to work with.

Scanners Compared

<table>
<thead>
<tr>
<th>Performance Rankings</th>
<th>Agfa Arcus II</th>
<th>Agfa StudioScan II</th>
<th>Epson ES-1200C</th>
<th>Microtek ScanMaker III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray sensitivity*</td>
<td>excellent</td>
<td>fair</td>
<td>good</td>
<td>poor</td>
</tr>
<tr>
<td>Color variation*</td>
<td>excellent</td>
<td>excellent</td>
<td>fair</td>
<td>fair</td>
</tr>
<tr>
<td>Speed†</td>
<td>poor</td>
<td>fair</td>
<td>excellent</td>
<td>fair</td>
</tr>
<tr>
<td>Previewing</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
<td>fair</td>
</tr>
<tr>
<td>Tonal-correction tools</td>
<td>excellent</td>
<td>good</td>
<td>good</td>
<td>poor</td>
</tr>
<tr>
<td>Sharpening controls</td>
<td>excellent</td>
<td>good</td>
<td>fair</td>
<td>not implemented</td>
</tr>
</tbody>
</table>

| Product Details       |              |                    |                |                       |
| Maximum optical resolution (in dpi) | 600 x 1200 | 400 x 800 | 600 x 1200 | 600 x 1200 |
| Bits per pixel         | 12           | 10                 | 10             | 12                    |
| Maximum reflective image size (in inches) | 8.3 x 14 | 8.5 x 14 | 8.5 x 11.7 | 8.5 x 13 |
| Scanning to file       | yes          | yes                | yes            | no                    |
| Multiframe scanning and batch scanning | yes      | yes                | yes            | no                    |
| Descreening while scanning | yes   | yes                | no             | no                    |
| Apple scanner emulation | yes      | yes                | yes            | no                    |
| Scanning software included | FotoLook Photoshop plug-in, FotoLook SA | FotoLook Photoshop plug-in, FotoLook SA, FotoSnap | ScanTastic Photoshop plug-in, ScanMaker III Photoshop plug-in |
| Color-management software included | FotoTune Light | FotoTune Light | none | Dynamic Color Rendition |
| Additional software included | Adobe Photoshop | Adobe Photoshop LE, OmniPage Direct | Adobe Photoshop, Kai’s Power Tools 2.0 |
| Suggested retail price | $3495        | $1100              | $1499          | $3495                 |
| Transparency adapter price | included | $550              | $999           | $699                  |
| Sheet-feeder price     | not available | $600              | $499           | $499                  |
| Phone                  | 500/658-5600 | 508/658-5600       | 310/792-0770  | 310/297-5000          |
| Toll-free phone        | none         | none               | 800/289-3776  | 800/654-4160          |

* See the "Gray Sensitivity" benchmarks for actual test results.  
† See the "Scanner Speed" benchmarks for actual test results.

Resolution
Scanner resolution is much easier to nail down than tonal and color sensitivity, so many people pay a lot of attention to resolution when shopping for scanners. But in fact, higher resolution may not be very important for you.

How much resolution do you need? Let’s say you only output to a 600-dpi laser printer at an 85-lpi screen frequency. If you follow the rule that gray-scale and color-image resolution should be between 1.2 and 2 times screen frequency (and that you shouldn’t scan an image at a higher resolution than your output device can support), you never need an image with more than 170 dpi.

If you output at higher screen frequencies, however, or you need to scan small originals and scale them up, you need higher-resolution scans. And for line-art work—which requires image resolution equal to your output resolution (or at least 800 dpi on high-res laser printers and imagesetters)—high scanner resolution is important.

The only resolution number that’s really important is a scanner’s true optical resolution—how many dpi it can actually see. Many scanner manufacturers advertise ridiculously high interpolated-
resolution figures. This means that the scanner (or the scanning software) looks at the captured pixels and inserts data based on what's already there. And with the exception of some line-art scanning techniques, it's worthless data. Theoretically, you could increase interpolated resolution up to a million dpi and it wouldn't do you any good (but it would swallow hard disks faster than Godzilla eats Tokyo city buses).

**Scanning Software**

Given that any scanner can provide the resolution and image quality you require, what else should you look for? The following is a summary of the most important features and functions to consider. For my ratings of each scanner in several of these areas, see the table “Scanners Compared.”

**Speed**

While speed is most important for high-volume scanning, very slow speeds (especially for prescans) are frustrating even with only a few images to capture. Be aware, though, that some scanning software can handle image-processing work as you scan. Ultimately, that can save you a lot of time in Photoshop—potentially making up for the time spent with a slow scanner.

<table>
<thead>
<tr>
<th>Ricoh F52</th>
<th>Umax PowerLook</th>
</tr>
</thead>
<tbody>
<tr>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>fair</td>
<td>good</td>
</tr>
<tr>
<td>poor</td>
<td>fair</td>
</tr>
<tr>
<td>600 x 1200</td>
<td>600 x 1200</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>8.3 x 11.7</td>
<td>8.3x11.7</td>
</tr>
<tr>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

**Previewing** Good scanning software provides a large (preferably adjustable) preview window, flexible zooming on the preview (with a higher-res update of the prescan when you zoom in), interruptible prescans (that let you stop once you can see the area you need), and on-screen previewing of corrections in the prescan.

**Tonal-Correction Tools** The tonal-correction features I look for include support for the scanner's downloadable gamma capability (if it has one), easy control over the gamma curve, white point, and black point (none of the scanners reviewed matches the functionality of the clipping display in Photoshop's Levels dialog box), the ability to create arbitrary curves (with numeric inputs and readouts); a densitometer tool that shows pixel values before and after correction; a good-size histogram display (preferably with sliders for white point, black point, and gamma); and the ability to constrain output values to a selected range.

**Sharpening Controls** Every image needs sharpening—preferably with an unsharp masking filter—before it’s ready for print or display. The standard of reference is Photoshop’s Unsharp Mask filter, which offers three adjustments that are all essential to top-notch sharpening.

**Scanning to Files or to Photoshop** All the scanners reviewed in this article come with plug-in “acquire” modules for scanning images directly into Photoshop (and other programs that support Photoshop plug-ins). Some will scan to a disk file, bypassing Photoshop entirely. Some models also include Additions for Adobe’s PageMaker and XTensions for QuarkXPress for scanning directly into those programs. Scanning right onto a layout is only useful, however, if the scanning software provides good tonal-correction and sharpening tools, so the files land on the page ready-to-print.

**Multiframe Scanning** It’s handy to set up multiple images to scan at once, but except for serious production scanning, it’s not a huge advantage compared with scanning them one at a time.

**Descracing** Scanning previously halftoned images can be tough; you almost always end up with patterns due to the conflict between the original screen and the output screen. No piece of software can completely solve this thorny problem, but descrasing filters can improve the situation.

**Apple Scanner Emulation** Some scanners come with software that lets them imitate an Apple OneScanner. This is of interest only if you want to use OCR (optical character recognition) programs, all of which support the Apple scanner.

**Bundled Software** Some scanners come with the full version of Photoshop, others with Photoshop LE (Limited Edition), which is missing several print-related features—process separation, duotone/multitone mode, the pen tool, and importing of Illustrator files. Other perks might include OCR software or Photoshop filter packs such as HSC Software’s Kai’s Power Tools.

**Color Management** Getting grays to look good isn’t terribly hard with the right tonal-correction tools, but correcting color casts quite difficult. Color-management software can help make your scans match the original—reducing the work you have to do and improving quality. No color-management software is perfect, but as you can see from the sample image (corrected with Agfa’s FotoTune color-management software) in the sidebar “Evaluating Output,” the right software can provide good results.

**Transparency and Sheet-Feeder Options** With the exception of the ScanTastic software bundled with the Epson, none of the scanning programs support sheetfed image scanning; as a result, sheet feeders are primarily useful for OCR work. Transparency adapters are more widely useful. Bear in mind that with these scanners’ relatively low resolutions, you won’t be able to produce large output from scans of 35mm slides.

With all those considerations in mind, here’s a rundown of the scanners we tested.

**Agfa Arcus II**

If it weren’t for its glacial speed, the Arcus II would be the hands-down winner among the scanners reviewed here. It rated tops in every other area. It pulls great color and gray-scale data, the FotoLook scanning software offers almost all the tonal-correction tools you could ask for, and FotoLook takes full advantage of the scanner’s downloadable gamma capability. You can even pull 12-bit grayscale or 36-bit color data into Photoshop (the full version comes with the scanner) and use Photoshop’s tonal-correction tools, if you prefer—something none of the other scanners support.

Also provided is Agfa’s FotoTune Light color-management software—a subset of the full FotoTune package. In my review of FotoTune 1.1 in *Macworld*, April 1994, I panned it for its lousy documentation, invisible tech support, and some faulty profiles. But I also said that there is a capable color-management engine lurking inside. You’ll need to buy the full $395 package to make FotoTune really useful (so you can build a custom scanner profile, for instance, or use various offset press profiles), but given...
that, FotoLook's tight integration into FotoLook makes it a breeze to color correct scans—even converting them to CMYK—as you scan.

Combine this color-management and color-separation ability with FotoLook's sharpening controls (the only ones to match Photoshop's, though like Photoshop's, they are largely undocumented) and you have a beginning-to-end image-preparation engine. If you use FotoLook correctly, the images that come out are ready to be placed in pages and printed; you never need to go near Photoshop.

Unfortunately, it's not always easy to figure out how to use FotoLook correctly. The only way to get to the advanced tonal-correction tools, for instance, is to choose the Set White/Black Point menu option from the Range pop-up menu. Who'da thunk it? And setting resolution using default settings requires that you second-guess the software, which is trying to be smarter than you are.

These problems are surmountable, however, and FotoLook's ability to handle the whole imaging process as you scan goes a long way toward making up for the slow scanning speeds (especially if you use the included batch-scanning application, FotoLook SA). If top quality is what you need, and you're willing to wait for it, the Arcus II can provide it. If speed is more important to you, check out the Umax PowerLook.

**Agfa StudioScan II**

Agfa's StudioScan II turned in impressive numbers for color accuracy—second only to the Arcus II—but it rated second to last for gray sensitivity and speed. While its price is attractive, and it offers almost all the software advantages of the Arcus II (discussed above), I'm reluctant to recommend the StudioScan II when its grayscale scans result in such inferior, impos-

**Gray Sensitivity**

We scanned a 37-step calibrated gray wedge and analyzed the scans using NIH image 1.55 (available free online). We analyzed how many of the distinct gray steps each scanner could discern and how much noise there was in each step. The value you see here is the number of steps each scanner discerned within a given margin of error. Scanners that distinguish between subtle differences (with little noise overwhelming these differences) provide better-quality scans that are easier to correct.

<table>
<thead>
<tr>
<th>Scanner</th>
<th>Gray Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agfa Arcus II</td>
<td>13</td>
</tr>
<tr>
<td>Agfa StudioScan II</td>
<td>4</td>
</tr>
<tr>
<td>Epson ES-1200C</td>
<td>11</td>
</tr>
<tr>
<td>Microtek ScanMaker III</td>
<td>17</td>
</tr>
<tr>
<td>Ricoh FS2</td>
<td>15</td>
</tr>
</tbody>
</table>

**Best result in test. Longer bars are better. Products are listed alphabetically.**

**Epson ES-1200C**

The Epson ES-1200C is one of the fastest scanners tested, and it turned in pretty good figures for gray sensitivity and color accuracy. Given its low price, it's a reasonable choice for those who can't afford the (significantly) better quality of the Agfa Arcus II or the Umax PowerLook.

The ScanTastic scanning software (from Second Glance Software) offers an easy-to-use interface (with separate windows for scanning controls, image enhancement, and preview); great previewing (including rescanning at the appropriate resolution when you zoom in or change the preview window size); access to the scanner from almost any Open dialog box (in any application that can open TIFF files); and pretty good tools for tonal correction.

Though you can't enter a simple gamma value for tonal correction, you can adjust a 5-point arbitrary curve (with numeric input and readout), and it's simple to set white and black points. With its Perform in Hardware check box, ScanTastic is the only software to make this option explicit (though when it's selected, you have to repreview to see the tonal changes you've made). There's a densitometer tool, but the histogram is so small as to be useless. ScanTastic's sharpening controls are limited to a single slider, so you're forced to sharpen in Photoshop, and there's no facility for descreening. This scanner pulls usable—if not excellent—scans, however, and it's worth a look for the budget-conscious.

**Microtek ScanMaker III**

The ScanMaker III rated worse than any of the other scanners on gray sensitivity and color accuracy, and one scan reveals why. All the highlight detail is blown out to white. We tested two units, and they yielded almost identically flawed scans. The situation was not improved by using the Dynamic Color Rendition (DCR) color-management software.

DCR has the distinction of being the only color-management software to work its magic via downloaded gamma curves, so we had great hopes for its ability to match a scan to the original. But images corrected with DCR consistently came out with unnaturally bright, vibrant colors, and this confirmed our impression that the scanner yields excessively brightened images.

Add to this the third-slowest speed rating; mediocre-to-poor zooming; barely adequate tonal-correction tools (no numeric readout in the Curves dialog box,
In our efforts to provide completely objective representations of each scanner's capabilities, we turned to a color-management application, Agfa's FotoTune, to correct all the sample images for publication in the magazine. To make each scan look as much like the original as possible we used FotoTune's automated correction—avoiding the subjective "we-created-the-best-scan-we-could" approach that pollutes most analyses of image scanners.

We scanned the test photograph (an 8-by-10-inch color glossy) in reflective mode, using all of the hardware advantages available on each scanner—setting the white point and black point appropriately, and adjusting the gamma to a normalized value for each (for the ScanMaker III, we used the included DCR color-management software). We sharpened the images in Photoshop, then corrected and separated them using FotoTune, based on custom profiles built for each scanner setup.

When we pulled film and created proofs of the images, the results were—to say the least—surprising. The images were almost identical. While there were minor differences in highlight detail, shadow detail, and color values, the differences were so subtle that they would be virtually undetectable when printed in the magazine.

The image from the Agfa Arcus II shown here is representative of what we got from the whole crop of scanners. Below it is the same image captured on a Crosfield drum scanner by a San Francisco-based prepress firm (scanning charge: $90). While the colors in the drum scan are more faithful to the original, the difference between the Agfa and drum-scanned images is not profound, and shadow and highlight detail are almost identical. Given the poor quality of some of the uncorrected flatbed scans, this speaks volumes for FotoTune's correction and separation prowess. (The differences would be more apparent with an image in transparency format, which has a much higher density range.)

The results of our tests are likely to make anyone wonder if a scanner's gray sensitivity and color accuracy really matter. In some cases, yes; in others, no. If you're using a reliable color-management system such as FotoTune or the Kodak Color Management System, maybe not much. If you're handling tonal and color correction yourself, however, they matter a great deal, because good scans are easier to get good results from—you don't have to fight with them as much. The bigger lesson is probably this: you shouldn't try to do color correction and separation yourself—at least unaided by color-management software.

For gray-scale work, the scanner's sensitivity matters a lot, because tonal correction is in your hands. We were unable to create acceptable gray-scale output from the StudioScan II or the ScanMaker III, for instance, while the PowerLook and Arcus II images were easy to correct. In the ScanMaker III gray-scale scan shown here, the lack of highlight detail is glaring. The PowerLook scan, on the other hand, shows excellent detail in both the highlights and the shadows.
The Ricoh FS2 turned in impressive numbers for gray sensitivity, color accuracy, and speed. But the third-party scanning software provided (Cirrus PowerPro, from Canto Software) doesn’t tap those powers effectively.

The biggest problem with Cirrus is that it doesn’t show the effect of changes in the prescan. You prescan, change settings with no visual feedback (you can’t even see before and after values with the densitometer), and then rescan to see the effects. You can apply all the changes to a scanned image after you have captured it, but you are not tapping the downloadable gamma capability, so you might as well do that in Photoshop, which has better tools (though it is not provided with the scanner). You can scan at low resolution, make changes with live updating, write down the settings, then go back and apply them to a high-res scan; but it’s hardly efficient.

At first glance, the FS2 might appeal to those looking to save money. While it costs $600 less than the Agfa Arcus II and Umax PowerLook, those scanners are, in fact, better deals. Unlike the FS2, they each include a transparency adapter and the full version of Photoshop, just adding a transparency adapter to the Ricoh scanner ($1050) puts it well beyond the cost of the Agfa and Umax models.

**Umax PowerLook**

The PowerLook is head-to-head with the Arcus II for the top pick in this roundup. The PowerLook doesn’t offer quite as good gray sensitivity or color accuracy; it provides no color-management software; and its sharpening controls aren’t up to snuff (the only unsharp mask settings are high, medium, and low). But the PowerLook generates very good scans and offers excellent tonal-correction tools that take full advantage of the scanner’s downloadable gamma correction. In overall scoring, it’s the fastest scanner in the bunch.

The MagicScan software has one key failing: zooming on previews. When you zoom in, the software merely enlarges the low-res preview rather than rescanning. You have to adjust the preview frame manually and repreview to get a high-res zoom and you must resort to a submenu of the File menu to zoom back out.

There’s a dialog box similar to Photoshop’s Levels dialog box, and there’s an arbitrary Curve dialog box (with numeric readouts but no numeric inputs). Unlike the Agfa software, MagicScan doesn’t download this arbitrary curve; it essentially applies a postscan filter—in addition to the hardware gamma correction—as the 8-bit data comes in. Other features include an easy-to-navigate interface for batch and multiframing and a descreening filter that works as well as these filters can be expected to work. With press time, Umax had released new software for the PowerLook that includes (among other things) the ability to pull 10- or 30-bit data into Photoshop, improved zooming on previews, and Umax’s MagicMatch color-management software.

**The Last Word**

I wish that I could wholeheartedly recommend one of the lower-cost scanners, and the Epson comes close—limited by its less-than-stellar performance in gray sensitivity and color variation. But the real choice in this roundup is between the Umax PowerLook and the Agfa Arcus II. And then, it’s a question of a noticeable but small quality difference and a major speed difference (obviated to some extent by the Arcus II’s full-featured correction tools). You should choose the Arcus if you are really going to tap those tools to automate scanning and correction. If you plan to do most of your correction in Photoshop anyway, the faster PowerLook is a better choice.

---

**HIGH-BIT SCANNERS**

Two of the more expensive scanners lead the pack, though the less-expensive Epson ES-1200C might be sufficient for those on a limited budget.

**Arcus II** Top ratings in every category except for speed, plus full-featured software, make this a winner. **Company:** Agfa. **List price:** $3495.

**PowerLook** This scanner turned in good or excellent ratings in almost every category. It’s blazingly fast, and its software is a pleasure to work with. **Company:** Umax. **List price:** $3495.
Color is color, unless you want performance and price.

New Phaser™140 Color Printer: $1,695.
At last there's a low-cost printer with world-class performance. It lets your business hit the ground running. Start with 360 dpi resolution on plain or glossy paper, transparency or back-print film. Pour on Pantone's certified color and Adobe"PostScript" Level 2. Rip through image processing at RISC-speed—the fastest in its class. The Phaser 140 supports PCs, Macs, and networks simultaneously. And it's from Tektronix, a Fortune 500 leader, where value in workgroup color printers now starts at only $1,695, and doesn't stop until you finish first.

Tektronix

Free output sample, call 800-835-6100, Ext. 1069.
When all else fails,

There are three types of computer users: those who have lost data due to a power problem, those who are going to, and those who have protected themselves against the inevitable surge, blackout or brownout with the most reliable UPS they can buy: Back-UPS by APC. In fact, editors and users alike agree that if your system demands absolute reliability, you can depend on APC Back-UPS.

According to a study by Bell Labs, undervoltages represent the overwhelming majority of power problems likely to hit your computer. The question is not if a failure will occur, but when. Whether due to construction, wiring, weather, other office equipment, or accidents, power problems are as inevitable as death and taxes. That's why you need instantaneous battery backup power from the Back-UPS to prevent data loss, hard disk crashes, and hardware damage.

If you're concerned about lightning, rest assured that when measured using the ANSI/IEEE 587 Category A test wave, Back-UPS are superior to virtually all separate surge suppressors. Surge performance is even backed by a $25,000 Lifetime Equipment Protection Guarantee.

The clear winner in price performance...it's unbeatable...

Starting at $119

APC Voted most reliable by 3-to-1

Tripp

Best

In a recent poll by PC Magazine's MagNet, APC was voted the most reliable UPS manufacturer by a 3-to-1 margin. That's dependability that will see you through years of unmatched power protection.

PC Magazine

August 1993
APC Back UPS 1250

LIFETIME EQUIPMENT PROTECTION $25,000

© 1994, APC. Back-UPS, PowerChute are trademarks of APC. Other trademarks are the property of their owners. Specs subject to change without notice.
Protect Your Mac. FREE 60-page Power Protection Handbook

What are the myths and musts of Mac protection? What are the 10 most common power protection mistakes? The top tips for adding reliability to your LAN? Get your FREE copy and find out!

☐ YES! I’m interested in trading up a competitive or older UPS to a Back-UPS. Please send Trade-UPS info

☐ NO! But I would like a FREE Handbook.

Name________________________________________ Title:_____________________

Company________________________________________

Street/City/State____________________________________

Phone/fax:____________________________________

Brands of UPS used?____________________________________

# servers/Macs to be protected?_____________________

Dept. D7
Attention Resellers, Win $10,000 cash in APC's Back-UPS Workstation Success Story Promo!! Call for an entry form today!

Don Truax knows first hand about Back-UPS reliability: "It ought to be against the law to buy a computer without an APC Back-UPS 250. I recently had a direct lightning hit right outside the house...my computer never blinked. Each morning I get a surge down the line and both APC's fate it - they simultaneously ‘holler ‘n clamp’ while my ‘Brand T’ quietly sleeps. I’ve relegated that unit to non-critical household stuff like my VCR.”

"All other brands of UPS die regularly in this lightning prone environment. My APC won’t die!” said Paul Stoll, Systems Analysis, City of Port St. Lucie. "With other brands, users don’t find out until it is too late. The power interruptions here are very hard to live with. The other brands are dying off. Typically they last just beyond their warranty period. My Back-UPS is going on three years...no other brand is as reliable.”

If you’re protecting a network server, a communications interface port (on models Back-UPS 400 and higher) provides the security of an automatic shutdown to all major OS including NetWare, Windows, Windows NT, LAN Server, LAN Manager, LANtastic, SCO Unix, OS/2, Banyan Vines, AppleShare/System7 and more, so your data is safe whether the system is attended or not. A leader in the Industry: APC has won more awards for performance and reliability than all other UPS vendors combined, including five consecutive LAN Times Readers Choice awards...

Instantaneous backup power beats blackouts and brownouts
Unmatched lightning (tested to UL1449) and surge protection for maximum hardware safety
Network-grade line conditioning and EMI/RFI filters prevent glitches
LAN Interface (on Back-UPS 400 and up) provides automatic shutdown to all major OS: Windows, NT, NetWare, LAN Server, LAN Manager, LANtastic, Unix, AppleShare/ System7 and more.
Site diagnostics automatically spot missing ground and reversed polarity, two common malfunctions which usually require an electrician’s visit to diagnose.
Option switches allow you to customize transfer voltage and alarm settings.
Test Switch for ongoing peace of mind.
2 year warranty and full safety approvals including ISO9001.
$25,000 Lifetime Equipment Protection
Hot Swappable, User Replaceable Batteries reduce service time, cost by allowing safe removal and replacement of exhausted batteries, while your system stays running.

Back-UPS (L to R) Application Sugg. List
200 Green PCs, small desktop systems $119
280 Desktop systems, LAN nodes, POS $139
400 Desktop 486, 366 systems, servers $229
450 Tower 486, 386 systems, servers $279
600 Heavy configured systems, CAD/CAM workstations $399
900 Multiple systems, longer runtime applications $599
1250 Multiple systems, LAN hubs, small mins, telecom equipment $799

Circle 72 on reader service card
HOW DO THE NEW-GENERATION PROGRAMS COMPARE? HAVE THEY GOTTEN TOO BIG? MACWORLD LAB FINDS OUT.

**Processing Powerhouses**

You've seen the headlines, heard the debates, read the letters to the editor: Microsoft Word 6 is slow as molasses! WordPerfect 3.1 is faster! Word 6 users are going back to Word 5.1! Nisus Writer 4 is better! Word 6 has everything a writer could want! What are the facts behind all the commotion? Which, in fact, is the best of this new crop of high-end word processors?

Making that call is not easy. Today's high-end word processors are among the most complex software products you'll encounter—unless, perhaps, you do maintenance on the space shuttle or operate an atom-smasher. And, as with repairing a spaceship or smashing atoms, when you need to perform certain sophisticated word processing tasks there is no substitute for the right tool.

But to find the right tool—to get the half-dozen task-specific, high-end features that your word processing demands—you have to sort through, and buy, several hundred other high-end features that you don't need.

This article will help you make sense of the subtle differences between Word, Nisus Writer, and WordPerfect by grading their important features so that you can find the capabilities you really require. If your word processing needs are more modest, we also have information to help you choose among several less-complicated word processing packages—see the accompanying article, "Lean Writers."

To put it in a nutshell, Microsoft Word 6.0 (street price about $325, Microsoft Corporation, 206/882-8080, 800/426-9400) delivers a raft of new features that beat the pants off its competitors, but the program's speed on all but
the fastest Macs raises troubling questions. Nisus Writer 4.0 ($495, Nisus Software, 619/481-1477, 800/922-2993) and WordPerfect for Macintosh 3.1 ($395, Novell WordPerfect Applications Group, 801/225-5000, 800/451-5151) are significantly less radical departures from their forebears and significantly less powerful than Word 6. Nisus Writer performs some tasks especially well and others very poorly, while WordPerfect almost never turns in a memorable performance, yet only rarely ends up in last place.

**Basic Tools**

Some things will strike you the moment you start using each program. First, all three are memory hogs, with a preferred RAM partition of 3MB. Nisus Writer fills more than 6MB of hard disk space, WordPerfect about 9MB, and Word 25MB or more (4MB for the program alone), though, of course, you can limit the damage by not installing templates and other useful extras.

In day-to-day operations, Nisus Writer remains a curious mix of bad design (deeply buried open-windows list, far too many submenus, ten-count 'em—preference dialog boxes) and good design (noncontiguous text selections, a ten-part clipboard). In Word, you can add multiple items to the Clipboard, but when you paste, there is no way to paste a single item—Word spits out everything the Clipboard holds.

Word 6 is less an upgrade from Word 5.1 than it is a brand-new program; it is, in fact, Word for Windows 6.0 running on the Mac. It has a new look, completely reorganized menus, new keyboard shortcuts, new commands, and different dialog boxes (though it still has way too many of them). Word can now undo and redo up to 100 actions and it's the first high-end word processor that makes printing envelopes a snap (see “Take a Letter”).

But you'll have to adjust to the disappearance of some memorable Word 5.1 features, such as the Work menu, the Section command, the Apply button in many dialog boxes, the ability to add columns of figures quickly anywhere in the text, and the use of menus and rulers to specify options in open dialog boxes. You’ll have to adjust to a few unwelcome additions imported from Windows as well, such as the convoluted DOS-like way you change the cache and other advanced settings. And if you’re a System 6.0 holdout, you’ll need to switch to System 7.

WordPerfect doesn’t provide any particularly notable basic features, except, perhaps, the cleanest, least cluttered, most direct interface. It is also the only program that supports System 7.5 drag and drop. (All three programs support drag and drop in the same document, and Word and WordPerfect support drag and drop between their own documents. For drag and drop between applications, WordPerfect requires System 7.5, and Word requires Microsoft’s OLE extension, which comes with Word and enables drag and drop among Word, Excel, and PowerPoint.)

**Take a Letter**

When you open the Envelopes and Labels dialog box, Word inserts the address for the letter you’re writing. Word can also print the appropriate bar code on the envelope, offers standard envelope sizes, and remembers your return address.

**Columns Are a Drag**

In WordPerfect you can easily change column widths by dragging the column marker on the ruler, or you can change the number of columns with the Columns pop-up menu on the Layout toolbar. But because there's no easy way to balance column lengths in WordPerfect, mixing different numbers of columns on a single page is a real juggling act.

Nisus is the only one of the three that comes with a manual for macros. WordPerfect has managed to keep its documentation to 337 pages; overall, it's a competent effort that falls short a bit too often. Word’s 1059 pages of manuals, although the best of the lot, are larded with confusing Word for Windows material and, despite the length, have noticeable lapses as well.

Most of the information missing from the printed manuals is covered in extensive on-screen help in all three programs. Only WordPerfect has adopted System 7.5's Apple Guide, but Apple Guide's lead-you-by-the-hand demonstrations are not much in evidence in this first try. Only Word has Help buttons, sometimes helpful, sometimes not, in virtually every dialog box, as well as a Help pointer that takes you directly to the appropriate help screen. Regrettably, all three on-screen help systems lack cross-references to the relevant pages in the manuals.

**Document-Creation Tools**

Whether you’re writing a maintenance manual for NASA or a two-page summary of ancient Mesopotamian civilizations, high-quality tools are essential for creating your document and controlling its structure and format. Word is the only one of the three programs with an integrated outliner, and the way it ties together virtually all the elements and formatting of a document makes outlining one of the program’s most valuable features. In Word, every document harbors an outliner at its core. You can display it anytime, and you can use it to expand or collapse parts of the document and move them around at warp speed. You can reorganize Word’s tables in a flash using outlining tools; the outline headings automatically convert to properly formatted section titles when you return to
Perfect have: a way to indicate ics- in any number of docu-
sheet t emp lates, and it has a cl udes a scaled-down .Math­
other formatting. 
NordPer­ it de velo ped and that is less
extensive collection of style­
the least satisfactory. formidable foreign- language and correct your work. Although not as powerfu l
place to store reusable bits and scripts, and it has right-to-left acti
styles and cl udes an equation editor that searc h and rep
right-to-left operators and wild-card char-
pointer too l that you can use Type; and WordPerfect in-
port character styles and are Nisus 
Word's outliner extends in
be both paragraph and character
styles. Word can choose and apply styles for you (though not always with aesthetically pleasing results) from its
Design Science's equation editor, MathType; Word in-
WordPerfect includes an equation editor that it
don't support character styles and are the least satisfa ctory.
Word and Nisus Writer have easy-to-use glossaries—a place to store reusable bits and pieces of text or graphics.
(WordPerfect's styles can per-
sheet syles don't sup-
form a sim ilar function, but
not nearly as well.) Nisus Writer includes a full version of
ed and that is less
powerful than MathType.
Nisus Writer also has formidable foreign-language
right-to-left and left-to-right
its right-to-left
Nisus Writer also has a convenient
operators and wild-card char-
Nisus Writer's search
find almost
of Word's strong points, espe-
different directions.
Style sheets are also one of Word's strong points, espe-
cially now that Word 6 has
lacks one foreign-language
feature that Word and Word-
Perfect have: a way to indicate
the language of roman-alpha-
the program uses the correct dictionary,
easier to find and replace them in Word than in Nisus Writer. Nisus Writer, on the other hand, provides a more comprehensive set of wild cards and operators, and they are easier to use than in Word. WordPerfect, with only two wild-card characters to its name, has by far the weakest search function.

Although its dialog box is a prime example of poor design, the Nisus spelling checker is overall the best of the three; it's fast, it automatically displays suspect words in context, and you can run it entirely from the keyboard. WordPerfect's spelling checker gets the lowest marks: you can't run it solely from the keyboard, and it doesn't always display suspect words immediately.

Grammar checkers have never impressed me much, so the absence of one in Nisus is not, in my book, a serious omission. Word's grammar checker is easier to use than WordPerfect's Grammatik 5, but Grammatik 5 (which was also sold separately until WordPerfect released version 6) has more depth and flexibility. I've never found an electronic thesaurus very useful either, but if I had to choose one, I'd choose the one in Nisus Writer. Word has the most flexible and comprehensive hyphenation feature, and Nisus, the least. And only Word can count the words in a selection as well as in a whole document, though its word-count feature is incredibly slow even by Word's standards (see "Word Processors: Which Is Fastest?").

EDITING TOOLS: MSW, B+: NW, B+: WP, B-

Automation Tools
Performing complex, boring, or repetitive word processing tasks is the bane of any serious writer. To save you time and aggravation when your word processing borders on data processing, the three heavy-weight word processors provide ways to perform many tasks quickly and easily or even automate them. All three programs, for example, have button bars or floating tool palettes, add and remove spaces as needed when you cut or paste text, and use smart quotes (see "Tools of the Trade"). Word and WordPerfect can correct common errors such as transposed letters, common misspellings, extra spaces, and incorrect capitalization as you type—you can even customize the corrections so that when you type an abbreviation the program spells out the full word.

Word, however, is the only one of the three that has taken a serious stab at making its cornucopia of features easier to use. For example, Word's tool bars display a pop-up description of what each tool does, you can completely reorganize tool bars and menus for easier access, and pop-up menus appear when you click on many document elements. Word can automate tasks such as writing a résumé or producing a table by quizzing you about your goals. Though far from perfect, Wizards and automatic formatting are a tantalizing first attempt at a new kind of intelligent assistance.

Macros are the ultimate way to automate tasks, and all three programs contain comprehensive, if rather daunting, macro languages. All three have a watch-me macro-recording mode. Word's is the most intelligent—for example, if you select the Replace command, it knows you need to clear any previously entered formats and enters the appropriate command for you. Word makes editing recorded macros the easiest, and its macro button bar is especially helpful for this. The macro language in Word is actually Word Basic, similar to but, unfortunately for integrators, not the same as Visual Basic for Applications, Excel 5.0's new macro language.

Nisus has a two-tiered macro language: a less capable dialect that the technically disinclined should find somewhat easier to work with, and a full-featured programming dialect. Its watch-me mode is the least intelligent—it cannot recognize selections from pop-up menus, for example, and it records a mouse-click by screen coordinates instead of by the option or command you are selecting—but Nisus comes with the greatest number and variety of useful, ready-to-use macros. WordPerfect's ability to switch back and forth between the watch-me recorder and the macro editor is very useful. Managing macros—renaming them,
moving them, assigning key commands, and so on—is unnecessarily difficult in all three programs.

Mail merge has always been a big thorn in the side of anyone producing form letters and other standardized documents. Unfortunately, Nisus continues the tradition with what is, by today's standards, a very old-fashioned merge feature: you must enter all field names, field markers, and merge commands entirely by hand. If the thought of doing a mail merge makes you queasy, don't even think about doing one in Nisus Writer.

WordPerfect has heard the howls of mail merge protest and done something about it. Once you specify your data document, for example, you can select field names from a pop-up menu (though the menu is inconveniently located in a dialog box). You can also select other merge commands from a pop-up menu, including prompting for keyboard input or running a macro. Creating the data document isn't much different than in Nisus, however, and parts of the merge process (such as replying to some user-specified prompts) can be pretty awkward.

If you find mail merge intimidating or can't be bothered with the details, Word's Mail Merge Helper is the answer to your prayers. The Helper leads you through creating the data- and form-documents step-by-step, carefully explaining the process for form letters, envelopes, address labels, and catalogs, and putting everything you need for the job, such as field names and merge commands, within easy reach. Then, unlike Nisus and WordPerfect, Word can check form- and data-documents for errors and help you resolve any problems. It can quickly display how a merged document will look on screen, and can filter and sort the data and merge commands entirely by hand. If the thought of doing a mail merge makes you queasy, don't even think about doing one in Nisus Writer.

WordPerfect has heard the howls of mail merge protest and done something about it. Once you specify your data document, for example, you can select field names from a pop-up menu (though the menu is inconveniently located in a dialog box). You can also select other merge commands from a pop-up menu, including prompting for keyboard input or running a macro. Creating the data document isn't much different than in Nisus, however, and parts of the merge process (such as replying to some user-specified prompts) can be pretty awkward.

If you find mail merge intimidating or can't be bothered with the details, Word's Mail Merge Helper is the answer to your prayers. The Helper leads you through creating the data- and form-documents step-by-step, carefully explaining the process for form letters, envelopes, address labels, and catalogs, and putting everything you need for the job, such as field names and merge commands, within easy reach. Then, unlike Nisus and WordPerfect, Word can check form- and data-documents for errors and help you resolve any problems. It can quickly display how a merged document will look on screen, and can filter and sort the data and merge commands entirely by hand. If the thought of doing a mail merge makes you queasy, don't even think about doing one in Nisus Writer.

**Microsoft Word**

**Outlining** No other high-end word processor has true outlining that can manage so many other aspects of the document—table of contents, formatting, and so on. Writers who ignore its outlining are wasting Word's power.

**100 Levels of Undo** Word can undo up to 100 past actions in one stroke and describes those actions in a scrolling list—much better than Nisus's undo and redo, which, though unlimited, reverses only one action at a time.

**Styles** The addition of character styles in Word 6 makes Word's styles the most powerful formatting tools in any word processor, although not always the easiest to use.

**Mail Merge** Word's Mail Merge Helper guides you through the entire process and helps you if you make a mistake (see "Sorry, Wrong Number"). It contains a mini database for mail merge information and is intelligent enough to delete blank lines produced by missing information.

**Envelope Printing** Word prints envelopes with return addresses and bar codes almost effortlessly.

**Nisus Writer**

**Speech Synthesis** Nisus Writer can read documents aloud—it's a great way to check for mistakes that elude the eye. It can correctly pronounce English, French, Spanish, German, and Italian; and it supports Apple's PlainTalk.

**Search and Replace** Nisus Writer's search function almost has to be seen to be believed (see "Power Replace"). It can, for example, update the area codes in a list of addresses based on their zip codes, or locate all European-order dates and convert them to American-order dates.

**Ten Clipboards** A pop-up menu shows which clipboard is active, shows which ones are empty or full, and allows you to switch between them.

**Noncontiguous Selection** Nisus Writer can select multiple pieces of text anywhere in the main document. It can also select all occurrences of anything found with search and replace.

**Multiple-Key Commands** Nisus Writer can create key commands that combine up to three letters with the standard modifier keys, vastly increasing the number of possible commands and making them much easier to remember.

**Long-Document Tools**

If you are writing the next great science-fiction epic or some other long and complex document, you'll need capabilities that the average single-page memo blaster is blissfully unaware of—capabilities such as indexing, generating tables of contents, cross-referencing, and footnoting.

For footnotes and endnotes, Microsoft Word is the best choice: it applies styles more intelligently, it allows you to edit footnotes right on the page, and it offers the widest variety of standard numbering schemes. Nisus Writer, on the other hand, is the least helpful with footnotes and endnotes, and it doesn't allow you to use both in the same document.

Word is also the best choice for tables of contents. If you create an outline to organize your document, Word can create a table of contents many levels deep based on the outline headings. If you use styles other than outline heading styles to format section titles, Word can compile a table of contents based on those styles. Or you can embed table-of-contents codes in the document, a process that Word's Field command partially automates.

WordPerfect can create tables of contents of up to five levels; Nisus Writer can generate only single-level tables of contents. Oddly, though Nisus can automatically number chapters, sections, and subsections, its table-of-con-
tents feature ignores those headings, unless manually marked. Word and WordPerfect also easily generate tables of authorities, lists of figures, and other lists; doing so in Nisus Writer is especially laborious.

No word processor makes indexing easy. Nisus Writer generates only simple, single-level indexes, but it can help you create the index by compiling a list of all words in a document and then marking index entries for you. As you have carefully winnowed the list by hand. Although both Word and WordPerfect can use a word list to mark index entries, neither can create the list. WordPerfect can compile two-level indexes; it cannot, however, generate indexes in the common Chicago Manual of Style format. Word's indexer is the most versatile of the three. It can create indexes with as many as nine levels, and add cross-references (such as "See . . .").

Compared with indexing, cross-referencing should be pretty straightforward, but Nisus Writer and especially WordPerfect make it remarkably difficult. Only Word makes it as easy as choosing an item from a list. WordPerfect also complicates things unnecessarily by creating and updating all lists, indexes, and cross-references with a single command, thus making it easy to accidentally overwrite manual editing or formatting in one list when creating or updating another. Word, on the other hand, not only creates and updates each list separately, but also can update just the page numbers in a table of contents so that you don't lose manually applied formatting in the contents section.

Finally, for long publications that are logically composed of more than one document, such as a book divided into chapters, Word has a unique feature called a master document. In a master document's normal view, you can see and work on the contents of the entire publication. In a master document's outline view, you can divide the publication into smaller subdocuments and easily reorganize the contents of the publication regardless of subdocument boundaries. Most important, Word keeps track of page numbers; maintains cross-references; and compiles indexes, lists, and tables of contents across all the subdocuments of the master document.

LONG DOCUMENTS: MSW, A-; NW, C; WP, C+

Design Tools
All three programs have tools for embellishing documents with graphics, adjusting type, and laying out pages. WordPerfect offers the widest variety of drawing tools, including a Bezier-curve tool, but in contrast to Word and Nisus Writer, WordPerfect makes you draw in a separate window, which makes it difficult to judge how graphics and text will fit together.

WordPerfect can flip text in a graphic and rotate it in 1-degree increments, while Nisus Writer can only rotate graphic text by 90 degrees. Word can flip and free-rotate text in its new WordArt module, which can also create special text effects such as text arcs, circles, waves, wedges, and shadows.

All three of these programs can wrap text around graphics and place graphics in front of text or behind it. WordPerfect's Watermark command makes the latter especially easy, but screen-redraw problems make word wrap a rather messy affair on screen. All three programs import graphics in standard formats as well as QuickTime movies; Word and WordPerfect come with modest selections of clip art. Variable-width newspaper-style (snaking) columns and different column formats on the same page are available in Word and WordPerfect, but working with multiple-column formats is far easier in Word (see "Columns Are a Drag"). Nisus Writer, at the opposite extreme, restricts you
to columns of equal width and only one column format per document, and you can’t edit in the only view that displays multiple columns. Word and WordPerfect can also affix captions to figures, tables, and other items—Word a bit more flexibly—and create text boxes for pull quotes and the like.

Word is the only high-end word processor that allows you to edit text and graphics in a view that shows how the document will look when printed. You can zoom in for detail work and zoom out to view your document as a screenful of fully editable thumbnails, where drag and drop becomes truly useful. Word also has special items for electronic forms such as purchase orders, with fields that accept only certain entries (such as dates), clickable check boxes, and pop-up menus that list all available choices. Word and WordPerfect support QuickDraw GX, which allows you to change settings, like page orientation, on a page-by-page basis.

**Tools for Workgroups**

If you share your workload with others, you’ll need to be able to exchange documents with people who may be using a different Macintosh word processor or a DOS or Windows word processor.

Word reads and writes a wide variety of file formats, including other Microsoft application formats for the Mac and PC, RTF, RTF-DC, MacWrite II, and WordPerfect for DOS and Mac. WordPerfect supports WordPerfect formats from the PC and other platforms, RTF, and MacWrite and WriteNow formats. It can also read Word files if Apple’s Easy Open is installed (WordPerfect comes with a copy). Nisus Writer can import and export in any format for which there is an XTND-compatible translator (the program comes with translators for MacWrite II, RTF, and Word 4 and 5 only); and because Nisus files look like raw text files to other applications, just about any application can open Nisus files, though, of course, you’ll lose all formatting.

Other programs largely ignore Nisus Writer’s table abilities thoroughly unsatisfactory.

Word and WordPerfect, on the other hand, can create tables spanning multiple pages, automatically repeat column headers at the top of each new page, and perform spreadsheetlike calculations. Word’s table editor, while not always easy to use, is certainly the most powerful, and the table Wizard and the AutoFormat and AutoFit functions alleviate many ease-of-use issues.

**The Last Word**

Overall—ignoring serious issues of performance—the new Word has actually widened its lead in the high-end word processor race, while WordPerfect and, at the rear of the pack, Nisus Writer trail well behind. But performance can’t be ignored where Word 6 is concerned. Some criticisms of Word’s speed have been overblown, and Microsoft says it is working on an update to address speed problems caused by system-extension conflicts and large numbers of fonts. (For more on Word 6, see Reviews, Macworld, February 1995.)

But the fact remains: both 680X0 and Power Mac versions of Word 6 are slower than Word 5.1 (see “Word Processors: Which Is Fastest?”). On older, 68040- and 68030-based Macs, Word 6 is even slower. The bottom line is that if you have a fast 68040

**Table Tools**

If you frequently present information in table form, forget about creating columns with the tab key: what you need is a table editor, which all three programs offer.

Nisus Writer’s table editor, which is a version of Macreations’ Tycho TableMaker, has some very helpful features, such as commands for reversing the order of rows or columns and transposing rows and columns. But it also has a major, indeed a fatal, flaw: it cannot create tables longer than a single page. That, combined with the fact that Tycho’s tables are not Nisus documents, which prevents you from using Nisus Writer’s powerful editing features, mark text in tables for an
Introducing Macintosh System 7.5. It can up

Drag-and-Drop printing.
Avoid lines when working on your network. You can print documents simply by using icons on your desktop. To print a file, just drag it onto a printer icon. To change printers, just drop the file onto a different printer icon.

Macintosh PC Exchange:
It's built in, so now you can easily share documents with DOS and Windows users, view the contents of DOS disks as if they came from another Mac, and open and edit files even when you don't have the applications they were created in.

Enhanced desktop.
Faster and easier access to items in your Apple menu. Track and retrieve your most recently used applications, documents and servers more quickly. Create convenient, on-screen notes with new electronic Stickies.

EMPLOYEE EVALUATION

NAME: Chris Wolfe DATE PREPARED: 9-8-94
TITLE: Product Manager
DEPARTMENT: Account Management

OVERALL PERFORMANCE:
☑ Outstanding ☐ Commendable ☐ Satisfactory ☐ Needs Improvement

COMMENTS:
Chris has become an indispensable member of the account team. He has demonstrated a high level of motivation and enthusiasm for the job. Perhaps the most compelling evidence of this can be found in his ability to work independently, where he picks up new tasks easily with little need for supervision or instruction. He consistently recognizes and works around obstacles to maintain productivity. Consequently, he often completes assignments ahead of schedule. At a time when collaboration is more critical than ever, Chris has also proven to be an excellent team player. He works effectively with coworkers on projects where teamwork is essential, and can easily motivate and inspire others to achieve. When delegating tasks, his thoughts are well organized and his ideas clearly articulated – an indication of his excellent communication skills. His projects are all distinguished by an attention to detail. His conclusions are always sound and logical. And he excels in time management, effectively compiling and analyzing information. He always manages to work efficiently, setting an example for effort throughout the company. Promotion and appropriate compensation are recommended at this time.

Chris Wolfe
Evaluator's Signature
grade your career.

Today, everybody keeps telling you to work smarter, not harder. Wouldn't it be nice if someone finally told you how?

Introducing Macintosh System 7.5. The latest, greatest version of the Macintosh operating system. A series of more than 50 refinements, enhancements and improvements that will do more than simply change the way your Macintosh personal computer works - they'll change the way you work. Making you more productive than ever.

For starters, Macintosh System 7.5 enables you to collaborate with others much more effectively.

It speeds up repetitive tasks, makes it possible to send and receive mail from a variety of sources through a single mailbox, lets you swap files with PCs and allows you to open Macintosh, DOS and Windows documents - even when you don't have the applications used to create them.

When it's time to print, you can do so quickly by using simple icons right on your desktop.

You can even teach yourself how to use your Mac and new applications with the Apple Guide, as it literally walks you through procedures, step by step.

Ultimately, it's all about giving you more of everything you buy a Macintosh for in the first place. More power. More performance. More simplicity. More Macintosh.

For the name and location of an authorized Apple software reseller near you, call 800-538-9696, ext. 250.

Because with the new power of Macintosh, there's really no telling how far you'll be able to go.

'The power to be your best.
n 1984, MacWrite fit on one 400K floppy disk—with room left over for a System Folder and a chapter or two. Today, Microsoft Word would fill 65 of those disks. Word processors have become lumbering behemoths, so bogged down with page-layout, math, and graphics features that they’re barely even appropriate for word processing anymore.

Fortunately, in this age of the unparkable Mack truck, you can still buy a Honda Civic—and get a faster, smoother, and less expensive ride. For example, in the time it takes Word 6 to open on a Power Macintosh, you could launch the nimble WriteNow four times (see the benchmarks “Word Processors: Which Is Fastest?” in the feature “Word Processing Powerhouses,” immediately preceding this article).

Today’s word processors with midrange capabilities are inexpensive: LetterPerfect 2.1 lists for a mere $49.95, MacWrite Pro 1.5 goes for only $99, Nisus Compact 3.31 lists for $150, and WriteNow 4.0 for $119.95. They require only a fraction of the memory and disk space that their full-fledged competitors demand. And these days, using a low-cost word processor no longer means conducting your literary affairs in a pumped-up TeachText. True, these programs don’t compile indexes or kern headlines. But all four offer the basic word-crunching tools: they include spelling checkers, mail merge your form letters, mix graphics and text on the same page, create multiple headers and footers, and look up words in a thesaurus. They all let you create multiple columns on a page and search for and replace words and formats. And all
There are two: First, if you do things right with word processors and specialized features, you probably save in Word—readable RTF division technology, all can save (except WriteNow, which can switch to one of these). Your colleagues won’t know the difference.

In days of old, using one of these alternative word processors meant stranding yourself on an island of incompatibility, but no longer. All four can directly open files in Microsoft Word versions 3, 4, and 5 formats. Using XTND conversion technology, all can save files in Word format directly (except WriteNow, which can save in Word-readable RTF format). In other words, you can switch to one of these sprightly word processors and your colleagues won’t know the difference.

So what’s the catch? There are two: First, if you do need indexing, revision-tracking, or some other highly specialized feature, you probably won’t find it here—take a deep breath and proceed directly to a high-end word processor. Second, if you’re a compulsive software upgrader, note that three of the four packages compared in this article share one more thing in common: they are being abandoned by their publishers and are slated for extinction.

**Nisus Compact**

There’s no slogan “Nisus Compact: the quirky word processor,” but there should be. Nisus Compact is a lovably oddball, trim-line edition of Nisus Writer, the most lovably oddball program on the market. Nisus Software’s programmers seem to have reinvented every aspect of a word processor, substantially improving upon many standard word-processor features—and at the same time substantially diminishing others.

Most of the improvements are in usability. Nisus Compact brims with “that’s just what I was looking for” features that few other programs offer. You can undo your last 300 steps. You can select non-contiguous chunks of text at the same time, a useful Nisus exclusive. You can split the screen horizontally, vertically, or both ways. Electronic bookmarks let you jump to marked spots in a document. A nice touch: you can rename the open document without doing a Save As. Even nicer: you can edit what’s in the Clipboard before pasting it.

Nisus Compact is also the word processor most tuned for PowerBook use. A single press of the enter key locates and highlights the cursor. You can keep the whole program in memory, greatly diminishing hard disk access to save battery power; and Nisus Compact provides information on battery, RAM, and usage.

As with Nisus Writer, documents created by Nisus Compact appear to other programs as plain TeachText documents, so just about any Macintosh program can import them. Yet when you open any Nisus document with either Nisus version, all formatting and style information is still there.

Unfortunately, in their zest for the unconventional, the designers left out some important conventional features. For example, there’s no print preview, which renders the multiple-column capability pretty unmanageable. In a similar vein, the program shows a gap, a gray stripe, between pages—fine, except that it doesn’t show the margins, so text appears to run right up to the edge of each page. You can’t create small caps, and you can’t color text. The scantily indexed manual is almost amateurish. And worst of all, Nisus Compact has no table editor, a staple of modern word processors.

Nisus Software says that most copies of Nisus Compact are bundled with hard drives rather than sold and that the program won’t be upgraded; it’s the first of our three word processor orphans-to-be. Nisus Compact is potent for PowerBook owners, and fascinating for students of word processor design. But it may leave you hungry for something less compact.

**LetterPerfect**

This scaled-back version of WordPerfect is a clean, by-the-book Macintosh program, well groomed for office work, with online help, balloon help, publish and subscribe, print preview with magnification or reduction, spelling checker, thesaurus, and even a grammar checker. There are two glaring omissions: paragraph style sheets, which you might not miss, and tables, which you will. On the other hand, the features that LetterPerfect does provide offer an almost amusing number of options: there are 8 commands for footnotes and endnotes, for
example, and 28 just for formatting dates and times.

In light of LetterPerfect's corporate conservative, solid feel, it's surprising to find that it, like Nisus Compact, offers a handful of unusual features. For example, it can password-protect confidential documents. It can automatically renumber outlines as you add, move, or delete headings. And, as in Word, a handy menu lists the most recent documents you've worked on—and another menu lists some very useful ready-made stationery templates for a business letter, an envelope, a memo, and so on.

Guided by its remarkably articulate manual, you can grasp the program's layout and soul within half an hour. At $49.95, LetterPerfect is a surprising bargain.

Unfortunately, despite LetterPerfect's value and polished office-readiness, this program, too, has been abandoned. It's still for sale, but it hasn't been updated in more than two years, and WordPerfect doesn't plan to devote further attention to it. Like Annie, LetterPerfect is a good-looking orphan.

WriteNow

In its fourth incarnation, WriteNow still reigns as the fastest word processor you can buy. In our speed tests, WriteNow blew away all other programs, low-end and high, winning half the tests in a field of 13 test scenarios. (Nisus Compact was a close second in some tests and edged out WriteNow in a couple.) WriteNow is ready for typing only 5 seconds after you double-click on its icon. A font change that took LetterPerfect 15 seconds took WriteNow only 3. Microsoft Word version 6 on a Power Macintosh took 30 seconds to count words—WriteNow took only 3.

WriteNow is equally impressive in its tininess, out-compacting even Nisus Compact. The application alone requires only 350K of disk space and asks for only 400K of memory. That's a blessing for PowerBook users; even on a 4MB laptop, you can stuff WriteNow and a System Folder onto a RAM disk, put the hard drive to sleep, and coast for five hours on a battery charge.

WriteNow is a pure writing machine, designed for speed and efficiency. It offers...
an easy-to-use style-sheet feature with both paragraph- and character-based styles, tables, footnotes, spelling, thesaurus, print preview, and balloon help. Tables are easy to work with, thanks to the floating tool palette that lets you, for example, apply shading to a row with a single click. The only features you might miss are autosave, small caps, and auto-hyphenation.

Unfortunately, WriteNow's idiosyncrasies are enough to keep it from being a natural for novices. Weirdly, for example, the page scrolls upward when your typing reaches the middle of the window instead of the bottom. And WriteNow's formatting ruler is a separate windowette, which you must bring forward with a click whenever you want to change a paragraph. To make matters worse for the technically impaired, WriteNow's manual isn't nearly the model of perfection exemplified by, say, MacWrite's. Otherwise, at $119.95 list, WriteNow offers much greater value—and certainly greater speed—than any of the high-end behemoths. But believe it or not, this program, too, is virtually washed up. Softkey, which acquired WriteNow essentially by accident after a series of mergers and buyouts, doesn't plan to upgrade the product. Popularity isn't the issue this time, it's technical: WriteNow's speed derives from having been written specifically for the 680X0 series of processors, so for the Power Mac would require starting from scratch.

### MacWrite Pro

You won't fit this baby on a 400K floppy disk. Today's MacWrite is generations bulkier than its distant ancestor. But it's also light-years more capable, boasting nearly as many features as the behemoth word processors. Yet at $99 list, MacWrite fits in fine with the lower-cost programs reviewed here. Still, MacWrite's clean interface makes it a rebel against the forces of rampant featuritis.

MacWrite, more than any other program in this article, ventures into the junior leagues of real desktop publishing. For example, the Frame feature lets you draw a box anywhere on a page and then fill it with a graphic, a QuickTime movie, or sidebar text. Without wading through any dialog-box muck, you're performing feats of page layout that would overwhelm the other programs reviewed here.

MacWrite's floating palettes should be the envy of the more expensive programs. With one click, you can apply a new font, size, or style to selected text—or, if you've opened the Styles palette, you can zap a paragraph into shape by applying a style sheet to it in the same way. The table-of-contents command is also smooth and simple: assign the TOC styles 1 through 4 to the headings in your document, and a neatly page-numbered contents page is one menu-choice away. There's also a section formatting command, so each part of your document can have its own page numbering, footnote, and column styles. And yes, MacWrite even kerns headlines.

In short, MacWrite is as pretty and polished as a word processor can get, especially suited to creating graphically interesting documents. Just about everything is where you expect it to be, and if not, you can turn to Claris's typically perfectionist manual. MacWrite doesn't offer any real advantages in speed, size, and memory requirements, though its RAM and disk-space needs are impressively small; but it comes with this to recommend it: a future—there is no sign that Claris will give up on MacWrite.

### The Last Word

The marketplace has spoken: the sad fact is, low-end word processors just don't sell like they should. Even world-champ marketing giant Microsoft tested these waters a few years ago with Microsoft Write—and drowned. Apparently, too many people succumbed to LAGS (latest-and-greatest syndrome) and buy the hulking "pro" programs instead. And, of course, vendors prefer to sell more-expensive and more-profitable high-end products. Just as Microsoft Write competed in its day with Microsoft Word, LetterPerfect and Nisus Compact compete with other products from their respective vendors, drawing away not only the other guy's customers, but selling their own customers a less profitable product. It's too bad, really; the low-end programs are light, clean, fast, and more powerful than ever.

If you're tired of out-typing your Mac, your choices are disappointingly few. You can get a well-designed, brisk...
THE (desktop laser printers that talk back to you) COMPANY

I'm not.

I'm ready.

I'm not.

Hey, anybody got a job for me? I'm bored.

THE DOCUMENT COMPANY
XEROX
Network printers should do more than print pages. They should also make an imprint on the way you work with documents. That's why the Xerox 4500 series of desktop laser printers comes with Document Services for Printing. For instance, while you work at your PC, this intuitive software tells you which printer fits your job best, when a job is done, if paper is out, and a bunch of other stuff, all in real time. What's more, with 600 x 600 dpi resolution and TrueRes smoothing, all the jagged edges and graphics are eliminated. Result: You make better-looking documents easily and more productively. And with the Xerox Total Satisfaction Guarantee, you have backup that makes sure you stay productive for three full years. So why settle for printers you don't have to think about, when you can now get printers that think about you? Talk back to us, by calling 1-800-ASK-XEROX ext. WT318.

Circle 100 on reader service card
DESKTOP CD-ROM PUBLISHING

Whether you're archiving...
Whether you want to archive important data, distribute limited numbers of custom CD-ROMs, or create a single beta copy of a multimedia title, desktop CD-R (Compact Disc-Recordable) technology offers a tantalizing solution. Simply pop a gold-coated blank CD into the CD-R drive and voilà, a CD (almost) instantly emerges.

Predictably, although desktop CD-R products have progressed admirably in the past year—to the point where they can now be considered by a wide range of users, not just pioneers—the process is hardly that simple or speedy. Macworld Lab tests reveal that CD-R has not yet completed the transition from a complex technology designed for use by full-time CD service bureaus to a ready desktop tool. None of the programs we tested offered all of the features, performance, and ease of use that we had hoped for; and upgrades promised last spring were still unavailable at press time. A CD-R drive is not yet the laser printer of the 1990s, and the state of CD-R publishing in general is roughly akin to the bumpy, earliest days of desktop publishing.

Consequently, CD publishers creating hundreds of CDs will probably still want to send their files to a professional mastering house, where prices range from $1500 to $5000 for mastering and a few dollars per CD for pressing. People who want to create dozens of CDs, however, might want to brave the CD-R waters. When Sony and Yamaha first introduced desktop CD-R systems in 1989, price tags of $30,000 were common, but costs have now dropped to the $4000 range, and people willing to invest a bit of time tweaking files and tuning their systems may find CD-R to be just the ticket.

Just as with choosing a new computer system, the trick to entering the CD-R realm lies first in identifying the software that best suits your needs and then in matching that software to compatible hardware. But no matter what you get, keep in mind that you'll need a fast Mac—like a Quadra 650 or Power Mac 7100—to process the CD-R data quickly enough.

**Easy Archiving**
Archiving vast stores of data onto a CD is perhaps the simplest CD-R task. It's also the most common, according to a recent survey of CD-R users done by the trade weekly *InfoWorld*. A blank CD that can hold 550MB to 650MB of data now costs as little as $15; the medium has a long shelf life; it is immune to the destructive forces of magnetism; you can access its information randomly; and it takes up very little space. In addition, you don't have to wait for a commercial CD-mastering facility to produce the CDs. With CD-ROM drives being so inexpensive, you can more easily count on people being able to use the CDs.

We found that going the CD-R route to archive data was as simple or as complicated as the software we were using. We looked at seven programs, as described in the table "CD-R
Software Compared." Our test files consisted of 647 MB of data made up of 7608 text, graphic, and binary files (some CDs contain tens of thousands of files).

Pouring this data onto a CD was as easy as drag and drop for Optical Media International's QuickToPix II 1.02. Equally simple was the file-selection scenario in OptImage's CD-It All. (The same software is available under the name Toast when purchased with the Plasmon Data Systems RF4100 drive.) Dataware Technologies' CD-Record was more complicated, requiring us to enter text defining the files and their location on the CD; the ctMaker utility that hastens this suboptimal file selection has remained in beta testing for more than a year.

Some CD archivists need to write their material to the CD in more than one sitting. To do this, both the hardware and software must support multisession capabilities. QuickToPix doesn't support multisession and neither does the Sony CDW-900F drive. (For a look at CD-R drives, see the sidebar, "The CD-R Drive Decision.")

Although multisession recording is a good thing, the current technology does have some major kinks that developers need to work out. Each time you write a session to a CD, you waste 14 MB of the CD's space because of how the individual sessions' data is placed. Also most CD-R software writes each session as a separate volume, so users see a separate icon on the Mac desktop for each session. That increases the complexity of finding the data you need. Only CD-It All and Toast let you create a multisession CD with just one volume (and thus one desktop icon).

While appealing for their low per-copy cost, CDs aren't always the best archiving medium. They cannot be erased and reused, for instance. And the overall cost of the CD-R system may prove a deterrent to anyone already committed to other archiving methods, such as magneto-optical disks (see "Optical Expansion," Macworld, December 1994), tape, or SyQuest or Bernoulli cartridges.

Multimedia Test CDs

A major use of CD-R technology is to create test copies (called one-off copies) of multimedia CDs that you are authoring—particularly those that contain linked files such as QuickTime movies and audio. Rather than go to the time and expense of sending your hard drive to a CD service bureau to create a test CD, you can do it at your workplace faster and cheaper.

Why test a CD? Just because an audio or video clip runs well from your hard disk is no guarantee that it will perform well from a CD-ROM drive. All of the software tested—except JVC Information Products Company of America's lower-end Personal Archiver—lets you emulate CD-ROM-drive playback of files, at the lower CD-ROM speeds, from your hard disk. Playback from a CD differs from playback on an authoring system's hard disk for several reasons. One is that throughput for a CD-ROM drive ranges from 150 to 600 kilobytes per second (KBps), compared with a standard SCSI hard disk's 1.8 to 3.5 megabytes per second (MBps). Another reason is that a CD-ROM drive must maintain constant linear velocity, which makes it spin faster when reading data from the center of a CD and slower when reading from the outside. Third, a CD-ROM drive's heavy read head moves much more slowly than a hard drive's head. And don't forget to add in the effects of software lags when loading and playing back a video or audio clip.

These physical differences in how hard drives and CD-ROM drives record data affect any type of CD. Issues related to mastering—the placement of files on the CD—also affect performance if you are authoring CDs for use on PCs (using the ISO 9660 format) or for use on both PCs and Macs (using the ISO 9660 format for the PC portion and the HFS format for the Mac portion; these are called hybrid CDs). The mastering issues combine with the recording issues to introduce further performance concerns, as described later.

To determine how well the various products worked with multimedia files, Macworld Lab wrote 302 MB of data—with QuickTime video, animations, and sound—to CDs. Again, the process was fairly straightforward. Because we were transferring all of the data in one sitting, we didn't need to consider multisession capabilities, for instance.

But because we were creating a multimedia CD, we did need to think about file placement. Anything that will be accessed regularly, such as an index of contents or a search engine, should reside on the innermost area of the CD, because that's where the CD-ROM drive can most quickly access information. One common solution is to copy files to a pristine hard disk in the order you would like them written to the CD. Another is to use the
THE CD-R DRIVE DECISION

Although there are an increasing number of drives on the CD-R hardware scene, there are more similarities than differences among them. Each CD-R drive head houses a high-power laser that, in effect, burns pits into recordable CDs. A CD-R drive that records at 600 Kbps (quadruple-speed) requires a much higher-power laser with a much shorter pulse than a drive that records at 150 Kbps (single-speed), for instance.

The recordable CDs used in the CD-R process are unique in that they are coated with a chemical sandwich made up of layers of an organic photosensitive green dye, gold, and lacquer. (The silvery, commercially produced CDs are coated with aluminum and lacquer.) As on most other CDs, information is stored on the CDs in a long, continuous spiral that is about 600 nanometers wide and 3 miles long. The laser in the CD-R head burns pits into the dye layer of the spiral; these pits disperse the light, leaving plateaus (called lands) that reflect the light back to a CD-ROM drive's sensors.

The primary distinguishing characteristics among CD-R drives are their rotational speeds, cache sizes, and prices. Macworld Lab tests showed that a double-speed CD-R drive records at twice the speed of a single-speed drive, and a quadruple-speed CD-R drive, not surprisingly, records twice as fast as the double-speed drive.

Cache sizes vary from Sony's 4MB to Yamaha's 512K. Although faster hard drives and better thermal-recalibration schemes have rendered cache size less important than it was a few years ago, larger caches mean fewer buffer underruns and more-secure writes.

A few other differences emerge among drives. Anyone who requires multisession capabilities should keep in mind that the otherwise fine Sony CDW-900E drive is not multisession capable. All CD-R drives tested can be used as slave drives (where you can write the same data to two or more CD-R drives at the same time); for the JVC drive, this is a $1700 option. All CD-R drives except the Sony CDE-900E can double as regular CD-ROM drives to read CDs. And with both the JVC and Sony drives, people creating CDs in volume can daisy-chain several drives and write more than one CD at a time.

What Faster CD-R Drives Really Offer

Although writing a CD is only a small part of creating one, people who need to distribute copies of a CD will find the faster drives attractive. To compare relative performance, Macworld Lab used Plasmon's Toast version 2.5—which works with all of the mechanisms we received—to create ISO 9660 discs containing 647MB of data for 7608 files and folders. As expected, the 4X Yamaha drive took one-fourth as long to write an entire 74-minute CD, and the 2X drives took one-half as long as older, single-speed drives.

CD-R Drives Compared

Macworld Lab testing supervised by Tim Warner
CD-R Software Compared

<table>
<thead>
<tr>
<th>Company</th>
<th>Product</th>
<th>List Price</th>
<th>Supported Formats</th>
<th>Drives Supported</th>
<th>Copy Folders and Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dataware Technologies</td>
<td>CDRecord 2.0.1b3</td>
<td>$1995</td>
<td>HFS, ISO 9660</td>
<td>K, Ph, R, S</td>
<td>ISO 9660 only</td>
</tr>
<tr>
<td>Artistic Systems USA</td>
<td>Easy-CD Pro 1.4</td>
<td>$1495</td>
<td>ISO 9660, hybrid, audio</td>
<td>J, K, Ph, Pl, R, S, Y</td>
<td>ISO 9660 only</td>
</tr>
<tr>
<td>JVC Information Products</td>
<td>Personal RomMaker 2 208</td>
<td>$6595</td>
<td>ISO 9660, hybrid, audio</td>
<td>J, K, Ph, Pl, R, S, Y</td>
<td>ISO 9660 only</td>
</tr>
<tr>
<td></td>
<td>Personal Archiver 2 008</td>
<td>$2665</td>
<td>ISO 9660, hybrid, audio</td>
<td>J, K, Ph, Pl, R, S, Y</td>
<td>ISO 9660 only</td>
</tr>
<tr>
<td>Optical Media International</td>
<td>QuickToPix 1.02</td>
<td>$1295</td>
<td>ISO 9660, hybrid, audio</td>
<td>J, K, Ph, Pl, R, S, Y</td>
<td>ISO 9660 only</td>
</tr>
<tr>
<td></td>
<td>CD-It All 2.5</td>
<td>$995</td>
<td>ISO 9660, hybrid, audio</td>
<td>J, K, Ph, Pl, R, S, Y</td>
<td>ISO 9660 only</td>
</tr>
<tr>
<td>Sony Electronics</td>
<td>Hybrid Formatter 1.1.283.1</td>
<td>$590</td>
<td>ISO 9660, hybrid, audio</td>
<td>J, K, Ph, Pl, R, S, Y</td>
<td>ISO 9660 only</td>
</tr>
</tbody>
</table>

* J = JVC, K = Kodak, Ph = Philips, Pl = Plasmon, R = Ricoh, S = Sony, Y = Yamaha.  
* Records only one track at a time.  
* Includes CD-R drive and 1GB hard drive.

the Mac's HFS file structure to the ISO 9660 structure. While all the programs will automatically rename files with ISO-compatible names, Dataware's text-intensive approach was awkward, and Easy CD-Pro required us to tediously confirm the conversion of each file name.

As you spend more time preparing complex data for CD-R, be sure your software doesn't unnecessarily lengthen the process. Although most of the software required only minutes to process the 7608 files in our test suite before writing a CD, Macworld Lab found that Easy CD-Pro took 2.5 hours for the same task.

Software that warns you if data is improperly prepared—with fragmented files and improper names, for instance—before creating a CD, and that verifies the finished CD, helps minimize the number of calls you'll get from users who can't access the data. Hybrid Formatter tests data before writing to CD, for instance, sending informative warnings that identify errors when it encounters problem files or structures. QuickToPix warns if your ISO 9660 data is improperly named or formatted. CD-It All and Toast provide handy automatic CD verification after a write, but we wished they had offered more thorough testing of the data before we actually wrote to CD; without this capability, we ruined several CDs. (CDs are not rewritable.)

Although manually renaming HFS files so that they conform to ISO 9660 conventions is usually the preferred scenario, if you have thousands of files you might appreciate the automatic ISO 9660-naming options in the two JVC products and Sony's Hybrid Formatter.

Speed is also a factor if you're churning out CDs for distribution. As Macworld Lab tests prove, drive speed is definitely an advantage here. Yamaha's quad-speed drive clearly outperformed its competitors in the sheer speed category (see the benchmarks "What Faster CD-R Drives Really Offer"). You might also consider buying several drives and chain them together to write more than one CD at a time. Sony and JVC have had this capability for some time; all the other vendors claim that their products now do the same thing, although we could not test them in time for this comparison.

Ensuring CD-R Success

Based on Macworld Lab's experience and the experience of professionals, these tips and tricks will help you avoid creating painfully slow or unreadable CDs—no matter what type of CD you are mastering.

- Use a 1GB AV hard drive as your source drive. As some hard drives warm up, they temporarily halt the transfer of data while they adjust for plate expansion. When writing a CD-R session, this can cause a buffer underrun (a pause in the data stream) that crashes the session and ruins the CD. AV drives use better thermal-recalibration schemes to avoid this. Although most CDs hold only 650MB, Macworld Lab recommends using a hard drive with more storage than that for scratch files and working files.

- If you are creating HFS-format CDs, defragment your files. Unlike retrieval from a hard disk with fast seek times, the performance of a CD written in the Mac's HFS format suffers if files are scattered all over the platter. You can defragment the data by copying the files to a freshly formatted hard drive before creating the CD, or you can use a hard drive optimizing program such as Alsoft DiskExpress II ($89.95, 713/353-4090). Fragmentation can also cause buffer underruns.

- When using the ISO 9660 format, optimize file location. In this format, the closer files or applications are to the center of a CD, the faster a CD-ROM drive can access them. To place the most frequently accessed files at the center of the CD and the least frequently accessed files toward the outside edge, you can add the files to your CD-R software's file database or ISO disk image in the order they should appear on the CD. Alternatively, some CD-R software lets you control file location. Keep in mind that the file placement is important only in multimedia titles that demand superior performance.

- Use an extensions manager. If screen savers, E-mail programs, alarm programs, and networks kick into gear while you are recording a CD-R, the Mac may temporarily interrupt the transfer of data to the CD-R drive, which can cause errors on the CD. A program like Casady & Greene's Conflict Catcher II ($79.95, 408/484-9228) or Apple's Extensions Manager (free online and in System 7.5) lets you start up your Mac with selected extensions disabled. (You can't just press the shift key to disable all extensions when starting up, because several CD-R programs require that their extensions be loaded.) Also note that some CD-R programs, such as Hybrid Formatter, recommend that AppleTalk be disabled.

- Use temporary partitions. Some CD-R programs copy an entire source volume, both data and blank space, when recording. Others require specific volume sizes. With hard drive utility software such as FWB's Hard Disk Toolkit ($199.95, 415/474-8055), you can create custom-size partitions on a hard drive without reformating; these partitions make your 1GB hard drive with 200MB of data look like—and record like—a 210MB hard drive. (CD-It All and Toast can do the same thing.) As with any operation of this sort, Macworld Lab recommends that you back up first.

- Create ISO 9660 names yourself. CDs that will be read on PCs must adhere to ISO 9660 file-naming restrictions that
are more strict than those applied to DOS files. Only uppercase letters A to Z, numerals 0 to 9, and the underscore (_) may be used. Level 1 ISO and DOS file names can have up to eight characters, a period (.), and a three-character extension: .THISFILE.EXT. Additionally, directory and folder names cannot exceed eight characters, and directory depth cannot exceed eight levels. PCs do not see files that exceed these bounds. Some CD-R applications offer automatic name conversion, which can be helpful if you need to convert hundreds of long Mac file names to ISO 9660, but the converted names aren't always clear. For example, Mac folders named Thursday’s Tests and Thursday’s Results may become ISO 9660 directories: THURSDAY and THURSDAY.1. You’ll keep better track of your file names if you convert them to ISO 9660 yourself.

- Build an image file. An image file is a mirror of the files you want to transfer to the CD. Image files let you check for missing files and improper or unclear ISO 9660 names. Drawbacks include the fact that an image file doubles the amount of hard disk space required and can take as long to write as the CD itself.

- Use multisession support selectively. Although most CD-ROM drives built in the last two years can play a multisession CD, many older drives see only the first session. (All of the double-speed drives Apple has included in the Mac play multisession CDs.) If you don’t know which drives will be used with your CD, write the entire CD in one session.

- Test your CDs. Even if your software lets you simulate playback on a CD-ROM drive, test your CD in a real CD-ROM drive or two before you mail it to your boss or client.

The Last Word

CD-R is a technology in transition. Pinnacle began offering new software and a double-speed (300-KBps) drive that the company claims will simplify data backup. Electrosonic (610/617-0850) pulled out of our evaluation when we ran into difficulty with its Gear 2.3 software. The company says the $995 Gear 2.4 addresses 2.3’s shortcomings; 2.3 failed to properly handle aliased files, causing the system to crash while writing the CD. Eastman Kodak chose not to send us products, although it has been announcing a six-speed (900-KBps) drive for some time now.

Many of the companies that sent us products plan to upgrade, replace, or discount current products by the time you read this. Faster and less expensive drives are coming from JVC, Pinnacle, Sony, and others. Sources say that by this summer some drives may cost less than $1500. No matter what products are available when you begin your CD-R search, the key is first to see which software best suits your needs and budget. Then look for the lowest price you can find on compatible hardware.

JVC’s lower-end Personal Archiver ($2695) is reasonably priced, easy to use, and dependable. Although JVC sent us a single-speed drive, the company says that Personal Archiver now comes with a double-speed drive and ten 74-minute blank recordable CDs. There are limits: you can’t make hybrid discs, and you have no control over the selection or placement of files and folders; you must copy an entire volume onto the CD. Personal Archiver lacks CD-ROM emulation, but it does offer automatic ISO 9660 naming and verification.

A step up the ladder, we found JVC’s Personal RomMaker ($6595) to be a nicely integrated system that includes a dedicated 1GB hard drive, particularly now that the JVC drive is double-speed. You gain much more control over the choice and position of files in both HFS and ISO 9660 formats. RomMaker is a powerful program, but you should be prepared to invest some time learning and experimenting. The clear and extensive 225-

page manual made the learning curve long but not steep.

For speed demons, the quadruple-speed Yamaha drive ($5500) coupled with OptImage’s CD-It All program ($1995) is a nifty combination. (You can get the same software, under the Toast name, with a double-speed Plasmon drive, for $3850.) The drive is pricey, but it is also fast and supports multisession CDs. The software supports HFS, ISO 9660, hybrid, and audio formats. If you’re transferring HFS files to the CD-ROM drive, you’ll need a large hard disk to hold the entire disk image before writing to CD, since CD-It All and Toast let you select and place only ISO 9660 files. We liked the software’s clean interface and dependability.

Given the relatively high entry cost for CD-R systems and the fact that none contain all the features we feel are necessary for efficient and consistent CD authoring, we are not recommending any package as Editors’ Choice. But for those pioneers willing to invest time and money, CD-R is a reality today. If the many features that are promised in future releases of both CD-R software and hardware are realized, CD-ROM publishing should prove a thoroughly viable alternative to the use of CD service bureaus.

JIM FEELEY is a Macworld assistant editor who follows multimedia authoring, video editing, and related technologies.

SUZANNE STEFANAC is editor of Macworld Online and is a firm advocate of the electronic dissemination of information.

In evaluating CD-R systems, we expect the software to offer a simple interface, strong data-preparation features, and control of the file placement, together with support for double-speed (2X) and 4X CD-R drives. We expect CD-R drives to offer multisession recording capability and offer simple connection to the Mac. Although several products in this new class of technology showed promise, no CD-R software yet meets all our criteria for an Editors’ Choice. For CD-R drives, the differences among drives was not meaningful enough to single out one over the others.
The respected Boston Computer Society named us "Best All-Around Company" following a survey of more than 25,000 Mac users. The equally respected Berkeley Mac Users Group (BMUG) named us BMUG Newsletter Fall 1994 Choice Product, adding that we're "still the best all-around Mac mail-order company."

**OUR POLICY**
- VISA, MASTERCARD, AMERICAN EXPRESS, and DISCOVER cards. No surcharge.
- Most of our products are covered by manufacturer's warranty.
- We are not responsible for typographical errors.

**EVERYTHING OVERNIGHT®**
Continental U.S. - Please call for shipping charges. Barring events beyond our control, all credit card orders placed in workdays by 3 a.m. ET will ship Adcom Express for delivery the next business day. Some orders will UPS Ground for next day delivery. Saturday delivery available on most items upon request at no additional charge. Order any day through this page online Sunday for Monday delivery. Some areas require an extra day delivery.

APD/MDP, International orders and Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands: Shipping may require additional time and charges. Please call for information. All other areas, please call 802-466-3331 or FAX 802-466-7751 M-F 9 a.m.-5:30 p.m. ET.

**OPEN 24 HOURS A DAY!**

© Copyright 1995 PC Connection, Inc. MacConnection is a division and registered trademark of PC Connection, Inc., Marlboro, NH.
### BUSINESS

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>17254</td>
<td>Adobe Acrobat 2.0</td>
<td>$129.95</td>
</tr>
<tr>
<td>14197</td>
<td>BestWare Mind Your Own Business</td>
<td>$79.95</td>
</tr>
<tr>
<td>14197</td>
<td>Best Ware Programmer's Toolkit</td>
<td>$139.95</td>
</tr>
<tr>
<td>5862</td>
<td>CheckMate Multiledger</td>
<td>$119.95</td>
</tr>
<tr>
<td>3903</td>
<td>DeskWorks 3.0</td>
<td>$119.95</td>
</tr>
<tr>
<td>1609</td>
<td>Computer Associate Cricket Graph 3.0</td>
<td>$99.95</td>
</tr>
<tr>
<td>14540</td>
<td>Creative Think Creative Writer</td>
<td>$29.00</td>
</tr>
<tr>
<td>12904</td>
<td>DeltaGraph DeltaGraph Pro</td>
<td>$139.95</td>
</tr>
<tr>
<td>11721</td>
<td>IdeaFisher for Mac</td>
<td>$95.00</td>
</tr>
<tr>
<td>12289</td>
<td>Inspiration</td>
<td>$134.95</td>
</tr>
<tr>
<td>15870</td>
<td>Jaz Business Plan Builder</td>
<td>$79.95</td>
</tr>
<tr>
<td>8014</td>
<td>CheckOut Plus</td>
<td>$99.95</td>
</tr>
<tr>
<td>16894</td>
<td>NodeWriter with LanguaGeKey</td>
<td>$299.00</td>
</tr>
<tr>
<td>2988</td>
<td>SoftKey WriteNow 4.0</td>
<td>$94.95</td>
</tr>
<tr>
<td>16548</td>
<td>Symantec Anti-Virus</td>
<td>$549.95</td>
</tr>
<tr>
<td>2354</td>
<td>Timespec TimeCards III</td>
<td>$194.95</td>
</tr>
<tr>
<td>17377</td>
<td>Writing Perfect 3.1 Version Upgrade</td>
<td>$58.95</td>
</tr>
<tr>
<td>17237</td>
<td>Writeplace Writing Coach</td>
<td>$95.95</td>
</tr>
</tbody>
</table>

### GRAPHICS

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>17356</td>
<td>Adobe Illustrator 5.5</td>
<td>$189.95</td>
</tr>
<tr>
<td>16335</td>
<td>Adobe Photoshop 3.0</td>
<td>$69.95</td>
</tr>
<tr>
<td>17249</td>
<td>Adobe Acrobat Publisher 5.0</td>
<td>$49.95</td>
</tr>
<tr>
<td>18910</td>
<td>Adobe Fireworks</td>
<td>$39.95</td>
</tr>
<tr>
<td>9034</td>
<td>Equilibrium delRebuckers Tourbook</td>
<td>$279.95</td>
</tr>
<tr>
<td>10749</td>
<td>Extensis PageTools Extensions</td>
<td>$99.95</td>
</tr>
<tr>
<td>17341</td>
<td>Fontographer 4.1</td>
<td>$299.00</td>
</tr>
<tr>
<td>10386</td>
<td>Fractal Design Painter 3.0</td>
<td>$49.95</td>
</tr>
<tr>
<td>12963</td>
<td>FrameTech FrameMaker 4.0</td>
<td>$589.95</td>
</tr>
<tr>
<td>11724</td>
<td>Snapshots MiniCAD 5.0</td>
<td>$49.95</td>
</tr>
<tr>
<td>11423</td>
<td>SCS Software KPT Bryce</td>
<td>$119.95</td>
</tr>
<tr>
<td>15808</td>
<td>SCS Kai Power Tools KPT Bryce</td>
<td>$169.95</td>
</tr>
<tr>
<td>9162</td>
<td>Innovative Data MacDraft 4.0</td>
<td>$49.95</td>
</tr>
<tr>
<td>16742</td>
<td>MacArtist Magazine images 3.0</td>
<td>$299.00</td>
</tr>
<tr>
<td>5067</td>
<td>Macromedia Director 4.0</td>
<td>$999.00</td>
</tr>
<tr>
<td>4990</td>
<td>Manhattan Graph ReadySet2!</td>
<td>$219.95</td>
</tr>
<tr>
<td>2470</td>
<td>Planet Art (20 titles available)</td>
<td>$79.95</td>
</tr>
<tr>
<td>17597</td>
<td>PC Illustrator 3.0</td>
<td>$99.95</td>
</tr>
<tr>
<td>17537</td>
<td>Central Point MacTools Pro 4.0</td>
<td>$95.55</td>
</tr>
<tr>
<td>14789</td>
<td>Connectix Ram Doubler</td>
<td>$55.00</td>
</tr>
<tr>
<td>12693</td>
<td>DataViz MacLink + Translators Pro</td>
<td>$95.00</td>
</tr>
<tr>
<td>4433</td>
<td>Insignia SoftWindows Mac 2.0</td>
<td>$279.00</td>
</tr>
<tr>
<td>5176</td>
<td>Symantec Anti-Virus</td>
<td>$49.95</td>
</tr>
<tr>
<td>6748</td>
<td>Symantec Norton Utilities Mac 3.0</td>
<td>$99.95</td>
</tr>
<tr>
<td>3955</td>
<td>Symantec SuiteX</td>
<td>$395.95</td>
</tr>
</tbody>
</table>

### UTILITIES

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7927</td>
<td>CE Software QuickKeys 3.0</td>
<td>$99.95</td>
</tr>
<tr>
<td>15737</td>
<td>Central Point MacTools Pro 4.0</td>
<td>$95.55</td>
</tr>
<tr>
<td>14786</td>
<td>Connectix Ram Doubler</td>
<td>$55.00</td>
</tr>
<tr>
<td>12693</td>
<td>DataViz MacLink + Translators Pro</td>
<td>$95.00</td>
</tr>
<tr>
<td>4433</td>
<td>Insignia SoftWindows Mac 2.0</td>
<td>$279.00</td>
</tr>
<tr>
<td>5176</td>
<td>Symantec Anti-Virus</td>
<td>$49.95</td>
</tr>
<tr>
<td>6748</td>
<td>Symantec Norton Utilities Mac 3.0</td>
<td>$99.95</td>
</tr>
<tr>
<td>3955</td>
<td>Symantec SuiteX</td>
<td>$395.95</td>
</tr>
<tr>
<td>7927</td>
<td>CE Software QuickKeys 3.0</td>
<td>$99.95</td>
</tr>
<tr>
<td>17537</td>
<td>Central Point MacTools Pro 4.0</td>
<td>$95.55</td>
</tr>
<tr>
<td>14786</td>
<td>Connectix Ram Doubler</td>
<td>$55.00</td>
</tr>
<tr>
<td>12693</td>
<td>DataViz MacLink + Translators Pro</td>
<td>$95.00</td>
</tr>
<tr>
<td>4433</td>
<td>Insignia SoftWindows Mac 2.0</td>
<td>$279.00</td>
</tr>
<tr>
<td>5176</td>
<td>Symantec Anti-Virus</td>
<td>$49.95</td>
</tr>
<tr>
<td>6748</td>
<td>Symantec Norton Utilities Mac 3.0</td>
<td>$99.95</td>
</tr>
</tbody>
</table>

### VIDEO

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>17714</td>
<td>Magnavox 14&quot; Color Display</td>
<td>$299.95</td>
</tr>
<tr>
<td>13654</td>
<td>NEC MultiSync 2V Monitor</td>
<td>$399.95</td>
</tr>
<tr>
<td>17185</td>
<td>NEC MultiSync XE1S</td>
<td>$599.95</td>
</tr>
<tr>
<td>15996</td>
<td>Rodia Macromedia</td>
<td>$219.95</td>
</tr>
<tr>
<td>17180</td>
<td>Sony 15&quot; 15&quot; Multimatic</td>
<td>$499.95</td>
</tr>
</tbody>
</table>

### PROFESSIONAL CHARTS FOR POWER MAC

<table>
<thead>
<tr>
<th>Upgrade</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$79.95</td>
</tr>
</tbody>
</table>

DeltaGraph Pro 3.5 has a streamlined system for data entry, import, and analysis for quick and precise chart printing and formatting, or even produces informative reports and presentations using your finished charts and graphs.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>16342</td>
<td>Adobe Photoshop 3.0 (Version)</td>
<td>$149.95</td>
</tr>
<tr>
<td>11604</td>
<td>Aldus Consumer DateBook &amp; TouchBase</td>
<td>$49.95</td>
</tr>
<tr>
<td>17513</td>
<td>ClarisWorks 3.0 (price after $30 mfr's rebate)</td>
<td>$39.00</td>
</tr>
<tr>
<td>16551</td>
<td>Microsoft Office 4.2 (Version)</td>
<td>$279.95</td>
</tr>
<tr>
<td>10312</td>
<td>Symantec Anti-Virus Mac 4.0 (SAM)</td>
<td>$29.95</td>
</tr>
<tr>
<td>16323</td>
<td>Symantec Norton Utilities Mac 3.1 (Version)</td>
<td>$39.95</td>
</tr>
</tbody>
</table>

### CD VALUE PACK!

10 CD-ROMS—LOW PRICE!

<table>
<thead>
<tr>
<th>CD Value Pack</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$59.95</td>
</tr>
</tbody>
</table>

It's the best multimedia value going! For less than $60, you get 10 great titles:
- Adobe Photoshop 3.0
- Aldus Consumer DateBook & TouchBase 4.0
- ClarisWorks 3.0
- Microsoft Office 4.2
- Symantec Anti-Virus Mac 4.0
- Symantec Norton Utilities Mac 3.1
- Adobe Photoshop 3.0
- Aldus Consumer DateBook & TouchBase 4.0
- ClarisWorks 3.0
- Microsoft Office 4.2
- Symantec Anti-Virus Mac 4.0
- Symantec Norton Utilities Mac 3.1

### WORK BETTER, FASTER, SAFER!

Norton Utilities for Macintosh (NUM) 3.1 gives you the most advanced technology for data protection and recovery. It works automatically in the background, proactively preventing data loss before it happens. And it recovers data when all else fails.

- Accelerated for Power Macintosh
- FileSaver automatically tells you when maintenance or repairs are needed
- Improved Norton Disk Doctor diagnoses and repairs damaged disks and data
- New Rebuild Desktop feature eradicates potential damage to the desktop file
- Now Norton Expand quickly expands and restores compressed files

### PROVEN VIRUS PROTECTION

Symantec AntiVirus for Macintosh (SAM) 4.0 offers you proven protection against known and unknown viruses.

- Scans five times faster than the previous version
- Scans compressed files

### ORDERS BY 3 A.M. ET SHIP FOR NEXT DAY DELIVERY!
Umax Introduces High-Resolution Flatbed Scanner

**Umax Technologies’ Gemini D-16** is the first color flatbed scanner to deliver both 30-bit image capture and output, and an optical resolution of 800 by 1600 dpi, for images up to 4½ inches wide, according to the company. The Gemini D-16 accomplishes the high resolution at a competitive list price ($1995) through a dual-lens, single-CCD design. One lens magnifies a large scanning area, 8½ by 11 inches, which the CCD captures at 400 by 800 dpi. A second lens captures a much smaller area, 4½ by 5½ inches—the approximate size of most transparencies—at 800 by 1600 dpi.

Instead of downsampling the image to 24 bits, as other high-bit scanners do, the D-16 maintains its full bit depth via an updated version of Umax’s MagicScan software—enabling it to deliver 30-bit images to applications such as Adobe Photoshop. Features of MagicScan 1.2 include batch scanning, descreening (to eliminate moiré patterns), three levels of unsharp masking, improved zooming on scan previews, and the ability to control the highlight values of an image before scanning. (MagicScan 1.2 produces 30-bit images from Umax’s PowerLook scanner as well; for more on the PowerLook, see “Scanning Beyond 24 Bits,” in this issue.)

The Gemini D-16 also ships with Umax’s MagicMatch software for on-the-fly color calibration, Photoshop 3.0, and a limited edition of HSC Software’s Kai’s Power Tools. An optional transparency adapter is available for $595.

The one-pass scanner boasts a 1MB output buffer and an enhanced microstepping technology for fast scanning speeds. According to Umax, the Gemini D-16 can capture an 8½-by-11-inch reflective color image at 400 dpi in 20 seconds. The Gemini D-16 is expected to ship by early January 1995. Umax, 510/651-8883.

—JAMES A. MARTIN

Radius Revamps SuperMac Cards

**The recent Radius-SuperMac merger** has borne its first jointly developed product: an enhanced line of SuperMac’s Thunder II graphics cards. The Radius Thunder IV series, slated for an early January release, supports 24-bit color on monitor resolutions up to 1600 by 1200 pixels and accelerates 24-bit QuickDraw operations.

The 7-inch NuBus Thunder IV boards include Radius’s Photo Engine daughtercard, which features four 66MHz, 32-bit DSP3210 chips for accelerating Adobe Photoshop filters, as well as a 10-bit digital-to-analog converter for 30-bit color display. The boards ship with Radius’s Dynamic Desktop software—which offers hot-key resolution, bit-depth switching, and hardware pan and zoom—and ColorComposer, a color-matching utility. The Thunder IV GX1152 ($2499) supports 24-bit color on monitor resolutions up to 1152 by 870; the Thunder IV GX1360 ($2999) up to 1360 by 1024 pixels; and the Thunder IV GX1600 ($3699) up to 1600 by 1200 pixels.

Radius has also announced the Thunder/GT graphics card ($1799), which offers 24-bit color and QuickDraw acceleration on monitor resolutions up to 1152 by 870, but with no option for a Photo Engine daughtercard. Radius, 408/541-6100.—JAMES A. MARTIN
Third-Party Plug-in Filters for Illustrator

A NEW DUTCH COMPANY, SCARLET Graphexx BV, is now shipping two sets of plug-ins for Adobe Illustrator 5.0 and 5.5, with more on the way. The first set, SG Relief ($99), consists of seven filters that give Illustrator objects a three-dimensional appearance. You can project an object onto any of six predefined shapes (globe, cone, cylinder, water, amplified waves, or diamond); SG Relief also extends Illustrator's Free Distort filter for defining three-dimensional shapes on the fly.

SG ToolBox 1 ($44) is a five-filter package that lets you quickly move multiple Illustrator objects to any level, or across multiple levels, while maintaining the objects’ original coordinates. A calculator function lets you resize, rescale, and reposition any selected object or image using values and percentages; you can toggle between common measurements (such as picas and inches) using keyboard commands, without changing preferences in a dialog box. Scarlet Graphexx BV, 011-31-34-626-6258; fax 011-31-34-625-0238.—JAMES A. MARTIN

Macromedia Opens Up FreeHand

IN ITS FIRST INCARNATION as a Macromedia product, FreeHand 5.0 probably won’t seem as radically different from 4.0 as that version was from its predecessor, but it will sport some major new features. For veteran FreeHand users, the most exciting improvements to version 5.0 are likely to be its open architecture, expanded text capabilities (including styles, a search-and-replace function, and a spelling checker), more-powerful color controls, and major speed improvements in screen redraw and text entry.

FreeHand 5.0 will support Illustrator plug-ins as well as its own drop-in interactive tools—Xtras such as 3-D rotation, transparency, fish-eye lens, smudge (which works like the blend tool), and eyedropper (which lets you drag colors from a scanned TIFF image and drop them on a FreeHand palette or object). And its new open architecture should motivate third-party vendors to write additional FreeHand plug-ins. Color enhancements include global CMYK color adjustments and the ability to create multicolor gradients.

Other useful features are the enlarged (22-by-22-foot) pasteboard; magnification levels up to 25,600; multiple views of a file; and the ability to generate reports describing a file’s fonts, colors, and embedded and linked objects.

The program requires a minimum of 3MB of application RAM, though 8MB is preferable. Although it will work on a Mac Iici and with System 6.0.7, a Power Mac and System 7 are recommended.

Due out in January, FreeHand 5.0 will retail for $595 ($149 to upgrade) and include Power Mac and 680X0 versions on the same disk. For the first quarter of 1995, users of Adobe Illustrator, Canvas, and MacDraw Pro will be able to buy FreeHand 5.0 for $199. Macromedia, 415/252-2000.—C.A.

Macromedia FreeHand 5.0’s new features include interactive tools such as fish-eye lens and 3-D rotation, improved text capabilities, and the use of multicolor gradients.

IN BRIEF

- La Cie Scanner La Cie is now shipping the Silverscanner III ($1499), with 30-bit image capture and optical resolution of 600 dpi. Features include full gamma-correction controls and the ability to adjust scanning resolution in 1-dpi increments. Also available are an automatic document feeder ($499) and a transparency adapter ($799). 503/520-9000.

- Design Your Own Filters HSC Software’s KPT Convolver ($199) lets you design custom filter effects. After experimenting in Explore mode to find the general effect you want, you refine it in Design mode. Finally, in Tweak mode, you individually fine-tune each filter parameter and preview the results on your image. KPT Convolver is due to ship for the Power Mac in January 1995. 805/566-6200.

- Switching Over to Illustrator If you’re a FreeHand user who’d like to try Illustrator, now’s the time. From January 1 through February 28, FreeHand owners who call a special toll-free number and provide their serial numbers can get Illustrator 5.5.1 for $149. The new version fixes text bugs, improves speed, and accommodates Acrobat 2.0 file-format changes. ATM 3.8.1 and Type On Call 4.0 are also included. Adobe Systems, 800/521-1976.

- Art on the Net Alphabets’ designOnline—an online service for computer-based artists—has put its forums and content on the Internet via the World Wide Web. Forums include a Digital Gallery for uploading and exchanging portfolios; the Kiosk, for posting help-wanted ads, events, and public-notice information; a folder for the American Institute of Graphic Artists; and a products area, with Alphabets fonts for purchase. For Internet access, Alphabets offers a graphical Mac program, FirstClass Client 2.6 (available from Alphabets or downloadable by dialing 708/328-8723). To use it, however, you must have a designOnline subscription ($45 for three months; $80 for six months; $155 per year). 708/328-2733.
by Cathy Abes

**Artist:** Based in Seattle, Jeff Brice is a digital artist and designer who has done computer graphics for over ten years. His clients have included Microsoft, J. P. Morgan, Newsweek, IBM, Paine-Webber, and CompuServe.

**How It Was Done:** For this month's feature on writable CD-ROMs, Brice began by drawing a circle in FreeHand, which he duplicated five times. After reducing some circles and enlarging others to make a series of concentric circles, he cut each one with the knife tool, then saved the finished element in Illustrator format so he could bring it into Photoshop.

There he copied the lines to an alpha channel. In the RGB channel he loaded the selection and then deleted it (with the background color set to black), which left only black, white, and red circular shapes.

For the CDs, he created two masks in Photoshop; one for the small CDs on the right, another with a linear gradation for the large one.

After creating a text block in FreeHand, Brice converted it to paths to make the type into a graphic element. Next, he opened Dimensions and created a cone-shape object; after importing the type, he mapped it onto the cone, scaling and distorting it to cover the cone and add perspective.

Back in Photoshop, Brice rasterized the cone, then inverted it (to make the type white and the cone black) and copied it to an alpha channel. Deleting everything in the RGB file so that it contained only white—the background color—made the type into a mask ready to be brought into Collage.

In Collage, Brice rotated and skewed the circular element and composited it with the CD and the background using the Difference method, which inverted the colors beneath the black areas in the element, resulting in the blue, red, purple, and black horizontal bands. After rotating and skewing a duplicate of the circular element at different angles, he composited the duplicate using the default Copy method.

**Hardware:** Macintosh Quadra 650; 100MB of RAM, a 2GB hard drive; Umax UC630 scanner; NuDesign 128 MO, APS DAT, and Micronet 44 SyQuest drives; 17-inch and 13-inch Sony monitors; HP DeskWriter 550c.

**Software:** Macromedia FreeHand 4.0; Adobe Photoshop 3.0; Specular Collage 2.0; Adobe Dimensions 2.0.
In Dimensions, Brice mapped the type onto a cone (shown here in 2-D view) using the Map Artwork command (Appearance menu) and scaled it up to completely cover the cone’s surface.

Choosing Perspective (View menu), he created a custom perspective (Custom option) by moving the slider to 132° to create a wide-angle view.

After rotating the original circular element 45° and skewing it −35°, Brice composited it with the CD and the background using Collage’s Difference method.

Brice rotated the duplicate circular element (−10°), skewed it (−10°), and composited it with the original element, the CD-ROM, and the background.
The Calculating PIM

THE STANDAR D MODEL FOR PERSONAL information managers is a database for recording contacts, a calendar for scheduling when to call them, and links between the two. But add a spreadsheet to the mix, with the ability to merge database information into a worksheet, and you’re ready to manage some pretty serious personal info.

That’s what Magic Merge does. By transferring information from the database to the word processor, it can churn out form letters, labels, and so on; by transferring database information to the spreadsheet, it can perform calculations and generate forms, invoices, and so on. While the database is mostly as limited as an address-book program, it can track financial transactions. Mail Merge can schedule phone calls but does not have a normal to-do list or calendar.

Magic Merge 2.0 should be available by the time you read this for $149. At press time the developers hoped to, but were not certain they would, complete repeating fields and lookups for version 2.0. D & D Computers, 305/220-6848.—D.L.

Real-Time Group Conferencing

A NEW GROUP-CONFERENCING APPLICATION from Mainstay, code-named Gossip, enables participants to communicate using text and graphics in real time, without a high-bandwidth network or additional networking hardware.

Although Gossip supports Ethernet, a user can participate with only a LocalTalk or ARA connection. Gossip has three windows: the Conference window displays and scrolls text as participants type in their comments; the Fax window displays a word processing page, a spreadsheet, or an image such as a 72-dpi color or gray-scale graphic; and the Whiteboard window displays a document for users to comment on with Gossip’s basic draw tools. Any participant can display a document in the Fax window by dragging it in after first saving it as a PICT or TIFF file. No one in the conference can edit the Fax window file; anyone can edit files in the Whiteboard window, but only the conference administrator can add a file to that window. Changes made to a Whiteboard graphic can be printed or saved as a new PICT or TIFF file.

Mainstay expects to ship Gossip early in 1995; prices for client and server versions weren’t available at press time. Mainstay, 805/484-9400.—JAMES A. MARTIN

Data Access Sans SQL

BY LISHT SOFTWARE’S TRUEACCESS IS A client/server query tool that promises easy, efficient access to companywide databases. TrueAccess produces SQL queries for the host computer but shields the user from SQL coding and the databases searched.

TrueAccess provides point-and-click access to Oracle 6 or 7, Sybase 4 or 10, and SQL Server databases via graphical windows. Query results are returned as a table or graph and can be directly imported into analysis applications such as Microsoft Excel. TrueAccess lets database administrators maintain multiple levels of security and control. With TrueAccess,
administrators can apply security at the column, query, user, group, or database level. Security information, aliases, descriptions of database objects, and queries are grouped by user function and stored in TrueAccess. Available now for Macs and Windows, TrueAccess administrator kits are $1799 each; end-user kits are $299 per client. Blyth Software, 415/571-0222.—JAMES A. MARTIN

Personal, Portable Videoconferencing

RSI SYSTEMS SAYS ITS ERI'S PERSONAL Video Communications System is the first desktop-videoconferencing product that lets Macs videoconference with Windows machines over either ISDN or analog telephone lines.

Newton Sprouts Again

WHILE THE PERSONAL DIGITAL ASSISTANT (PDA) hasn't swept the world with VCR- or Walkman-style success, Apple's Newton MessagePad PDA is slowly but steadily gathering momentum. Apple is about to release the MessagePad 120; Panasonic, Siemens, Toshiba, and Motorola are developing Newton-based PDAs; and the list of Newton software and the Newton communications infrastructure are growing.

The 120's main improvements include a clearer screen, a removable lid, and an option for 2MB of memory. U.S. pricing and ship date were not available at press time. Apple is also working on a replacement for the Connection Kit, to be ready after the 120 rollout.

New Newton applications of note include Tabula Rasa, a forms-design package, and Equate, a general-purpose spreadsheet. Tabula Rasa ($249, Brand X Software, 804/355-0374) is intended for mobile data collection—surveys, inventory, medical record-keeping, and so on. It provides about 20 field types, including multiple-choice and true/false, tables, and bar codes, as well as some simple statistical analyses. Equate ($99, Holosoft, 408/748-9648) has a zoom-out view for navigating large worksheets. Equate lacks a macro language, graphing, arrays, and some other high-end features, but its function list is similar to Excel's, and the program is designed to import and export Excel worksheets.—D.L.
Today, you can artfully evolve to Adobe Illustrator™ 5.5 for the Macintosh® at our very low upgrade price. Adobe Illustrator is the world's leading illustration and page design program, and the latest version is loaded with features that add power and automate tasks once difficult or impossible in other drawing programs. It's part of a family of breakthrough Adobe® products, designed to further expand your creative options. But don't wait eons for evolution because this offer ends May 1, 1995.

1-800-521-1976, Dept. N, Ext. 1262

If you can dream it, you can do it.
Business Information in Cyberspace

THIS MONTH'S WORKING SMART IS THE 120th consecutive column I've written for *Macworld*. For ten years I've had the good fortune not only to cover the Mac as it evolved from an underpowered and overpriced toy into a powerful force in the computer industry, but to do so from a home office.

The most familiar sound in that home office is my modem's shooting the breeze with another modem. Besides going online to turn in stories, swap E-mail, and scatter up the latest freeware, I've used the modem as a research tool to keep up with industry news and learn about new technologies and products. These days, my modem is as essential a business tool as a pinstripe suit (or, for us home-office workers, a pair of warm slippers).

What's Out There?
At the other end of a modem lies a gold mine of business information. Not just current stock quotes and timely news from major wire services—two things often cited as good reasons to use (and tax-deduct) a modem. I mean real business information, such as the following:

- Demographic data.
- Abstracts and full-text articles from major newspapers and hundreds of business, industry, scientific, and medical newsletters.
- Corporate data, such as disclosure statements filed with the Securities and Exchange Commission.
- Data from the federal government.

Many of these information gold mines are available on eWorld, America Online, and CompuServe. (Throughout this column, I list the shortcut keywords for each forum mentioned.) Some of the best libraries and databases, however, are on the outskirts of cyberspace, in specialized business and research services such as NewsNet and Dialog.

eWorld's Offerings
Given that eWorld is a relative newcomer with fewer subscribers than the competition, I didn't expect to find much in the way of eBusiness elno. I was surprised: the Business and Finance Plaza has a solid foundation of basic business offerings—and access to all of them is included in the basic eWorld subscription rate.

Much of eWorld's business information is geared toward small businesses and home-office workers. For example, there's Working Solo (shortcut: solo), a forum for entrepreneurs and home-business operators looking for guidance and connections. The forum's software libraries contain business-oriented templates for popular application programs. For online networking, there's an Introductions area where you can post a brief résumé and list of services you offer. *Inc. Magazine* also operates a forum (shortcut: inc online) containing entrepreneurial tips and magazine excerpts.

Another useful forum for small-business types is the Nolo Press Self-Help Law Center (shortcut: nolo), where you can read interesting (and understandable) articles on topics such as incorporation, patent, and contract law, and post questions for Nolo Press's legal staff to answer. Of broader interest on eWorld is the Business Sector Profiles forum (shortcut: bsp), operated by The Reference Press. Business Sector Profiles contains expanded and annotated versions of reports and forecasts issued by the U.S. Department of Commerce for more than 200 industries.

Similar, though less comprehensive, reports are also available in the Vital Statistics section of the Real-Time Marketing forum (shortcut: rtm) operated by Regis McKenna, a marketing and public relations firm. If you are in the advertising biz, visit the Ad Age/ Creativity Online forum (shortcut: ad age) run by Crain Communications, which publishes *Advertising Age* and *Creativity* magazines.

If you're looking for company information, check out the Hoover's Company Profiles forum (shortcut: hoovers). This forum, also operated by The Reference Press, contains nicely done profiles of nearly 1000 public and privately held corporations—overviews, founder's names and company histories, headquarters addresses, lists of divisions, and more.

An American Online
Most of the business information offerings on America Online (AOL) are in the News & Finance area.

The Hoover's Business Resources are available on AOL (keyword: hoovers), as are the Hoover's Company Profiles (keyword: company). If you're a fan of public television's "Nightly Business Report," you might enjoy NBR Online (keyword: nbr), which contains transcripts of selected NBR interviews and commentaries.
business news summaries, and reports on market trends.

If your company is a federal contractor, check out Commerce Business Daily (keyword: cbid), which lists notices of proposed government contract awards for amounts in excess of $25,000, as well as sales of government property and other procurement-related tidbits. Each edition contains approximately 500 to 1000 notices—proof that your tax dollars are at work.

Anyone who works in the publishing or communications industry should visit the Cowles/SIMBA Media Information Network (keyword: cowles). The Cowles/SIMBA Media Daily contains stories on everything from book and magazine publishing to cable- and telephone-company wars to satellite broadcasting. The forum's bulletin board is active with debates on media-related issues.

Business-news junkies will be in heaven on AOL. The Top Business window (keyword: business) lets you read current news by industry or search for articles containing keywords you specify. And forums are operated by Worth magazine (keyword: worth), the New York Times (keyword: ny), the San Jose Mercury News (keyword: msn), and the Chicago Tribune (keyword: chicago). Generally, these free forums offer only a subset of their respective publications; as I'll describe later, the full text of many publications is available, but it'll cost you.

**Sleepless in CompuServe**

eWorld and America Online look like small-town libraries compared with the granddaddy of personal computer information services, CompuServe. You can spend days exploring CompuServe's business information offerings.

CompuServe's Business menu (shortcut: go business) is the gateway to dozens of profession-specific forums. Among them: a work-at-home forum (go work), a public relations and marketing forum (go prsig), an inventors' forum (go inven), a legal forum (go law), an office-automation forum (go ofaforum), an international-trade forum (go itforum), and a court-reporters' forum (go cforum). As with the forums on eWorld and AOL, these forums are available to all subscribers at no additional charge.

Newshounds will howl over CompuServe's online newspaper and magazine offerings. The Associated Press wire service is available (go aponline), and news stories are updated hourly. The Business Wire (go twb-1) carries company information and press releases. And researchers will want to explore the newspaper archives (go newsservice), which let you search for and download full-text articles from more than 50 American and British newspapers dating back to the late 1980s. The News Source USA area (go newsusa) provides a similar service and adds archives of a dozen or so major magazines, from People and Sports Illustrated to Fortune and Forbes. In the Magazine Database Plus area (go magdb), you can search for and retrieve articles from 140 magazines—everything from the New Republic to Cosmopolitan.

Equally impressive is CompuServe's range of reference materials. You can get TRW credit reports and business information on more than 13 million organizations (go twreport). You can get astonishingly detailed demographic data on cities, towns, neighborhoods, census tracts, Nielsen TV-ratings areas, and more (go demographics). You can search every phone book in the country (go edup). The full text of the Commerce Business Daily is also available (go combus), as are searchable versions of Books In Print (go big) and Marquis Who's Who (go biography). And the IQquest service (go iqquest-1) is a collection of nearly 1000 databases in every imaginable category. Type in search keywords that describe your area of interest, and IQquest will return either a list of article citations (including publication name, date, author, and title) or the full text. For expert advice on crafting a query, type SOS, and an IQquest representative will help you.

Note that many of the best reference resources on CompuServe carry additional surcharges. Some services carry an additional hourly charge of up to $24, others charge for each article you retrieve or each search you conduct, and still others combine both approaches. All premium-priced services provide menu options that describe pricing details and provide tips on searching.

**The Big Guns: Dialog, NewsNet**

Two of the information services available through CompuServe gateways, Dialog and NewsNet, are also available directly. Dialog (415/858-2700, 800/334-2564) is the world's largest online bibliographic company, with over 200 million searchable items spread across 370 databases. Databases include the full text of 33 major newspapers, as well as scientific journals; government, business, and corporate publications; and law and reference books. You can retrieve the full text of articles electronically or even have them mailed or faxed to you.

Dialog can be daunting. Besides the vast array of searchable materials, the service's interface is archaic, relying on cryptic typed commands. Conducting searches is an art in itself; choose keywords carefully, and you can wind up with hundreds of irrelevant citations.

Dialog's Knowledge Index is a subset of the full service specializing in science and education. Knowledge Index is available only through CompuServe (go KI); you'll have to pay a $24-an-hour surcharge for access.

NewsNet (610/527-8030, 800/345-1301) specializes in business information, providing full-text access to 700 business and industry publications and 20 international news wires that together post 17,000 new items every day, according to the company. Here you'll find not only mainstream newspapers, but ultraspecial-
Imagine a disk drive with the performance to keep up with your Mac.

Conner makes it a Reality.

Today's Macs generate amazing graphics and multimedia images. But they consume incredible amounts of storage in the process. That's the real world. Fortunately, Conner has a new line of fast and reliable storage solutions created especially for even the newest Mac powerhouses.

Now you can upgrade to Conner quality and performance with our new Disk•Stor internal and external disk drives and disk arrays. Owners of high-performance Mac systems will find the capacity and performance they need in pre-formatted 1 GB and 2 GB drives. And Disk•Stor arrays offer up to 4 GB of wide open space for more advanced applications.

Disk•Stor drives come with the hardware, software, and documentation you need for quick and easy installation. And each disk drive is backed by a two-year warranty and toll-free technical support. Plus, they're from Conner, the choice of leading computer manufacturers worldwide for high quality and reliable storage products.

So call 1-800-6-CONNER or one of our authorized Apple distributors and ask about the powerful new Mac upgrades from Conner. See how Conner is making high-performance Mac storage a reality.
Small colleges can help you make it big.


Some of our country’s most successful people went to small colleges where size, faculty, and curriculum combined to give them the education, skills, and confidence to make it big in today’s world.

A small college can help you make it big, too. To learn more about small independent colleges, contact: Council of Independent Colleges, One Dupont Circle, Suite 320G, Washington, D.C. 20036.

Sponsored by CIC The Council of Independent Colleges

Online isn’t the only place to satisfy your hunger for information. Many publishers cater to the needs of business with vital information on CD-ROMs. A few examples:

- MarketPlace Business ($49, MarketPlace Information Corporation, 617/672-9200, 800/999-9497). Using a powerful search engine, it provides information on more than 9 million U.S. businesses.
- SelectPhone (Pro CD, 508/750-0055, 800/992-3766). Telephone directories including DirectPhone ($149, all U.S. white pages); CanadaPhone ($149, all Canadian white pages); and FreePhone ($49, all U.S. toll-free phone numbers).
- North American Fax Book ($49.95, Quanta Press, 612/379-3956). Includes a directory of 150,000 fax numbers.
- Dialog On-Disc (price depends on database, Dialog Information Services, 415/858-2700, 800/334-2564). More than 60 CDs grouped into subject families: business information, education and humanities, health and biomedicine, law and government, and science and technology.

For More Information

If I’ve whetted your appetite for more details on the world of online information, check out Don Rittner’s Whole Earth Online Almanac (Brady, 1993). It’s a superb directory of forums, bulletin boards, online services, and research CD-ROMs. And now if you’ll excuse me, my modem is waiting.

Next month: Speeding up everything

The Only Thing That Matters More Than What They Think —

<table>
<thead>
<tr>
<th>SCORECARD</th>
<th>AMERICA ONLINE CROSSES THE FINISH LINE FIRST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>America Online</td>
</tr>
<tr>
<td>1. Exchanging E-Mail</td>
<td>★★★★ Easy to navigate, search files, and go.</td>
</tr>
<tr>
<td>Weighing Factor: 35%</td>
<td></td>
</tr>
<tr>
<td>2. Downloading Files</td>
<td>★★★ Straightforward and user-friendly.</td>
</tr>
<tr>
<td>Weighing Factor: 20%</td>
<td></td>
</tr>
<tr>
<td>3. Accessing Data</td>
<td>★★★ Top choice for up-to-date information.</td>
</tr>
<tr>
<td>Weighing Factor: 20%</td>
<td></td>
</tr>
<tr>
<td>4. Accessing the Internet</td>
<td>★★★½ The only one with true Internet access.</td>
</tr>
<tr>
<td>Weighing Factor: 15%</td>
<td></td>
</tr>
<tr>
<td>5. Working Offline</td>
<td>★★★ Easy to compose mail offline.</td>
</tr>
<tr>
<td>Weighing Factor: 10%</td>
<td></td>
</tr>
<tr>
<td>Verdict</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>★★★★★ So Easy it's hard to believe you're online.</td>
</tr>
</tbody>
</table>

Features Macworld Online!

PC Computing Magazine, September 1994

**The Most Usable Service**

America Online: A big winner on fundamentals like e-mail, America Online was also rated "exceptionally easy" when it came to finding and downloading files. ★★★★★

To Find Out, Try America Online For 10 Hours - Free!

See for yourself why PC Computing Magazine named America Online the "most usable" online service. Send us the attached reply card and you'll get 10 hours online - absolutely free. Or call 1-800-827-6364 Preferred Customer #10860.

Yes! I'd like to try America Online — FREE.

Send me the free software and trial membership. I understand there's no risk — if I'm not completely satisfied, I may cancel without further obligation.

NAME

COMPANY/DEPT./APT. NO.

ADDRESS

CITY

STATE ZIP

HOME PHONE

SELECT DISK TYPE AND SIZE —

- Windows:
  - 3.5
  - 5.25
  - High Density
  - Low Density

- DOS:
  - 3.5
  - 5.25

Macintosh:

- 3.5

*To use America Online for Windows, you must have a 386 PC or higher, 4 MB of RAM, a VGA monitor (256 color support recommended), a mouse, a modem, and a working copy of Windows 3.1. Use of America Online requires a major credit card or checking account. Limit one free trial per household. America Online is a registered service mark of America Online, Inc. Other names are service marks or trademarks of their respective owners.

10860
Try The “Most Usable,” Most Exciting
Online Service - Free For 10 Hours!

PC Computing Magazine just named America Online the “most usable” online service. That’s very nice. But as much as we appreciate what they say, what we’re really interested in is what you say. So, we’d like you to try America Online absolutely free - for 10 hours! Here’s what PCC said about us.

Exchanging E-Mail.
“Exchanging e-mail between online services and the outside world is key. America Online took top honors for ease of communications - both within the service and to external addresses.”
“Simplicity, power and logic were all cited by testers as among America Online’s strengths when it came to mail handling. Our usability testers noted particularly how easy it was to send attachments and files with messages.” - PC Computing, September 1994

Downloading Files - From America Online’s Computer To Yours.
“Graphics and data files are the meat and potatoes of online access. Our testers deemed America Online the winner here, thanks to the ease with which they could find what they wanted. “Our testers cited America Online’s excellent search tools and point-and-click access.” - PC Computing, September 1994

Staying Informed.
“Why wait until day’s end for news, weather and stock reports? Online data is updated as frequently as every 15 minutes - and America Online takes the cake for delivering information sweetly and succinctly.” “...you can [also] get texts of everything from the New York Times and Chicago Tribune to Atlantic Monthly, New Republic and Wired.” - PC Computing, September 1994

Working Offline.
“A majority of our users didn’t know working offline was possible, so they just logged on and started working. If you’re using America Online you can write as many messages as you need to before you log on and ship them off - a big money saver.” - PC Computing, September 1994

Easy To Use. Easier To Try.
Get Your Free 10-Hour Trial Today!

We’d like to know what you think. We’ll send you software and let you try it, absolutely free. You’ll be impressed by everything you can do with America Online and how easily you can do it.

Complete and mail the card or
Call
1-800-827-6364
Preferred Customer #10860
Today!
Quick Tips

Tips, Tricks, and Shortcuts

BY PRESSING ONE KEY YOU CAN EXTEND System 7.5’s Find File window to find files and folders that are invisible, have custom icons, contain text you specify, or have names and icons that can’t be changed. You expand the leftmost pop-up menu in the Find File window to include these four additional choices by pressing the option key when you first click the pop-up (see “Find File Secret”).

Delayed Delivery
If you get a QuickMail message weeks or even months before you need to act on it, Macworld senior designer Arne Hurry suggests you forward the message to yourself, delaying the delivery (using the Delay button in the Select Recipients dialog box) until a day or two before you need to take action.

Old Drivers Make Trouble Q. When shutting down my Mac IIci (using System 7.5) I often get a message asking me to insert the start-up hard drive. Since the start-up hard drive never ejects, this is quite puzzling. I can work around this by pressing ⌘-control-power-on to restart, immediately holding down the shift key to start up without extensions, and shutting down again. Any idea what’s causing this?

A. The likely culprit is an obscure setting in the disk driver software that governs whether your start-up hard drive is considered ejectable. This problem occurs with old drivers made by Transoft and distributed with Transoft’s SCSI Director disk-formating software, as well as with APS and other makes of hard drives. To confirm that your start-up drive has a Transoft driver, select the drive’s desktop icon and choose Get Info from the Finder’s File menu. If the Get Info window’s Where information contains NS-SCSI or NS-ACAM, then the drive has a Transoft driver. The problem does not affect APS drives with Power Tools software version 3.0 and later, nor does it affect SCSI Director version 3.0.9 and later.

You can fix the problem by upgrading the driver. If you have a version of APS Power Tools earlier than 3.0, contact APS (816/920-4109, 800/235-3708) for a formatting utility program made by Transoft, such as APS Power Tools 2.8.2 or SCSI Director, to designate the start-up drive as nonejectable. After opening the utility program, select the start-up device and click the Volumes button. In the dialog box that appears, select the start-up volume’s icon and click the Configure button. In the next dialog box, turn on the Disable Finder Eject option. Finish by dismissing the dialog boxes, quitting the program, and restarting your Mac.

If you restart with the start-up volume’s Disable Finder Eject option turned off, the driver initially marks the volume as ejectable. Then System 7.5’s Color Picker extension creates an alias of itself. This alias, which points to the ejectable start-up volume, gets broken at the end of the start-up cycle when the start-up volume is marked as not ejectable. A broken alias like this triggers the paradoxical message that asks you to insert the supposedly ejected start-up volume.

Missing-Cursors Department Q. My Quadra 610’s cursor is so small it’s hard for me to keep track of it. Do you know of any program that could make the cursor bigger or bolder?

A. The shareware control panel Fat Cursors, by Robert Ahatcocola, enlarges the arrow cursor and the I-beam. Several freeware programs help you find the cursor regardless of its shape or size. Two of them, Eyeballs and MyEyes, continue...
AT WORK: QUICK TIPS

install a pair of eyes that watch your cursor from the menu bar. FindCursor, ZoomToCursor, and CursorBeacon each create a different type of visual communication around the cursor when you press a combination of keys. These programs are available through online information services, such as America Online and eWorld, and through some user groups.

Ailing Responder
Q. When my mother tries to start up her Mac Classic, she receives a warning that her Responder program file is damaged and must be reinstalled, but I cannot find this file.
A. The only Macs that need the Responder file still use System 6 and are connected to a network whose system administrator uses Apple's Inter-Poll network-management software. Unless your mother’s Classic fits this profile, you can safely drag the Responder file from the System Folder to the Trash. To find the Responder file quickly, open the System Folder, choose By Name from the View menu, and scroll down the alphabetical list of files and folders.

Virtual Memory Turn-Off
TIP Do you hate having to open the Memory control panel when you occasionally need to turn virtual memory on and off? Sure, holding down the shift key during start-up turns it off—and all your system extensions as well. But by holding down the ⌘ key during start-up, you can disable virtual memory and still keep all your extensions. Restarting without the ⌘ key restores virtual memory with its previous settings. No more trips to the Memory control panel.

Long Card in a 6100
TIP Although Power Mac 6100s are supposed to be limited to 7-inch NuBus cards, you can make room for a longer card if the 6100 doesn’t have an internal CD-ROM drive.

Open the computer and snap the thin metal shielding away from the front of the case. Unplug the power and SCSI cables from the hard drive, push the release lever behind the hard drive, and slide the drive out. Move the hard drive to the empty CD-ROM bay, securing it in place with double-sided foam tape. The drive stays attached to its plastic sliding tray, so you can easily return it to its original spot.

Now there's plenty of room for a long NuBus card—and not much room to argue whether your warranty is valid.

Chris Marshall
Sunnyvale, California

System Folder Annex
TIP If your System Folder becomes too large for your start-up disk, you can move large items such as the After Dark Files folder (mine is 17.5MB) to a non-start-up disk. After copying an item from the System Folder to the non-start-up disk, make an alias of the copy (not of the original in the System Folder). Drag the original item from the System Folder to the Trash, drag the alias from the non-start-up disk to the location that the original item formerly occupied in the System Folder, and give the alias the same name as the original item. For example, an alias of the After Dark Files folder must be named After Dark Files and put in the Control Panels folder.

Ruth Johnson
South Lake Tahoe, California

Word 6 Tool Bar Manager
TIP Microsoft managed to create a tool-bar nightmare with Word 6.0. Turning on all the available tool bars leaves little room for word processing. You can increase the space available for document windows by double-clicking anchored tool bars to make them floating, resizeable palettes. You can also create a custom tool bar that shows other tool bars (see “Tool-Bar Tamer”). Here's how:
1. For each tool bar you want to control from the Toolbar Manager tool bar, record a macro that turns on that tool bar.
2. Use the Toolbars command in the Views menu to create a new tool bar named Toolbar Manager.
3. Word automatically displays the Customize dialog box so you can add buttons to the new tool bar. In the Customize dialog box, scroll down the Categories list until you see Macros, and click it. A list of the macros you have recorded appears in the dialog box.
4. Drag one of the macros to the new tool bar. Word creates a blank button that

Printing the Right QuarkXPress Pages
TIP Here's how to print a single page or a range of pages from a QuarkXPress (version 3.2 or later) document having more than one section that starts at page 1.

Display the Document Layout palette, and note the numbers it shows below the page icons of the first and last pages you want to print. Use those numbers, prefixing each with a plus sign, to specify a page range in the Print dialog box (see “Absolute Page Numbers”). You may not get the pages you want if you use section page numbers, which are displayed in the lower-left corner of the document window (and in the lower-left corner of the Document Layout palette of Quark 3.3 and later versions).

Gary Hatt
Corona, California

Absolute Page Numbers
The QuarkXPress Document Layout palette displays an absolute page number below each page icon, and the outlined number indicates the page currently displayed. An asterisk in a page icon means the page begins a new section. Use absolute numbers, prefixed with plus signs, to specify a page range for printing part of a multisection QuarkXPress document.
Hey, if you weren't intelligent, you wouldn't have that important job of yours. And it's always good to have a color printer that can keep up with your ideas.

That's where the QMS® magicolor Laser Printer comes in. It has the brains to keep you and your entire workgroup ahead of the competition.

So what's that mean to you? Longer weekends, for one. Plus some pats on the back for a job well done.

To put this great combination of your intelligence and the QMS magicolor Laser Printer together, do the smart thing. Call us today at 800 392-7559 Dept. 5022.

Outperform The Very Best.
NEW LOWER PRICES!

040 Performance Now Only $299.

Just plug in the Mobius Speedster '040 accelerator and instantly get blazing performance from your existing Macintosh. It’s the smartest, fastest, most economical way to get a hot new Mac without buying one.

Universal PDS design supports the Mac IIx, IIci, IIx, IIcx and LC with 100% compatibility or your money back.

Get an instant speed boost and outperform Apple’s Power Macs in emulation mode.

Watch Photoshop resize 4 times faster, Illustrator redraw 7 times faster, Excel recalculate 6 times faster or Word replace 5 times faster—everything screams.

Free 128K CACHE!

<table>
<thead>
<tr>
<th>Speed</th>
<th>25MHz</th>
<th>33MHz</th>
<th>40MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speedster '040</td>
<td>$299</td>
<td>$449</td>
<td>$449</td>
</tr>
<tr>
<td>Speedster '040 w/FPU</td>
<td>$449</td>
<td>$599</td>
<td>$749</td>
</tr>
</tbody>
</table>

Save up to 40% over the competition, plus get a 3-year warranty, 30 day money-back guarantee, and toll-free support rated “Excellent” by MacWorld. Call today to place an order or get more info.

MOBIUS TECHNOLOGIES, INC

CALL 800-800-4334

Circle 109 on reader service card

AT WORK: QUICK TIPS

activates the macro and displays the Custom Button dialog box so you can assign an icon or a name (by choosing the text-button option) to the blank button. Then click the Assign button.

5. Now you can replace the icon you just picked by copying the icon of any button you see and pasting it onto the button you just created. To copy a button’s icon, control-click the button to pop up a Word shortcut menu, and from that menu choose Copy Button Image. Then control-click the button onto which you wish to paste the copied icon, and choose Paste Button Image from the pop-up shortcut menu.

6. If you don’t see an icon you like, you can use the Customize dialog box to browse through all the available button icons. Simply scroll to the top of the Categories list (where you previously selected Macros) and select each category in turn to see its associated buttons. When you see a button you like, drag it from the Customize dialog box to any tool bar. After copying and pasting the button’s icon as described in step 5, remove the button by dragging it off the tool bar.

7. Repeat steps 4 through 6 for each macro that you created in step 1. When you have fully populated your Toolbar Manager tool bar, close the Customize dialog box, and—voilà—you’ve now got a tool bar that brings up tool bars.

Greg Lawborn
Pasadena, California

Rather than create a new tool bar, you could use another of Word 6’s shortcut menus. Simply control-click anywhere in any tool bar to pop up a shortcut menu that lists nine common tool bars, with check marks next to the visible ones. Choosing a checked tool bar hides it, and choosing an unchecked tool bar shows it.

You can make the Toolbar Manager tool bar more useful by having each button alternate between showing and hiding a tool bar. This requires editing each macro as follows:

1. Choose Macros from the Tools menu to bring up the Macros dialog box. Select a macro you wish to edit, and click the Edit button. (Alternatively, you can create a new macro by typing a name and description and clicking the Create button.)

2. Enter the following macro text in the macro-editing window, replacing Standard with the name of the appropriate tool bar:

```vba
Sub MAIN
ToolBars = "Standard"
ViewToolBars .ColorButtons = 1, LargeButtons = 0, ToolTips = 1
End Sub
```

If ToolbarState(Toolbar$) Then
  ViewToolBars .Toolbar = Toolbar$, HideToolbar
Else
  ViewToolBars .Toolbar = Toolbar$, ShowToolbar
End If

3. Close the macro-editing window. Word asks if you want to save changes; click Yes.

4. Repeat steps 1 through 3 for all the tool bars you want to control from the Toolbar Manager tool bar. You can save considerable typing by selecting all the macro text and copying it before closing the first macro. In subsequent macros, paste the copied macro text and change the tool-bar name.

5. Create a new tool bar as described in steps 2 through 7 of the tip, using the macros you typed instead of recorded macros.—L.P.

TOOL-BAR TAMER

You can create a custom tool bar to manage Word 6’s many other tool bars. Each button activates a Word macro that controls a different tool bar. Word displays the macro name near the pointer (as ToolTips text, a Word 6 alternative to balloon help) and displays the macro description in the status bar at the bottom of the screen.

Rather than create a new tool bar, you could use another of Word 6’s shortcut menus. Simply control-click anywhere in any tool bar to pop up a shortcut menu that lists nine common tool bars, with check marks next to the visible ones. Choosing a checked tool bar hides it, and choosing an unchecked tool bar shows it.

You can make the Toolbar Manager tool bar more useful by having each button alternate between showing and hiding a tool bar. This requires editing each macro as follows:

1. Choose Macros from the Tools menu to bring up the Macros dialog box. Select a macro you wish to edit, and click the Edit button. (Alternatively, you can create a new macro by typing a name and description and clicking the Create button.)

2. Enter the following macro text in the macro-editing window, replacing Standard with the name of the appropriate tool bar:

```vba
Sub MAIN
ToolBars = "Standard"
ViewToolBars .ColorButtons = 1, LargeButtons = 0, ToolTips = 1
End Sub
```

If ToolbarState(Toolbar$) Then
  ViewToolBars .Toolbar = Toolbar$, HideToolbar
Else
  ViewToolBars .Toolbar = Toolbar$, ShowToolbar
End If

3. Close the macro-editing window. Word asks if you want to save changes; click Yes.

4. Repeat steps 1 through 3 for all the tool bars you want to control from the Toolbar Manager tool bar. You can save considerable typing by selecting all the macro text and copying it before closing the first macro. In subsequent macros, paste the copied macro text and change the tool-bar name.

5. Create a new tool bar as described in steps 2 through 7 of the tip, using the macros you typed instead of recorded macros.—L.P.

**Update on Power Mac Virtual Memory**

Instead of turning on System 7’s virtual memory to reduce the amount of RAM required by native Power Mac applications (as described in a December tip), you can use Connectix RAM Doubl er. Bill Waits of Norcross, Georgia, reports that the program uses less disk space and causes less slowdown than does virtual memory (even if you set virtual memory as low as possible).

We pay from $25 to $100 for tips published here. Send questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to Quick Tips, Lon Poole, at the address listed in How to Contact Macworld at the front of the magazine (include your address and phone number). All published submissions become the property of Macworld. Due to the high volume of mail received, we’re unable to provide personal responses.

STATISTICA/W* (for Windows) Complete Statistical System with thousands of on-screen customizable, presentation-quality graphs fully integrated with all procedures. Complete Windows 3.1 support, DDE, OLE, TT-fonts, multiple toolbars, right mouse button support. Unlimited numbers of data-, results-, and graph-windows. Inter-window integration: data, results, and graphs can be treated as objects and converted into one another in a number of ways. The largest selection of statistics and graphs in a single system: comprehensive implementations of Exploratory techniques; multivariate tables with banners (presentation-quality reports); nonparametric; distribution fitting; multiple regression; general nonlinear estimation; stepwise logit/probit; general ANCOVA/MANOVA; stepwise discriminant analysis; log-linear analysis; factor analysis; cluster analysis; multidimensional scaling; canonical correlation; item analysis/reliability; survival analysis; time series modeling; forecasting; lag analysis; quality control; process analysis; experimental design (with Taguchi); and much more. Manuals with comprehensive introductions to each procedure and examples. Hypertext-based Stats Advisor expert system. Extensive data management facilities (spreadsheet with long formulas, block operations, advanced clipboard support, DDE hot links, relational merge, data verification, powerful programming language). Batch command language and macros also supported, "turn-key system" options. All output displayed in Scrollsheets™ (dynamic, customizable, presentation-quality tables with toolbars, pop-up windows, and instant 2D, 3D and multiple graphs). Extremely large analysis designs (e.g., correlation matrices up to 32,000x32,000, unlimited ANOVA designs) in Megafile Manager with up to 32,000 variables (8 Mb) per record. Unlimited size of files; extended ("quadruple") precision; unmatched speed. Exchanges data and graphs with other applications via DDE or an extensive selection of file import/export facilities. Hundreds of types of graphs, including categorized multiple 2D and 3D graphs, matrix plots, icons, and unique multivariate (e.g., 4D) graphs. Facilities to custom design new graphs and add them permanently to menu. On-screen graph customization with advanced drawing tools, interactive stretching and resizing of complex objects, interactive embedding of graphs and artwork, special effects, icons, maps, multi-graphics management, page layout control for slides and printouts; unmatched speed of graph redraw. Interactive rotation, perspective and cross-sections of all 3D and 4D graphs. Extensive selection of tools for graphical exploration of data: fitting, smoothing, overlaying, spectral planes, projections, layered compressions, marked subsets. Price $995.

Quick STATISTICA/W* (for Windows) A comprehensive selection of basic statistics and the full graphics capabilities of STATISTICA/W. Price $495.


Domestic ship/it $10 per product; 14-day money back guarantee.

Circle 99 on reader service card

StatSoft™

2225 E. 13th St. • Tulsa, OK 74104 • (918) 583-4149
Fax: (918) 583-4376

Overseas Offices: StatSoft of Europe (Hamburg, FRG); ph: 040/4530347; fax: 040/4530348; StatSoft UK (London, UK); ph: 090-583-0852; fax: 090-583-0853; StatSoft Pacific (Australia); ph: (03) 603-0850; fax: (03) 603-0851; StatSoft Japan (Tokyo); ph: 03-5470-3200; fax: 03-5470-3201; StatSoft France; ph: (1) 45 99 09 30; fax: (1) 45 66 08 51; Available from authorized representatives worldwide.

STATISTICA/Mac* (for Macintosh) A STATISTICA/W-compatible, comprehensive data analysis and graphics system designed for the Macintosh. Large selection of statistical methods fully integrated with presentation-quality graphics (incl. EDA, metaphors, a wide selection of interactively rotatable 3D graphs; MacDraw-style tools). Unlimited size of files. Full support for System 7.1, "Publish and Subscribe." Price $995.

Quick STATISTICA/Mac* (for Macintosh) A subset of STATISTICA/Mac statistics and graphics. Price $295.


Open Transport Moves Along

If you have 20 different lightbulb sizes, then you need 20 different sockets," quipped then U.S. Navy Commander Grace Murray Hopper in 1964, when proliferating programming languages threatened to swamp software developers.

Hopper's words kicked off the invention of a programming language, called COBOL, to act as a "standard bulb" for software development. Thirty years later, programmers face a similar threat to software development—this time from a multitude of communications protocols, one problem that Apple hopes its new networking architecture, Open Transport, will help solve.

To create applications that work in multiple network environments, programmers must write custom code for each protocol, including AppleTalk, TCP/IP, SNA, X.25, DECnet, IPX, and OSI. Multiply these protocols by several different program-interface standards—from Unix, X/Open, and POSIX groups—and you have some idea of the confusion impeding network-software development. Apple's solution, Open Transport, takes a different tack from Hopper's COBOL. Instead of a single standard lightbulb, Apple has invented a 20-socketed lamp.

The problem Apple must solve differs from the 1960s programming-language crisis in that Open Transport must coexist with, not replace, existing standards. Open Transport intends to accomplish this by putting a consistent face on programming and user interfaces, so that software developers can write applications—and end users can manage their networks—without worrying about the underlying protocols. On the network side of these interfaces, users can plug in any or all of the already mentioned transport protocols. What's more, users can change these protocols on the fly, without rebooting systems or even quitting applications. Apple calls this concept transport transparency, and it lies at the heart of Open Transport.

The potential benefits of transport transparency are many: developers can write applications that automatically work with any protocol, network administrators can mix protocols on a network, users can manage heterogeneous networks consistently, and any Mac can route network traffic between protocols. Transport transparency includes the ability to centrally create client-system preference files and distribute them via file transfer or E-mail, eliminating on-site configuration.

Open Transport's user interface has three user-selectable access levels. The lowest, Basic/Novice, lets users change only a few essential configuration items. The Advanced/Expert level lets users access all configurable items. A password-protected Administrator level enables an administrator to lock any or all individual items at the two lower levels.

In addition to user-interface improvements, AppleTalk network managers will gain the ability to manually specify protocol addresses, dynamically unload AppleTalk to conserve memory, and remotely check AppleTalk version and configuration status. TCP/IP networks will benefit from support for the new DHCP (Dynamic Host Configuration Protocol) Internet standard, which provides centralized storage and distribution of IP addresses and various TCP configuration parameters. Other new TCP/IP capabilities include DNS (Dynamic Name Server) explicit search paths, RARP (Reverse Address Resolution Protocol), BootP (Bootstrap Protocol), and multiple-gateway support.

The new application-programming
3Com Enhances Ethernet for Multimedia

Are you thinking about running multimedia applications on your network but getting confused by all the technologies—like Isochronous Ethernet, 100 VG-AnyLAN, and ATM—being touted for high-speed networking? Well, 3Com Corporation has developed yet another option: PACE, which stands for Priority Access Control Enabled.

PACE is a switching technology that beefs up an Ethernet network so it can more efficiently handle multimedia applications such as videoconferencing. It works by controlling latency and jitter, the two factors that cause delay in delivering audio and video traffic over Ethernet networks, and by implementing a class-of-service scheme that gives higher network priority to time-sensitive apps. (Users on traditional Ethernet networks often get jittery images or audio and video fade-outs when network traffic is heavy.)

PACE runs on an existing Ethernet infrastructure, so you don't have to change adapter cards or cable. But PACE requires Ethernet switching, which dedicates an Ethernet pipe to each user. 3Com said it will add PACE technology at 10 Mbps and 100 Mbps to its next generation of workgroup switching products sometime in 1995, for a price of roughly $150 per port. 3Com also plans to license the technology to other switch vendors.

Apple has announced support for PACE as an emerging network technology designed to facilitate multimedia use. Novell, Silicon Graphics, and Sun Microsystems are also backing it. 3Com, 408/764-5000.

Two Compatible Routers

Two Compatible Systems' RISCRouter 4000S ($3995) combines the performance advantages of a switch with the functionality of a router, offering a hybrid option that the company dubs a "switchover router.

Like a switch, the four-port 4000S (the S stands for switch) improves network performance by isolating workgroup traffic into four dedicated 10-Mbps segments. Like a router, the 4000S provides network-management capabilities, such as the ability to logically divide a network into subnets and to set AppleTalk names and security-access levels.

A second product, the RISCRouter 3400R ($2995), is a wide-area router designed for central sites with high-bandwidth needs. The five-port unit, which routes AppleTalk, TCP/IP, IPX, and DECnet traffic over PPP, has two T1 ports, two 128-Kbps ports, and one Ethernet port. Compatible Systems plans to ship the 4000S and the 3400R by March 1995.

Compatible is incorporating support for frame relay into the 3400R and its other wide-area routers, the MicroRouter 900i and the MicroRouter 1000R, starting in January 1995. Existing 900i and 1000R users can get frame-relay upgrades free via the Internet, AppleLink, CompuServe, or Compatible Systems' bulletin board or ARA server. Compatible Systems, 303/444-9532.
If you haven’t had a truly great time with a project lately, it’s time you discovered the true potential of your AV Macintosh.

With Radius SpigotPower AV you’ll fall in love with full-screen, full-motion video on your Mac.

It’s perfect for industrial videos, like in-house and sales presentations, training tapes, and every multimedia application you can think of.

And you don’t need a disk array, because everything runs off the built-in AV hard disk on your system.

So start pouring real video into everything you do. Discover the full potential of your AV system with SpigotPower AV. Call Radius at 1-800-227-2795 for more information.

Get SpigotPower AV. Because the tools you use matter.

SpigotPower AV. Full-Motion, Full-Screen Video for AV Macs
Is Your Battery Safe?

IN NOVEMBER 1994, TECHNÖGGIN (513/321-1777) announced that it had stopped selling external PowerPlate batteries for the PowerBook and recommended that all of its users stop using the batteries. The company cited problems with acid leaking from the lead-acid cells inside the batteries. Technöggin’s nickel-cadmium internal PowerBook battery and Quick-Take 100 camera battery are not affected.

What Actually Happened

All batteries contain chemicals that react to produce electricity. In a lead-acid cell, hydrogen-gas buildup is a normal part of the charging process, so all cells include a pressure valve to exhaust the gas if necessary. The valve may not be readily visible (in an alkaline flashlit battery, the valve is part of the case seal). The pressure increase must be carefully handled by the cell design and the charging circuit. If the pressure is high enough, some battery chemicals may come out of the valve in addition to gas.

In some failed Technöggin batteries, dilute sulfuric acid—the standard electrolyte in lead-acid cells—and chemical residues came out of the valves. A small amount of acid will most likely be contained within the battery case and go unnoticed; larger amounts could leak out and potentially damage anything nearby. (If acid gets on your skin, flush the affected area with lots of running water; be very careful not to get acid in your eyes accidentally—don’t rub your eyes!) Several Technöggin batteries leaked enough acid to eat holes through a carrying case.

An acid leak is bad enough, but the PowerPlate Mini 3 can suffer a worse fate because of its unfortunate circuit layout. The leaked acid and chemicals can short a cell, making it very hot—hot enough, reports Technöggin, that some batteries melted holes in the battery case.

Technöggin says that of the 7435 PowerPlate batteries it shipped through June 1994, 83 were returned with leaking cells, a failure rate of 1.1 percent. Most of the leaks occurred after the batteries had been used for at least 6 months. Of the 401 batteries that were in the field for more than 12 months, 16 failed—a very high 4 percent failure rate. Of the PowerPlate models, the Mini 3 failed more frequently than the 3X and 5X. In about half the cases, the customer noticed no leakage and returned the battery for other reasons; Technöggin saw the leakage during service work.

All of the information about cell-failure rates given here comes from the companies. Most companies quote a cell-failure rate that includes but isn’t necessarily limited to leakage. The companies see only returned batteries; a battery that tests good will not normally be opened up to inspect for leakage, so all of the failure rates are subject to some uncertainty.

The Cell Maker

Technöggin got cells for its flat-pack batteries from Portable Energy Products (PEP), a company founded in 1992 to build a novel, flat-lead-acid cell. To make a PowerBook battery, Technöggin took three or six PEP cells and installed them in a case with a charging circuit. The flat cells make for a thin battery that can be carried conveniently underneath a laptop computer. Although Technöggin’s main competitor VST Power Systems (508/287-4600) previously used PEP cells, VST says it has been phasing them out since November 1994 and will be completely switched over to a different supplier by January 1995.

VST and PEP have both reported a far lower failure rate than Technöggin. VST says that for its PEP-based batteries, the failure rate due to faulty cells is about 0.1 percent. This matches a 0.04 percent cell-failure rate quoted by PEP (since a battery contains three to six cells, only one of which is likely to be defective, the cell-failure rate will be lower than the battery-failure rate). Based on its experience, VST believes that its batteries are safe to use and is continuing to manufacture and sell them. PEP says that improving manufacturing processes over time reduced its failure rate and that it had experienced no cell leakage with cells made since May 1994. However, by early December 1994, PEP had stopped producing cells.

Although VST and Technöggin used the same cell maker, their batteries differ continue
in many ways. The two companies used different test procedures and assembly processes as well as different charging circuits. Any or all of these differences could account for some or all of the differences in failure rates.

The two companies do agree on one thing: PEP cells suffer from poor quality control in mechanical construction and electrical performance. Techniggin and VST ran multiple screening tests to check for manufacturing defects and to match cell capacities; both companies report having to reject many batches of cells from PEP.

PEP has had difficulty selling its cells in quantity to other computer companies. In 1993, IBM introduced its ThinkPad 500 laptop computer with a custom PEP battery. Amid many reports of short battery life, IBM withdrew the computer. Eventually IBM brought out a new version of the ThinkPad with a nickel-metal-hydride battery instead of PEP cells. (No one has successfully marketed external batteries for DOS/Windows laptops because of the wild proliferation of battery types. The more than 1 million series PowerBook laptops, by contrast, can all use the same external battery.) PEP also tried to get Apple to adopt PEP cells for PowerBooks, but "we were never very favorably impressed with PEP cells," says a senior Apple battery engineer.

In 1993, the large Korean company Hyundai licensed the PEP technology with the intent of becoming a second source for the PEP-style flat cells. Hyundai began production in the fall of 1994. Battery vendors report that Hyundai's cells show far better consistency and repeatable performance than PEP cells. Hyundai has told its customers that it plans to make several changes to the cell design, including taking steps to reduce the potential leakage problem.

Other Battery Sellers
Lind Electronic Design (612/927-6303, 800/669-5956) has been selling batteries since 1984, beginning with a battery pack for the Apple Ile. Lind had looked at PEP cells but decided not to use them because of concerns about manufacturing and quality-control problems. Lind sells an external battery pack for PowerBooks that is bulkier than the PEP-based batteries. On the other hand, Lind reports that in a decade of building lead-acid batteries with cells from three established Japanese manufacturers—Panasonic, Yuasa, and GS Battery (Japan Storage)—it has not seen a single case of acid leakage. Lind points out that for the established battery companies, significant cell leakage is so rare that few people can recall any cases.

Lind says it has never had to reject cells for manufacturing or performance flaws.

The fourth supplier of external flat-pack batteries, Battery Technology Inc. (BTI; 213/728-7874, 800/982-8284), uses a liquid-electrolyte lead-acid cell made by Shin-Kobe Electric Machinery in Japan, a Hitachi division. BTI claims a cell-defect rate of 0.1 percent and has no reports of leakage. BTI also says it has never had to reject cells from Shin-Kobe.

Is Any Battery Safe?
I think that a 1 percent leakage rate is too high for a product that will be carried by hand for long periods of time. If you have a Techniggin PowerPlate battery, the prudent choice would be to stop using it. If you must, consider using it only in stationary situations where acid leakage would cause no serious damage. Although Techniggin says it lacks the funds to recall its batteries, several vendors, including APS and MacZone, say they will refund to their customers the purchase price of Techniggin batteries.

The other battery vendors say their products are generally safe. I haven't heard any information to the contrary.

Yet all batteries store energy and thus have some inherent degree of instability. You must treat batteries with respect, just as you would an AC power source or a tankful of gasoline. If you drop a battery, inspect it carefully for signs of physical damage. If you suspect any damage, don't use the battery until it has been checked. Always take care to avoid shorting battery terminals. Protect the battery from very hot temperatures (don't keep it in the sun for a long time). Use only the appropriate power adapter or charging device for your battery. Charge your PowerBook batteries on a shelf or other flat surface; don't leave a PowerBook or battery on your bed. Don't keep a PowerBook plugged in when you go away for a vacation. Read the manual carefully for information about battery care and charging. Send in the battery's registration form so the maker can notify you in case of a safety problem. When your battery can no longer hold a charge, dispose of it carefully by sending it back to the manufacturer. Many batteries contain heavy metals that should not go into landfills.

CARY LU is a Macworld contributing editor who covers mobile- and remote-computing issues in this monthly column. You can reach him at caryl@eworld.com.
Only one company could take all there is to know about global technology markets and put it in this convenient kit.

The IDG Global Marketing Kit provides technology market profiles of countries in four regions (North America, Europe, Asia/Pacific, and Latin America). This detailed information is available both in bound collections and on a searchable CD-ROM (which also contains abstracts of IDC worldwide research, as well as in-depth profiles of IDC publications read all over the world. Also included is an informational video featuring interviews with key industry leaders.

Historically, targeting the right customers throughout the world has required an uncanny combination of experience, timing, money, and luck. We at IDG, however, believe there is a better way.

One you can use to your advantage right now.

You see, when it comes to experience in the global technology market, no other company compares with IDG. Today, we have more than 200 publications in more than 60 countries—plus research facilities and capabilities that are the envy of the industry.

And now, we've taken that breadth of experience and knowledge and packaged it into a comprehensive global technology marketing kit designed to do one thing: make your global marketing efforts easier and more effective.

The kit is only $495 and is available for immediate delivery. Call 1-800-IDG-IS IT and order yours today. IDG. It's in a world of its own.
Technology changes
times change
people change

but one thing stays the same

we win.

Why do we keep winning Best Computer Magazine?

The Computer Press Association judges say it's because "Macworld is an outstanding mix of news and service journalism, humor and opinion." It's also because Macworld contains more product reviews than any other monthly Macintosh publication. And the magazine is designed with style—clean layouts and illustrations generated entirely by the Mac.

So, in an industry that changes every second, it's reassuring to know that Macworld continues to be the Best Computer Magazine and the Macintosh authority.
Macroworld

Macros put the function back in function keys

REMEMBER THAT SHOCKING 1986 report? It found that people were less productive with personal computers than without them. According to Dr. Gary Loveman, then of MIT's Sloan School of Management, by the time you've finished shooting your troubles, tweaking your screen savers, and finessing your printout, you've spent more time than you would have pounding away on the old IBM Selectric.

How could they arrive at such a finding? Surprise, surprise: they were studying DOS computers, not Macs. Furthermore, I'll bet the test subjects weren't using macros.

A macro makes something happen automatically when you press a keystroke. Typing your return address. Turning up the sound. Launching your address-book program. A macro program gives purpose in life to those otherwise superfluous keys on the extended keyboard—F1, F2, F3, control, page up, and the like.

Macros are even more essential if your daily duties include longer sequences of steps: launch America Online, type password, save mail, print it. Reformat 150 names from "[First Name, Last Name]" to "[Last Name, First Name]." Let a macro program do just one of those jobs for you, and it's almost paid for itself.

QuicKeys 3.0.1

QuicKeys ($119; CE Software, 515/221-1801) lets you create macros the lazy way: with a watch-me mode, wherein whatever you do manually, QuicKeys records. Thereafter, whenever you press the trigger keystroke of your choice, QuicKeys reenacts your steps. Fast. Watching a macro play back is a startling experience: menus flash down, the cursor zips furiously hither and yon, windows open and close as though a caffeine-crazed ghost has seized control of your machine.

Unfortunately, macros recorded using that watch-me business (whether it's QuicKeys or another program) play back correctly only about half the time. Simple ones, like typing, clicking a butt-

on, or pulling down a menu, are pieces of cake. The rest derails on playback. Maybe circumstances have changed since you made your recording—an icon isn't in the same place. Or maybe QuicKeys didn't understand what you were trying to accomplish, and replays your steps to the letter, but not the spirit, of your intention.

To debug your recorded watch-me macros, you open an editing window. Its tools help you perfect what you recorded. For example, you may have to insert a pause between two of the steps.

The highlight of QuicKeys' editing window is its canned macros, listed in submenus of submenus. They include changing your monitor's color setting; shutting down; bringing forward the next window; typing today's date; and switching a selected printer without even opening the Chooser. If the idea of programming macros makes you nervous, you can live a long, happy, and productive life using only those ready-made ones.

Version 3's annoying habit of littering your watch-me macros with Pause commands only adds to QuicKeys' reputation for being slower than other macro programs. But those pauses do enhance QuicKeys' accuracy in reproducing your actions, and you can always take out the ones you don't want.

In ease-of-use terms, QuicKeys is no TeachText. You have to experiment for about half an hour before you really get it—no thanks to the example-scarce manual, where the landslide of made-up terminology makes your eyes glaze over. ("The commands in the Sequence Editor work on the steps in a sequence instead of shortcuts in a set." Ouija.)

Even so, QuicKeys is unquestionably the user-friendliest macro program. (Apple's own MacroMaker doesn't count. It was fine in its day, but it crashes System 7-point-anything.) After training QuicKeys to do your bidding at the touch of an F-key, you, like thousands before you, won't be able to imagine a life without it.

Tempo II Plus 3.0.9

On paper, Tempo ($179.95; Affinity Microsystems, 303/442-4840) sounds a lot like QuicKeys: you start recording, do your thing, stop recording, and specify a trigger key. Your macro is ready, sir/madam.

But the user-interface police should be all over this baby. Tempo's rigid chains of dialog boxes make you feel straitjacketed when editing macros. Every time you edit a macro, you have to click on a Save button, which is really a Save As button, so you're asked: "Are you sure you want to replace ...?" which means you have to click on another button. Which is a very silly design. And while I'm venting, Tempo won't accept individual letter keys as triggers. In QuicKeys, by contrast, you can, in an emergency, make the \ key type a P when your actual P key stops working.

But Tempo is smart. Darned smart. Not only can it make decisions by reading words in a document, it can even analyze the picture on the screen. Example: CE Software's phone staff and I were unable to create a QuicKey that would dial with Apple Remote Access, wait for a connection, and then open QuickMail. (continued)
But Tempo, by waiting until the words Connection Established appeared on the screen, handled the task with aplomb. Tempo can also perform the essential act of batch processing—applying a certain formatting or data-massaging step to every single file in a folder, one after another. True, nonprogrammers will have to call Affinity’s toll-free help line to get it set up. But batch processing is an incredibly useful tool for Photoshop jocks, FileMaker pros, or the E-mail deluged.

There’s no use putting up with Tempo’s spartan interface if you just want to make F1 empty the Trash and F2 launch ClarisWorks. But if your work involves any kind of repetitive data processing, Tempo is a tireless, industrial-strength drone with a passion for drudge work.

TempoEZ 1.2a
This program is precisely identical to Tempo II Plus, except that it lacks a few of the more sophisticated smarts. You can’t do batch processing, assign macros to fire at certain times, or use Externals (plug-in extra features).

If Tempo II Plus’s greatest sales point is its programmable brains, why buy a version without them? Cost. TempoEZ gives you all of those simpler macros (typing things, launching programs, getting your E-mail at midnight, zooming windows, and so on) for $79.95 from Affinity Microsystems (which means $49 by mail order).

KeyQuencer 1.2.1
Imagine a program that requires only one-third the RAM of QuickKeys, does its business much faster, and costs exactly $10. I’m pleased to introduce the surprisingly polished, cleverly named KeyQuencer.

Several dozen ready-to-play macros make this shareware control panel instantly valuable. One keystroke flips your monitor to a different color setting. Another lets you take a screen shot (a captured PICT file) of anything you rope off with the selection rectangle. Others do things like type the date, move a window, adjust the speaker volume, or switch to the next open program. The copy of KeyQuencer I’ve posted in the Macworld forum of America Online and eWorld also has canned macros that empty the Trash, jump to the Finder, put quotes around selected text, open the Calendar, find a lost PowerBook cursor, and so on.

Now the tough news: KeyQuencer has no watch-me mode. I’ll wait while you digest that disappointment.

In other words, you must build every KeyQuencer macro manually—yes, program it—by typing a coded command. To make a macro that chooses Palatino, from the Font menu, you type Menu "Font" "Item Palatino". To make KeyQuencer type your name, you create the command Type "Harold H. Higgins III, Esq." (or whatever).

This is all made much simpler by the control panel’s scrolling list of programmery verbs (Type, Menu, Click, Drag, and so on); you don’t have to remember what order the words go in, what their spellings are, or even what they do (an explanation appears when you click in the verb list). By way of instructions, you get only online help and three OK tutorials written by various fans of the program. But KeyQuencer is growing up fast. Each release offers more features; a real manual is supposed to be included by the time you read this. Today’s KeyQuencer, unlike its rivals, doesn’t let you create a separate set of macros for each program; future versions probably will (says the programmer, Alessandro Levi Montalcini).

The Upshot
If you’re a raving fan of AppleScript or UserLand Frontier, don’t get your hackles up. Those are scripting languages, not macro software. They’re wonderful, but they cost much more than macro programs, gulp down enormous gobs of memory, and—more to the point—they’re for programmers only.

Which leaves QuickKeys, Tempo & son, and KeyQuencer: Do you need one? Watch yourself for the next couple of days. Whenever you catch yourself duplicating your own efforts—typing your return address, applying the same size reduction to every QuarkXPress graphic, switching off the graphics grid every time you launch ClarisWorks—think macro.

Wanna know the real irony? If those personal computer researchers had used macros, they could have conducted their productivity study in half the time.

Macros Possibilities

<table>
<thead>
<tr>
<th></th>
<th>OK</th>
<th>TM</th>
<th>EZ</th>
<th>KQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch printer without opening the Chooser</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch a program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open a certain folder (in the Finder)</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open a certain folder (in Save or Open boxes)</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glossary function (paste predefined text or graphic)</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoom a window to full size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn File Sharing on or off without opening control panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open each file in a folder, reformat, save, go on</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit all programs at once</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash the current date or time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Draw a smiley face (real-time mousing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make your own message appear in a window</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empty the Trash Can</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigger Apple events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dial a phone number highlighted anywhere</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copy a specified file to a specified place</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch monitor colors without opening control panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create double-clickable macro desktop icons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch to next open program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch to next window in same program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wait for a certain window to appear, then go on</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check for presence of a button or menu item</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze Clipboard text before proceeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze selected text before proceeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze on-screen image before proceeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform a macro at start-up or shutdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform a macro at a specified time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make screen saver turn on instantly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- = yes; * = no  Requires Apple-events programming or Super Boomerang. ** You must stop the macro manually once all files are opened.

Contributing editor DAVID POGUE is the coauthor of Macworld Mac & Power Mac Secrets, second edition (IDG Books Worldwide, 1994). He will soon be installing a fourth row of F-keys to accommodate his macros.
Six Education

A dirty Word from Microsoft

The coming of Microsoft Word 6.0 was not unheralded. For months my beleaguered mail carrier had been dragging in various tomes on its use, encyclopedia-size beasts published by Microsoft Press. One alone, the Cobb Group’s Word 6 Companion, clocked in at 900 pages. Apparently Microsoft’s publishing arm perceived a land-office business in selling texts and guidebooks to those who found the Microsoft-written manuals inadequate.

When the software finally arrived—I got my Word 6 as part of a package containing the entire Microsoft Office suite, another reason for my mail carrier to hate me—I found out why so many trees had to die. There are no fewer than 30–30! floppy disks included in Office. I stacked them into a tower, a plaintive object of fin de siècle art. It represented a gravitysucking black hole into which the best years of the lives of countless Microserfs had gone. And in the case of Word 6, it is work performed in vain.

Big Words

Of all the applications in Office, Word 6 stands ascendant. Word is the closest thing to a standard since the original MacWrite bit the big one—its continued evolution is of vital interest to all Macintosh users. And the trend has been alarming. While each iteration of Word has offered more features—some of them essential, others hopelessly obscure—the program gets bigger and bigger. And the performance leaves more and more to be desired. Now, with Word 6, we have the War and Peace of software, the Joyce Carol Oates of apps.

Word 6.0 takes up more space on the hard disk than a thousand Moby-Dicks. It begs for a memory upgrade (it’s no coincidence that my copy of Office came with a free copy of RAM Doubler). Simply loading Office on my machine was a herculean task. First I had to ruthlessly clear off disk space—Word alone requires almost 25MB. Then I began feeding floppies to the Mac. To ease my wait, Microsoft provided little mini commercials that popped up on my screen as I loaded Office, kind of like billboards flashing by on a long highway drive: South of the Border, 200 miles away. Finally, the installation was complete. I double-clicked on the icon for Word 6. And waited.

After a near eternity, Word appeared on my screen. And all of a sudden, my monitor looked like Times Square. What seemed like hundreds of little buttons lined up, and a little-bitty area for text entry peeked through. There were buttons for everything (fortunately for those of us who are not innomiconics, the program has a feature that instantly decodes the arcane symbols on the buttons), from Insert Excel Spreadsheet to Bullets. This seemed strange to me—why would I want much chance of completing an Everest climb—I am truly impressed with the clever innovations that the Microsofties have devised.

I am thinking of Wizards, a no-brainer means of formatting certain types of documents; the spike, an ingenious way of extracting information from a number of files into a single new file; and, at long last, a table that’s as easy to set up as a spreadsheet. And I have even come to love the autocorrect aspect of Word, which silently fixes typos but leaves alone unfamiliar proper nouns and strange words of my own invention. Indeed, I could fill up several months’ worth of columns describing neat aspects of Word 6 (including the customizable nature of the screen, so that you can eliminate those noisome buttons). But instead, to my regret, my verdict on this massive project is a big negative.

The problem is, Word 6 runs so poorly that it is virtually unusable.

For February News my colleagues at Macworld subjected Word 6 to a stopwatch and discovered some hideous failings. Generally, version 6 took twice as long to complete various commands as did the previous version—in some cases, much longer: loading Word 6 on a Centris 610 took more than seven minutes, over three times as long as loading Word 5.1.

But I didn’t need Macworld Lab to tell me that Word 6 performs like a sick old dog compared with Word 5.1, or even with Word 4 (which I still use on my PowerBook because—get this—I think 5.1 is too big). I felt the difference. Every time I opened the application, Every time I saved. Every time I pulled down a menu—under the pull-down menus?

Stop Time

I plunged forward to use Word 6 and, to my surprise, found it to be one of the most remarkable computer applications I have ever seen. Though I have not spent enough time with it to fully understand its intricacies—a fear that I have about as
to wash my hair before Word finished tallying up the words in a file.

To avoid the infuriating pauses of Word 6, it didn’t take too long before I actually began modifying my work habits, such as saving less often. Or not checking out things I had written earlier in a document, to avoid scrolling. In accommodating my work habits to the flaws of Word 6, I was becoming a less productive worker.

Earth to Microsoft: upgrade means improvement. The wealth of new features and spiffier components in Word 6 doesn’t mitigate the fact that this version is harder to learn, more difficult to manage, and much less pleasant to use than its predecessors. Quite simply, Word 6 fails to meet minimum standards of performance. It’s as if a car company went bonkers with moon roofs and audio systems but produced a car whose top speed was 45 miles an hour.

Rotten to the Core

How can it be? How does Microsoft, a company renowned as the great success story in American business, screw up so badly?

I think I learned at least part of the answer by reading a Microsoft strategic white paper called Beyond Platforms. The premise of this document is that Microsoft’s new applications are designed to be virtually identical no matter what computer they run on. At the heart of these applications is a core code shared by all platforms, including Macintosh, Power Macintosh, Windows, and Windows NT.

Though Microsoft does fine-tuning on the Macintosh to utilize the Mac’s abilities, the essence of the system—what makes Word 6 what it is—is this core code. As justification for this approach, Microsoft cites a MacWeek study that claims that two-thirds of Macintosh managers require software that can read and write the same file formats on different platforms. Of this group, 76 percent said they required interoperable software.

That may be what Macintosh managers ask for—and anyway, almost all major Mac applications accept file formats from the Windows world anyway—but when it comes to users, the priorities are different. We simply want the best software, and as a minimum we want software that performs at a decent clip. This business with the core code written for all platforms and not constructed as a ground-up Macintosh program seems to guarantee that the software will run less efficiently on our computers. Macs.

And for what? While it is nice to have apps that are interoperable with Windows software, we have specifically chosen Macintosh software for a reason—it is better. Therefore, I’m offended at the explanation that the cluttered, trashy look of Word 6 is due to the requirement that Macintosh Word must appear identical to the Windows version. Who wants that? The Macintosh OS is better than Windows. Why should we settle for the lowest common denominator—particularly when we wind up paying a double price, in performance and interface design?

To me, the key sentence in the white paper is this: “Microsoft Office for the Macintosh provides virtually seamless compatibility with Microsoft Office for Windows, helping the Macintosh to be a good corporate citizen.” Apparently, the superiority of the Macintosh system is a subservient obstacle to Microsoft’s goal of standardizing the business world around the Windows model. By being better, Mac applications are downright disruptive—bad citizens! Microsoft’s solution? Make Macintosh apps look and feel the same as Windows apps. And what if, in the process, the performance decays so badly that Word 6 is hardly usable? We know Microsoft’s answer—release it! If Macintosh users want to be “good citizens,” they’ll swallow the pill.

Not me, babe. Until and unless Microsoft addresses the performance problems of Word, I’m out of here. I’ve been experimenting with two alternatives recently—Nisus Writer and Akimbo Systems’ FullWrite 2. Nisus seems to offer almost all of the features found in Word, with a simpler interface. Its scripting and searching abilities may even eclipse those of Word. FullWrite is wonderfully compact—it takes up less than 800K on a hard disk—and is particularly nimble in outlining and simple page-layout tasks. One of these two is likely to become my everyday word processor. (For more on this topic, see the features by Robert C. Eckhardt and David Pogue in this issue.)

It’s not without some regret that I leave the Word world, especially when it means missing out on some of the truly wonderful innovations of Word 6. But judging from the snooty tone of Microsoft’s white paper, the regret is mostly on my side. At some point, about 10 million of us Macintosh users made a decision to go with the best, not the standard. We’ve expected industry leaders like Microsoft to accommodate us with excellence. Instead we got Word 6, with its implicit message to Macintosh loyalists: Drop dead.

STEVEN LEVY’s latest book is Insanely Great: The Life and Times of Macintosh, the Computer That Changed Everything (Viking, 1994). Levy is a fellow of the Freedom Forum Media Studies Center in New York.
YOU'VE ALREADY BOUGHT TWO-THIRDS OF OUR NEW TABLOID-SIZE COLOR PRINTER

Most color printers include expensive internal processors that make up two-thirds of their cost. But now, FARGO's exclusive RasterSoft™ technology lets the computer you already own do the same job. For about one-third the cost!

Our new dual-function Picture™ 510 Color Printer with RasterSoft prints gorgeous, dye-sublimation proofs as well as fast, inexpensive wax thermal comps in sizes up to a whopping 12 x 18". Optional Adobe® PostScript® Level 2 and support for color matching systems from Agfa®, DayStar® Digital and Kodak® deliver the professionalism you'd expect from printers costing much more.

Call us today at 1-800-327-4622 for more information and a FREE sample print.

FARGO®
ELECTRONICS INCORPORATED
7901 Flying Cloud Drive Eden Prairie, MN 55344 U.S.A.
1-800-327-4622
612-941-9470 FAX: 612-941-7836

©1994 FARGO Electronics, Incorporated. Picture and RasterSoft are trademarks and FARGO is a registered trademark of FARGO Electronics, Incorporated. All other trademarks or registered trademarks are the property of their respective owners. Prices are MSRP and color pricing may vary.

Circle 172 on reader service card
A DIGITAL FUTURE FOR TODAY

Information is the single greatest asset in today's business world. And harnessing it is the single greatest challenge. If information access is your key to continued competitiveness, CD-ROM Expo will help unlock the possibilities.

CD-ROM Expo is a unique exhibition and conference in one. Here, the world's leading CD-ROM hardware, software and service providers gather together to demonstrate a variety of applications — training, sales, marketing, advertising, technical support and documentation, records management/archiving . . . and much more. It's your one stop for learning from industry experts about the uses of CD-ROM, comparing products and services, and learning about new CD-ROM applications that will increase your productivity and profitability.

Informative exhibits and a choice of two complete Conference Programs will help you explore the potential of CD-ROM across all platforms and formats. And give you the knowledge to keep ahead of your competition.

Let CD-ROM Expo show you how to put the power of multimedia, digital video and the entire optical publishing industry to work for you! 

YES! I'd like more information about the 9th annual CD-ROM Expo • September 20-22, 1995
I'm interested in:  ○ attending  ○ exhibiting

Name ______________________ Title ______________________
Company ______________________
Address ______________________
City ______________________ State ______________________ Zip ______________________
Telephone ______________________ Fax ______________________

Send to: CD-ROM Expo '95, 260 Milton St., Dedham, MA 02026 or fax to: 617-361-3389 phone: 617-361-0817
A Primer on Prices

Why published prices don’t always match retailers’

You can always find somebody selling much lower than suggested retail price,” says John A. Murphy, editor and publisher of The PC Street Price Index (609/784-8866), which tracks the lowest advertised prices for personal-computer hardware and software. “Suggested retail doesn’t mean anything.” A lot of companies agree: Microsoft, Apple, Adobe, NEC, and DayStar Digital are among the firms that have eliminated suggested retail prices (SRPs) altogether. It’s probably just as well: as Murphy points out, SRPs and list prices usually aren’t a realistic reflection of product prices.

In announcing its decision to drop SRPs last May, Microsoft said its research showed that “price-conscious customers simply ignore SRPs and look at the prices advertised.” So Microsoft dropped list prices and no longer provides a price list for its products. Instead, when introducing a product, the company publishes what it calls an estimated retail price. A street price, in other words.

Pushing this trend is the industry recognition that SRPs aren’t accurate because retailers, not manufacturers, set retail prices. And retailers price products based on the cost of the goods from the manufacturer or distributor—not based on SRPs publicized by manufacturers. Prices equal “the cost of goods plus sales and transaction costs and hopefully a modest profit,” according to Peter Godfrey, president of MacWarehouse.

In theory, the industry trend toward estimated street prices means that the prices the companies give Macworld for publication are more realistic overall. But as a nationwide survey shows, estimated street prices may not be the final word on what you have to pay for any given product on any given day (see the chart “Your Price May Vary”).

Last September, for example, Intuit moved from using SRPs to estimated street prices. As I write this, Quicken 5.0 has an estimated street price of $39.95, implying that consumers need to spend $39.95 to get the application. As a reality check, I called a variety of retailers and catalog firms and found Quicken selling at $35, $43, and $45 depending on the place of purchase. Even more surprising was my discovery that Intuit sells Quick en directly to consumers for $49.95—$10 over the estimated street price.

Prices for major applications remain fairly consistent, regardless of place of purchase. I found that major retail chains and the top three mail-order companies tend to sell popular applications for very similar prices. That shouldn’t be surprising, according to MacWarehouse’s Godfrey. “Taken as a whole,” he says, “there should not be a significant difference in prices between CompuUSA and catalogers,” except in the case of special promotions that retailers sometimes use to bring in additional customers.

Mel Badgett agrees. According to Badgett, the director of graphics applications for Claris Corporation, “It’s a very efficient market for the top 50 to 75 applications.” Consumers should see minimal price differences among the top-selling products, he says, but they may find substantial price disparities among low-volume products, such as CAD packages.

But even best-seller ClarisWorks 3.0 was being sold for a wide range of prices when I checked recently. The lowest price, $70, reflected a discount for buying the package with a Macintosh system. The highest price matched the SRP of $129; several places sold it for $99.

Even so, software prices are generally more consistent and stable than hardware prices, which tend to go down over time as companies develop and introduce new products. As manufacturers wrestle with how to determine and publicize realistic prices, it’s a challenge for consumers to determine what’s a bargain.

Apple’s Strategy

Take Apple, for example. About 15 months ago the company stopped using suggested retail prices for its products; in fact, Apple no longer publishes a price list of any sort for consumers. Instead, as products are announced Apple provides journalists with its so-called ApplePrices. You might suppose that the ApplePrice represents an estimated street price. But you would be wrong.

“ApplePrice is the price [at which] Apple intends to sell its products to customers who are purchasing as few as one unit through a direct Apple sales program,” explains Apple spokesperson Jayne Curtis. “The keystone logic is that we don’t sell direct. . . . The ApplePrice is the price we use for announcing our products, but it’s not an indicator of street price.”

Hmm. So what is it an indicator of? “The ApplePrice is a way for us to communicate the value of our product without using a price, because that’s out of our hands,” says Curtis. “When we talk about the ApplePrice, we’re not talking about the actual price, we’re talking about value. . . . The ApplePrice is a way of letting people know they can buy a Macintosh for about the same price as a Windows machine without setting an actual price, because we don’t set prices.”

Mel Badgett agrees. According to Badgett, the director of graphics applications for Claris Corporation, “It’s a very efficient market for the top 50 to 75 applications.” Consumers should see minimal price differences among the top-selling products, he says, but they may find substantial price disparities among low-volume products, such as CAD packages.

But even best-seller ClarisWorks 3.0 was being sold for a wide range of prices when I checked recently. The lowest price, $70, reflected a discount for buying the package with a Macintosh system. The highest price matched the SRP of $129; several places sold it for $99.

Even so, software prices are generally more consistent and stable than hardware prices, which tend to go down over time as companies develop and introduce new products. As manufacturers wrestle with how to determine and publicize realistic prices, it’s a challenge for consumers to determine what’s a bargain.

Apple’s Strategy

Take Apple, for example. About 15 months ago the company stopped using suggested retail prices for its products; in fact, Apple no longer publishes a price list of any sort for consumers. Instead, as products are announced Apple provides journalists with its so-called ApplePrices. You might suppose that the ApplePrice represents an estimated street price. But you would be wrong.

“ApplePrice is the price [at which] Apple intends to sell its products to customers who are purchasing as few as one unit through a direct Apple sales program,” explains Apple spokesperson Jayne Curtis. “The keystone logic is that we don’t sell direct. . . . The ApplePrice is the price we use for announcing our products, but it’s not an indicator of street price.”

Hmm. So what is it an indicator of? “The ApplePrice is a way for us to communicate the value of our product without using a price, because that’s out of our hands,” says Curtis. “When we talk about the ApplePrice, we’re not talking about the actual price, we’re talking about value. . . . The ApplePrice is a way of letting people know they can buy a Macintosh for about the same price as a Windows machine without setting an actual price, because we don’t set prices.”

Mel Badgett agrees. According to Badgett, the director of graphics applications for Claris Corporation, “It’s a very efficient market for the top 50 to 75 applications.” Consumers should see minimal price differences among the top-selling products, he says, but they may find substantial price disparities among low-volume products, such as CAD packages.

But even best-seller ClarisWorks 3.0 was being sold for a wide range of prices when I checked recently. The lowest price, $70, reflected a discount for buying the package with a Macintosh system. The highest price matched the SRP of $129; several places sold it for $99.

Even so, software prices are generally more consistent and stable than hardware prices, which tend to go down over time as companies develop and introduce new products. As manufacturers wrestle with how to determine and publicize realistic prices, it’s a challenge for consumers to determine what’s a bargain.
Keep the Flame Alive

The lamp of freedom and the light of learning can take many forms.

Your company’s used computers, laser printers, modems, and other surplus equipment can help empower young minds in America, and advance the development of emerging democracies around the world.

The East West Foundation takes your surplus or used equipment and distributes it to American schools and charities and to democratic and educational institutions in Eastern Europe, Africa, Asia, the Commonwealth of Independent States, and Latin America—wherever it can make a difference. And it does make a difference.

Donating used or overstock computer equipment to the East West Foundation can make a difference to you, too—at the bottom line. Because all donations are tax-deductible. And all types of computer equipment are welcome.

To arrange for a donation or for more information, please call:

EastWestFoundation
49 Temple Place
Boston, MA 02110
(617) 542-1234
Fax (617) 542-3333

Keep the Flame Alive

Your Price May Vary

<table>
<thead>
<tr>
<th>Selected Product</th>
<th>Company’s Price</th>
<th>Street-Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ClarisWorks 3.0</td>
<td>$129 suggested retail price</td>
<td>$70–$129</td>
</tr>
<tr>
<td>FileMaker Pro 2.1 for Macintosh</td>
<td>$59 special promotion price</td>
<td>$90–$99</td>
</tr>
<tr>
<td>Quicken 5.0 for Macintosh</td>
<td>$40 estimated street price</td>
<td>$35–$45</td>
</tr>
<tr>
<td>Microsoft Word 6.0 for Macintosh</td>
<td>$339 estimated street price</td>
<td>$295–$340</td>
</tr>
<tr>
<td>Norton Utilities 3.1 for Macintosh</td>
<td>$129 suggested retail price</td>
<td>$93–$100</td>
</tr>
<tr>
<td>System 7.5</td>
<td>$135 ApplePrice</td>
<td>$84–$100</td>
</tr>
<tr>
<td>Hardware and Peripherals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEC MultiSync 500 17-inch monitor*</td>
<td>$1045 estimated street price</td>
<td>$975–$1149</td>
</tr>
<tr>
<td>Power Macintosh 6100/60 8/250/CD</td>
<td>$2280 ApplePrice</td>
<td>$1799–$2000</td>
</tr>
<tr>
<td>US Robotics Mac Fax Sportster 14.4</td>
<td>$200 suggested retail price</td>
<td>$198–$182</td>
</tr>
</tbody>
</table>

Prices rounded to nearest dollar. Prices may have dropped since this November 1994 survey. “No longer manufactured.”

So an ApplePrice is what Apple tells reporters a product will cost so consumers have some basis for comparison with similar products, even though the ApplePrice is not necessarily a realistic representation of what retailers will be charging. Everyone clear now? As Curtis explains, “The computer industry works on a cost-plus basis. We have a price list that we operate in terms of selling the products to the resellers. The resellers, in turn, charge what the market will bear based on the value they are adding, the competitive situation, and the location. For example, if you are the only Apple-authorized dealer in Frostbite Falls, Montana, you might be able to charge a slightly higher price.”

This disparity between what retailers charge and the ApplePrice in Macworld and other magazines can cause problems. When the Quadra 800 was introduced, for example, Apple dubbed it an $1199 product, while most retailers sold it for a minimum of $1249—making both readers and retailers angry. According to one Apple-authorized dealer, who asked not to be identified, “We don’t pay any attention to the ApplePrice. We don’t know what it is. It’s not easily available; it just goes out on press releases.”

Mapping the Future

Last October Apple established something called minimum advertised pricing (MAP) for its PowerBooks, Power Macintoshes, and Performas. Apple now requires authorized dealers to advertise those products at or above MAP guidelines—or to omit advertising prices altogether—to get certain benefits. According to Apple, MAP helps “maintain the value of our products and create a consistent price representation.” So it’s possible that ApplePrices will become more accurate as dealers hew to the MAP line.

The benefit of MAP is to establish some stability so that Apple dealers can afford to keep selling products,” says Ken Kritch, president and CEO of the ComputerWare chain of Macintosh-oriented retailers in the San Francisco Bay Area. Large retailers trying to attract business sometimes advertize Apple products at very low prices—prices that some Apple dealers say they just can’t meet.

According to Kritch, MAP programs are very common in the consumer-electronics industry, and as a result, the advertised prices for televisions and stereos tend to be very similar. But actual prices may vary: “Circuit City and Best Buy are having a big price war in several markets,” Kritch says. “If you go into the stores, prices are lower than advertised.”

If Apple is able to enforce its MAP program, consumers may see more stability—and perhaps somewhat higher—prices for Macintosh hardware. But PC Street Price Index’s Murphy is skeptical. “Market dynamics will not allow it,” he says. “There will be some dealers who observe it, probably the smaller stores. But take a look at the Tuesday science section of the New York Times to see a divergence in price. That’s going to happen whatever Apple thinks… There will always be the gray marketers.”

Macintosh prices do seem to change practically every month, but compared with the results of price wars in the Windows market, Mac prices are the very soul of stability—for now. If Apple “ever does a good licensing deal with someone, all hell will break loose,” warns Murphy. “If Apple allows somebody to clone the Mac, prices would drop even more.”

Until then, what’s a consumer to do? Plan to read next month’s column for some good advice on saving money on your next Macintosh.

You can write to contributing editor DEBORAH BRANSCUM, Macworld’s Conspicuous Consumer, at Macworld, 501 Second St., San Francisco, CA 94107, or via the Internet (branscum@acoli.com).
THE BEST PRODUCTS FEATURED IN MACWORLD

Edited by Elizabeth Maffly

Macworld Editors’ Choice is a complete listing of the hardware and software products selected as the best of their type in Macworld’s comparative articles. A • next to a product indicates that we chose more than one product in that category. A ○ next to a product listing indicates that a native Power Mac version is available.

Hardware

MONITORS

SMALL COLOR MONITORS, Jan 94

14-inch display: • Sony CPD 1430; Sony Corp. of America, 800/222-7669; $779.

15-inch display: • Nanao FlexScan F340i; Nanao USA, 800/800-5202; $799.

TWO-PAGE COLOR MONITORS, Nov 94

PressView 21 Display System; SuperMac Technology, 408/541-0900; $165.

LASER—$1000 to $1600: microLaser Pro 600; Texas Instruments, 214/995-6611; $1599.

PERSONAL PRINTERS, Sep 94

INK-JET: DeskWriter 520; Hewlett-Packard, 800/752-0900; $365.

WORKGROUP PRINTERS, Feb 94

HIGH-SPEED: Hewlett-Packard 4Si MX; Hewlett-Packard, 800/752-0900; $5499.

Best buy: • Apple LaserWriter Pro 630; Apple Computer, 408/996-1010; $529.

APPLETALK NETWORKS, Aug 94

HIGH-BIT FLATBED COLOR SCANNERS, Mar 95

ARCUS 11: Agfa, 508/658-5600; $3495.

POWERLOOK: Umax, 510/651-8883; $3495.

LOW-COST COLOR SCANNERS, Nov 93

51300 to 51600: • La Cle Silverscanner II; La Cle, 503/520-9000; $1599.

UNDER $1300: Mirror 800 Plus Color Scanner; Mirror Technologies, 612/663-4550; $1299.

OCR, Nov 93

OmniPage Professional; Caere Corp., 408/395-7000; $999.

SYSTEMS/STORAGE

1.3GB OPTICAL STORAGE, Dec 94

Best low-cost solution: 1.3Gig MO: Club Mac, 714/768-8130; $2099.

OVERALL VALUE: AppleCD 300; Apple Computer, 408/996-1010; $999.

BUDGET CHOICE: NEC MultiSpin 38; NEC Technologies, 708/860-9500; $449.

HIGH-SPEED HARD DRIVES, Aug 93

2.7GB drives: • Nova XL 2700; Microtech, 203/468-6223; $2999.

HIGH-SPEED VALUE: Apple LaserDrive; Apple Computer, 408/996-1010; $1999.

STORAGE SCHEMES: QuickSCSI, PLI, 800/288-8754; $299.

PC COPROCESSING, Oct 94

OrangePC Model 110; Orange Micro, 714/779-2772; $1283.

SYSTEM UPGRADES, Feb 95

Upgrade for Macintosh Quadra 650, 800, or 950: Power Macintosh Upgrade Card; Apple Computer, 408/996-1010; $699.


VIDEO/DISPLAY

24-BIT VIDEO CARDS, Apr 94

Inexpensive acceleration: PrecisionColorPro 24XP; Radius, 408/434-1010; $999.

FULL-FEATURED ACCELERATION: Thunder II VX*360; SuperMac Technology, 408/434-1010; $4499.

HIGH-END VIDEO EDITING, Jun 94

PRESENTATION: • MovieMaker Pro Suite; RasterOps, 801/785-5750; $1499.

PHOTOSHOP ACCELERATORS, Apr 94

PhotoBooster; Radius, 408/434-1010; $999.

PHOTOSHOP ACCELERATORS (online): VideoCube; iMac, 916/272-9800; $40,500.

ACCOUNTING/FINANCE

GROWING A SMALL BUSINESS, Nov 93

Small-business systems: M.Y.O.B.; Best Ware, 201/586-2200; $199.

SOFTWARE

ACCOUNTING/FINANCE

GROWING A SMALL BUSINESS, Nov 93

Small-business systems: M.Y.O.B.; Best Ware, 201/586-2200; $199.

CONTINUES
BUYERS' TOOLS

BUSINESS TOOLS

STATISTICS, Oct 93

Exploratory data analysis: DataDesk 4.1; Data Description, 607/257-1000; $595.

Comprehensive package: SYSTAT 5.2.1; SYSTAT, 708/864-5670; $895.

CD-ROM

TOP 10 CD-ROMS, Mar 94

Overall: Seven Days in August; Time Warner Interactive Group, 818/995-9999; $79.99.

COMMUNICATIONS/NETWORKS

COMMUNICATIONS SOFTWARE, Aug 94

Basic connectivity: ZTerm; David A. Alverson (no phone number available); $30.

Terminal emulation: Crosstalk for Macintosh; Digital Communications Associates, 414/442-4000; $195.

Internet exploration: VersaTerm; Synergy Software, 215/779-0522; $125.

DOS WINDOWS EMULATION, Oct 94

Timbuktu Pro 1.0.3 for Macintosh, Timbuktu 1.1 for Windows; Farallon Computing, 510/814-5000; $199 each.

HIGH-SPEED FAX MODEM SOFTWARE, Oct 93

Faxstf; Telefocus, 816/886-9800; $79.

NETWARE CONNECTIVITY, Sep 93

NetWare for Macintosh; Novell, 801/429-7000; $495 for 5-user license.

PROTOCOL ANALYZERS, Jul 94

EtherPeek; AG Group, 510/937-7500; $795.

TERMINAL EMULATOR, Oct 93

VersaTerm; Synergy Software, 215/779-0522; $149.

GRAPHICS

3-D MODELING, Dec 94

Stand-alone modeler: Form Z; autodeskSys, 614/488-9777; $1495.

Integrated-modeling package: Strata Studio Pro; Strata, 801/628-5218; $1495.

Entry-level modeler: Infini-D; Specular International, 413/253-3100; $695.

CLIP ART'S GREATEST HITS, Jan 94

Overall collection: ClickArt Studio Series; TMaker Company, 415/642-0195; $99.95 per volume.

Electronic Clipper subscription service; Dynamic Graphics, 800/255-8860; $67.50 per month.

Metro ImageQuest Electronic Clip Art; Metro ImageBase, 800/525-1552; $74.95 per volume, CD-ROM $149.95.

Vendors: Please write to Macworld Editors' Choice, 501 Second St., San Francisco, CA 94107, or send a fax to 415/442-7066 to inform us of changes in your phone number or your product's list price.
Star Ratings

HARDWARE AND SOFTWARE REVIEWS AT A GLANCE

Edited by Wendy Sharp

Macworld Star Ratings lets you compare Macintosh products by providing summaries of Macworld’s authoritative product reviews from the past year. The number of stars indicates quality; our reviewers assign five stars to outstanding products and one star to poor ones. The symbol indicates that a product is available in a native Power Mac version.

If a product has been upgraded since our last review, the most recent version number supplied by the vendor appears in parentheses after the reviewed version number.

To read a full review of any product in the listing, please consult the issue listed at the end of each synopsis.

Vendors: Please write to Macworld Star Ratings, 501 Second St., San Francisco, CA 94107 to inform us of changes in the version number or list price of your product, or of changes to your phone number.

Software

BUSINESS TOOLS

**** 4D First 1.0 (1.0.1), ACI US, 408/252-4444, $295. This entry-level relational database is a low-cost way to distribute the power of 4D and 4D Server to an office full of Macs. It’s not much easier to use, however, than the full-bladed 4D. May 94 @

**** AccuZip 1.87, Software Publishers, 800/233-0555, $689. Bulk-mail software has informative progress indicators, batch and individual processing, low rates, and flexible parsing during import, but the interface is incomprehensible. Sep 94

**** BaseMap 1.0.1, GeoPoint, 415/957-1560, $149. For simple maps displaying simple data, this map-making tool may be useful. It’s not for the cartographic sophisticate, however, as it offers very limited data-display abilities and only one projection. May 94

**** Bulk Mailer CASS 1.00d, Satori Software, 206/443-0765, $150. Unattended operation is possible with this bulk-mail software, but batch processing is slow and the program has coding problems. Sep 94

**** CA-Cricket Graph III 1.52, Computer Associates International, 516/342-5224, $129. Graphing software’s features are just right for charts in the physical and social sciences, but lack pizzazz. The program is easy to learn and use, and includes math features for data transformations and curve fitting. Dec 94

**** Clarisimpact 1.0 (1.0 v3), Claris Corp., 408/727-8227, $399. Business graphing, project management, object-oriented drawing, word processing, and presentation functions merge in this business graphics software. The outstanding integration offers versatility that dedicated programs are pressed to match. Jun 94 @

**** ClarisWorks 3.0, Claris Corp., 408/727-8227, $129. Inexpensive, easy to use, and surprisingly powerful integrated software is down to the bottom line (or available for Mac). It’s better in terms of features, speed, integration, and use of system resources than its competitors. Feb 95 @

**** Cricket Graph III 1.5 (1.52), Computer Associates International, 516/342-6000, $129. Basic and foolproof charting program produces clean charts, although its feature set is fairly modest. Apr 94

**** Crystal Ball 3.0, Decisioneering, 303/449-5177, $295. Compact business-simulation software is fast enough for complex projects and can pay for itself in disaster-avoidance in a variety of business tasks. Oct 94

**** Decision Analysis 2.5, TreeAge, 800/354-1911, $379. Decision-analysis software handles complex business cases by constructing tree diagrams of uncertainties and payoffs. It offers a type of modeling that is realistic and easy to modify. Nov 94

**** DeltaGraph Pro 3 (3.5), DeltaPoint, 408/668-4000, $195. This charting program is the best feature-for-feature value in Macintosh charting. Apr 94

**** Extend+3R 3.0, Imagine That, 800/365-0305, $190. Business-modeling software includes superior templates for business-process reengineering, but some programming experience is helpful. Oct 94

**** FastTrack Schedule 2.1, AEC Software, 703/450-1980, $279. Simple project-management software is ideal for managers who need to put together a schedule quickly and easily, but if you require more power to manage conflicts, you’ll need a more comprehensive program. Sep 94

**** Helix Express 2.0.1 (2.0.4), Helix Technologies, 708/465-0242, $589. Icon-based relational-database software’s improved performance makes it a serious competitor for all-Mac networks. Especially notable is its much faster speed; multuser operation is downright snappy. Jul 94

**** InfoDepot 2.0, Chena Software, 610/770-1210, $295. All-in-one program for project planning includes tools for brainstorming and organizing ideas; scheduling project steps; and entering, calculating, and presenting data. It does a good job but has some flaws. Jan 95

**** Map II 1.5, ThinkSpace, 519/858-5047, $395. Well-structured program has most of the functions a simple geographical information system needs and is suitable for introductory instruction in GIS and for alert first-time users who just like maps. May 94

**** Marco Polo 3.0, Mainstay, 805/484-9400, $895. Full-featured document-management system is significantly improved. The addition of OCR—both the handling of unrecognized words and the ability to batch-process TIFF files with OCR—make it a very usable system. Jan 95

**** MicMac 2.0v1, Nirvana Research, 408/459-9663, $89. The concept of MicMac as dictation machine is undeniably attractive, and Nirvana Research has pulled it off well. It takes lots of hard drive space to save recordings, though. Nov 94

**** Microsoft Excel 5.0, Microsoft Corp., 206/608-8080, $339. Although the feature set is still impressive, the user interface is a basic one, and the bulk of the power is in visualizing the data. The spreadsheet is a bit drab, but the program is still better than the competition. Oct 94

**** Microsoft FoxPro for Macintosh 2.5 (2.6), Microsoft Corp., 206/608-8080, $495. Dazzlingly fast relational database has a greatly improved interface. For projects of 4 to 20 users that handle large amounts of data, it offers excellent performance. Apr 94

**** Microsoft Works 4.0, Microsoft Corp., 206/608-8080, $99.5. Although this isn’t the best integrated package around, it’s a sensible, low-cost choice. It provides users with a respectable word processor, database, spreadsheet, calendar, and address book, as well as a slide-show module, and drawing and communications tools. Jan 95

**** Pablo 2.0.1 (2.03), Andyne Computers, 613/548-4355, $695. This effective end-user data-reporting tool puts a considerable workload on the corporate information department, but it streamlines the hassles of SCI data access and produces great reports with minimal effort. Jul 94

**** Street Atlas USA 2.0, DeLorme Mapping, 207/865-1234, $169. For the most part, this geographical information software delivers what it promises at a great price. Although inaccuracies in the data are troubling, DeLorme pledges to fix all reported errors in subsequent annual updates. Oct 94

**** TeamFlow 3.1, CFM, 671/275-5258, $295. Total Quality Management flowchart software is a valuable business tool. Its report printing and customizability are limited, however. Nov 94

**** TopDown 4.0 (4.1), Kasten Software Corp., 713/298-1500, $345. Flowcharting program’s support for custom symbols and automatic drawing aids, along with its ability to let you easily create and navigate lower-level charts, make it a productive tool. Jul 94

**** ZipZapp 1.0, True Basic, 603/298-8517, $39.5. You can use this data-reference utility to find an area code, the correct spelling of a city’s name, and more. The interface is intuitive, and the cost, low. Oct 94

**** ZZP 12.1 (14), Semaphore Corp., 408/688-9200, $125. Inexpensive bulk-mail software supports batch and individual processing, but the progress indicators are uninformative, and untended operation requires extra work. Sep 94

continues
COMUNICATIONS/NETWORKS

AccessPC 3.0, Insignia Solutions, 415/694-7600, $129.95. Utility translates most word-processor and some database formats, but some of its translations result in data loss. Apr 94

BLAST Professional, BLAST Inc., 919/542-3007, $139. Our reviewer could not get this telecommunication software to work reliably and consistently, and found the minimalist and quirky interface frustrating. Jan 95

CrossTalk for Macintosh 2.0 (2.0.1), Digital Communications Associates, 404/442-4095, $195. Commendable communications product has a feature set that well matches its competition. Still, the script editing is complex. Apr 94

DOS Mounter Plus 4.0, Dayna Communications, 801/269-7200, $100. File-transfer and translation utility works with floppies, removable drives, and network volumes. Apr 94

Internet Companion, The Voyager Company, 914/591-5000, $29.95. Well-written, HyperCard-based electronic book offers less information than other software, but it's available through accessing software, but it's a terminal-emulation screen. Dec 94

Internet Explorer Kit and Internet Starter Kit, Hayden Books, 317/581-3500, $29.95 each. Well-written books and useful software combine to produce one of the best introductions to the Internet available for Mac users. Dec 94

Internet Membership Kit, Ventana Media, 919/942-0220, $69.95. If you need access to the Internet, this book and software combination is a good package. The book goes about it is its included preconfigured software is nearly as good. Dec 94

MacLink Plus/Translators Pro 7.5, DataViz, 203/268-0300, $149. If your PC files are in arcade formats, you'll need this file-transfer and translation utility. It's a great option for most users. Apr 94

MicroPhone Pro 2.0, Software Ventures Corp., 510/644-3232, $295. The new feature set of this communications package includes multiple sessions, faxing, TCP/IP networking, and more, but it's a mixed bag. Not all the features are well integrated, although some are innovations for which users will be grateful. Oct 94

PowerShare Collaboration Servers, Apple Computer, 408/996-1010, $999. Before this collaboration software will be ready for prime time, Apple needs to overhaul the Admin application, add serious diagnostic aids, and provide comprehensive documentation. Aug 94

QuickMail 3.0, CE Software, 515/221-1801, $199 to $379. If you're shopping for a first-time e-mail application, this product is a good choice for ease of use and setup. The most promising new tool, rules-based messaging, lacks some important features. Jan 95

RunShare, Run, Inc., 408/353-8423, $199 to $2499. System extension endeavors to pump up file-transfer speeds across both local- and wide-area networks. It offers twofold to threefold throughput gains for fast Macs and large files but is less useful with small files or slow Macs. Feb 95

SitComm 1.0 (1.0.1), Aladdin Systems, 408/761-6200, $120. Inexpensive telecommunications software is fairly easy to set up and use, and will do well for people who use just one or two online services. Apr 94

Snap Mail 1.0.1, Cassidy & Greene, 408/484-9228, $200 to $1440. Software will put you on the E-mail trail more cheaply than any competing product, if you can live with some minor shortcomings. Jun 94

SoftPC 3.1, Insignia Solutions, 415/694-7600, $499. While the speed of this Windows PC emulator is greatly improved, buying an add-in PC card for your Mac is more efficient. Mar 94

SoftWindows 1.0, Insignia Solutions, 415/694-7600, $499. You can run Windows software on a PowerMac with this emulation software, but although it's a viable solution, you pay the price in terms of performance, compatibility, and actual cost. Aug 94

Timbuktu Pro 1.0 (1.05), Farallon Computing, 501/914-5000, $1999. Terminal emulation product is a must-have for people who need direct access to computer systems on a variety of networks. May 94

TrafficWatch II 2.0 (2.1), Neon Software, 510/283-9771, $495. The price of this AppleTalk traffic monitor is closer to that of full-blown network analyzers that do much more. Without printing, alarms, or true multiprotocol support, this product misses the mark. Jun 94

White Knight 12.0, The FreeSoft Company, 412/846-2700, $139. While this telecom software can be bewildering, it works impressively well. If you're willing to read the manual, the program may become your favorite telecom tool. Nov 94

DESKTOP PUBLISHING

CheckPost 1.3, Working Software, 408/423-5696, $249.95. Interface inside, this imagesetter-simulation software is generally disappointing. It can't automatically scale pages, it prints on a single sheet, and its error reporting is limited. Nov 94

ClickBook 1.1, BookMakerCorp., 415/354-8161, $59.95. If you need to create inexpensive booklet quickly and without hassle, this print utility that helps you format documents in double-sided booklet form is an excellent tool. Nov 94

Download Mechanic 1.0.2, Accepted Knowledge, 619/587-4668, $249. The strengths of this PostScript downloader lie in its tools for dealing with problem files, but when dealing with large files, it performs slowly and occasionally crashes. Feb 95

FontChameleon 1.0.1 (1.5), Ares Software Corp., 415/787-9900, $295. Font utility introduces a new font-creation technology: It builds serif and sans serif fonts from a master outline file. If it offers high-quality renditions of popular fonts, plus the ability to customize fonts. Sep 94

FontMaker 1.0, Monotype Typograph, 312/855-1440, $79. Although a tad expensive for a one-trick pony, this font utility is a straightforward, relatively painless way to mix characters from different fonts to create composite fonts. Oct 94

Fontographer 4.0.4 (4.1), Altsys Corp., 214/680-2060, $495. No other font editor does more than this one. For the price of a few font families, it can give you a universe of unique faces. Oct 94

Fotoune 1.1 (1.13), Agfa Division of Miles, 508/658-5600, $395. Color-management software has a capable engine, but it's not a complete color management system. Invisible tech support and poor documentation were only part of the problem. Apr 94

FrameMaker 4.0 (4.04), Frame Technology Corp., 408/433-3311, $895. For long, structured documents this desktop-publishing program is one of the best tools available. Mar 94

LaserCheck 1.0, Systems of Merritt, 205/600-1240, $199. Imagesetter-simulation software can save you hundreds of dollars, and many hours, on imagesetting jobs by letting you use a laser printer to proof your work. Nov 94

Let'Er RIP 2.0, Lupin Software, 916/756-7267, $239. The flexibility, clean implementation, and attention to detail of this PostScript downloading make it a pleasure to use. Feb 95


Print Shop Deluxe 1.0 (1.1), Braden- 

EduCATION/ENTERTAINMENT

Aquazone 1.0, Inag0, 416/487-4005, $79.95. The fish in this aquarium simulation are beautiful, but they're darned hard to keep alive. Only two varieties of fish are included. Jan 95

Creative Writer 1.0, Microsoft Corp., 206/882-8080, $64.95. Graphics page-layout/word-processor hybrid offers some terrific type effects, zany sounds, and bright graphics. While it doesn't teach kids to be better writers, it does encourage them to develop ideas and provides a fun vehicle to express those ideas creatively. Sep 94

Crossword Wizard 1.0, Cogix Corp., 415/454-7217, $49.95. If you're a crossword fan, this crossword-puzzle generator is a must. Although it's not perfect, the play mechanics are fantastic. Dec 94

The Cruncher, Davidson & Associates, 310/793-0600, $59.95. If you want to teach a child about the spread of this education package, which combines educational spreadsheet and business evaluation will do the job. It's creative and easy to use, but slow. Aug 94

Crystal Crazzy, Casady & Greene, 408/484-9228, $45.95. Ultra-glossy, superpolished version of the classic Crystal Quest is challenging and fun without being overly difficult. Each level retains some old elements, and adds some new ones to keep you on your toes. Jun 94

Firefall Arcade 1.0 (1.0.2), Inline Software, 617/935-1515, $49.95. If you loved the classic video game Centipede, or are just looking for a fun shoot'em-up, this arcade-style game will satisfy. Jun 94

Grolier Multimedia Encyclopedia, Grolier Electronic Publishing, 203/797-3530, $395. CD-ROM encyclopedia has excellent search capabilities and is lots of fun. Its timeliness and some hierarchical snafus were slight problems. Jul 94

Myst 1.0 (1.01), Braderbund Software, 415/382-4400, $59.95. The smooth pacing of actions and sounds in this beautiful CD-ROM game give it a dreamlike quality. This is a game that's been polished until it shines. Mar 94

SimCity 2000, Maxis Software, 510/254-9700, $54.95. Your goal with this marvelous city-building software has a capable engine, but it's not a complete color management system. Invisible tech support and poor documentation were only part of the problem. Apr 94

SimCity 2000, Maxis Software, 510/254-9700, $54.95. Your goal with this marvelous city-simulation is to build a city and run it successfully. The game is fascinatingly complex but simple to use. Jun 94

Small Blue Planet 1.2.1, Now What Software, 415/885-3432, $79.95. Nicely integrated collection of beautiful Earth-from-space images on CD-ROM

166 March 1995 MACWORLD
Font Technology Breakthrough!

Now you can add your own handwriting to the Font Menu! Signature Software's Personal Font is a custom font which can reproduce your handwriting - including the exact way that you shape and connect your letters. This unique patent pending technology will actually vary the shapes of your letters depending on the characters around them. No other font can do this.

PERSONALIZE YOUR CORRESPONDENCE

With Personal Font you can join the personal impact of your own handwriting with the convenience and power of your personal computer. Imagine running your spell checker on your handwriting! Use your word processor's cut and paste features to polish up your handwritten letters. Add a friendly handwritten P.S. note to your business correspondence. Or even sign your FAX-modem messages!

CREATE YOUR FONT TODAY!

For your own Personal Font, simply write the 96 words as well as the capital letters, numbers and punctuation found on the back of this page. From that sampling, Signature Software font designers will individually convert your handwriting into a custom font which duplicates the unique way you create each word - not just each letter. Your font will include your signature and even have a name which you specify.

HANDWRITING FROM THE KEYBOARD.

Personal Font captures your handwriting at its best. Your font has the same style and character as your own handwriting - without the inconsistencies and inkblot! With your own Personal Font in the Font Menu you'll find yourself creating handwritten notes without hesitation - straight from your keyboard!

Since each order is custom, please allow two to four weeks processing time. If you're in a hurry, for an extra $25 Signature Software will ship your order within five working days.

Actual Handwriting vs. Personal Fonts:

Peter's actual handwriting,
Peter Matthews - Toronto, ON

Colin's actual handwriting,
Colin Johnson - Portland, OR

Your Personal Font can be installed and used as simply as an "ordinary" font. It appears in your menu and functions just like any other typeface in your computer.

System Requirements:

Mac - System 6.05 or higher
PC - Windows 3.1
PostScript printers or interpreters. On non-PostScript printers, characters will be disconnected just as they appear on the screen, similar to this.

Shipping & Special Handling:

Regular $25
Express $75

Signature Software will ship your order with one business day by special handling.

There's no other font like your PERSONAL FONT, and here's how to order!

ORDER YOUR FONT!

Send your completed form to:

Signature Software, Inc.
489 N. 8th St. Suite 201
Hood River, OR 97031

Include two copies of this form and enclose check, money order or personal check.

NAME

COMPANY

ADDRESS

CITY

STATE ZIP COUNTRY

CARD NUMBER

CARD EXPIRATION PHONE

CARDHOLDER’S SIGNATURE

Yes! Rush me my Personal Font in 5 working days for $25 extra (#1180)

Yes! Include SUPERscripts with my Personal Font order for the special bundle price of $139 (CC1178)

Send your completed form to Signature Software, Inc.
489 N. 8th St. Suite 201
Hood River, OR 97031

Because each order is custom, please allow 2 to 4 weeks. Add $25 for 2nd class mailing. Add $75 for 1st class mailing (next day processing - 24 hour processing is available).

*1180 Super scripts for Personal Font includes personal best dictionary, personal test document and copy of original form.

For more information circle reference number 300.

For more information circle reference number 300.

For more Information circle Reference Number 300.
Signature Software
Personal Font
The Original Custom Cursive Handwriting Font

SAMPLE FORM INSTRUCTIONS
1. Write your signature within the Signature box. For best results, try to ensure that the signature fits within the box.
2. Write the words shown within each box using the broken lines as a base. Begin each word on the left side of the boxes. Characters can be connected or disconnected or a combination of both.
3. Write naturally and consistently. Practice first on

Signature (your name)

+     cyclops doubt egotype forgiven

-     grocery hydrolyse ionize jowfishes

kagvels lyszyme mojse novpe

oxyfue polygyne quote rybema

skyque toyjoke unfazed vogue

waywhips xylosse yachtque zigzag


NAME YOUR FONT!

The name must be seven alphanumeric characters long.

Name: Adjaita bowman

Phone #: 7. Name your font and complete the ordering information on the front of this form. Indicate PC or MAC on card!

NOTE: Strike out mistakes and write corrections nearby.

Signature Software can even make changes after you receive your font!

Copyright ©1994 Signature Software, Inc.
lacks many features of standard atlases and doesn’t have a search function, but is endlessly fascinating. Jul 94

Spin Doctor (1.0), Callisto Corp., 508/655-0707, $59.95. In the tradition of the best Macintosh games, this game tests your wits and reflexes alike. It’s part strategy game, part kinetic sculpture. Jan 94

FINANCE/ACCOUNTING

Andrew Tobias’ TaxCut 1993, MECA Software, 410/295-1441, $79.95. The free-form approach and flexible Help menus of this tax-preparation software make filling out your tax return a smooth, almost relaxing process. Apr 94

ExpensePlus 1.0 (1.0.2), State of the Art, 714/753-1222, $139.95. Software uses a Newton MessagePad to record expenses, then sends the data to a Mac to create and print expense reports. Apr 94

Financial Competence 1.5, Competence Software, 603/435-5096, $59. Business economics tutorial explains how financial statements are compiled and how they relate to each other. Jul 94

MacTax 1993, Intuit, 602/295-3110, $69.95. Tax-preparation software provides a reliable, structured interface for building your tax return. Apr 94

MacTax Tax Planner, Intuit, 602/295-3110, $29.95. Construct a five-year forecast of your tax liability, projecting tax figures through 1997 in a concise summary format. Apr 94

MacTax Tax Savings Guide, Intuit, 602/295-3110, $19.95. Collection of tax tips and suggestions is designed to help you better understand your tax return and reduce your tax liability. Apr 94

MacMoney 4.01, Survivor Software, 310/410-9527, $89.95. Personal-finance software has new and improved features that will please longtime users, but it hasn’t kept up with the leaders in the field and won’t win many new converts. Jul 94

Managing Your Money 6.0, MECA Software, 203/725-1441, $79.95. Personal-finance program does a good if somewhat roundabout job of keeping track of your total financial picture. Although it isn’t as easy to use as the competition, it excels in tax, investment, and financial planning. Jan 94

Quicken 5.0, Intuit, 415/322-0573, $49.95. The addition of a calendar and e-mail ease-of-use features keep this personal-finance software comfortably ahead of the pack. This upgrade is an incremental but welcome improvement to an already excellent product. Feb 95

StreetSmart 1.0, Charles Schwab & Company, 800/334-4455, $59. If Schwab is where you want your investments held, and if you want to have tighter control over your portfolio and save on brokerage fees, you should seriously consider this financial investment software. Feb 95

GRAPHICS

Adobe Illustrator 5.5, Adobe Systems, 415/961-4400, $599. Despite slight speed disappointment, this draw program’s upgrade is a bargain. It includes more than 200 tile patterns. 220 fonts, and the Acrobat environment in this dynamic upgrade. While not perfect, the pros far outweigh the cons. Jan 95

Aldus FreeHand 4.0 (4.0a), Adobe Systems, 206/622-5500, $595. The new page-design and tool-editing functions of this powerful draw program make it more than worth the price of admission. Mar 94

Art Explorer 1.0, Aldus Consumer Division, 619/558-6000, $49.95. While its cartoon style is refreshing, this paint/draw program for kids 8 to 12 years old is still rough around the edges. Its biggest limitation is that it’s unnecessarily slow on 68000 Macs. Feb 94

Blueprint 5.0, Graphsoft, 410/290-5114, $295. For plain old 2-D drafting, this CAD software has a rich, easy-to-use feature set and is admirably fast. The Power Mac version in particular is a first choice for large architectural or engineering environments. Jan 95

ClarisDraw 1.0, Claris Corp., 408/727-8277, $399. For presentations without grand artistic pretensions, this draw program can be an effective tool. However, $400 may be too much to pay. Jan 95


DesignBuilder Lite 1.0 (1.1), Equilibrium Technologies, 415/332-4343, $129. Terrific graphics utility converts graphics files from one format to another. It offers a choice selection of capabilities at a nice, slim price. Aug 94

DesignWorkshop 1.0 (1.1), Artifice, 503/454-7421, $749. The accessible interface and versatile modeling environment of this 3-D modeling software may be worth the fairly high price, particularly for architectural-design conceptualization. May 94

Electric Image Animation System 3.0, Electric Image, 818/577-1677, $749.50. Although the price seems high, this software, with its extraordinary animation and image-rendering capabilities, is worth every penny for cinematic-production professionals. Dec 94

Flying Colors, Davidson & Associates, 310/793-0600, $400. While not the most dynamic kids’ program, this paint/draw program provides easy-to-use tools and nicely drawn stamps for ages eight and older. Feb 95

IntelliDraw 2.0, Adobe Systems, 619/558-6000, $125. Wonderful general-purpose graphics package works well, does a great job of automating drawing tasks, and is straightforward. Despite its breadth of features, it always feels approachable. Sep 94

Kai’s Power Tools 2.0a (2.1), HSC Software, 310/392-8441, $199. Phenomenally powerful suite of Photoshop plug-ins have an addictive quality typically associated with arcade games. May 94

Koyn Fractal Studio 2.02 (2.1), Koyn Software, 314/878-9125, $119.95. Software lets you generate beautiful fractals of your own design. It’s a reasonable choice if you are interested in fractals or mathematical groups in nontraditional forms, but it’s not all fractals for all people. Aug 94

KPT Bryce 1.0, HSC Software, 805/666-6200, $199. For less than $200, you get a remarkable 3-D landscape-rendering program, a CD-ROM full of images, a slide-show utility, and even some screen-saver modules. Although the innovative, graphics-heavy interface can be confusing, this software is lots of fun. Dec 94

Live Picture 1.5.5, HSC Software, 805/666-6200, $399.50. Promising image editor is rather rudely assembled atop some marvelous technology and burdened by an extremely high price tag. Though fast and blessed with all the benefits of a proxy-based system, its day-to-day functions leave room for improvement. Dec 94

Logomotion 1.0, Specular International, 413/253-3100, $149. Easy-to-use 3-D package is eminently affordable. It’s a terrific program, both for creating flying logos and as an entry-level 3-D package for nongeologists. Nov 94

MacroModel, Macromedia, 415/252-2000, $1495. This 3-D modeling software is a solid resource to have along when you venture into 3-D space. The interface is elegantly simple. May 94

MetaFoil, The VALIS Group, 415/435-5404, $595. Graphics utility yields interesting visual effects with a minimum of fuss. It imparts elasticity to 2-D images, letting you push and pull collections of pixels while retaining the visual integrity of the image. Aug 94

MiniCad 5, Graphsoft, 410/290-5114, $795. Excellent CAD software offers major performance increase for its price. It’s admirably easy to learn. Nov 94

Paint Alchemy 1.0, Xaos Tools, 415/487-7000, $99. These plug-in graphics effects are a tremendous value that both casual users and professional artists can use to design a little chaos into their work. May 94

PhotoMatix 1.01, DayStar Digital, 408/567-2077, $199. With QuickDraw GX support, an approachable interface, a strong array of animation features, and outstanding image quality, this 3-D-type-effects software is worth a try. It adds a new dimension to the way you look at type. Feb 95

Pointillist, Pictor GrafX, 310/865-0495, $399.50. Stereogram software creates images that look like random dots, but a 3-D image emerges from the pattern and appears to hover inches in front of the background. Jul 94

Ray Dream Designer 3.0.3 (3.1), Ray Dream, 415/960-0768, $349. Although this 3-D illustration software remains a price leader, unstable operation, misbehaving features, and sluggish performance are problems that need to be rectified. Jul 94

ScanPrepPro 1.2, ImageXpress, 404/564-9924, $695. Adobe Photoshop add-on automates the scanning and image-managing process and produces good results, although it’s somewhat unstable. Nov 94

Scenery Animator 1.0.4 (1.1), Natural Graphics, 916/624-1436, $149. Landscape rendering and animation software uses U.S. Geographical Survey data to create remarkably realistic 3-D representations of terrain. Its flaws are few, and our reviewer recommends it. Aug 94

Showplace 2.0 (2.1), Pixar, 510/236-4000, $495. Adequate, entry-level, 3-D modeling is suitable for illustration and other graphic arts. Apr 94

Specular Collage 2.0.1, Specular International, 413/253-3100, $399. Practical image-compositing solution supplies a smooth interface and strong support for Adobe Photoshop 3.0. As long as you’re willing to return to Photoshop to confirm your edits and make final changes, it’s a serviceable tool. Feb 95

StudioPro 1.0 (1.1), Strata, 801/628-5218, $1495. If you need a well-balanced, all-in-one 3-D modeling, rendering, and animation solution, this application is an excellent choice. May 94

Terrazzo 1.0, Xaos Tools, 415/487-7000, $199. Tuning a random group of pixels into a geometric pattern may not be everyone’s passion, but this plug-in graphics-effects module has appeal for a select niche of fabric, graphic, and video designers. Nov 94

Textscape 1.5, Specular International continues
SuperScope II 1.25, GW Instruments, 617/625-4096, $1490. Despite a relatively small instrument library, this laboratory data-acquisition software effectively covers a wide range of needs, and learning to use it won’t become your life’s work. Oct 94

Survival Tools I.0, Abacus Concepts, 510/540-1949, $295. The combination of survival analysis with the StatView template systems gives you a virtual actuary-in-a-box. It’s a great set of tools, conveniently packaged. Feb 95

ORGANIZATION/PRODUCTIVITY

Arrange 2.0, Common Knowledge, 415/325-9900, $349. If your needs fall beyond the usual calendar and address-book functions, this personal information manager is a strong contender. It now has more calendar functions and print options. Dec 94

Claris Organizer, Claris Corp., 408/727-8237, $99. New personal information manager users, held by the low price, good performance, and ease of use this product, will be disappointed that it meets their needs. Jan 95

DateBook & TouchBase Pro Bundle 4.0, Adobe Systems, 619/558-6000, $89.99. Personal information manager package is now easier to use and offers many new features. The excellent linking between contacts and calendar is a strong feature. Sep 94

DateView 1.0.1 (1.0.2), Advanced Software, 515/225-4163, $99.95. If you’re willing to sacrifice some features to get simplicity and speed, this calendar/to-do manager makes sense. It integrates with the contact manager, InTouch. Aug 94

DynoMac for Macintosh 3.5, Portfolio Software, 802/434-6400, $69.95. Excellent contact manager has a few new features, improved performance, and an easier-to-use interface. Sep 94

Fast Pace Instant Contact 1.0, Foresight Software, 818/731-4444, $79.99. Although this contact manager could use a few additional features—especially a menu-bar search function—it does a capable job, and it is intuitive and easy to use. Jan 95

First Things First Professional 1.1, Visionary Software, 503/246-6200, $149. Capable scheduling program has some convenient features. It’s worth a look if you don’t have to share information with a contact manager. Nov 94

Full Contact 2.01 (2.02), FIT Software, 408/562-5990, $165. Personal information manager can handle with speed and style that would choke other products, but frequently, using it feels like a full-time job. Aug 94

In Control 3.0.A, Attain Corp., 617/776-1110, $95. Excellent to-do list manager and organizer, coupled with a good calendar is a strong choice if you live and die by to-do lists. Oct 94

Now Contact 1.0 (1.1), Now Software, 503/274-2899, $59. This contact manager has some innovative features and could easily become the top address-book program for the Mac by adding some features, such as file reorganization. Mar 94

Souvenir 2.0, CopyByte, 415/327-0744, $49. While this contact manager is fast and simple, it’s hard to recommend it when you can buy integrated contact managers and schedulers for the same price. Dec 94

TimeSquarer 1.0, Team Building Technologies, 514/278-3010, $149. Fast, flexible, network calendar program has lots of handy features, but it’s missing a few as well, such as multiday events and label grouping. Aug 94

PRESENTATION TOOLS

Adobe Premiere 4.0, Adobe Systems, 415/961-4400, $795. Video-editing software for the Power Mac remains solid and reliable and has new and improved professional-level features. With the right hardware, you can give desktop-video editors broadcast-quality products with a minimum of compromise. Oct 94

Amaging Animation-Claris Corp., 408/727-8277, $99. Cute pictures, funny sounds, and a kid-friendly interface come together in this package that lets children produce short animations or interactive presentations. The canned animations and scenes grow tiresome, however. Jan 95

Animation Master 2.0.5, Hash Enterprises, 206/750-0042, $699. Although this animation software packs extraordinary power at a reasonable price, it’s difficult to learn and prone to instability. Oct 94

Deck II 2.1, Osc, 415/252-0460, $399. AV/Mac turn into digital-audio workstations with this software that enables you to record, mix, modify, and play back CD-quality sound. It doesn’t include equalization features.

Jun 94

FlippBook 1.0, S. H. Pierce, 617/338-2222, $89. Animation-printing utility lets users make flipbooks out of QuickTime movies, PICs animations, and Scrapbook files. Jun 94

HyperCard 2.2, Apple Computer, 408/996-1010, $249. Authoring tool strikes a good balance between power and ease of use, and its price is reasonable. It may not satisfy all your wishes, but it should keep you happily building stacks. Sep 94

Macromedia Director 4.0, Macromedia, 415/252-2000, $1195. Although this multimedia program remains far from easy to use, this admirable upgrade increases the program’s power and improves its interface. Multimedia professionals will continue to find it the best package available. Sep 94

Microsoft PowerPoint 4.0, Altsigcroft Corp., 206/882-8080, $399. If you’re in the market for a presentation-graphics program, this is a good choice to use along with Word or Excel, as long as you don’t mind the lack of animation functions. For general purposes, though, other alternatives have the edge. Feb 95

Morphi 2.0 (2.5), Grynphon Software, 619/454-6836, $239. Easy to use morphing software is beautifully designed, with delightful new features, including the ability to morph QuickTime movies. Using it is as painless as morphing gets. Apr 94

MovieWorks 2.0.2, Interactive Solutions, 415/377-0136, $255. With diligence you can get decent results with this all-in-one QuickTime-based multimedia package. But other entry-level programs make leapfroging into multimedia easier and more rewarding. Sep 94

The Multimedia Workshop 1.0, Davidson & Associates, 310/793-0600, $79.95. Children or adults can use this media-integration tool without big investments of either time or money. It’s full of compromises, though. Nov 94

Passport Producer Pro 1.0 (1.1.2), Passport Designs, 415/726-0280, $995. Superb, albeit quite expensive, media-integration package makes assembling even complex presentations surprisingly easy. Path animation is limited to entrances and exits. Apr 94

Persuasion 3.0, Adobe Systems, 206/622-5500, $339. Users have plenty of new features to...
cheer about, including improved tool palettes, extensive charting options, and hyperfast functions with this presentation graphics program's upgrade. High memory and disk-space requirements are drawbacks. Sep 94  
*** SoundEdit 16, Macromedia, 415/252-2000, $379. Digital audio software supports 16-bit sound and has enough goodies to earn it a place in a multimedia producer's toolbox. But its lack of record-level controls limits its usefulness as a professional audio tool. Dec 94  
*** SuperCard 1.7.1, Allegatechnologies, 619/387-0500, $495. Multimedia authoring system adds a few welcome enhancements, including QuickTime support, and squashes some old bugs. For current users, the upgrade is well worth the price; for others, it's an excellent alternative to more expensive authoring systems. Feb 95  

AUTOMAP ROAD ATLAS FOR MACINTOSH 2.01 (2.04), Automap, 206/455-3552, $99.95. Mapping software tells you how to get where you're going better than any other map or software our reviewer has seen. Although screen redraw is slow, it's worth it for the written directions and maps. Jul 94  

CAL 1.0, Thought I Could, 212/673-9724, $79.95. Well-chosen set of desktop necessities includes an excellent calculator, an associated-formula editor, a datebook, and a calendar. Due to its easy access and ample power, this software has become an everyday tool for our reviewer. Jan 95  

CD AllCache 2.0, Charismac Engineering, 916/885-4420, $79.95. CD-ROM accelerator improves access time by caching a CD's directory and putting its most frequently used data into RAM. Despite this software's limitations, most CD addicts will find the speed improvement worth the trouble. Sep 94  

CD-ROM Toolkit 1.0.5 (1.1), FwB, 415/474-6055, $79. Software accelerator can halve the time it takes to open files and search on a CD-ROM. May 94  

Conflict Catcher II 2.1.1, Casady & Greene, 408/484-9228, $79. Customizable, fast, and safe extension-management utility goes well beyond the basics. For Power Macintosh users, it even tells which extensions aren't written in native code and are likely to slow down Power Mac. Oct 94  

DiskDoubler 4.0, Symantec Corp., 503/334-6054, $79.95. In pure efficiency terms, this file-compression software is a winner, but it lacks many features of previous versions, including panes for self-extracting files and automatic recompression. Aug 94  

DiskTop 4.5 (4.4.1), PrairieSoft, 515/225-3720, $99.95. Organizing a crammed hard drive is a more manageable task with this simple but powerful file-management utility that lets you move, rename, remove, delete, and find files—without using the Finder. Jul 94  

The Disney Collection Screen Saver, Berkeley Systems, 510/540-5335, $49.99. Mickey, Goofy, Peter Pan, Ariel, and other Disney favorites cavort around your screen with this screen saver. Mar 94  

Drive 3.0, Casa Blanca Works, 415/461-2277, $79.95. Highly recommended hard-disk formatting utility easily formats partitions and makes most drives and provides all the options you need. And within its limitations, its Mount Cache utility provides a real performance boost. Nov 94  

disk 2.0, Alysis Software Corp., 415/298-8285, $149.95. Driver-level software compresses data read to your drive and automatically expands data read data from your drive. It offers transparent compression. Dec 94  

Icon Mania 1.0 (1.01), Dubl-Click Software, 503/317-0355, $69.95. Delightful icon-editing utility comes with terrific tools for building new icons. including an outstanding thumbnail feature that builds custom icons from graphics files. Aug 94  

Kaboom 3.0, PowerMac Software, 818/391-9600, $49.95. Sound-effects utility with sound-editing application is a fun program for anyone who wants to play with sound. Feb 95  

Launch Pad 1.0, Berkeley Systems, 510/540-5335, $49.99. If you want to share your Mac with your kids, this desktop utility is a worthwhile investment. It can even speak menu items and file names out loud for kids too young to read. Jan 95  

MacTools 3.0, Central Point Software, 503/690-8050, $149. Recovering-trashed files is a snap with this utility package that fixes more disk problems than its competition. It includes disk-and-file maintenance, disk repair, virus protection, and backup. Mar 94  

Maxima 3.0, Connectix, 415/571-5100, $99. If you have more than RAM, you can use some of it as RAM disk, speeding up disk-based operations, with this inexpensive utility. Nov 94  

Norton DiskDoublerPro 1.1, Symantec Corp., 503/334-6054, $109. Utility collection includes DiskDoubler, AutoDoubler, and CopyDoubler. Because of its ease of use, the product is a good choice for beginners. Feb 95  

Norton Utilities for Macintosh 3.1, Symantec Corp., 503/334-6054, $149.95. Data-protection and recovery-collection is leaner, meaner, and faster than ever before, but it's also surprisingly uneven. While Disk Doctor leads the pack for disk-repair utilities, the back-up module is weak. Feb 95  

Now Utilities 5.0, Now Software, 503/274-2000, $89. Three of the modules of this line-tuned, interlocking utility-set—Now FolderMenus, Now Menu, and Now Sound Changer—are almost indispensable, and the other six are well worth considering. Jan 95  

Open Sesame 1.02 (1.1), Charles River Analytics, 617/491-3474, $99. Utility automates Finder operations without macros or scripts. People with strict work habits are more likely to find its suggestions worthwhile than are those who don't follow a routine. May 94  

OptiMem 1.4.1 (1.5.6f), Jump Development Group, 412/681-2692, $125. Systemwide memory manager replaces RAM use and allocates RAM where it's needed. Mar 94  

Peice Print Tools 1.0, Peice Software, 408/244-6554, $129. Nine handy printing utilities work with QuickDraw GX. Most of the modules are useful, but not all are must-haves. Jan 95  

PopupFolder 1.0 (1.5), Inline Software, 617/935-1515, $59.95. Finder utility is handy and easy to use, but sometimes sluggish. Aug 94  

PowerAgent 1.1, Southbeach Software Corp., 305/858-8416, $159. You can revolutionize your Macintosh work with this agent program that manages scripts. It provides excellent support for FileMaker Pro. Nov 94  

PowerMerge 2.0, Leader Technologies, 714/757-1787, $129. Powerful file-management tool helps you keep individual files, folders, or entire volumes organized and up-to-date. This version lets you compare and launch documents, rename files, trash superfluous files, and lots more. Aug 94  

ProFiles 1.9, Dayna Communications, 801/269-7200, $129. Unusual new utility lets you group related files and folders for quick access and actions such as making aliases, copying, turning sharing on and off, and more. The recommended RAM allocation of 1MB may be a problem for computers with limited memory. Aug 94  

QuickKeys 3.0, CE Software, 515/221-1801, $139. The simple, unobtrusive interface of this macro-building utility allows you to build a set of useful shortcuts quickly. Mar 94  

RAM Doubler 1.01 (1.5), Connectix Corp., 415/571-5100, $99. Inexpensive system extension doubles available RAM for many Mac users. There are a number of requirements, however, including System 7, 4MB of physical RAM, and a 68030 board. May 94  

Lifesaving Computer Books for Beginners to Experts

The First (and only) Computer Books Built Like a Macintosh.

![Image of computer books and software]  
ISBN 1-56884-142-2 • $39.95 USA / $54.95 Canada  
ISBN 1-56884-175-2 • $39.95 USA / $54.95 Canada

POWERFUL • EASY • FUN • GREAT VALUE

If you like Macworld magazine… you'll LOVE Macworld Press books! They're authored by many of the same writers and columnists you've come to trust every month. Learn more about your MAC the fun & easy way with helpful guides from the Macworld Press division of IDG Books!

Buy 2 Books – Get a FREE disk!

**FREE MAC SUPER-DISK**
Order any 2 books and you'll get FREE—David Pogue's new disk of software, shareware & utilities for your MAC.

**Macs For Dummies, 2nd Ed.** 1-56884-051-9  
$19.95 USA / $26.95 Canada
**CALL US FOR MORE MAC TITLES!**
**MORE Macs For Dummies**
The Internet For Macs For Dummies  
Mac Programming For Dummies  
Upgrading and Fixing Macs For Dummies  
PageMaker 5 For Macs For Dummies  
Word 6 For Macs For Dummies

**Macworld Photoshop 3 Bible, 2nd Ed. 1-56884-152-2**  
$39.95 USA / $54.95 Canada
**Macworld QuarkXPress 3.2/3.3 Bible 1-56884-151-4**  
$39.95 USA / $52.95 Canada
**Macworld Illustrator 5.0/5.5 Bible 1-56884-097-7**  
$39.95 USA / $54.95 Canada
**Macworld Freehand 4 Bible 1-56884-179-1**  
$39.95 USA / $59.95 Canada
**Macworld PageMaker 5 Bible 1-56884-84-3**  
$39.95 USA / $52.95 Canada

**Macworld System 7.5 Bible, 3rd Ed. 1-56884-096-5**  
$39.95 USA / $49.95 Canada
**Macworld FileMaker Pro 2.1 Bible 1-56884-201-5**  
$34.95 USA / $45.95 Canada
**Macworld Word 6 Companion, 2nd Ed. 1-56884-080-1**  
$24.95 USA / $34.95 Canada

**Macworld Excel 5 Companion, 2nd Ed. 1-56884-081-0**  
$24.95 USA / $34.95 Canada

**Macworld ClarisWorks 2.0/2.1 Companion**  
$24.95 USA / $34.95 Canada

**Order Risk Free! 1-800-762-2974**
Or call us for a free consumer catalog. Over 150 Computer Titles In Stock! In Canada, Call 888-667-1115

**30 Day No Risk GUARANTEE!**
Try any of these books at absolutely no risk. If they don't help you use your computer better, write for a full refund.

**Macworld Macworld Macworld Macworld Macworld**
Photoshop 3 Bible, 2nd Ed.  
QuarkXPress 3.2/3.3 Bible  
Illustrator 5.0/5.5 Bible  
Freehand 4 Bible  
PageMaker 5 Bible

**1-56884-170-1** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**1-870058-84-3** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**Macs For Dummies, 2nd Ed.**  
1-56884-051-9 USA $19.95 USA $26.95

**Order Risk Free! 1-800-762-2974**
Or call us for a free consumer catalog. Over 150 Computer Titles In Stock! In Canada, Call 888-667-1115

**30 Day No Risk GUARANTEE!**
Try any of these books at absolutely no risk. If they don't help you use your computer better, write for a full refund.

**Macworld Macworld Macworld Macworld Macworld**
Photoshop 3 Bible, 2nd Ed.  
QuarkXPress 3.2/3.3 Bible  
Illustrator 5.0/5.5 Bible  
Freehand 4 Bible  
PageMaker 5 Bible

**1-56884-170-1** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**1-870058-84-3** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**Macs For Dummies, 2nd Ed.**  
1-56884-051-9 USA $19.95 USA $26.95

**Order Risk Free! 1-800-762-2974**
Or call us for a free consumer catalog. Over 150 Computer Titles In Stock! In Canada, Call 888-667-1115

**30 Day No Risk GUARANTEE!**
Try any of these books at absolutely no risk. If they don't help you use your computer better, write for a full refund.

**Macworld Macworld Macworld Macworld Macworld**
Photoshop 3 Bible, 2nd Ed.  
QuarkXPress 3.2/3.3 Bible  
Illustrator 5.0/5.5 Bible  
Freehand 4 Bible  
PageMaker 5 Bible

**1-56884-170-1** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**1-870058-84-3** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**Macs For Dummies, 2nd Ed.**  
1-56884-051-9 USA $19.95 USA $26.95

**Order Risk Free! 1-800-762-2974**
Or call us for a free consumer catalog. Over 150 Computer Titles In Stock! In Canada, Call 888-667-1115

**30 Day No Risk GUARANTEE!**
Try any of these books at absolutely no risk. If they don't help you use your computer better, write for a full refund.

**Macworld Macworld Macworld Macworld Macworld**
Photoshop 3 Bible, 2nd Ed.  
QuarkXPress 3.2/3.3 Bible  
Illustrator 5.0/5.5 Bible  
Freehand 4 Bible  
PageMaker 5 Bible

**1-56884-170-1** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**1-870058-84-3** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**Macs For Dummies, 2nd Ed.**  
1-56884-051-9 USA $19.95 USA $26.95

**Order Risk Free! 1-800-762-2974**
Or call us for a free consumer catalog. Over 150 Computer Titles In Stock! In Canada, Call 888-667-1115

**30 Day No Risk GUARANTEE!**
Try any of these books at absolutely no risk. If they don't help you use your computer better, write for a full refund.

**Macworld Macworld Macworld Macworld Macworld**
Photoshop 3 Bible, 2nd Ed.  
QuarkXPress 3.2/3.3 Bible  
Illustrator 5.0/5.5 Bible  
Freehand 4 Bible  
PageMaker 5 Bible

**1-56884-170-1** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**1-870058-84-3** USA $39.95 USA $39.95 USA $39.95 USA $39.95

**Macs For Dummies, 2nd Ed.**  
1-56884-051-9 USA $19.95 USA $26.95

**Order Risk Free! 1-800-762-2974**
Or call us for a free consumer catalog. Over 150 Computer Titles In Stock! In Canada, Call 888-667-1115

**30 Day No Risk GUARANTEE!**
Try any of these books at absolutely no risk. If they don't help you use your computer better, write for a full refund.
The more memory your Mac has, the more productive you'll be. But forget about adding SIMMs. RAM Doubler is software that doubles your Mac's memory. RAM Doubler does what it says it will do—Macworld. And you don't have to open your Mac. Just run RAM Doubler's 15 second installation and you can run twice as many applications—instantly. May well be the best investment you make this year. MacUser. You'll agree. Buy RAM Doubler today and double your RAM with one click. Your satisfaction is guaranteed. RAM Doubler is available wherever great software is sold (SRP $99) or call us at 1-800-950-5880, Ext.280.
“Thanks to the Tin Man, Toto and Lei Tung, Becky’s reading level is up two grades, and our productivity is up 21%.”

—Larry Ellison, CEO, and Jon Abrahamsen, Chairman, Oracle Corporation

Employee volunteer programs benefit everyone involved. Volunteers, like Oracle’s Lei Tung, know they make a meaningful difference in someone’s life. Employee volunteers feel good about themselves and their company, which makes for improved morale and can give productivity a real boost. You can do for your employees and your community what Oracle is doing for theirs. The Points of Light Foundation can help show you how. To find out more call 1-800-888-7700.
Star Ratings

- **MusicTime 2.0**, Passport Designs, 415/726-0280, $149 to $249. A music notation program is geared for hobbyists and students. If your needs aren't complex, it may fit the bill, at a great price. Oct 94
- **Practica Musica 3.0**, Ars Nova Software, 206/889-0927, $140. Music-teaching program, with emphasis on sight-reading and ear-training techniques, shines as a smart, infinitely patient personal music coach in the classroom. Jan 95
- **SAM-CD**, Scientific American Medicine, 212/754-0550, $395. Despite a few shortcomings, this medical reference work—a popular series of publications covering topics in clinical medicine—should prove a worthwhile addition to any medical library. Sep 94
- **WillMaker 5.0**, Nolo Press, 510/549-2121, $69.95. The clean, uncluttered interface of this word processor is one of its major assets. May 94

Writing Tools

- **Grammatik 6 for Macintosh**, WordPerfect Corp., 801/225-5000, $49.95. The low price, pleasant interface, and improved accuracy of this grammar checker make it worthwhile for a large number of quality-driven writers. It still misses some errors. Feb 95
- **MacWrite Pro 1.5 (1.5 v2)**, Claris Corp., 408/727-8227, $249. The clear, uncluttered interface of this word processor is one of its major assets. This upgrade adds support for AppleScript and more. May 94
- **Microsoft Word 6.0**, Microsoft Corp., 206/882-8080, $329. If you can put this word processor's new features—including cross-referencing, AutoText, automatic numbering, macros, and more—to work and you have a Quadra 650 or faster Mac, take the plunge. If you have a slower 68040 Mac, think twice. And if you have a 68030 Mac, don't even think about it. Feb 95
- **OmniPage Professional 5.0**, Caere Corp., 408/395-7000, $695. In a historic first for OCR, this Power Mac software has an accuracy of 100 percent on good text samples. It does still make occasional baffling minor errors on real-world documents. Nov 94
- **Random House Unabridged Dictionary**, Random House Electronic Publishing, 212/572-2600, $179. Dictionary on CD-ROM works within any program and is good at guessing misspelled words. Although some functions don't work reliably, the quality and design of the software are good. May 94
- **TextBridge 2.0**, Xerox Imaging Systems, 508/977-2000, $99. Optical character recognition software is impressive on good documents and can be trained and automated. You won't find that anywhere else at this price. Sep 94
- **WordPerfect for Macintosh 3.0 (3.0a)**, WordPerfect Corp., 801/225-5000, $495. The innovative interface of this word processor uses context-sensitive button bars and expandable rulers to make innumerable features accessible with a click of the mouse. It's an accomplishment in ease of use. Mar 94
- **WriteNow 4.0.1**, WordStar International, 617/494-1200, $119.95. Tidy word processor's conservative use of memory (the application fits into a dainty 600K partition) and graceful interface will continue to win it fans. Jun 94
- **Writing Coach 1.0**, WritePlace Software, 503/484-6380, $99. If you'd like help with your writing, this writing-skills tutorial could be a great investment. Skillfully worded worksheets assist with planning, organizing, and revising. Dec 94

Hardware

- **DrawingSlate**, CalComp Digitizer Division, 714/821-2000, $395. Digitizing tablet is a good, compact, low-cost implementation of pressure sensitivity, although the battery-operated stylus is a bit heavy. Jun 94
- **Ear Phone Streamline AV**, Iabra Corp., 619/622-0764, $169. A hands-free telephony tool—and as a replacement for the Apple PlainTalk microphone—this telephone/speech-recognition earpiece is a winner. Its biggest drawback is that you can't hear other Mac sounds when it's plugged in. Jul 94
- **FlightStick Pro for Macintosh**, CH Products, 619/398-2518, $129.95. The authentic look and feel of this joystick, along with well-conceived continues

What Do You Do With A $100 Digital Video Camera?

Have A Ball.

QuickCam® includes everything you need to make movies and take pictures with your Mac. Plug in one cable, install the software and you're ready to roll. Add still photos to documents, newsletters, databases. Record QuickTime® training movies, video conference, create animated cartoons—all for around $100. Works with all QuickTime compatible software and all QuickTime compatible Macs, including PowerBooks®. It's easy, fun, and your satisfaction is guaranteed. Get your QuickCam today where fine computer products are sold or call us at 1-800-950-5880, Ext. 280.

QuickCam® Connectix

Circle 191 on reader service card
software, make it a nearly perfect desktop pilot’s companion. Dec 94

**** Mac Keyboard Deluxe, MicroSpeed, 510/490-1403, $125. If you’re in the market for a new or replacement keyboard, this one, which is both smaller and lighter than Apple’s Extended Keyboard, is worth considering. It has four ADI ports. Nov 94

**** PenDirect ADB, FTG Data Systems, 714/995-3900, $398. Input device lets you manipulate items on the Macintosh screen using a special stylus called a light pen. It works well, although it seems ergonomically inferior to a mouse for routine tasks. May 94

**** Wacom UD-1212R, Wacom Technology Corp., 206/750-8882, $749. Graphics tablet with pressure-sensitive stylus is easy to use and highly customizable, though it’s incompatible with AppleTalk and AppleTalk Remote. May 94

MISCELLANEOUS HARDWARE

**** AirNote 1.0, Notable Technologies, 510/208-4400, $349. Remote-messaging service lets you originate alphanumeric paging messages from your computer. It’s a handy way to get into paging. Dec 94

*** G-Vox, Lyrrus, 215/922-0880, $599. Hardware-software guitar-instruction package lets your Mac “hear” the notes you play on your guitar. Although the hardware works well, the software has some basic problems and doesn’t live up to the hardware. Apr 94

**** IX-4015 Color Image Scanner, Canon Computer Systems, 714/438-3000, $1169. The price of this color flatbed scanner is competitive, and its speed and excellent bundled software make it easy to use and a good choice for the small office. Jul 94

**** Macintosh TV, Apple Computer, 408/996-1010, $2079. As a computer, this combination computer-television-CD player is sleek but slow. You can get faster performance and better expandability from several less-expensive Performa models. Apr 94

**** RCD-202, Pinnacle Micro, 714/727-3300, $1099. Photoshop-accelerating hardware’s suite of four 66MHz 32-bit DSP chips offers sufficient processing power to speed up 25 Photoshop functions on the most sophisticated systems, including Power Macs. Feb 95

**** RDRAM, NEC Technologies, 708/860-9500, $515. With its competitive price, free tech support, and two-year warranty, this high-speed CD-ROM player is ready to race. Feb 95

**** Photo Engine, Radius, 408/541-6100, $1099. Photoshop-accelerating hardware’s suite of four 66MHz 32-bit DSP chips offers sufficient processing power to speed up 25 Photoshop functions on the most sophisticated systems, including Power Macs. Feb 95

**** SCSI Sentry, APS Technologies, 816/483-6100, $799. Although the price of this terminator may seem steep, this device may well be the cure for SCSI woes. Our reviewer heartily recommends it. Sep 94


**** Vivace, Coda Music Technology, 612/937-9611, $2295. As an intelligent and endlessly patient accompanist, this music study system for wind instruments may be the best thing that’s happened to learning wind literature since the metronome. Jan 95

**** Yamaha YST-M10 Powered Monitor Speakers, Yamaha, 714/522-9240, $149.95. Powered speakers have a good balanced sound and a great volume range at an outstanding price. Apr 94

MODEMS/NETWORK HARDWARE

**** Cooperative Adapter, Photonics Corp., 408/955-7930, $349. The high cost of each unit, the limitations and restrictions inherent in diffuse infrared, and the low cost of traditional LocalTalk make this infrared network interface an expensive niche product. Dec 94

**** Cypress PhonePro 1.2 (1.5), Cypress Research Corp., 408/752-2700, $349 to $590. By improving its integration with FaxPro and with PowerTalk and PowerShare, this powerful telephony software has greatly extended its business scope. May 94

**** DaynaPort Pocket SCSI/Link, Dayna Communications, 801/269-7200, $299 to $369. Inexpensive, lightweight SCSI-to-Ethernet connector works with both desktop Macs and PowerBooks and can use the Mac’s ADB port as a power source. Nov 94

**** EtherWave, Farallon Computing, 510/814-5000, $199. Instead of providing only one 10BaseT twisted-pair jack, this Ethernet transceiver includes a second jack that lets you daisy-chain to another device through an additional 10BaseT line. May 94

**** FastSwitch 10, Grand Junction Net-
works, $510/252-0726, $6250. Switched Ethernet hub has a great solution for networks that handle large amounts of data traded peer-to-peer, but if your network consists of E-mail and a file server, you probably won’t see much benefit in stepping up to switched Ethernet. Dec 94

★★★★ OneWorld Fax, Global Village Communication, 415/390-8200, $599. Easy-to-use network fax product lets an office share fax-sending resources without dedicating a hard drive and CPU; however, it can’t receive faxes and can’t queue more than one fax document at a time from a single CPU. Aug 94

★★★★ Pocket EtherTalk Adapter, Xircom, 818/878-7600, $349 to 399. All-in-one SCSI-to-Ethernet connector is lightweight and works with desktop Macs and Powerbooks. Nov 94

★★★★ PowerPort Mercury/PB 500 Series, Global Village Communication, 415/390-8200, $399. Top-notch fax modem is capable of exemplary fax and data communications performance. Nov 94

★★★★ Spectra-Com P192mx, Bay Connection, 408/270-8070, $199.95. If you must have absolute portability and AC power isn’t available, this pocket data/fax modem can do the job. It’s not that much smaller than a regular desktop modem, however. Oct 94

★★★★ SupraFaxModem 288, Supra Corp., 503/967-2410, $329.95. This 28,800-bps modem is a very good performer, and the price isn’t terribly steep. Combined with fast, stable fax software and a good terminal program, it’s hard to beat. Aug 94

★★★★ Watermark Message Central 2.0.2, High Tide Software, 510/704-9927, $499. If you’re willing to put in a lot of effort, you’ll find this highly sophisticated voice-mail system supremely flexible. It includes a specially modified modem with voice chip, as well as fax software and telecommunications software. Jul 94

PRINTERS

★★★★ Brother HI-400, Brother International, 908/356-8880, $369. Compact, 360-dpi ink-jet printer is fairly slow, doesn’t allow background printing. May 94

★★★★ Color StyleWriter Pro, Apple Computer, 408/996-1010, $629. Color printer represents one of the best values in the inexpensive color-printing market. It’s fast and produces nice-looking output. Sep 94

★★★★ DeskWriter 310, Hewlett-Packard, 800/752-0900, $379 to $455. Versatile, low-cost ink-jet printer is a 4.3-pound, battery-powered portable. With its 60-page sheet feeder, it’s also a great desktop printer, and with a $49 color print cartridge, it offers inexpensive three-color printing. Mar 94

★★★★ HP LaserJet 4ML, Hewlett-Packard, 800/752-0900, $1279. Primarily for those of you who use a PC or work in a small, mixed-platform environment, this energy-efficient laser printer offers automatic port and language switching, and is a good buy. May 94

★★★★ LaserWriter Select 360, Apple Computer, 408/996-1010, $1599. Low-cost, high-performance, 10-ppm printer is perfect for small LocalTalk or mixed networks. For bigger networks, consider buying more than one; they’re more cost-effective than a 20-ppm printer. Apr 94

★★★★ Notebook Printer II, Citizen America, 310/453-0614, $399. If weight and size are your biggest concerns in choosing a portable printer, this thermal-fusion printer may be a good choice. It supports over 1024 printers, ranging from aging dot-matrix models to the newer color ink-jet and laser printers. Sep 94

★★★★ PrimeraPro, Fargo Electronics, 612/941-9470, $1895. The photo-realistic output of this thermal-wax and dye-sublimation printer beats that of any other printer in the price range. But with expensive consumables and slow print time, it’s best suited for routine thermal-wax use and occasional dye-sub work. Jan 95

★★★★ P-Touch PC, Brother International Corp., 908/356-8880, ext. 4307, $449.95. Versatile label printer is easy to set up and use, and produces high-quality output. The cost per label is high, though, and the documentation is weak. Sep 94

★★★★ QMS ColorScript Laser 1000, QMS, 205/633-4300, $7999. Color laser printer succeeds in combining the versatility of monochrome laser printing with attention-getting color, but if you don’t need to chase rainbows right away, you might wait and see if competition drives capabilities up. Jul 94

★★★★ Silentwriter 640, NEC Technologies, 508/264-8000, $825. With 3MB of RAM, PostScript continues...
BUYERS' TOOLS

Star Ratings

Level 2 support, and a 6-ppm engine, this printer is a capable performer. Generally, it represents hassle-free printing, but it doesn't handle single sheets of paper well. Jun 94

Smart Label Printer Pro, Seiko Instruments, 408/922-5900, $299.95. If you need to print only a few labels at a time, this label printer may be an expensive but good choice. May 94

SYSTEMS/STORAGE

Alacrity PM 6100, KS Labs, 614/374-5655, $165. Installing a clock-booster is the quickest, easiest, and cheapest way to extract more power from Apple's entry-level Power Mac. Oct 94

Conley SR2 RAID System, Conley Corp., 212/682-0162, $25,335. While RAID technology is typically praised for its fault-tolerance rather than its speed, this high-performance storage system proves that you can have both. For critical tasks requiring redundancy and round-the-clock operation, this is one of the best Mac RAID systems shipping. Sep 94

EtherDock, E-Machines, 408/541-6100, $699. Heavy-duty Docking options are equipped with a full set of 11 ports, including an Ethernet port. The locking mechanism is alarmingly wobbly—although reliable enough to ensure a good connection. May 94

Joule System, La Cie, 503/520-9000, price varies by component. Plug-and-play tower lets you stack drives—including hard drives, removable media, and other modules—onto a base unit, making it easy to buy extra storage or swap modules with other Joule towers. Joule drive prices are generally slightly higher than for comparable drives, however. Feb 95

LC 375, Apple Computer, 408/996-1010, $1699. For students who want the convenience of having everything integrated into one case, this 33MHz 68040 system is a good choice. Jun 94

Newton MessagePad 110, Apple Computer, 408/996-1010, $599. This is the personal digital assistant that Apple should have shipped in August 1993, with improved handwriting recognition, including learned and letter-by-letter recognition. It also has more memory, larger battery life, and a more efficient design. Aug 94

OrangePC Model 200 Series, Orange Micro, 714/779-2772, $1139 to $3237. If your goal is to get a Mac that runs Windows as fast as a PC, you can't get there from here. If your goal is to get business-level performance for day-in, day-out use, these PC coprocessor cards are probably your best choice. Aug 94

PLI Infinity 270 Turbo, PLI, 510/657-2211, $651. The 270MHz SyQuest drive is fast, reliable, and a very good product. The cost of the medium is competitive with that of optical drives. Sep 94

PowerBook 150, Apple Computer, 408/996-1010, $1449. Fast, lightweight portable is minimalist in the extreme, with no video-out, ADB, Ethernet, or microphone. Unfortunately, the price is less minimalist, and most budget-conscious shoppers would be better off buying a used or discontinued model. Dec 94

PowerBook 540c, Apple Computer, 408/996-1010, $4899. The prestige Powerbook du jour, this sleek, curvy and futuristic-looking notebook makes a good computer for both on-the-road and in-the-office use. Its nonstandard battery, memory, and Ethernet ports are not ideal features, however. Oct 94

PowerBook Duo 280c, Apple Computer, 408/996-1010, $3759. If you travel, this notebook computer is the best Mac to get. It offers closer to the power of a Quadra 650 in a subnotebook. Oct 94

PowerBook Duo Dock II, Apple Computer, 408/996-1010, $969. Apple has added Ethernet to this full-featured docking station, but installing NuBus cards is still absurdly difficult. If you don't need NuBus expansion, consider other options. Oct 94

Power Macintosh 6100/60, Apple Computer, 408/996-1010, base model $1819. Given its price and performance, the 6100/60 is hard to resist. This system will give you power to spare. Jun 94

Power Macintosh 7100/66, Apple Computer, 408/996-1010, $2899. Midrange Power Mac makes an outstanding workstation whose power should last for several years. The price is nothing to take lightly, but this system delivers every dollar's worth. Aug 94

Power Macintosh 8100/80, Apple Computer, 408/996-1010, $4249. While this system doesn't quite offer the excellent price/performance ratio of the other available Power Macs, you should consider it if you're a high-end user moving your work over to RISC-based computing. Aug 94

Power Macintosh Upgrade Card, Apple Computer, 408/996-1010, $599. Current 33MHz 68040 machines will get the best bang for the buck with this card, which is a less expensive upgrade path than a standard motherboard replacement. However, other Macs won't realize as much of a performance gain. Oct 94

Quicksilver 605, Apple Computer, 408/
Introducing the Sharp JX-330. No matter who you are, this is the 24-bit color scanner for all your graphic needs. This is the one with Sharp's patented one pass scanning, true 600 dpi, and the ability to scan reflective art and transparencies. This is the scanner that reproduces 16.7 million brilliant colors with precision and detail, so you can add images to publications, create dazzling comps, or convert printed words into editable text. This is the one that delivers near commercial output at an affordable price. This is the Sharp JX-330 and, whether you're a one-man studio or one big company, this is the perfect desktop solution. For more information call 1-800-BE-SHARP or FastFax 201-529-9113.

FROM SHARP MINDS COME SHARP PRODUCTS™

Circle 257 on reader service card

MACWORLD March 1995 177
An exclusive invitation for
Macworld Active Buyers

Macworld cordially invites you to attend an exclusive and complimentary ACTIVE BUYER DAY in 1995!

Interact with 20 top Macintosh developers and resellers, see private demos, take advantage of special event discounts and participate in the Active Buyer Sweepstakes where thousands of dollars of Macintosh hardware and software will be given away at each event!

Each event is entirely complimentary and includes lunch and a cocktail reception.

Attendance is limited and exclusively for qualified Active Buyers, so register today. A Macworld representative will contact you with additional information.

Yes! I'm a Macworld Active Buyer. Contact me about attending this exclusive event:

☐ Graphics  New York, April 19
☐ Multimedia  San Francisco, June 14
☐ Mobile Computing  Austin, October 11

Name ________________________________
Title ________________________________
Company ________________________________
Address ________________________________
City __________________  State __  Zip __________
Phone __________________  Fax __________

Number of Macintosh computers I currently have purchase involvement for:

Mail to: Macworld Active Buyer Day, 501 Second Street, San Francisco, CA 94107, or fax to: 415.442.0766
Selected and edited by Charles Barrett

The following listings include both time-sensitive promotions and open-ended offers being sponsored by Macintosh vendors and their resellers. Each listing indicates which products have been awarded a star rating in Macworld's Reviews (products rated ★ ★ ★ or ★ ★ ★ ★ are not eligible for inclusion), have been selected as an Editor's Choice, or award the vendor a World-Class award. In some cases, the editorial evaluation quoted is for an earlier product version. The ★ symbol indicates that the product is a Power Mac related. Except where otherwise indicated, prices given are suggested retail prices.

When placing an order, please mention that you saw the offer in Macworld. Should any problems arise, contact the Streetwise Shopper editor by fax (415/442-0766), phone (415/978-3241), or mail (Macworld, 501 Second St., San Francisco, CA 94107).

Vendors and resellers desiring to have products and services included in this section are encouraged to contact the Streetwise Shopper editor with particulars.

BUNDLES

American Heritage Talking Dictionary + ClipArt Library Softkey International is including a $79.95 PC Paintbrush ClipArt Library of more than 3000 hand-drawn color images on CD-ROM free of charge with its $59.95 American Heritage Talking Dictionary, which pronounces 72,000 words and includes the entire contents of the 2140-page hardbound third edition on CD-ROM. Available for $29.95 by calling 800/848-2204. Offer expires 2/28/95.

Apple Color StyleWriter + StyleScript 1.1 + Type On Call 4.0 GDT Softworks is offering Adobe Systems' $99 Type On Call free to customers who purchase specially marked packages of its $149 StyleScript at the same time they buy an Apple Color StyleWriter Pro (Sep 94 ★★★★) or Color StyleWriter 2400 ink-jet printer. StyleScript enables StyleWriter users to produce PosScript Level 2 output, while Type On Call enables them to purchase typefaces on-demand from a locked CD containing more than 2000 Adobe typefaces. Available through MacConnection (800/800-0002), MacMall (800/222-2808), MacWarehouse (800/225-6277), MacPlace (800/905-0009). Offer expires 6/30/95.

Canvas 3.5 + Picasa Typestyre 2.1 + DeltaGraph Pro 3.5 Deneba Software is offering a Canvas Power Graphics bundle consisting of its $399 Canvas draw program (Jan 94 ★★★★ for the 68000 version) together with the $299 Picasa Typestyre 3-D type-effects program (Feb 95 ★★★★) and DeltaPoint's $195 DeltaGraph Pro charting software (Apr 94 ★★★★★ for version 3). Available from mail-order resellers and direct for $299.95. Call 800/733-6322 for more information. Offer expires 3/31/95.

EasyColor 2/1360 Graphics Card + LogosMotion 1.5 EA Research is including a free copy of Specular International's $149 LogosMotion 3-D animation tool (Nov 94 ★★★★★ for version 1.0) with its $1699 EasyColor-accelerated graphics card. The 24/1360 offers 24-bit color QuickDraw acceleration, Adobe Photoshop filter acceleration, and CMYK-to-RGB conversion. Call 800/681-6566 to order and for more information. Offer expires 3/31/95.

Enhanced NCSA Mosaic 1.0 + The Mosaic Handbook for the Macintosh O'Reilly & Associates is including the Spyglass version of NCSA Enhanced Mosaic on floppy disk free of charge with its $29.95 book for Internet beginners. Mosaic is used to navigate the Internet via the World Wide Web, and the Spyglass version is purported to fix problems found in public domain versions. Available direct (800/998-9938) or in bookstores.

Grolier Multimedia Encyclopedia + San Diego Zoo CD-ROM Grolier Electronic Publishing is including a free copy of Software Toolworks' $99.95 The San Diego Zoo Presents...The Animals on CD-ROM, which includes photos of over 200 animals, with every copy of its $149 encyclopedia on CD-ROM (vol 94 ★★★★★). The 1995 edition features over 8000 pictures, six hours of multimedia, and 33,000 articles. Estimated street price is $99.95. Call 800/285-4534 for more information.

In Control 3.0.4 + FastPage Instant Contact 1.0 + Quicken 5 Attain Corporation is offering a free copy of Intuit’s $94.95 Quicken personal financial software (Feb 95 ★★★★★) when you buy Attain's $85 $85 in Control personal planner and organizer (Oct 94 ★★★★) and its $79.99 FastPage Instant Contact contact manager (Jun 94 ★★★★) for $99.95. Call 800/784-7388, ext. 9001, for more information and order. Offer expires 4/3/95.

LaserWriter Select 360 + LaserWriter Bridge Apple Computer is including a free copy of LaserWriter Bridge—a custom implementation of Sonic Systems' $149 PowerBridge 3.0 utility—with its $1699 (company's estimated price) LaserWriter Select 360 printer (Apr 94 ★★★★★). LaserWriter Bridge connects the printer to the LocalTalk port of an Ethernet-attached Macintosh. Call 800/776-2333 for more information.

SuperCard 2.0 + Avid VideoShop 3.0 + Morph 2.5 + SoundMate 1.0 Allegiant Technologies is including the following free of charge with its $695 SuperCard authoring system (Feb 95 ★★★★★ for version 1.7.1): Avid Technology's $99 QuickTime video-editing program (Feb 94 ★★★★) and VideoShop 2.0; Gryphon Software's $149 warping and morphing software (Morph 2.5 ★★★★★) for Macs (Nov 94 ★★★★); and Motion Works' SoundMate round-editing utility. Available through mail-order resellers such as MacConnection (800/800-0002) and MacWarehouse (800/225-6277). Offer good through at least 3/31/95.

Trackboard + QuickKeys 3.0.1 Datadock is offering its new $169.95 Trackboard—a full-function extended keyboard and three-button trackball combination—along with CE Software's $169 keyboard shortcut utility (Mar 94 ★★★★) for QuickKeys 3.0.1 for $279.95. Trackboard includes 15 user-definable function keys, and features both color-coded and rounded key tops. Call 800/248-4001 for more information. Offer expires 6/30/95.

VST Charger 500 Bundle + Claris Organizer 1.0 VST Power Systems is including Class Corporation's $99 personal information manager (Jan 94 ★★★★) free of charge with its VST Charger 500 bundles. VST's $179.95 bundle includes the Charger 500 external battery charger, which is also capable of simultaneously reconditioning and recalibrating two PowerBook 500-series batteries. Also included is IMAPathy 2.0 diagnostic software for testing and repairing these batteries. The $259.95 bundle adds a choice of an AC or DC adapter (either the Apple AC Adapter or $99.95 VST Auto Adapter 500). Available from MacConnection (800/800-0002), MacMall (800/222-2808), MacWarehouse (800/225-6277), and The Mac Zone (800/348-0800).

COMPETITIVE UPGRADES

Adobe Illustrator 5.5 Adobe Systems is offering its $595 draw program (Sept 94 ★★★★★) to registered users of Macromedia (formerly Aldus) FreeHand for $149. Call 800/521-1976 for more information. Offer expires 2/28/95.

Brainstorm Accelerators Brainstorm Products is offering an upgrade to its $149 Mac Plus accelerator or $199 Mac SE accelerator (Mar 95 ★★★★) for $99 to owners of any other Macintosh accelerator (even from companies no longer in business). Call 415/988-2000 for more information.

LAN Workplace for Macintosh 2.0 Novell is offering a $399 single-user license ($1995 for 10 users; $12,995 for 100 users) for this program to registered users of competitive products for $100 ($495 for 10-user; $1999 for 100-users). The latest version of Workplace provides transparent access to a variety of enterprise resources on TCP/IP-based networks and features drag-and-drop FTP file transfer for System 6 and 7 users. Call 800/638-9273 or 801/429-5988 for more information.

SPECIAL DISCOUNTS

Ima Suite for Macintosh DCA is offering a special introductory price of $290 on this $495 software product for accessing multiple mainframe, midrange, and Unix hosts from a single package. It supports Apple Remote Access and includes productivity tools such as DCA's QuickPads and a menu that is consistent across all host platforms. Call 800/348-3221 for more information. Offer expires 3/31/95.

Transparent Language 3.0 Transparent Language is offering its SpanishNow, FrenchNow, GermanNow, ItalianNow, and LatinNow foreign-language-learning packages (Oct 92 ★★★★★ for version 1.0) for $69.99 each on CD-ROM or $49.99 each on disk (regularly $129 and $99, respectively). Call 800/752-1767 to order and for more information. Offer expires 5/31/95.
Congratulations
to the Winners of the 9th Annual Computer Press Awards!

Best Computer Magazine
(Circulation more than 100,000)

Best Computer Newspaper
(Circulation more than 100,000)

Best News Story in a Computer Publication
("DOS 6.0" by Stuart Johnson, Doug Barney and Kevin Strehlo)

Best Computer Columnist
(Deborah Branscum, "Conspicuous Consumer")

Best Introductory How-to Book: Software

Once again, IDG dominated the annual Computer Press Awards, winning more awards than any other publishing company. If you're looking for editorial excellence in information technology publications, IDG is where you find it.
## Advertiser Index

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or use the reader service number for our FastFacts Product Information Card located after the product index.

<table>
<thead>
<tr>
<th>Page No.</th>
<th>Advertiser</th>
<th>Reader Scc No.</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Astrix Software</td>
<td>159</td>
<td>800/626-8664</td>
</tr>
<tr>
<td>136</td>
<td>Adobe</td>
<td>231</td>
<td>800/521-1976</td>
</tr>
<tr>
<td>216</td>
<td>Advance Business Center</td>
<td>225</td>
<td>800/723-8262</td>
</tr>
<tr>
<td>58</td>
<td>AEC Software</td>
<td>203</td>
<td>800/450-1982</td>
</tr>
<tr>
<td>38</td>
<td>Agfa</td>
<td>43</td>
<td>800/665-2471</td>
</tr>
<tr>
<td>80</td>
<td>Agfa</td>
<td>158</td>
<td>800/665-4271</td>
</tr>
<tr>
<td>12</td>
<td>Agfa</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>196-197</td>
<td>Alliance Peripheral Systems</td>
<td>62</td>
<td>800/674-1428</td>
</tr>
<tr>
<td>141-142</td>
<td>America Online</td>
<td>—</td>
<td>800/297-6364</td>
</tr>
<tr>
<td>104-105</td>
<td>American Power Conversion</td>
<td>72</td>
<td>800/788-2200</td>
</tr>
<tr>
<td>20</td>
<td>Ambra</td>
<td>—</td>
<td>800/325-3841</td>
</tr>
<tr>
<td>22-23</td>
<td>Apple Computer</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>84-85</td>
<td>Apple Computer</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>114-115</td>
<td>Apple Computer</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Biuse Corporation</td>
<td>—</td>
<td>800/644-8056</td>
</tr>
<tr>
<td>204-205</td>
<td>Bottomline Distribution</td>
<td>63</td>
<td>800/622-8721</td>
</tr>
<tr>
<td>174-175</td>
<td>Core Corporation</td>
<td>89</td>
<td>—</td>
</tr>
<tr>
<td>150</td>
<td>CD-ROM Expo</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>192-193</td>
<td>ClubMac</td>
<td>95</td>
<td>800/CLUBMAC</td>
</tr>
<tr>
<td>13</td>
<td>Columbia House</td>
<td>125</td>
<td>—</td>
</tr>
<tr>
<td>45</td>
<td>CompuServe</td>
<td>66</td>
<td>800/841-8199</td>
</tr>
<tr>
<td>200-209</td>
<td>Computer Discount Warehouse</td>
<td>2</td>
<td>800/651-6600</td>
</tr>
<tr>
<td>171</td>
<td>Connectix</td>
<td>197</td>
<td>800/950-5680</td>
</tr>
<tr>
<td>173</td>
<td>Connectix</td>
<td>191</td>
<td>800/950-5680</td>
</tr>
<tr>
<td>129</td>
<td>Corner Peripherals</td>
<td>162</td>
<td>—</td>
</tr>
<tr>
<td>86</td>
<td>Corel Corporation</td>
<td>78</td>
<td>800/380-3729</td>
</tr>
<tr>
<td>206-207</td>
<td>CTA Systems Inc.</td>
<td>20</td>
<td>800/375-9000</td>
</tr>
<tr>
<td>72</td>
<td>CTX International</td>
<td>36</td>
<td>800/595-6146</td>
</tr>
<tr>
<td>40</td>
<td>Dantz Development</td>
<td>26</td>
<td>—</td>
</tr>
<tr>
<td>20</td>
<td>Dataview</td>
<td>—</td>
<td>508/988-0790</td>
</tr>
<tr>
<td>8</td>
<td>DayStar Digital</td>
<td>7</td>
<td>800/532-7853</td>
</tr>
<tr>
<td>24</td>
<td>Delphi</td>
<td>172</td>
<td>800/695-4005</td>
</tr>
<tr>
<td>68</td>
<td>Deltina Corporation</td>
<td>137</td>
<td>800/631-8118</td>
</tr>
<tr>
<td>21</td>
<td>Densha Software</td>
<td>57</td>
<td>800/733-6322</td>
</tr>
<tr>
<td>204-205</td>
<td>DGR Technologies</td>
<td>63</td>
<td>800/622-8721</td>
</tr>
</tbody>
</table>

| 210      | DigiCase    | 269 | 800/858-4622 |
| 216      | Digital Axis | 63  | 800/747-7555 |
| 201      | Direct Connections | 121 | 800/572-4305 |
| 214      | Directech   | 298 | 800/215-5520 |
| 247      | Educorp     | 157 | 800/482-9407 |
| 10       | Engineered Software | 12  | 910/295-4043 |
| 30-31    | Epson America | —   | 800/814-EPSON |
| 194-195  | Express Direct | 91  | 800/765-0320 |
| 190       | Fujitsu | 202 | 800/831-4094 |
| 64       | Graphisoft  | 48  | 410/290-5114 |
| 43       | HSC Software | 5   | 805/556-6200 |
| 12       | IMAUTICS    | 96  | 800/462-9470 |
| 82       | Insignia Solutions | 68  | 800/648-7677 |
| 62       | Intuit      | —   | 800/781-6999 |
| 93       | Intuit      | —   | 800/781-6999 |
| 15-18    | LaCie      | 52  | 800/999-1422 |
| 202-203  | Mac Bongiorno | 70  | 800/619-9091 |
| 128-129  | MacConnection | —   | 800/800-3333 |
| 185-190  | MacMall     | 131 | 800/222-2808 |
| 200      | MacProducts | 65  | 800/622-8721 |
| 47       | Macromedia  | 68  | 800/326-2128 |
| 212-213  | MacWarehouse | 150 | 800/255-8227 |
| 138      | Macworld Active Buyer Days | —   | —     |
| 215      | MagiQhaus   | 245 | 800/786-1104 |
| 14       | MameSoft    | —   | —     |
| 6-7      | Micronet Lab, Inc. | 287 | 800/654-4100 |
| 146      | Mobius Technologies | 109 | 800/800-4334 |
| 29       | Multimedia Design Co. | 91  | 800/921-9493 |
| 2-3      | NEC Technologies | 15  | 800/NEC-INFO |
| 60       | NEC Technologies | 14  | 800/NEC-INFO |
| 18C      | NEC Technologies | 16  | 800/NEC-INFO |
| 27       | Pinnacle Micro | 115 | 800/553-7070 |
| 10       | PowerTable/ScanCo | —   | 800/722-6263 |
| 191      | PreDirect   | 135 | 800/524-9952 |
| 145      | QMS         | —   | 800/392-7559 |
| 246      | Quality Computers | 263 | 800/777-3642 |
| 150      | Radius      | —   | —     |
| 9        | RasterOps   | 124 | 800/SAY-COLOR |
| 70       | Salk Instruments | 93  | 800/888-0817 |
| 176-177  | Sharp Electronics | 267 | 800/68-SHARP |
| 166-167B | Signature Software | 300 | 800/925-6840 |
| 32       | Specky International | 41  | 800/433-7732 |
| 190-199  | Sola Peripherals | 246 | 800/215-9260 |
| 147      | Storsoft    | 99  | 914/531-4149 |
| 78       | Stratus/StratusVision | 223 | 800/889-6855 |
| 217      | SuperMicro  | 126 | 800/352-3415 |
| 74       | SuQuest     | 249 | 800/245-2278 |
| 103      | Tektronix    | 143 | 800/835-6100 |
| 211      | The Mac Zone | 71  | 800/436-0606 |
| 76       | Umax        | 196 | 800/201-8629 |
| 11       | Valioneer    | 18  | 800/787-7007 |
| 14       | VST Power Systems | 73  | 500/287-4600 |
| 48-49    | WordPerfect Corporation | —   | 800/526-7820 |
| 54       | Xantec Corporation | 112 | 800/926-8839 |
| 120-121  | Xerox Corporation | 100 | 800/ASK-XEROX |
## Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our FastFacts Product Information Card located on the following page.

### SOFTWARE

#### BUSINESS
- 26 Atrix Software 159
- 58 AEC Software 263
- 68 Delrina Corporation 137
- 62 Intuit 93
- 147 Starsoft 99

#### CD ROM
- 66 Corel Corporation 78
- 247 Educorp 157

#### COMMUNICATION
- 68 Delrina Corporation 137

#### EDUCATIONAL
- 246 Quality Computers 263

#### FONTS
- 166A-166B Signature Software 300

#### GRAPHICS/DTP
- 136 Adobe 231
- 66 Corel Corporation 78
- 21 Denovo Software 57
- 43 HSC Software 5
- 47 Micromedia 86
- 32 Spectral International 41
- 78 Strata/StrataVision 223

#### MULTIMEDIA
- 47 Micromedia 86

#### OCR
- 174-175 Citese Corporation 69

#### PERSONAL
- 62 Intuit 93

#### STATISTICAL
- 147 Statssoft 99

### UTILITIES
- 171 Connectix 192
- 82 Insignia Solutions 68

### VERTICAL
- 26 Atrix Software 159

### WORD PROCESSING
- 48-49 WordPerfect Corporation

### HARDWARE

#### HARD DISKS/STORAGE
- 195-197 Alliance Peripheral Systems 62
- 204-205 BottomLine Distribution 63
- 192-193 ClubMac 96
- 204-205 DGR Technologies 63
- 201 Direct Connections 121
- 214 Directech 298
- 15-18 La Cie 52
- 200 MacProducts 65
- 215 MegaHouse 245
- 27 Pinecone Micro 115
- 191 ProDirect 135
- 217 SuperMicro 126
- 74 SyQuest 249

#### INPUT DEVICES
- 20 BC Kensington MicroWare, Ltd. —
- 11 Visioneer 18

#### MISCELLANEOUS
- 104-105 American Power Conversion 72

#### MULTIMEDIA
- 56 Best Corporation —
- 29 Multimedia Design Co. 91

#### POWERBOOK
- 14 VST Power Systems 73

#### PRINTERS
- 159 Fongo Electronics 172
- 2-3 NEC Technologies 15
- 80 NEC Technologies 14
- 145 OMS 70
- 103 Tektronix 143
- 54 Xante Corporation 112
- 120-121 Xerox Corporation 100

#### SECURITY
- 104-105 American Power Conversion 72
- 20 Datawatch —

#### UTILITIES
- 20 Datawatch —

### VIDEO
- 173 Connectix 191
- 9 RasterOps 124

### SERVICES

#### ON LINE
- 141-142 America Online 66
- 24 Delphi 172

### TRADESHOWS/CONFERENCES
- 160 CD ROM Expo

### ACCESSORIES

#### FURNITURE
- 28 Anthro 28
- 10 PowerTable/ScanCo

#### MISCELLANEOUS
- 10 PowerTable/ScanCo

### MAIL ORDER
- 216 Advance Business Center 225
- 196-197 Alliance Peripheral Systems 62
- 204-205 BottomLine Distribution 63
- 192-193 ClubMac 96
- 208-209 Computer Discount Warehouse 2
- 204-205 DGR Technologies 63
- 210 DigCore 269
- 201 Direct Connections 121
- 214 Directech 298
- 191-195 Express Direct 81
- 202-203 Mac Bargains 70
- 128-129 MacConnection
- 135-139 MacMail 131
- 200 MacProducts 65
- 212-213 MacWarehouse 150
- 215 Megahouse 245
- 191 ProDirect 135
- 245 Quality Computers 263
- 198-199 Spin Peripherals 248
- 211 The Mac Zone 71
| A. Including yourself, approximately how many people are employed at your entire worksite? (Check one.)  | C. What is the total number of Macs installed at this entire worksite? (Check one.)  | F. Over the next 12 months, how much will this entire worksite spend on Macintosh products and/or services? (Check one.)  |

| B. Which of the following computers are installed at this entire worksite? (Check all that apply.) | D. For how many Macintosh computers within this entire worksite do you have purchase involvement for products and/or services? (Check one.)  | G. Considering the entire worksite, which of the following Macintosh hardware and software products are currently installed? (Check all that apply.)  |

| E. In which ways are you ever involved in purchase decisions for Macintosh products at this entire worksite? (Check all that apply.) | H. What is your primary job function? (Check one.)  | I. Check box and fill in the appropriate information to subscribe to Macworld. You will be billed $24.00 for a 1-year (12 issue) subscription (U.S. only).  |
| 1) Authority purchases  | 2) Graphic/graphic publishing software  | 3) Business software/Word processing, spreadsheet, database, etc.  | 4) Accounting/Finance  | 5) Marketing/Sales/PR/Communications  | 6) Engineering  | 7) MIS/HR/Network Management  | 8) Computer Reseller/ VAR/AVD  | 9) R&D/Scientific  | 10) Corporate/General Management  |

| J. Do you ever supervise a workforce consisting of 10 or more?  | K. Name  | L. Title  |

Please print or type all information.
FREE PRODUCT INFORMATION.

Get valuable information about the products that interest you. There's no cost; no obligation. Just fill out both sides of this FASTFACTS Information form. Circle the numbers for the desired products. Then mail the card. We pay the postage! For even faster results fill out and send the card via our FASTFAX. Now fast... get the facts, the competition's gaining on you.

Macworld

--

Macworld
Reader Service Department
P.O. Box 5299
Pittsfield, MA 01203-9906
Now Authorized for Macintosh® Performa®!

Call about the NEW FASTER PowerMacs®!

**NEC 3xe** NEW!
TRIPLE-SPEED CD-ROM DRIVE
Includes Macintosh® interface software and cable. Call for details.

$199

**VividSpin 4X** NEW!
QUAD-SPEED CD-ROM DRIVE

$379.99

**SAM 4.0 & Norton Utilities 3.1** BUNDLE

$139.99*

*After $25 Mail-in rebate. Rebate valid from 1/1/95 to 3/1/95

**Best Data 14.4**
Fax/Data Modem

$88.99

**Best Data 28.8**
Fax/Data Modem

$138.99

**Best Data 28.8 V.34**
Fax/Data Modem

$198.99

**Quicken and MacIntax®**

$59.99*

*Headstart Edition

**Asante EthernetNet Adapter**
Add Ethernet to your Centris®, Quadra® or PowerMacintosh® computer

$39.99

**QUAD-SPEED CD-ROM DRIVE**

Lower Than Warehouse Prices!!

**CALL TODAY FOR YOUR FREE CATALOG!!**

800-222-2808

WE HAVE THE LARGEST SELECTION OF APPLE PRODUCTS!!

Authorized Catalog Reseller

**FASTEST DELIVERY SERVICE GUARANTEED!!**

“We will deliver your order by 10:30am THE NEXT DAY or pay for your shipping!”

“Limited to in-stock orders shipped from Stockton, CA. Not responsible for typographical errors or incorrect information within the catalog sent to customers in the continental U.S. “Next Day” not available to certain rural areas.

1 • 800 • 222 • 2808
Fax 310-222-5800 • Customer Service 800-560-6800

- 39 Per Order
To Order, Call Toll Free 1-800-222-2808

Fax: 310-222-5800
Customer Service: 800-560-6800
International Orders: 310-787-4500
Mail: Mac Mall Order Dept., 2645 Maricopa St., Torrance, CA 90503-5144

Call today for your FREE Catalog!!
Mac Mall has it all!! If you see a lower price not advertised in this magazine, please call us and we'll do our very best to beat that advertised price.

---

**HP DeskJet 1200C/PS Printer**
- Most powerful office printing with full color
- 600x300dpi: Black text with Resolution Enhancement Technology + 300dpi full color printing
- Up to 16.7 million colors
- Up to 7ppm for black text/1.5ppm for color graphics
- Upgradable to 20MB
- PostScript level 2 with 25 scalable fonts for professional-looking text and graphics

**HP DeskWriter 540 Printer**
- HP's most affordable 600 by 300dpi high quality inkjet printer for Macintosh and Windows
- 600x300dpi black printing on plain paper
- Two ppm black print speed, 1.5 to 4 minutes per page color printing
- Easily handles a wide variety of envelopes and paper sizes, 4”x6” to 8.5”x11”
- Industry leading three-year warranty
- Lowest list price of any HP DeskJet printer
- Easy to add color
- 35 scalable fonts
- 286 levels of gray

**HP Scanjet Iccx Scanner**
The high performance color/grayscale scanner that provides advanced features at a breakthrough price!
- Superb image quality with 1600 dpi enhanced resolution + 400 dpi optical resolution
- 24 bit color allows you to scan over 16 million colors
- HP postscript for better text recognition
- Optional transparency adapter available
- Optional 20 page document feeder available
- One-year HP Express Exchange Warranty for 24-hour replacement service

**HP Scanjet 3p Scanner**
- HP's lowest cost, grayscale complete scanning solution!
- 256 grayscale levels
- Includes software for text/image scanning and for making copies on your printer
- Add text, line art and photos to documents
- 300 dpi resolution, extendable to 1200dpi
- Compatible with Macintosh or Windows

**HP DeskWriter 320w Printer**
- The new HP DeskWriter 320 offers the highest quality output of any mobile printer
- 600x300dpi black printing on plain paper and Hewlett Packard Inkjet Envelopes
- Three ppm black print speed and up to 4 minutes per page color printing
- Low-cost HP color ink for easy to add optional color, featuring Hewlett-Packard's breakthrough ColorSmart Technology
- Compact, portable design fits nicely into any workspace

**VideoShop® 3.0**
The video software anyone can use.
VideoShop 3.0 makes it easier than ever for you to create high quality digital movies and videotapes that include stunning effects. To create a movie, simply drop media clips into the sequencer for powerful cut, copy and paste editing. Polish your movies with over 200 amazing digital effects, including Morph. Unique composing and layout features allow you to layer unlimited video and graphics tracks. With VideoShop, you can position, resize and "fly" clips across a path. VideoShop also includes sound mixing and audio effects. Create animated titles with automatic scrolling. Avid is the industry leader that Hollywood professionals turn to. With over 300,000 copies already sold, why wait? PowerMac Accelerated. Includes royalty free footage. Requires: Color Mac, Avid and 40MB drive and System 7 or greater.

**The Portrait/15 Pivot**
Portrait Display Labs is the only color multi-frequency display for Macintosh and Windows offering portrait and landscape in one pivoting monitor. In the portrait mode, the vertical display is equal to a 20" monitor allowing you to display and edit a full page of text without scrolling! A quick pivot to landscape mode and it's perfect for spreadsheets. Mac resolution is 832x624; Windows resolution is 1024x862. The 28mm dot pitch ensures crisp, crisp text. Works with most Macintosh & PowerMacintosh on-board video and popular Windows graphics cards.

- 28mm dot pitch, flat square CRT
- 75Hz refresh rate for flicker-free graphics
- Built-in antiglare screen
- Tilt and swivel for ergonomic viewing
- Meets Sweden's MPR III (SWEDAC) standard for reduced emissions

---

**HP DeskWriter 560c Printer**
- HP's affordable high quality black and color printer
- Clear, sharp 600x300dpi professional quality
- Two ppm black print speed, 1.3 to 4 minutes per page color printing
- Easy to handle a wide variety of envelopes and paper sizes, 4”x6” to 8.5”x14”
- Industry leading three-year warranty
- Lowest list price of any HP DeskJet printer
- Easy to add color
- 35 scalable fonts
- 256 levels of gray

**HP LaserJet 4ML Printer**
- True 600dpi resolution utilizing Resolution Enhancement technology and microline tone
- Postscript level 2
- 35 Adobe scalable fonts
- HP Raster I/O 89406A processor
- 4MB RAM standard memory
- Macintosh and Windows PC compatible

**HP LaserJet 4MP Printer**
- True 600dpi resolution utilizing Resolution Enhancement technology and microline tone
- Postscript level 3
- 35 Adobe scalable fonts
- 4MB RAM standard memory
- Macintosh and Windows PC compatible

---

**FREE BONUS!**
Logo Motion 1.5

60 Day Money Back Guarantee

---

**Customer Service:**
800-560-6800

---

**Mac Mall**
YOUR MAC SUPERSTORE
VISTA-S6
4800 dpi, High Speed, Single Pass, Color Scanning Solution
- Magic Match color matching system
- Supports up to 8.5"x11" material
- SCSI 2 interface with cable included
- Single pass with single cold lamp technology
- Includes Adobe Photoshop LE and OmniPage Direct
- Optical resolution of 300x600 dpi
- TWAIN compliant
- Micro-stepping optical transmission for faster speed
- Descreening, Auto-density adjustment, filtering function

$759.99 #65829

POWERLOOK
1200 dpi Color Scanner
- 30-bit scanning mode recognizes more than one billion colors and 1,024 shades of gray (10-bit per pixel; true 20-bit output)
- Single pass CD image captures 30-bit color without the need for prisms, filters or color lamps. This gives you superior images with outstanding reliability
- Includes full version Adobe Photoshop 3.0 and Kai's PowerTools SE
- 2400 dpi maximum scanning resolution (interpolated), with 600x1200 optical
- Support colors, grayscale, halftone, line art modes
- Built-in SCSI-II interface
- Scaling from 1% to 400% in 1% increments

$2999.99 #66132

VISTA-S8
6400 dpi, High Speed, Single Speed, Color Scanner
The new VISTA-S8 with its UltraView Technology produces smoother interpolation for sharp, clear images. Plus UMAX's own, MagicMatch color management technology provides accurate and vivid colors.
- Supports up to 8.5"x11" (reflective) and 8.5"x11.7" (transparent)
- SCSI 2 interface with cable included
- Single pass with single cold lamp technology
- Optical resolution of 800x4000 dpi
- Descreening, auto-density adjustment, filtering functions
- TWAIN and Asf compliant
- Includes Photoshop LE and OmniPage Direct

$869.99 #67757

UC1260
600 dpi Color Scanner
- Single pass CD image captures 30-bit color without the need for prisms, filters or color lamps. This gives you superior images with outstanding reliability
- Includes full version Adobe Photoshop 3.0 and Kai's PowerTools SE
- 2400 dpi maximum scanning resolution (interpolated), with 600x1200 optical
- Support colors, grayscale, halftone, line art modes
- Built-in SCSI-II interface
- Scaling from 1% to 400% in 1% increments

$989.99 #66137

ScanMaker IIHR
- 2400 dpi resolution (interpolated) - true 600x1200 optical resolution
- Maximum document size 8.5"x13.5"
- Includes a full version of Adobe Photoshop 3.0 and OmniPage Direct
- Apple ColorSync compatible
- Full grayscale scanning capability
- Optional transparency adapter and automatic document feeder

$1067.99 #64512

ScanMaker II
- 30-bit scanning mode recognizes more than one billion colors and 1,024 shades of gray (10-bit per pixel; true 20-bit output)
- Single pass CD image captures 30-bit color without the need for prisms, filters or color lamps. This gives you superior images with outstanding reliability
- Includes full version Adobe Photoshop 3.0 and Kai's PowerTools SE
- 2400 dpi maximum scanning resolution (interpolated), with 600x1200 optical
- Support colors, grayscale, halftone, line art modes
- Built-in SCSI-II interface
- Scaling from 1% to 400% in 1% increments

$2999.99 #66132

ScanMaker II
- Uses a three-pass scanning method to capture full 24-bit color or 256 shades of gray. Features 300 dpi horizontal, 600 dpi vertical resolution, with a maximum of 1200dpi x 1200dpi through interpolation. Includes Adobe Photoshop 3.0 LE, OmniPage Direct and scan module with Automatic Contrast Control and Display Matching System, making it a snap to get great looking images on the first try.

$747.99 #62974

ScanMaker III
- The ScanMaker III scans in 36-bit color, capturing images of up to 13 bits per RGB color channel. Scans up to 2400dpi for smoother, more precise color gradations, detailed highlights and rich shadows, accurate midtones and a full photographic dynamic range up to 3.4. Includes FULL version of Adobe Photoshop 3.0.

$497.99 #62974

$497.99 #60996

$2487.99 #64511

To Order, Call Toll Free
1-800-222-2808
MacMail Now Open 24 Hours!!

OFFER CODE: D532MG14

Creative Computers
MacMail Your Mac SuperSource
Anubis Professional

Anubis is the fastest, most reliable SCSI utility software available for the Macintosh. Anubis anticipates possible problems and corrects them on the fly, protecting you from disastrous disk crashes and other unanticipated errors that could bring your work to a screaming halt. Anubis gives you total control over all your SCSI storage devices. Anubis is compatible with virtually all SCSI disk mechanisms, including fixed disks, Syquest, Opticals (3.5" and 5.25") and fiptacs.

• Supports RAID levels 0 and 1 (mirroring/striping/spanning), including the ability to stripe data across both SCSI buses of the PowerMacintosh 8100 and Quadra 950.
• TurboMFM option allows faster writes to optical disks.

$79.99

CD AutoCache Professional

CD AutoCache™ offers you a simple and quick solution to push your CD-ROM drive to its maximum potential, increasing the performance of even the fastest drives on the market. CD AutoCache supports virtually all CD-ROM drives and formats including Kodak's Photo CD.

CD AutoCache monitors how your computer requests and uses data from CD-ROM disks and through a proprietary artificial intelligence algorithm automatically adjusts track cache and page sizes on the fly, keeping your CD-ROM drive running at its optimal performance level regardless of how a CD was mastered.

$44.99

PowerCard™ 601

Turn Your Macintosh LC, Performa and Quadra 470, 570, 605 and 630 series into a PowerMac.

PowerCard 601 brings Power Macintosh performance to Apple's latest family of entry-level Macs. Developed in partnership with Apple, this inexpensive PowerPC upgrade provides PowerMac performance for half the cost of a new machine. It is easy to install, and includes a 256K cache and System 7.5. And like the Power 601, the PowerCard 601 not only works with your current Mac; memory, it lets you run software on your Mac either as a PowerPC or 68K based machine.

$639.99

Turbo 601

Turn Your Macintosh Iici into a PowerMac!

Turbo 601 brings real Power Macintosh performance to your Iici in an easy to install PDS upgrade card. Based on award winning design of DayStar's Turbo 400, we've added a 66MHz PowerPC processor, Apple Macintosh ROMs and a 256K secondary cache.

$1198.99

PhotoMatic 2.0

PhotoMatic is the photo imaging assistant you were waiting for. It provides you with the ability to write and run scripts for Photoshop. Now you don't have to waste any more time doing those boring and time consuming repetitive tasks. Photomatic learns as you work, simply do what you usually have to do and Photomatic learns these steps and then performs them for you. It's as simple as that. And Photomatic can even run in the background from a remote terminal while you work on something else! "It really is a great time saving tool!"

$99.99

Studio Scan II

The Total Scanning Solution!

With the true optical resolution of Studio Scan II at 400x800 and interpolated to 2400, image enlargements are possible, and printed results are crisp and sharp. Studio Scan II has 30 Bit Color Scanning and 10 Bit Grayscale, with an 8.5"x14" scanning area. A complete bundle of software is included for Macintosh. FotoSnap is a one-click, no-nonsense, best-scanning-paper interface. Fochlook provides the more adventurous with expert scanning capabilities. Color correct output from your scanner is calibrated with white balance strips. Adobe Photoshop 3.0E completes the bundle, providing the facility for creative image manipulation. In addition, instant access to years of professional scanning experience is provided by Agfa's Publisher: CharisMac #68000

$869.99

Studio Scan II Transparency Adapter

Maximum transparency scanning area 8.5"x10". Includes FREE OmniPage Direct!

$389.99

Studio Scan

AGFA

A total scanning solution, Studio Scan comes complete with software ensuring consistent quality scanning, color control and image editing capabilities. Quality scans are a snap with FotoSnap scanning software. FotoSnap automatically determines and sets the scanner controls, and uses Agfa's Fochlook LE color management technology to ensure that the colors of your final oriented image matches the original. For the more experienced user, StudioScan also includes Fochlook scanning software which offers a range of user adjustable controls normally found in professional scanners. For both image editing, StudioScan includes Adobe Photoshop LE. • One Pass flat bed color scanner • True 300x800 dpi resolution and 2400 interpolated. • Max. scanning area 8.5"x14". • Optional Transparency module available

$679.99

Fax: 310-222-5800
Customer Service: 800-560-6800
International Orders: 310-787-4500
Mail: MacMall Order Dept., 2645 Maricopa St., Torrance, CA 90503-5144

MacMall is your SUPERSOURCE!!

If you are looking for a Macintosh peripheral or accessory and don't see it then give us a CALL! We do not want to carry anything we do not sell.

To Order, Call Toll Free
1 • 800 • 222 • 2808

Call today for your
FREE Catalog!!
The Aver Color 2400 is a scanner which maximizes the desktop personal computer into a working imaging tool. It is a three pass design, capable of scanning at an 11x14" area in 24-bit, 16.8 million colors with a maximum resolution of 2400 dpi. This translates into 180,000 pixels per square inch, a true benefit for image scanning. Bundled with Adobe Photoshop LE, OmniPage Direct OCR software and Art Scan Professional. The Aver 2400 has everything you need in an entry level color scanner with three times the specifications of the competition at a lower cost. SCSI 2 interface. $489.99

The ReLi 2412 Mac/TE is an excellent choice for desktop publishers and graphic artists. It is a single pass design, capable of scanning a 24-bit 8 1/2"x11" image. The 2412 Mac/TE maximum resolution translates into 360,000 pixels per square inch, which benefits anyone scanning color images and transparencies. Bundled with Adobe Photoshop LE, OmniPage Direct OCR software, Kai's PowerTools SE, Kai's PowerTools Tips and Tricks and ArtScan Professional. Transparency adapter not pictured. $789.99

The ReLi 4816 Mac/TE is an excellent choice for desktop publishers and graphic artists. It is a single pass design, capable of scanning a 24-bit 8 1/2"x11" image with a maximum of 16.8 million colors at a resolution of up to 4800dpi. The 4816 Mac/TE maximum resolution translates into 1,440,000 pixels per square inch. Exclusive to ReLi 4816 is its transparency adapter with an LCD light source built in to the scanner's cover, which provides even more flexibility for the graphics professional. Bundled with Adobe Photoshop 3.0, OmniPage Direct OCR, Kai's PowerTools and Kai's PowerTools Tips & Tricks and ArtScan Professional. Transparency adapter not pictured. $979.99

The ReLi 4830 Mac/TE is an excellent choice for desktop publishers and graphic artists. It is a single pass design, capable of scanning a 11x14" image into a 24-bit, 16.8 million color image with a maximum resolution of 4800dpi. The ReLi 4830 Mac/TE maximum resolution translates into 1,440,000 pixels per square inch. Bundled with Adobe Photoshop 3.0, OmniPage Direct OCR software, Kai's PowerTools, Kai's PowerTools Tips & Tricks and ArtScan Professional. Transparency adapter not pictured. $1649.99

The ReLi 9612 Mac/TE offers the extra power ideal for PrePress use and the graphics professionals. It is a single pass design, capable of scanning a 24-bit, 8 1/2"x11 1/2", 16.8 million color image with optical resolution of 1200dpi. Includes transparency adapter for up to 8"x10" transparencies. Bundled with Adobe Photoshop 3.0, OmniPage Direct OCR software, Kai's PowerTools, Kai's PowerTools Tips & Tricks and ArtScan Professional. Transparency option not pictured. Document loader pictured is optional. $1469.99

Requirements:
- Macintosh
- 25MHz or better CPU
- 8MB RAM
- 80MB free hard drive space
- Macintosh OS 7.6 or higher

To Order, Call Toll Free
OFFER CODE: D532MG14

1-800-222-2808

MacMall Now Open 24 Hours!!
3M CD Recordable Disks

CD-R from 3M leads a new era in data recording, storage and distribution. CD-R offers high reliability, low error rates, random access to data, and the ability to store many different forms of data such as audio, video, graphics and text. You can produce your own discs when you need them, in the quantities you desire right at your desktop. You are in complete control of the whole process. The CD-R supports both standard and double speed recording drives, so its possible to finish a disc in less than an hour. And they play in standard CD-ROM or CD Audio players. 3M CD-Rs look like traditional CD-ROMs except they are gold! Manufactured with five layers: a clear, polycarbonate substrate that forms the bulk of the disc, a recording layer, a gold reflector layer and a protective sealcoat. And like CD-ROM, once recorded, they are read-only media.

C DR 650/74 CD Recordable Disk, 74 minutes, 650MB ........... $15.99 #68189
C DR 550/63 CD Recordable Disk, 63 minutes, 550MB ........... $14.99 #68190

Pathways to Darkness
The closest thing to Virtual Reality ... Without a helmet!

You'll explore on ancient pyramid on your mission to save the world from a hostile alien demon. Explore miles of catacombs through a smooth sc rolling, first-person interface. and largescreens. s9999 and output presentations ta video projectors, VCRs and video using standard off the shelf software and the ability la store many different form of data such as audio, video, graphics and text. You can produce your own discs when you need

CDR 550/63 CD Recordable Disk, 63 minutes, 550MB ........... $14.99 #68190

Marathon
From the makers of the award-winning Pathways into Darkness comes the next step in 3D, texture-mapped action. Onboard the intergalactic colony ship Marathon, things have gone horribly wrong. A science officer on the mission, you are the last hope for defending the ship as hostile and intelligent aliens prepare to destroy every living thing. A wide array of advanced weaponry and surrealistic settings provide a unique experience. Texture mapped floors and ceilings, 100's of miles of terrain over multiple elevations, all depicted in high resolution graphics. Functionally designed interface, and a digital soundtrack heighten the intensity. Networkable up to 8 players.

Winner 1993 Macworld Game Hall of Fame!
$39.99 #65562

Nisus Writer
Powerful Document Processing for the Macintosh

Nisus Writer is more than a word processor. It gives you more control over text editing with style sheets, tool bars, keyboard shortcuts, spell checking, a thesaurus, mail merge and glossary. Language Key takes advantage of WordScript™ by allowing you to write in English and in many other languages, including Arabic, Hebrew, Japanese and Russian, all in the same document. Nisus makes switching languages as easy as choosing fonts, like no other program in the world. Plus, include graphics into your document with ease. A full graphics bar allows you to create simple or complex graphics in up to 256 colors. Nisus Writer, for many projects you'll never need a separate page layout or drawing application again. See, Hear, Read and Speak your message with the capability to add movies within your documents and annotate them with sound. Nisus Writer is everything you need in one outstanding application!

Nisus Writer 4.0 ..................... $249.99 #68187
Nisus Writer 4.0 with Language Key ..................... $299.99 #68195

MacMall has all the latest PowerMac Native Software!!

To Order, Call Toll Free
1 • 800 • 222 • 2808
Fax: 310-222-5800
International Orders: 310-787-4500
Mail: MacMall Order Dept., 2645 Mariposa St., Torrance, CA 90503-5144

Key takes advantage of WordScript™ by allowing you to write in English and in many other languages, including Arabic, Hebrew, Japanese and Russian, all in the same document. Nisus makes switching languages as easy as choosing fonts, like no other program in the world. Plus, include graphics into your document with ease. A full graphics bar allows you to create simple or complex graphics in up to 256 colors. Nisus Writer, for many projects you'll never need a separate page layout or drawing application again. See, Hear, Read and Speak your message with the capability to add movies within your documents and annotate them with sound. Nisus Writer is everything you need in one outstanding application!

Nisus Writer 4.0 ..................... $249.99 #68187
Nisus Writer 4.0 with Language Key ..................... $299.99 #68195

Fastest Delivery Service Guarantee
“We deliver your order by 10:30am THE NEXT DAY or pay for your shipping”**

OUR POLICIES $5.00 FedEx® offers applies to continental U.S. orders, orders over 10lbs incur extra charges. Call customer service at 800-560-6500 or tech support at 800-740-0202 if you have a question or problem with any order. No packages will be accepted with out a Return Authorization Number from Customer Service. All returned products must be in original condition with all packaging and registration card, within 30 days of original invoice date. For International orders, please include a photocopy of the front and back of your credit card. Minimum International order is $50 Canada, $100 Foreign, $50 in U.S. Apple and Hewlett Packard products cannot be shipped outside of the U.S.A. International orders shipped via DHL, UPS Los Angeles. Apple, the Apple logo and Macintosh are registered trademarks of Apple Computer, Inc. While we do our best to check for mistakes, occasionally they do occur. Prices and specs subject to change without notice. ©1995 MacMall

We deliver your order by 10:30am THE NEXT DAY or pay for your shipping”**

Limited to in-stock orders placed before 8pm EST not requiring configuration and delivered to destinations within the contiguous U.S. by FedEx® Next day not available to remote area. Limited to 10 lbs.

Accelerated for Power Macintosh

Converter for Macintosh II RGB to NTSC/PAL output

The WTI-VideoMax™ allows users to create video tapes on standard formats such as VHS, 8mm, Hi-8, etc. Users can mix Macintosh computer graphics and video using standard all the shell software and output presentations to video projectors, VCR's and large screens.

$99.99 #67579

Circle 131 on reader service card
Quantum

The Quantum Daytona Series are high capacity, 2.5-inch hard drives, designed for standalone use, with outstanding capacity, speed, and reliability. They are ideal for applications where high capacity, performance, and reliability are crucial.

**Daytona 2.5" Portable Drives**
- 256MB, 17ms, $259, 399
- 512MB, 17ms, $499, 699

**LPS Series**
- Value/Entry Level
  - 270MB, 14ms, $185, 245

**EMPIRE Series**
- Performance/Capacity
  - 100GB, 9.5ms, $799, 859
  - 200GB, 9.5ms, $1099, 1099

**GRAND PRIX Series**
- Performance/Capacity
  - 365MB, 11ms, $209, 269
  - 540MB, 11ms, $255, 315
  - 720MB, 11ms, $439, 599

**CD-ROMs**
- ClubMac 2X CD-ROM
  - Best Speed CD-ROM Reader
  - 300x/6x data transfer rate
  - 700MB average access time
  - 64KB buffer
  - Auto Calibration
  - LED lights, height/track jack and ECC locks
  - Incl. PicoCD Multimedia software
  - Incl. 24-month guarantee
  - $119, 2-year warranty

**NEC**
- NEC MultiSpin 4x CD-ROM
### Monitors, Graphic Cards & Multimedia

#### New Products

- **NEW PRODUCTS**

#### Monitors

<table>
<thead>
<tr>
<th>Model</th>
<th>Display Size</th>
<th>Resolution</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PressView 217 Display System</td>
<td>21.7&quot;</td>
<td>1280 x 1024</td>
<td>$1299</td>
</tr>
<tr>
<td>SuperMatch 21&quot; XL Monitor</td>
<td>21&quot;</td>
<td>1280 x 1024</td>
<td>$1299</td>
</tr>
<tr>
<td>IntellColor Display 20&quot;</td>
<td>20&quot;</td>
<td>1024 x 768</td>
<td>$899</td>
</tr>
<tr>
<td>SuperMatch 17&quot; PRO</td>
<td>17&quot;</td>
<td>1024 x 768</td>
<td>$189</td>
</tr>
</tbody>
</table>

### VideoVision Studio 2.0

**With MPEG compression**

<table>
<thead>
<tr>
<th>Model</th>
<th>Resolution</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo 60</td>
<td>640 x 480</td>
<td>$1899</td>
</tr>
<tr>
<td>Turbo 60</td>
<td>640 x 480</td>
<td>$1799</td>
</tr>
<tr>
<td>Turbo 60</td>
<td>640 x 480</td>
<td>$1599</td>
</tr>
</tbody>
</table>

### Multimedia

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>StudioScan II</td>
<td>Easy image enhancement</td>
<td>$859</td>
</tr>
<tr>
<td>StudioScan</td>
<td></td>
<td>$679</td>
</tr>
<tr>
<td>StudioScan II Transparent Unit</td>
<td></td>
<td>$379</td>
</tr>
<tr>
<td>StudioScan Transparency Unit</td>
<td></td>
<td>$379</td>
</tr>
<tr>
<td>AGFA scanners</td>
<td></td>
<td>$285</td>
</tr>
</tbody>
</table>

### Scanners

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerScan 302 Printer</td>
<td>Printer</td>
<td>$299</td>
</tr>
<tr>
<td>PowerScan 304 Printer 600 dpi</td>
<td>Printer</td>
<td>$299</td>
</tr>
<tr>
<td>PowerScan 306 Printer 600 dpi</td>
<td>Printer</td>
<td>$299</td>
</tr>
<tr>
<td>PowerScan 308 Printer 600 dpi</td>
<td>Printer</td>
<td>$299</td>
</tr>
</tbody>
</table>

### Printers

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hewlett Packard</td>
<td></td>
<td>$1179</td>
</tr>
<tr>
<td>HP DeskJet 6910</td>
<td></td>
<td>$1499</td>
</tr>
<tr>
<td>HP DeskJet 6920</td>
<td></td>
<td>$1339</td>
</tr>
<tr>
<td>HP DeskJet 6920</td>
<td></td>
<td>$1899</td>
</tr>
<tr>
<td>HP DeskJet 6940</td>
<td></td>
<td>$1899</td>
</tr>
</tbody>
</table>

### Scanners

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerScan 302 Printer</td>
<td>Printer</td>
<td>$299</td>
</tr>
<tr>
<td>PowerScan 304 Printer 600 dpi</td>
<td>Printer</td>
<td>$299</td>
</tr>
<tr>
<td>PowerScan 306 Printer 600 dpi</td>
<td>Printer</td>
<td>$299</td>
</tr>
<tr>
<td>PowerScan 308 Printer 600 dpi</td>
<td>Printer</td>
<td>$299</td>
</tr>
</tbody>
</table>

### Acceleration

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerPro Accelerators</td>
<td></td>
<td>$1179</td>
</tr>
<tr>
<td>Turbo 400 Accelerators</td>
<td></td>
<td>$1299</td>
</tr>
</tbody>
</table>

### Networking

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>10Base-T/100Base-T</td>
<td></td>
<td>$109</td>
</tr>
<tr>
<td>100Base-TX</td>
<td></td>
<td>$109</td>
</tr>
<tr>
<td>FastEthernet</td>
<td></td>
<td>$109</td>
</tr>
<tr>
<td>Gigabit Ethernet</td>
<td></td>
<td>$109</td>
</tr>
<tr>
<td>Other Gigabit Options</td>
<td></td>
<td>$109</td>
</tr>
</tbody>
</table>

### NEW PRODUCTS

- **NEW PRODUCTS**

### CALL FOR FREE CATALOG

**NEW SALES HOURS**

- **NEW SALES HOURS**

### ClubMac

- **ClubMac**

---

*Circle 96 on reader service card*
We’ll Give You Expert Advice,
But, If You’d Rather

Macintosh™ Systems

$3649
Power Macintosh 8100/80
AV with CD ROM Drive
16MB RAM, 500 MB HD. includes
Ethernet & FPU.
• Add SuperMac 21TX display.
Thunder 24 24bit graphics
accelerator, Extended Keyboard &
System 7. Complete System Price $4849

Whether you need a system for
high-end color publishing,
professional pre-press
applications, desktop design
and production or simply business
productivity – Express Direct can
configure a Mac System
that’s right for your specific job
and right for your budget. And
remember, all Macs aren’t
created equal! At Express Direct
we do more than take orders and
ship boxes. We install the
memory, video card and system
software. Then we test every
System so all you need to do is
plug it in! And only Express Direct
gives you Toll-Free Technical
Support with every Mac!

We stock a complete line of quality products from all of the above manufacturers & more.

18007650020

Express Hours (CST) M-Th 8am-7pm, Fri 8am-6pm • 24hr Fax • Tech Support Hotline: 1-800-236-3059

Apple, the Apple logo, Macintosh, Macintosh Quadra and Power Macintosh are trademarks of Apple Computer, Inc. Prices are subject to change without notice. A 2% exchange applies to American Express purchases. Returns or exchanges may be subject to a 15% restocking fee plus return shipping. Call for MTA return requests. Software, unless defective, cannot be returned other than those opened. All warranties are as stated by Apple’s authorized Apple products sold by Express Direct will be honored by Express Direct or its authorized agents only. All other manufacturer warranties apply. * Extended Service Plans are optional and available for an additional cost. Call for complete details.
Outstanding Service, and Support.

We'll give it to you straight.

When it comes to product knowledge and understanding the needs of graphic professionals - nobody even comes close to Express Direct. Not the other mail-order companies, not the superstores, not even your local dealer.

When you call us - you'll talk with an expert. Someone who's done their homework, knows the product, knows what they're talking about. Not an order-taker, like you get with the other mail-order companies.

We carry only top-notch products from the industry's best manufacturers. No garbage. You demand quality and so do we. What's more, our strict criteria for selecting products means we always get the lowest price - directly from the manufacturer. So nobody can give you a better value than Express Direct.

But that's just the beginning. With customer service and technical support that's the best in the industry, we make it our business to take care of you. All this is just a free phone call away. So, call Express Direct today. You're going to love working with us!

2720 N. Paulina Ave.
Chicago, IL 60614

Call to receive a FREE catalog!
Buy the Best: APS Q 730!

**APS Q 730**

**Price:** $329.95 *

The APS Q 730 is an outstanding performer that gives all other competing specifications of the APS Q 540 plus the added bonus of more Megas for your money! Featuring the industry’s first two-platter 7.3MB drive. This is a great drive for any user.

**Benefits**
- SCSI Sentry II!
- Don’t be confused by inferior knock-offs. Only APS SCSI Sentry gives you all these features.

**Stop SCSI Voodoo With**

**SCSI Sentry & SCSI Sentry II!**

**SCSI Sentry**

**Price:** $79.95

**SCSI Sentry II**

**Price:** $99.95

Get Your Drive Today from the Award Winner...
APS Technologies

---

**APS HARD DRIVES**

For your Mac or Power Mac

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Internal</th>
<th>$R2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS Q 250</td>
<td>256MB</td>
<td>Quantum 256</td>
<td>$169.95</td>
</tr>
<tr>
<td>APS Q 540</td>
<td>512MB</td>
<td>Quantum 512</td>
<td>$249.95</td>
</tr>
<tr>
<td>APS Q 730</td>
<td>730MB</td>
<td>Quantum 730</td>
<td>$329.95</td>
</tr>
<tr>
<td>APS MS 4110</td>
<td>1010MB</td>
<td>Quantum 1110</td>
<td>$599.95</td>
</tr>
<tr>
<td>APS ST 3.0</td>
<td>1010MB</td>
<td>Quantum 1110</td>
<td>$599.95</td>
</tr>
<tr>
<td>APS D 5.0</td>
<td>1020MB</td>
<td>Quantum 1120</td>
<td>$699.95</td>
</tr>
<tr>
<td>APS Q 1020</td>
<td>1020MB</td>
<td>Quantum 1120</td>
<td>$699.95</td>
</tr>
<tr>
<td>APS Q 2.0</td>
<td>2060MB</td>
<td>Quantum 2060</td>
<td>$1099.95</td>
</tr>
<tr>
<td>APS MS 2.0</td>
<td>2160MB</td>
<td>Quantum 2160</td>
<td>$1199.95</td>
</tr>
</tbody>
</table>

---

**APS Technologies**

1-800-874-1425 APS Technologies 6131 Deramus, Kansas City, MO 64110

---

*A S Clari ty of equipment warranty.*

$ External Case is Special Full Height Deep Internal Price $99.95...

Full Height cases include SCSI Sentry FREE!

Internal Prices for Quantum, 600 and 730 are not available.

---

**ARRAID**

Disk Array System from APS are high performance, easy-to-install add on disk array storage solutions. ARR4AD provides the power, scalability and plug-and-play convenience Maintenance experts reports. Available in standard or stripped configurations up to 16GB, with a year warranty.

ARRAID is RAID Made Easy!

---

**ARRAID**

**Price:** $1599.95

**ARRAID**

**Price:** $2899.95

**ARRAID M1/5000**

**Price:** $1599.95
Quad Speed CD ROM!

Join the Multimedia Revolution Today with the APS T 3501 Quad Speed CD ROM!

For less than the cost of a dot com, you get 4x performance (that’s right, quad speed). How fast is that? Try an average access time of 149 ms, and sustained transfer rates as high as 514KB/sec. Remember, you also get the best-engineered enclosure in the industry. Full metal shielding, stackability and APS Digital Active Termination are a combination you can’t find on comparable drives at any price.

CD ROM

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS T 3501</td>
<td>89MB</td>
<td>$299.95</td>
</tr>
<tr>
<td>APS SQ 5200</td>
<td>8MB</td>
<td>$799.95</td>
</tr>
<tr>
<td>APS SQ 5200</td>
<td>4MB</td>
<td>$499.95</td>
</tr>
<tr>
<td>APS SQ 3270</td>
<td>2MB</td>
<td>$499.95</td>
</tr>
</tbody>
</table>

**APS InfoFax**

Call our 24-hour InfoFax line today to receive a complete list of CD titles. Just call 1-800-374-5502 and request document ID #6001.

APS SQ 5200

"The quick, well constructed APS SQ 5200 tops our list of 200MB SyQuest drives. The drive has a good price as well as bells and whistles such as Digital Active Termination and APS provides excellent tech support."

— MacUser February 1995

**MAGNETO OPTICAL**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS 230 MO</td>
<td>5MB</td>
<td>$699.95</td>
</tr>
<tr>
<td>APS 1.3 MO</td>
<td>2MB</td>
<td>$199.95</td>
</tr>
</tbody>
</table>

**POWERBOOK DRIVES**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS T340</td>
<td>56MB</td>
<td>$449.95</td>
</tr>
<tr>
<td>APS 0341</td>
<td>32MB</td>
<td>$399.95</td>
</tr>
<tr>
<td>APS T 350</td>
<td>50MB</td>
<td>$449.95</td>
</tr>
</tbody>
</table>

**POWERBOOK STUFF**

**APS INTERNATIONAL**

Global Storage Resource
APS Intl. Sales Line (816) 920-6109
On par with most of the largest.
All APS DAT drives are engineered to be compatible with SyQuest drives.

**DAT**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS HyperDAT</td>
<td>5MB</td>
<td>$799.95</td>
</tr>
<tr>
<td>APS HyperDAT</td>
<td>10MB</td>
<td>$999.95</td>
</tr>
</tbody>
</table>

**POWERBOOK STUFF**

**APS SCSI DOC w/ PowerMerge Lite**

DiskSavvy 38-30 PowerBook SCI is a powerful backup and compression utility that includes a backup adapter for PowerBook, and compression power. For PowerMerge Lite, a backup utility with every APS SCSI DOC.

**I-800 874-1428**

Circle 62 on reader service card
Welcome to Spin Peripherals.
Spin supplies the best drives available so your business moves faster than the world around you. We deliver the speed and dependability you need, and our exceptional customer service team will be there when it seems the world is about to catch up. But don’t worry, it won’t.

Spin CD-ROM Drives
Spin’s 2x and 4x Multisession CD-ROM drives deliver the excitement of multimedia to your desktop. Enhance either drive with Spin’s CD-ROM bundle, including speakers, headphones, CD-ROM titles and more.
Spin 2x Drive with Bundle $299
Spin 2x CD-ROM Drive $199
Spin 4x Drive with Bundle $399
Spin 4x CD-ROM Drive $299

SmartTerm
The latest in Macintosh termination technology, SmartTerm’s BCR Active Termination ensures data integrity and maximizes SCSI performance. Online status indicators monitor activity and isolate system errors, while gold connectors provide excellent conductivity. SmartTerm is a smart investment for any Macintosh user.
SmartTerm Active Terminator $65

DAT Drives
Before disaster strikes, secure your valuable data with a Spin DAT drive. The low cost 3100 stores 2GB while the 3400 packs up to 6GB for remote backups and large audio, video and graphics files. ALL DAT drives include one tape cartridge and Retrospect™ for easy, complete backups.
Spin 3100 (DDS) $799
Spin 3200 (DDS-BC) $799
Spin 3400 (DDS-2) $799

Unsurpassed remarkable drive reliability and performance.

PowerBook Drives
Spin 2.5" drives are fast, easy to install, and offer the capacity you need when you are on the road.
Quantum 127MB $219
Quantum 170MB $279
Quantum 256MB $299
Quantum 514MB $469

The Spin 1021:
"The fastest drive... a killer."
16MB-1.6GB category

Bernoulli Drives
Based on the new Bernoulli mechanism, Spin’s 230MB cartridge drive continues the Bernoulli tradition of rugged dependability while creating a new performance standard for cartridge drives. With a five year warranty on drives and cartridges, the 230MB drive features BCR Active Termination for increased reliability and backward compatibility with older Bernoulli cartridges.
Bernoulli 230MB $399 Cartridge $89

Optional Drives
Using laser and magnetic technology, Spin 300 drives keep your valuable data secure. Spin’s 3.5" Olympus 300MB and 5.25" NEC 1.3GB optical drives set the standard for speed and capacity. Great for backups, archiving, and as a secondary drive. One cartridge included.
Olympus 300MB $899 Cartridge $39
NEC 1.3GB $1999 Cartridge $85
Maxoptix T3 1.3GB $2799 Cartridge $85

Included with all DAT drives.

Order Bernoulli Media Overnight!

$5.00 OVERNIGHT SHIPPING!
Spin will ship any order to you overnight for just $1.00 per pound with a $5.00 minimum. If your order is over 21 pounds

ORDER DIRECT: 1-800-466-1200
The Spin 2149: "The second fastest drive... and costs less."

1.7GB-2.8GB category

Includes Red Line! CD software, featuring state-of-the-art caching technology!

Complete multimedia systems as low as $299!

Multimedia Bundles

Multimedia Entertainment! Our 2x CD-ROM drive offers the most affordable solution, while our new 4x rates by older drives. Both are Multisession and include DCR Active Termination, stereo RCA jacks, and Red Line! CD software for increased speed. The Bundle contains speakers, headphones, Grolier's Encyclopedia, Oceans Below, and more!

Spin 2x Drive with Bundle $299
Spin 4x Drive with Bundle $399

Hard Drives

Our external Tornado drives boast a 80 watt power supply, DCR Active Termination, a front mounted power switch, and interlocking feet for stable stacking. Internal drives take minutes to install. Drives over 1GB include RAIDLine! striping/mirroring software.

<table>
<thead>
<tr>
<th>CAPACITY</th>
<th>INTERNAL</th>
<th>EXTERNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spin 1021 1.0GB</td>
<td>$599</td>
<td>$799</td>
</tr>
<tr>
<td>Spin 2149 2.1GB</td>
<td>$1199</td>
<td>$1299</td>
</tr>
<tr>
<td>Quantum 365MB</td>
<td>$209</td>
<td>$309</td>
</tr>
<tr>
<td>Quantum 540MB</td>
<td>$259</td>
<td>$369</td>
</tr>
<tr>
<td>Quantum 730MB</td>
<td>$329</td>
<td>$429</td>
</tr>
<tr>
<td>Quantum 1.0GB</td>
<td>$599</td>
<td>$699</td>
</tr>
<tr>
<td>Quantum 1.4GB</td>
<td>$859</td>
<td>$959</td>
</tr>
<tr>
<td>Quantum 2.1GB</td>
<td>$1199</td>
<td>$1299</td>
</tr>
<tr>
<td>Seagate 2.0GB</td>
<td>$1399</td>
<td>$1499</td>
</tr>
</tbody>
</table>

RAIDLine! Array Software

Free with hard drives over 1GB RAIDLine! doubles your throughput, writing to 2 drives simultaneously. Striping (RAID Level 0) provides unparalleled speed for all applications, including video and Photoshop™. Mirroring (RAID Level 1) is perfect for server applications, creating redundant disks automatically so that your valuable data is always safe.

SyQuest Drives

Spin SyQuest™ 3.5" and 5.25" removable drives accommodate your expanding storage needs without slowing you down. The new 200MB and 250MB continue the SyQuest reputation for convenience and reliability at higher speed and capacity. Small, lightweight cartridges are easy to transport and store.

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Cartridge Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SyQuest 44MB</td>
<td>$199</td>
</tr>
<tr>
<td>SyQuest 44/88MB</td>
<td>$299</td>
</tr>
<tr>
<td>SyQuest 200MB</td>
<td>$409</td>
</tr>
<tr>
<td>SyQuest 270MB</td>
<td>$429</td>
</tr>
</tbody>
</table>

ATTO Boards

Video, prepress and other storage-intensive applications benefit substantially from these SCSI-2 BusMaster accelerators that parallel process with the Mac's CPU. The FAST Silicon Express II accelerates throughput by up to 80%, while the FAST/WIDE Silicon Express IV uses RISC technology to attain a 100% increase.

SE II with RAIDLine! $795
SE II with Drive Purchase $649
SE IV with RAIDLine! $1295
SE IV with Drive Purchase $1049

RAIDLine! and Super Burner trademarks of Syquest Technologies. All other company and product names are trademarks or registered trademarks, and are the property of their respective companies.

The best products. Reasonable overnight shipping. Overall value. So go ahead, take a Spin and enjoy.

Toll Free Tech Support

30-Day Money-Back Guarantee

FAX US AT: 1-617-630-1201

ORDER DIRECT: 1-800-466-1200

Circle 248 on reader service card
Magic Optical Drives
The best in Macintosh storage

Magic 230MB $749
Reads and writes 128MB & 230MB media at full speed. 2 year warranty.
128 MB Cartridges $24
230 MB Cartridges $44

Magic 1.3GB $1999 Turbo
5.25 inch storage solution. MacUser says: "How can you not try it?"
1.3 GB Cartridges $89

Magic PowerClock™
Power Mac Accelerator

Take your Power Mac to the limit. PowerClock Power Mac accelerators increase your CPU performance by up to 40%. Total compatibility. User-installable in seconds with fail-safe instructions. Clips in place. 30 Day MBG.

80/84 MHz 6100 $129
80/84 MHz 6115 $129
80/84 MHz 7100 $129

1-800-347-1942
512-892-4070 Fax. 512-892-4455
Internet: sales@max.dgr.com

MacProducts USA
4544 S. Lamar Blvd., Suite 100
Austin, Texas 78745
## HARD DRIVES

**The first 2Gig drive under $1000**

**Unbelievable!!** Connor 2.1Gig

### Fujitsu

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Size</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>530MB**</td>
<td>3.5&quot;</td>
<td>13MS</td>
<td>$279</td>
<td>$399</td>
</tr>
<tr>
<td>1.2Gig</td>
<td>3.5&quot;</td>
<td>8.5MS</td>
<td>$575</td>
<td>$635</td>
</tr>
</tbody>
</table>

### Seagate

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Size</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2Gig</td>
<td>3.5&quot;</td>
<td>9MS</td>
<td>ST31200N</td>
<td>$645</td>
</tr>
<tr>
<td>2.5Gig</td>
<td>3.5&quot;</td>
<td>8MS</td>
<td>Barracuda 2</td>
<td>$1295</td>
</tr>
<tr>
<td>2.5Gig</td>
<td>3.5&quot;</td>
<td>9MS</td>
<td>ST21450W</td>
<td>$1749</td>
</tr>
<tr>
<td>4.3Gig</td>
<td>5.25&quot;</td>
<td>10MS</td>
<td>Elite 3</td>
<td>$1999</td>
</tr>
<tr>
<td>4.1Gig</td>
<td>3.5&quot;</td>
<td>8MS</td>
<td>BARRACUDA 4</td>
<td>$2335</td>
</tr>
<tr>
<td>9.0Gig</td>
<td>5.25&quot;</td>
<td>11MS</td>
<td>Elite 9</td>
<td>$3985</td>
</tr>
</tbody>
</table>

### Quantum

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Size</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0Gig</td>
<td>3.5&quot;</td>
<td>9MS</td>
<td>E1080S</td>
<td>$645</td>
</tr>
<tr>
<td>2.2Gig</td>
<td>3.5&quot;</td>
<td>9.5MS</td>
<td>E2160S</td>
<td>$1099</td>
</tr>
<tr>
<td>4.3Gig</td>
<td>3.5&quot;</td>
<td>9MS</td>
<td>E4207S</td>
<td>$2195</td>
</tr>
</tbody>
</table>

### Model

**5 YEAR WARRANTY**

**CAPACITY**

- 530MB**
- 1.2Gig

**Access**

- 13MS
- 8.5MS

**Internal**

- $279
- $575

**External**

- $399
- $635

### Model

**CAPACITY**

- 330MB**
- 545MB**
- 1.0Gig
- 2.1Gig
- 4.2Gig

**Access**

- 12MS
- 12MS
- 9MS
- 9MS
- 9MS

**Size**

- 3.5"
- 3.5"
- 3.5"
- 3.5"
- 3.5"

**Model**

- CFA340S
- CFA450S
- CFP1060S
- CFP2105S
- CFP4207S

**External**

- $275
- $450
- $635
- $985
- $2195

### Powerbooks

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Size</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>240MB</td>
<td>14MS</td>
<td>$315</td>
<td>$415</td>
<td></td>
</tr>
<tr>
<td>340MB</td>
<td>14MS</td>
<td>$385</td>
<td>$485</td>
<td></td>
</tr>
<tr>
<td>514MB</td>
<td>14MS</td>
<td>$445</td>
<td>$545</td>
<td></td>
</tr>
</tbody>
</table>

### CD ROMS

<table>
<thead>
<tr>
<th>CD ROMS</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEAC CD-50</td>
<td></td>
<td>$275</td>
<td></td>
</tr>
<tr>
<td>Yamaha 4 speed recorder</td>
<td>$4895</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ricoh 1000 CD-Recorder</td>
<td>$2195</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Monitors

<table>
<thead>
<tr>
<th>Dataxonix PEREOS</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Mobile storage Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runs on 2 AA Batteries for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 months, 3 hours.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.37&quot; x 4&quot; x 1.87&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping BOS version.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Optical Drives

**230MB EXTERNAL $799**

**Includes ONE CARTRIDGE**

### Conner

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Model</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>128MB</td>
<td>Ricoh</td>
<td>30MS</td>
<td>$599</td>
<td></td>
</tr>
<tr>
<td>230MB</td>
<td>IBM</td>
<td>30MS</td>
<td>$849</td>
<td></td>
</tr>
<tr>
<td>230MB</td>
<td>Fujitsu</td>
<td>30MS</td>
<td>$799</td>
<td></td>
</tr>
<tr>
<td>230MB</td>
<td>Olympus</td>
<td>28MS</td>
<td>$895</td>
<td>4200 RPM</td>
</tr>
<tr>
<td>650MB</td>
<td>Sony</td>
<td>40MS</td>
<td>$999</td>
<td></td>
</tr>
<tr>
<td>1.3GB</td>
<td>NEC</td>
<td>32MS</td>
<td>$1935</td>
<td></td>
</tr>
<tr>
<td>1.3GB</td>
<td>Sony</td>
<td>40MS</td>
<td>$1999</td>
<td></td>
</tr>
<tr>
<td>1.3GB</td>
<td>Ricoh Turbo</td>
<td>19MS</td>
<td>$2175</td>
<td></td>
</tr>
</tbody>
</table>

### SEATAK

**DC DAT 2GIG External**

**ONLY $769**

**Includes Tape + Retrospect Software**

### RAID Systems

**From 1 to 84 GIG**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Model</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>250MB</td>
<td>Tandberg TDC 3660</td>
<td>DC6250</td>
<td>$445</td>
<td>$499</td>
</tr>
<tr>
<td>1.3-2GIG</td>
<td>DC DAT</td>
<td>4MM</td>
<td>$709</td>
<td>$769</td>
</tr>
<tr>
<td>1.3-4GIG</td>
<td>DC DOUBLE DAT</td>
<td>4MM</td>
<td>$839</td>
<td>$899</td>
</tr>
<tr>
<td>4.0-8GIG</td>
<td>Connor 4326 DDS-2</td>
<td>4MM</td>
<td>$1089</td>
<td>$1149</td>
</tr>
<tr>
<td>4.0-8GIG</td>
<td>Sony 5200 DDS-2</td>
<td>4MM</td>
<td>$989</td>
<td>$1049</td>
</tr>
<tr>
<td>4.0-8GIG</td>
<td>Sony 5000 DDS-2</td>
<td>4MM</td>
<td>$1089</td>
<td>$1189</td>
</tr>
<tr>
<td>1.3-5GIG</td>
<td>Exabyte 8205</td>
<td>8MM</td>
<td>$1539</td>
<td>$1599</td>
</tr>
<tr>
<td>1.3-10GIG</td>
<td>Exabyte 8505</td>
<td>8MM</td>
<td>$2179</td>
<td>$2259</td>
</tr>
<tr>
<td>7.0-14GIG</td>
<td>Exabyte 8505XL</td>
<td>8MM</td>
<td>$2255</td>
<td>$2355</td>
</tr>
</tbody>
</table>

### Tape Backup

**DC DAT 2GIG External**

**ONLY $769**

### Media

**All-Bay Rack**

<table>
<thead>
<tr>
<th>Media</th>
<th>Access</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>128MB</td>
<td>Optical</td>
<td>60M Tape</td>
<td>$10</td>
</tr>
<tr>
<td>230MB</td>
<td>Optical</td>
<td>90M Tape</td>
<td>$12</td>
</tr>
<tr>
<td>650Gig</td>
<td>Optical</td>
<td>112M Tape</td>
<td>$18</td>
</tr>
<tr>
<td>1.3Gig</td>
<td>Optical</td>
<td>$105</td>
<td>$120M Tape</td>
</tr>
</tbody>
</table>
**QuickCam**
- The first truly affordable way to shoot digital video and capture memories
- Direct digital imaging using fast frame rate for great picture quality
- QuickTime movies and still pictures up to 320x240 pixels
- Works on all Macintoshes

**Adobe Photoshop 3.0**
- Only $554

**StudioScan II**
- StudioScan II is three times faster than the StudioScan
- Up to 64 times more color than other scanners in its class
- Supports scanning documents and images as large as 9 x 12 inches and up to 2400 dpi through software interpolation

**Connectix**
- Only $665

**NEC MultiSync XE Monitors**
- Flat square technology CRT
- Offers superior focus across the entire screen
- Provides ample room to display large screen business and multimedia applications

**Why get slower ground shipping?**

**Call MAC BARGAINS before you buy!**

1-800-614-9091

**Overnight Delivery Only $600 and up**

Credit cards are not accepted and the products shipped. Product prices and offers are subject to change without notice. Prices and availability subject to change without notice. Adherence to this policy is strictly enforced. All returns are subject to approval. **Discount Primes** are not available on select items. **Adherence to this policy is strictly enforced. All returns are subject to approval.**
QuarkXPress 3.31 (68K) $559
QuarkXPress 3.31 (PPC) $629
Ask about our wide selection of QuarkXTensions

TI microLaser Pro PS23 $1198
8 pages per minute • 600 dpi • 6 mb RAM
1MB TI Upgrade $45 • 2MB $159 • 4MB $278

PowerBook 540c $3999
Call for Complete Macintosh System Pricing

UC630 LE..................................... 588
Vista S6 LE.................................. 749
UC640 MacPro..............................885
UC1260 MacPro..............................1129
Transparency Adapter...................... .449
Document Feeder............................409
PowerLook...................................3165

GLOBAL VILLAGE COMMUNICATION

Teleport Mercury..................................269
Teleport Gold.....................................218
Teleport Gold II..................................129
PowerGold Gold..................................242
PowerGold Mercury..............................315
PowerGold Mercury P5000......................315
PowerGold Duo Mercury..........................319

SYSTEMS

Call for latest prices
All new Apple CPU's

CPUs
6100/80 688/47, per month
6100/60 686/55, per month
7100/60 686/68, per month
8100/80 686/108, per month
540c/232 686/155, per month
Quadra 630/720 Call
PowerBook 150 Call
Performer Series Call
16" Monitor 15", per month
17" Monitor 36", per month
Custom configurations available.

DGR Ext Keyboard
105 key full featured extended keyboard for Macintosh. Fully ADB compatible.

1MB 380pin 120ns.........................25
2/4MB 380pin 80ns.........................30/137
4MB 72pin 60/70/80ns.............from 154
8MB 72pin 60/70/80ns.............from 299
16/32MB 72pin.........................489/999
PowerLook RAM............................29/19
LC/Quadra VRAM..........................Call

Magic Memory
1MB 380pin 120ns.........................25
2/4MB 380pin 80ns.........................30/137
4MB 72pin 60/70/80ns.............from 154
8MB 72pin 60/70/80ns.............from 299
16/32MB 72pin.........................489/999
PowerLook RAM............................29/19

Bottom Line Distribution is committed to the needs of the international Macintosh user and reseller. We offer discounted rates with DHL, UPS International and Airborne Express. Delivery times to most countries is 2 to 3 days. We stock 220v versions of most hardware. Dealer inquiries are welcome. Language interpreters are available. Se hace pedidos internacionales. Nous acceptons des commandes internationales. Internationale Handlerkonditionen.

DGR

Internet: world@dgr.com
Subscribe to our specials list

4544 S. Lamar Blvd., Suite 100, Austin, TX 78745
204 March 1995 MACWORLD
Wacom 12x12 RM Wacom ArtPad/ArtZ $509
Supra Express 14.4 Plus ............................... 98
Supra FaxModem 14.4.................... 179
Supra FaxModem 14.4LC .................. 136
Supra v.32bis PS 14.4 Internal ........ 169
Supra FaxModem 28.8 ...................... 229
Supra Pli 28.8 Internal ................... 317
High Speed Modem Cable .............. 15

Supra FaxModem 28.8 $229

PrecisionColor Pro 24X ................. 599
VideoVision Studio 2.0 .................. 3349
PrecisionColor Pro 24xp ............ 279
Photo Engine ......................... 799
LeMans GT .......................... 799
IntelliColor 20e ...................... 1875
Thunder II GX 1360 .................. 1199

Supra FaxModem 28.8 $229

Thunder I GX 1600 $1599

ScanMaker III $249

SyQuest Drives ..........................
88c Ext........... $315
200 Ext........... $149
270 Ext........... $399
35T Slide Scanner .......... $953
4ST Slide Scanner .......... $539

SyQuest Media .........................
SC88............. $64
SQ 200........... $75
SQ 270........... $83

NEW! Power Mac Accelerator Supports New Performa 6115 Series

Aldus Freehand 4.0 PPC $390
Aldus PageMaker 5.0 $499
Aldus Pagemaker 3.0 PPC $499
Claris Works 3.0 $129
Freelance Painter 3.0 $299
Freelance X2 $40
Kails PowerTools 2.1 $118
MS Works 4.0 $159
MS Word $329
QuarkExpress 3.3 $549
QuarkExpress PPC $625
Word Perfect 3.0 $326

Business Software Colleague Business $499
FileMaker Pro 2.1 $99
MS Office 4.2 w/RAM Disk $475
MS Power Point 4.0 $329
Quicktime 5.0 $42

Communications Software
Fax STF 3.1 $85
Microphone 5.0 $109

Fax: 1-512-892-4455
4544 S. Lamar Blvd., Suite 100, Austin, TX 78745

Open Seven Days a Week
Saturday Shipping

Supra Express 14.4 Plus .......... 98
Supra FaxModem 14.4........ 179
Supra FaxModem 14.4LC .......... 136
Supra v.32bis PS 14.4 Internal ... 169
Supra FaxModem 28.8 ................ 229
Supra Pli 28.8 Internal ........... 317
High Speed Modem Cable ......... 15

Supra FaxModem 28.8 $229

PrecisionColor Pro 24X ............. 599
VideoVision Studio 2.0 ............. 3349
PrecisionColor Pro 24xp .......... 279
Photo Engine ....................... 799
LeMans GT ........................ 799
IntelliColor 20e .................. 1875
Thunder II GX 1360 .............. 1199

Supra FaxModem 28.8 $229

Thunder I GX 1600 $1599

ScanMaker III $249

SyQuest Drives ..........................
88c Ext.................. $315
200 Ext.................. $149
270 Ext.................. $399
35T Slide Scanner .......... $953
4ST Slide Scanner .......... $539

SyQuest Media .........................
SC88............. $64
SQ 200........... $75
SQ 270........... $83

NEW! Power Mac Accelerator Supports New Performa 6115 Series

Aldus Freehand 4.0 PPC $390
Aldus PageMaker 5.0 $499
Aldus Pagemaker 3.0 PPC $499
Claris Works 3.0 $129
Freelance Painter 3.0 $299
Freelance X2 $40
Kails PowerTools 2.1 $118
MS Works 4.0 $159
MS Word $329
QuarkExpress 3.3 $549
QuarkExpress PPC $625
Word Perfect 3.0 $326

Business Software Colleague Business $499
FileMaker Pro 2.1 $99
MS Office 4.2 w/RAM Disk $475
MS Power Point 4.0 $329
Quicktime 5.0 $42

Communications Software
Fax STF 3.1 $85
Microphone 5.0 $109
PIVOT DISPLAYS
Radius Color Pivot LE
$399
With purchase of video card. We have cards for SE/30, LC, IIsi, Nubus, Quadras
Precision Color Pivot $699
Grayscale Pivot $499
Radius Full Page Display $399

17 INCH
E-Machines T16 II MR
$799
Limited Quantities!
High Grade Studio Trinitron Series
25mm multi-resolution

20 INCH
Intellicolor Display 20
$1699
Limited Quantities!
Top rated 20" Trinitron
MacUser Editors Choice Finalist

LOWEST PRICES ANYWHERE!

20 Inches for the cost of 17!
While Supplies Last!

Your Choice of...
Radius Precision Color Display 20
- Multiple resolutions
1280x1024 or 640x480
- Mac/PC compatible
Works with most any Macintosh built-in video

SuperMac or E-Machines 20
1152x870 to 1024x768
- Flat screen
- Shadow Mask Tube
- Built in video support

All quantities limited and sold on a first come first serve basis.

radius. SUPERMAC.

Radius PCD 17" * Top rated 17" 25mm Trinitron multi-res. $CALL
SuperMatch 17" $949
SuperMatch 20 TXL $CALL
SuperMac Pressview 21T $CALL
SuperMac Pressview 21 $2699
Radius 20 inch Grayscale Display $699
Radius 21 inch Grayscale Display $799
SuperMac SuperView $299
Similar to Radius PivotView but also supports TV!
RasterOps 24XLT $1499
Pinnacle 1.3 Optical 19ms $2799
Pinnacle RCG 1006 2X CD-ROM Recorder $2799

Apple Catalog Reseller • Authorized Service Provider

CRA SYSTEMS
800.375.9000

Monday thru Friday
8AM to 8PM CST
Saturday 10AM to 4PM CST
Fax: 617.754.2345
ROCKET 33MHz w/FPU $399**

Don’t wait any longer for Quadra Power! While supplies last you can finally upgrade your old Mac into a QUADRA level POWERHOUSE for a NEVER BEFORE OFFERED LOW PRICE!
- Motorola 68040 processor
- FPU built-in
- Multi-processing
- 33MHz
- SCSI-I & DSP capable
- MacWorld Editor's Choice

Radius Rocket 25i $299**
SCSI II Booster $249
PhotoBooster for Rocket $299
RocketShare $299
Stage Two Rocket $1299

PhotoBooster $299 Retail $99
- Twin AT&T 3210 65MHz DSPs
- Accelerates Photoshop filters
- Up to 10X faster than a Quadra 950
- MacUser Editor’s Choice

Radius PowerView $199
Allows most Powerbooks and the Classic II to support displays and projectors.

SuperMac Display Calibrator $199

**With purchase of any Rocket peripheral

DON'T MISS THIS OPPORTUNITY!

VIDEO BOARDS

Thunder 24 $1299
with Color Calibrator

Thunder II GX 1600 $CALL
Thunder II GX 1360 $CALL
"The Thunder II GX 1360 simply can't be beat" MacUser
Thunder II GX 1152 $CALL
Thunder II Light $1499

Radius LeMans GT $1399

PrecisionColor Pro 24X $999
Precision Color 24X $799
Precision Color Pro 24XK $699

Radius 24XP/Futura SX $299
Radius 24XK/Futura MX $599
Radius 8XJ $399

Spectrum 8.24 PDC $399
Spectrum 8 Series III $349

E-Machines Futura LX $799
E-Machines Futura MX $599

Circle 20 on reader service card

VIDEOVISION

VideoVision Presentation $999
- We stock complete VideoVision Studio systems with CPUs and monitors
- Sell or Lease
- Call to speak with one of our experts

VideoVision Studio Upgrade $CALL
VideoVision Studio $CALL
Studio Array $CALL
VideoSpigot Nubus $199
Adobe Premiere from $199
VideoSpigot II $299
VideoSpigot Pro $399

Apple Catalog Reseller Authorized Service Provider

Dealers and consultants call for quantity pricing. We ship anywhere.
Domestic Sales 800.375.9000
Consultants/Dealers 817.754.2131
International Sales 817.754.2120
TeleFax 817.754.2345

CRA Systems, Inc.
300 South 13th St., Waco, TX 76701

MACWORLD March 1995 207
### Global Village

**TelePort Gold II**

*Fast, easy, and affordable!*

- Data: 56 Kbps (14.4 Kbps)
- Fax: 14.4 Kbps send and receive
- V.42bis and MN/F5 data compression
- V.42 and MN/F5 error correction
- Includes award-winning GlobalFax® software
- 5 year warranty

**Price:** $126.72

**CDW:** 47428

### NEC MultiSpin 2V

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $226.07

**CDW:** 46500

### MacDeal$**

"For all your Macintosh computing needs, call and order your free Macintosh® catalog today!"

### Microsoft Office V4.2

**Version upgrade**

3.5"  
3.5" * After $40 mail-in manufacturer rebate (ends 3/31/95)

**Price:** $214.79*

**CDW:** 45219

**Price:** $429.89

**CDW:** 45289

### Top-Selling Macintosh® Software

#### Adobe

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photoshop V3.0</td>
<td>247.12</td>
<td></td>
</tr>
<tr>
<td>Premiere V4.0</td>
<td>54.31</td>
<td></td>
</tr>
<tr>
<td>Scion V3.0</td>
<td>133.11</td>
<td></td>
</tr>
<tr>
<td>System 6</td>
<td>173.59</td>
<td></td>
</tr>
<tr>
<td>Text Back</td>
<td>102.10</td>
<td></td>
</tr>
<tr>
<td>Type Manager V3.0</td>
<td>35.39</td>
<td></td>
</tr>
<tr>
<td>VecTech Word V5.0</td>
<td>39.39</td>
<td></td>
</tr>
</tbody>
</table>

**Price:** $131.47

#### Aldus

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehand V4.0</td>
<td>716.96</td>
<td></td>
</tr>
<tr>
<td>Freehand V5.0</td>
<td>195.01</td>
<td></td>
</tr>
<tr>
<td>Gallery Effects Vol. 1</td>
<td>305.79</td>
<td></td>
</tr>
<tr>
<td>Hero Fantasy V6.0</td>
<td>581.63</td>
<td></td>
</tr>
<tr>
<td>PageMaker V5.6.x</td>
<td>541.30</td>
<td></td>
</tr>
<tr>
<td>PageMaker V6.x</td>
<td>541.30</td>
<td></td>
</tr>
<tr>
<td>Print Shop V5.0</td>
<td>99.05</td>
<td></td>
</tr>
<tr>
<td>QuarkXPress V4.0</td>
<td>182.20</td>
<td></td>
</tr>
<tr>
<td>QuarkXPress V5.0</td>
<td>182.20</td>
<td></td>
</tr>
<tr>
<td>QuarkXPress V6.0</td>
<td>182.20</td>
<td></td>
</tr>
<tr>
<td>Adobe Illustrator CS</td>
<td>646.05</td>
<td></td>
</tr>
<tr>
<td>Aldus Stuff Special Saver</td>
<td>124.07</td>
<td></td>
</tr>
<tr>
<td>Apple iPhoto 7.5 upgrade</td>
<td>99.00</td>
<td></td>
</tr>
<tr>
<td>Apple iPhoto 7.5</td>
<td>99.00</td>
<td></td>
</tr>
<tr>
<td>Apple iPhoto 7.5</td>
<td>99.00</td>
<td></td>
</tr>
<tr>
<td>Avery Mail &amp; Print Pro</td>
<td>102.45</td>
<td></td>
</tr>
</tbody>
</table>

**Price:** $249.95

### NEC

**NEW!**

**NEC MultiSpin 2V**

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $126.72

**CDW:** 47428

### Microsoft Excel V5.0

**Upgrade**

1-2-3 V4.1...

Excel V5.1...

**Price:** $109.88 45378

### NEC MultiSpin 2V

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $226.07

**CDW:** 46500

### Microsoft Word V6.0

**Upgrade**

**Price:** $109.86 45379

### MacDeal$**

"For all your Macintosh computing needs, call and order your free Macintosh® catalog today!"

### Top-Selling Macintosh® Software

#### Adobe

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photoshop V3.0</td>
<td>247.12</td>
</tr>
<tr>
<td>Premiere V3.0</td>
<td>173.59</td>
</tr>
<tr>
<td>Scion V3.0</td>
<td>133.11</td>
</tr>
<tr>
<td>System 6</td>
<td>173.59</td>
</tr>
<tr>
<td>Text Back</td>
<td>102.10</td>
</tr>
<tr>
<td>Type Manager V3.0</td>
<td>35.39</td>
</tr>
<tr>
<td>VecTech Word V5.0</td>
<td>39.39</td>
</tr>
</tbody>
</table>

**Price:** $131.47

#### Aldus

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehand V4.0</td>
<td>716.96</td>
</tr>
<tr>
<td>Freehand V5.0</td>
<td>195.01</td>
</tr>
<tr>
<td>Gallery Effects Vol. 1</td>
<td>305.79</td>
</tr>
<tr>
<td>Hero Fantasy V6.0</td>
<td>581.63</td>
</tr>
<tr>
<td>PageMaker V5.6.x</td>
<td>541.30</td>
</tr>
<tr>
<td>PageMaker V6.x</td>
<td>541.30</td>
</tr>
<tr>
<td>Print Shop V5.0</td>
<td>99.05</td>
</tr>
<tr>
<td>QuarkXPress V4.0</td>
<td>182.20</td>
</tr>
<tr>
<td>QuarkXPress V5.0</td>
<td>182.20</td>
</tr>
<tr>
<td>QuarkXPress V6.0</td>
<td>182.20</td>
</tr>
</tbody>
</table>

**Price:** $249.95

### NEC MultiSpin 2V

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $226.07

**CDW:** 46500

### Microsoft Excel V5.0

**Upgrade**

1-2-3 V4.1...

Excel V5.1...

**Price:** $109.88 45378

### NEC MultiSpin 2V

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $226.07

**CDW:** 46500

### Microsoft Word V6.0

**Upgrade**

**Price:** $109.86 45379

### MacDeal$**

"For all your Macintosh computing needs, call and order your free Macintosh® catalog today!"

### Top-Selling Macintosh® Software

#### Adobe

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photoshop V3.0</td>
<td>247.12</td>
<td></td>
</tr>
<tr>
<td>Premiere V3.0</td>
<td>173.59</td>
<td></td>
</tr>
<tr>
<td>Scion V3.0</td>
<td>133.11</td>
<td></td>
</tr>
<tr>
<td>System 6</td>
<td>173.59</td>
<td></td>
</tr>
<tr>
<td>Text Back</td>
<td>102.10</td>
<td></td>
</tr>
<tr>
<td>Type Manager V3.0</td>
<td>35.39</td>
<td></td>
</tr>
<tr>
<td>VecTech Word V5.0</td>
<td>39.39</td>
<td></td>
</tr>
</tbody>
</table>

**Price:** $131.47

#### Aldus

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehand V4.0</td>
<td>716.96</td>
<td></td>
</tr>
<tr>
<td>Freehand V5.0</td>
<td>195.01</td>
<td></td>
</tr>
<tr>
<td>Gallery Effects Vol. 1</td>
<td>305.79</td>
<td></td>
</tr>
<tr>
<td>Hero Fantasy V6.0</td>
<td>581.63</td>
<td></td>
</tr>
<tr>
<td>PageMaker V5.6.x</td>
<td>541.30</td>
<td></td>
</tr>
<tr>
<td>PageMaker V6.x</td>
<td>541.30</td>
<td></td>
</tr>
<tr>
<td>Print Shop V5.0</td>
<td>99.05</td>
<td></td>
</tr>
<tr>
<td>QuarkXPress V4.0</td>
<td>182.20</td>
<td></td>
</tr>
<tr>
<td>QuarkXPress V5.0</td>
<td>182.20</td>
<td></td>
</tr>
<tr>
<td>QuarkXPress V6.0</td>
<td>182.20</td>
<td></td>
</tr>
</tbody>
</table>

**Price:** $249.95

### NEC MultiSpin 2V

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $226.07

**CDW:** 46500

### Microsoft Excel V5.0

**Upgrade**

1-2-3 V4.1...

Excel V5.1...

**Price:** $109.88 45378

### NEC MultiSpin 2V

**Double-speed CD-ROM drive**

- 320ms average access time
- 500KB/sec data transfer rate
- Standalone external housing
- Microsoft Encarta multimedia encyclopedia
- ODIS system cable and driver software

**Price:** $226.07

**CDW:** 46500

### Microsoft Word V6.0

**Upgrade**

**Price:** $109.86 45379

### MacDeal$**

"For all your Macintosh computing needs, call and order your free Macintosh® catalog today!"
### Computer Discount Warehouse

#### Computers and Peripherals

**Monitors**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC</td>
<td>$359</td>
</tr>
<tr>
<td>HP</td>
<td>$389</td>
</tr>
<tr>
<td>IBM</td>
<td>$414</td>
</tr>
</tbody>
</table>

**Towers**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC</td>
<td>$359</td>
</tr>
<tr>
<td>HP</td>
<td>$389</td>
</tr>
<tr>
<td>IBM</td>
<td>$414</td>
</tr>
</tbody>
</table>

**Hard Drives**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC</td>
<td>$126</td>
</tr>
<tr>
<td>HP</td>
<td>$134</td>
</tr>
<tr>
<td>IBM</td>
<td>$150</td>
</tr>
</tbody>
</table>

**CD-ROM Drives**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC</td>
<td>$167</td>
</tr>
<tr>
<td>HP</td>
<td>$185</td>
</tr>
<tr>
<td>IBM</td>
<td>$202</td>
</tr>
</tbody>
</table>

**Printers**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC</td>
<td>$234</td>
</tr>
<tr>
<td>HP</td>
<td>$265</td>
</tr>
<tr>
<td>IBM</td>
<td>$296</td>
</tr>
</tbody>
</table>

**Networks**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEC</td>
<td>$248</td>
</tr>
<tr>
<td>HP</td>
<td>$280</td>
</tr>
<tr>
<td>IBM</td>
<td>$316</td>
</tr>
</tbody>
</table>

**Software**

- **Anti-Virus**
- **Desktop Management**
- **Server Management**
- **Data Backup**

**COMPUTER DISCOUNT WAREHOUSE™**

**Hardware, Peripherals and Software at Discount Prices**

**CDW Computer Centers, Inc.**
**1020 E. Lake Cook Rd.**
**Buffalo Grove, IL 60089-1900**

**FAX (708) 465-6800**

**800-509-4CDW**

**FREE TECHNICAL SUPPORT IS AVAILABLE TO CDW® CUSTOMERS!**

**WHY PAY RETAIL? CDW® SELLS FOR LESS AND SERVICES YOU BETTER!**

**Circle 2 on reader service card**

**MACWORLD March 1995 209**
Some people donate money to keep the air clean.

Jeff Angus wrote 2000 lines of code.

Jeff Angus has regularly donated money to the Natural Resources Defense Council. Now he also supports them in a different and maybe even more valuable way. By donating his skills to modify a dBASE program that generates customized reports about toxic substances.

If you'd like to put your special skills to good use, call 1-800-659-3579. And we'll match you with a local non-profit organization whose needs are compatible with your area of expertise. Call us now, and we'll show you a great way to make a real difference in the world.
You have so many reasons to try The Mac Zone!

FREE QUICKEN 5!

When you buy In Control/Fast Pace Bundle

Organize your time, contacts and personal finances

$9999

Over 2,500 products in stock
Including new versions and all the latest releases for your Mac. New products every month! Software, hardware, peripherals, accessories… everything you need to be more productive at work and enjoy your play more.

Shop 7 Days a Week, 24 Hours a Day
in the comfort of your own office or home.

30-Day Money-Back Guarantee
on many of our products. If you’re not completely satisfied, please contact us.

Lowest Catalog Prices or we give you FREE SHIPPING!
Any competitive catalog price comparison must include shipping charges.

#1 Financial Software

In Control combines full-featured calendars with the award-winning Action Outliner™ to actually help you plan smarter. FastPace Instant Contact is the fast, easy and powerful professional contact manager. It gives you instant control of over 50,000+ names, addresses, phone numbers, notes, correspondence and more – even over your network. And Quicken is the fastest, easiest way to manage your personal finances. Order this this productivity-enhancing bundle today! Attain Corp. #93225

رز

FREE Catalog Subscription
Get a FREE One-Year Catalog Subscription. Stay up-to-date on the latest innovations and all the best buys in the industry. To get your FREE subscription just fill out and mail in the coupon below.

Before you buy, call The Mac Zone
1-800-436-0606
For the best Macintosh products at better than Warehouse and Superstore prices.

Fax (206) 603-3500 • International (206) 603-2550 • CompuServe code: GO MZ

CORPORATE SALES 1-800-406-9663
GOVERNMENT SALES 1-800-372-9663
EDUCATION SALES 1-800-381-9663
INTERNATIONAL SALES 1-206-603-2560 e-World Online

MW503

PLEASE USE THIS CODE TO RECEIVE THESE SPECIAL PRICES

MW503

YES! START MY FREE 1-YEAR CATALOG SUBSCRIPTION AS SOON AS POSSIBLE:
MAC ZONE  PC ZONE  CORPORATE ZONE  LEARNING ZONE

Name
Address
City
Apt
State
Zip

Mail to: The Mac Zone, 15815 SE 37th St., Bellevue, WA 98006-1800
The Improved Interface and palette design gives you better access to your tools. New layers support Adobe Photoshop 3.0.1 Upgrade graphics, text and special effects without altering the original Image to try out different combinations of placements and make Image composing easy. Add multiple layers to your background Image and more.

GRA 0916 $559
Full version of Photoshop Publisher:

The world's #1 best-selling personal finance software! Quicken tracks it all—checking, savings, credit cards, investments & loans. New version includes: Quicken Financial Calendar, QuickFill Improvements, an Iconbar, Tax Planner and more! Publisher: Intuit

Item# FIN 0251
$29.95* Order toll-free 24 hours a day, 7 days a week! 1-800-255-6227

DOUBLE YOUR RAM!

RAM Doubler
Twice the memory without expensive hardwears. Installation takes about 15 seconds and one mouse click! It's worry-free from the start. If you had 8MB of RAM, your computer will have 16MB of memory available with RAM Doubler. Keep ALL your applications open—you'll be rid of the "Not Enough Memory" messages. Install RAM Doubler once and your memory doubles automatically forever!

Item# UTI 0486
$55 Publisher: Connectix

$44.95

You are hereby authorized to assume command of the U.S.S. Enterprise and move freely throughout the ship. Room the corridors, command the bridge, handle the controls, view the holodeck and engineering sections. Secret the Cardassians would kill for are at your fingertips. Walk in the crew footsteps from the warp nacelles to the Captain's personal yacht; from the main deflector shield to the bridge. Forward using this CO-ROM.

Item# ENT 0790
$44.95 Publisher: Simon & Schuster

Think of it as a camera for your mind!
Adobe Photoshop 3.0.1 Upgrade
More creative and production control than ever! The improved interface and palette design gives you better access to your tools. New layers support Image composing easy. Add multiple layers to your Image to try out different combinations of placements and graphics, text and special effects without altering the original background Image and more.

Publisher: Adobe

Full version of Photoshop 3.0.1 for Mac/Power Mac GRA 0916 $559

Think of it as a camera for your mind!
Adobe Photoshop 3.0
More creative and production control than ever! The improved interface and palette design gives you better access to your tools. New layers support Image composing easy. Add multiple layers to your Image to try out different combinations of placements and graphics, text and special effects without altering the original background Image and more.

Publisher: Adobe

Full version of Photoshop 3.0 for Mac/Power Mac

Think of it as a camera for your mind!
Adobe Photoshop 3.0

Item# UPG 0138
$149 Proof of purchase required.

1MB SIMMs as low as $49.95
A Power User memory upgrade will dramatically increase the power of your Mac. Memory chips come factory-installed on plug-in cards, called SIMMs (Single Inline Memory Modules). Please call for the latest prices and availability and our sales staff will help make your choice an easy one.

Item# CHP 0012
1MB 120ns

$49.95
MacWAREHOUSE carries more than 2000 Macintosh products, including all the latest releases and new versions. We pride ourselves on getting new products first. Just fill in the Information Request and mail the coupon. We'll start your free, one-year subscription to the MacWAREHOUSE catalog with the next issue.

Order by Midnight (E) for Overnight Delivery – Only $3.00!

To order, call toll-free

1-800-255-6227
(1-800-ALL-MACS)

Call 24 hours a day, 7 days a week.
Inquiries: 908-905-9279
Fax Your Order to: 908-905-9279

FREE CATALOG SUBSCRIPTION
Check the appropriate box(es) to receive your FREE 1-year subscription and mail this coupon to:
1720 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Name
Address
City
State
Zip

Copyright 1995 MacRepos, Inc. MacWAREHOUSE is a division of MacRepos, Inc. MacWAREHOUSE and MacRepos are registered trademarks of MacRepos, Inc. Some products and services without BOUNDARY terms apply. For further information, call 1-800-255-6227.
## MICROPOLIS

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Model #</th>
<th>Seek RPM</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 GB</td>
<td>DT-1110</td>
<td>8.5 MS</td>
<td>$585</td>
<td>$645</td>
</tr>
<tr>
<td>2.0 GB</td>
<td>DT-2217</td>
<td>10 MS</td>
<td>$899</td>
<td>$959</td>
</tr>
<tr>
<td>2.4 GB</td>
<td>DT-4221</td>
<td>6.5 MS</td>
<td>$1099</td>
<td>$1159</td>
</tr>
<tr>
<td>3.6 GB</td>
<td>DT-1936</td>
<td>11 MS</td>
<td>$1240</td>
<td>$1340</td>
</tr>
<tr>
<td>4.0 GB</td>
<td>DT-1991</td>
<td>11 MS</td>
<td>$1205</td>
<td>$1350</td>
</tr>
<tr>
<td>9.0 GB</td>
<td>DT-4221-9</td>
<td>11 MS</td>
<td>$3475</td>
<td>$3975</td>
</tr>
</tbody>
</table>

## MICROPOLIS AUDIO/VIDEO SERIES

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Model #</th>
<th>Seek RPM</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 GB</td>
<td>DT-2217/AV</td>
<td>10 MS</td>
<td>$945</td>
<td>$1005</td>
</tr>
<tr>
<td>2.4 GB</td>
<td>DT-4221/AV</td>
<td>8 MS</td>
<td>$1174</td>
<td>$1234</td>
</tr>
<tr>
<td>3.6 GB</td>
<td>DT-1936/AV</td>
<td>11 MS</td>
<td>$1290</td>
<td>$1390</td>
</tr>
<tr>
<td>4.0 GB</td>
<td>DT-3243/AV</td>
<td>8.5 MS</td>
<td>$2099</td>
<td>$2159</td>
</tr>
<tr>
<td>9.0 GB</td>
<td>DT-1991/AV</td>
<td>11 MS</td>
<td>$3500</td>
<td>$3600</td>
</tr>
</tbody>
</table>

## Quantum

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Model #</th>
<th>Seek RPM</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>230 MB</td>
<td>LS270</td>
<td>12 MS</td>
<td>$105</td>
<td>$245</td>
</tr>
<tr>
<td>340 MB</td>
<td>LS540</td>
<td>12 MS</td>
<td>$215</td>
<td>$275</td>
</tr>
<tr>
<td>540 MB</td>
<td>LS540</td>
<td>10 MS</td>
<td>$250</td>
<td>$310</td>
</tr>
<tr>
<td>730 MB</td>
<td>LS730</td>
<td>11 MS</td>
<td>$340</td>
<td>$400</td>
</tr>
<tr>
<td>1.0 GB</td>
<td>EM1080</td>
<td>9.5 MS</td>
<td>$605</td>
<td>$665</td>
</tr>
<tr>
<td>1.1 GB</td>
<td>EM1100</td>
<td>9.5 MS</td>
<td>$775</td>
<td>$835</td>
</tr>
<tr>
<td>2.1 GB</td>
<td>EM2100</td>
<td>9.5 MS</td>
<td>$1045</td>
<td>$1105</td>
</tr>
</tbody>
</table>

## INTRODUCING...

**MICRODISK® AV**

**LT & LS from MICROPOLIS**

**CALL NOW!!!**

**1 800-279-5520**

$1199

**WINTER SPECIALS!!!**

$2050
Circle 245 on reader service card
Wacom

Pressure-sensitive Graphics Tablets
12" x 18" Standard/Electrostic
$659/$795

4"x5" ARTPAD
$149

6"x8" ARTZ
$299

12"x12" ART
$499

Photoshop

3.0 $269

With purchase of Scanner or Wacom Tablet

$99

FULL SESSION

PhotoShop

3.0.1

With purchase of

UMAX Vista S6

With purchase of Scanner or

Wacom tablet... $209

UMAX Scanners

NEW!

Garmin - Dual Lens, One-Pass Scanner
$1489

UC 630/UC 840 BLOWOUT... $599/$589

Vista S6 - 600dpi One-Pass Scanner
$699

Vista S8 - 800dpi One-Pass Scanner
$799

UMAX 1260 - 1200dpi
$879

PowerLook - 1200dpi, One-Pass Scanner
$2199

17" Trinitron

$769 PowerMac Compatible

With 24-bit Accelerator Card
$I999

Ikegami 20" Trinitron
$I199

Ikegami 21" Flat, Multi-Sync
$2185

CD Writers

Including software

JVC Archive 2x...

JVC RomMaker 2x...

JVC RomMaker 4x...

Kodak PCO-225...

Microtek 45T Slide Scanner...

Microtek Scanner III...

Fujifilm

International Dealers Welcome

512-329-7001

800-247-4678

Fax 512-327-0921

5000 Paseo On The Lake, 512 325, Austin, TX, 78746

Circle 83 on reader service card

THE MAC SOLUTIONS HOUSE

DISCOUNT WAREHOUSE

Configure Your Own System Package or
Choose A Bundle Below

COMPARING OUR DRIVE PRICES w/ Our COMPETITORS!

QUANTA Q72068 Desk Drive... $170/Ass't 245
QUANTA 54020 Desk Drive... $269/Ass't 349

SCANNERS, MONITORS & VIDEO

MICROTEK ScanMaker III 36-Bit Scanner w/ PhotoShopLE...
$2350

UMAX Vista 56 Color Scanner w/ PhotoShopLE...
$599

SONY 17" MultiRes Scanner Monitor...
$895 70"...
$1095

RADIUS LiveVision Studio 2.0 (PowerBook/W32)...
$3195

PRINTERS & OTHER PERIPHERALS

TEXAS INSTRUMENTS Micromap Pro 600Si, 6ppm...
$1195

Hewlett-Packard DeskWriter 4Si...
$499

WACOM ArtTablet 6" x 8" Graphics Tablet w/ Enspiel Pen...
$5288

PORTABLE CD ROM BUNDLE: Double Speed HealthTek Port. CD
ROM Drive (Excellent, AC Adapter & Headphones Included) w/Godaddy's
Encyclopedia/World & US Atlas, Animals, & Robots Below...
$299

NEW! Powerbook 540c Power Package!

THE ULTIMATE, TOP of the LINE POWERBOOK PRICED AT AN AMAZING PRICE!

PowerBooks 540c (3C040c)
$1299.00

Powerbook 520c (3C040c)
$2299.00

Powerbook 520 (3C040c)
$2999.00

Powerbook 510 (3C040c)
$6999.00

Powerbook 520 Power Package (same as above, but with
Powerbook 510/540c...
$3955/$5111 p/m
Powerbook 520 Power Package (same as above, but with
Powerbook 510/540c...
$5250/$591 p/m

Powerbook 510/540 Power System with Supra 144-4 Internal
$1859

MORE THAN 10 YEARS OF COMPUTER EXPERIENCE

Advance Business Center • 51510 Tala Avenue, Suite 5, Tamarac, CA 95035

1 (800) 723-8262
fax: (310) 325-4073

Circle 225 on reader service card
Super Micro

We Specialize in Image Processing

800-352-3413

Circle 126 on reader service card

LEASE FROM SuperMicro!

Get a FREE 650MB optical drive for any equipment lease with monthly payments starting at $90 per week. A $2499 value!

POWERPC 7100 VALUE STATION

- PowerPC 750 666 MHz, 64MB DRAM, 60MHz PPC CPU
- 72MB RAM, 540MB hard drive, extended keyboard
- Dual 320XP IDE hard drive
- Internal Quadra 800 port
- Thunder 24, 1152x870, 24-bit color video card
- Image processing multifunctional drive:
  - 650MB optical and SyQuest 88C in one enclosure

POWERPC 6100 IMAGING STATION

- PowerPC 603e 120MHz, 40MB RAM, 540MB HD, extended keyboard
- Sony 20, 24-bit color monitor
- LeMans II, 1152x870 video card
- External SyQuest 200Mbyte with cartridge
- StarView type backup system
- TI Pro 600, 9 ppm, 600 dpi laser printer
- Avison 650AV, 4MB, A4, 400 mo scanner w/PS LE

POWER PC 8100 SUPER STATION

- PowerPC 8100 60MHz PPC CPU
- 60MHz PPC 601 CPU
- 40MB RAM, 540MB HD, extended keyboard
- Sony 20, 24-bit color monitor
- LeMans II, 1152x870 video card
- External SyQuest 200Mbyte with cartridge
- StarView type backup system
- TI Pro 600, 9 ppm, 600 dpi laser printer
- Avison 650AV, 4MB, A4, 400 mo scanner w/PS LE

SCANNERS

AGFA

The StudioScan II from Agfa has a 400 x 600 dpi resolution with interpolation up to 2400 dpi. The 30-bit color capabilities of the StudioScan II make it possible to get extremely accurate color in formats up to 8.5" x 14".

Tape Drives

Sony DAT drives are specifically designed for high capacity data backup, distribution and archival mass storage. With its built-in data compression capabilities, the Sony SDF-5100 can hold up to 16GB of files on a single 5.25 meter cartridge.

Optical Drives

SuperMicro has a complete line of Macintosh Quadra and PowerPC computers in stock. All system bundles are assembled and tested before shipping. Custom configurations are no extra charge.

MARCH 1995
Bar Code Headquarters

Bar Code Readers
for all Macintosh ADB or Serial
- 64K or 256K RAM, Keyboard or serial
- Wand, Magstripe, CCD, Laser, etc.
- All European Keyboards Supported
- Top Rated by Independent Reviews
- Complete with Corded Wand - $329
- Complete with Cordless Wand - $295
- Complete with Cordless Laser - $1775
- Voice messages tell operator what to do at specified errors and at data entry steps. Simple!

Portable Readers
for all Macintosh ADB or Serial
- 64K or 256K RAM, Keyboard or serial
- Wand, CCD or Laser Input
- Voice messages tell operator what to do at specified errors and at data entry steps. Simple!

Fonts for Film Masters
- Not HyperCard Dependent
- Simple, Easy-to-Use, Plug & Play!
- Generate Film masters in Quark, etc.
- Comes with Sequencer™ DA
- $199 includes our DA, and All Fonts

Call for Our Catalog

MacLandlord New Version
Introductory Sale: $239
if ordered by February 28, 1995
Regularity $399
- Property management & bookkeeping program
- Easiest-to-use
- Prints notices, checks, receipts
- Many reports
- Free telephone support
- 30 Day money-back guarantee
Labana Management Company
P.O. Box 2021
Dearborn, MI 48123
313/562-6247

Macworld Shopper®

PRODUCT INDEX

BUSINESS TOOLS

ACCESSORIES
- Covers
- Diskettes

BUSINESS TOOLS
- Bar Code
- Cataloging Software
- Credit Authorization
- LCD Panels
- Medical
- Point of Sale
- Real Estate

EDUCATIONAL & RECREATIONAL
- Astrology
- Degree Program
- Discount Software
- Genealogy
- Grading
- Languages
- Music
- Religion

GRAPHICS
- CAD/CAM
- CD ROM Photos
- Clip Art
- Fonts
- Graphics Translators
- Magazine

UPGRADES & MEMORY
- Solar Battery Chargers
- CD ROM Presentation
- BBS
- ISDN
- Languages
- Computer Insurance
- Computer Repair
- Data Recovery
- Patent Research
- Prepress Services
- Slides
- Math
- Hard Drives
- Switch Box
- Printers

DTP COORDINATOR:
Clayton Haberman 415.978.3132

OVER 1/2 MILLION
ACTIVE BUYERS FIND
WHAT THEY ARE
LOOKING FOR
IN THE
MACWORLD
SHOPPER SECTION.

ACCOUNT MANAGERS:
Carol Johnstone 415.978.3152
Shannon Smith 415.974.7414
Niki Stranz 415.978.3105
The Experts Choice for Barcoding!

**Bar Code Generation**

MacBARCODA

With MacBARCODA, bar code creation for the Mac is easier than ever. The Mac's full range of bar code features is now integrated into one easy-to-use program. Choose from:

- **UPC/EAN/ISBN**
- **Code 39**
- **Code 128**
- **Interleaved 2 of 5**
- **POSTNET/FIM**

Plus, you can print bar codes on virtually any Macintosh printer. You can even print bar codes on your Mac's screen for quick and easy proofing.

For Reel-fed Labels

Prints short-run labels on reels with barcodes, text, graphics, numbers, and dates. Compatible with the full range of Zebra Printers.

**Bar Code Readers**

A complete line of bar code scanners starting at $255.

Call toll free 800 289 0993

26 Green Street, Newbury MA 01951, Fax 508-462-9198

---

Project Wall-Sized Multimedia

Only $3,799.

Introducing the BOXLIGHT ProColor 1500 Multimedia Projection Panel. Full-color, big-screen multimedia and video projection with built-in audio! Industry-leading performance at special introductory price of only $3,799!

- Active-matrix color
- Built-in video & audio
- Rugged & portable
- PC & Mac Compatible
- Unbeatable price

Call Today 1-800-762-5757

---

Power Tools for the Power Presenter

One stop shop for all major brands

Call for CATALOG 1 800 726 3599

101 The Embarcadero Ste. 100 A, San Francisco, CA 94105
Hours: 8:30 to 5:30 PST, 9:30 to 6:30 EST
VOICE: 415 772 5800 FAX: 415 777 3817

---

Scanning bar codes is even easier!

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
- Interleaved 2 of 5
- POSTNET/FIM.
- 90-day money back guarantee.
- "This is the best product of its kind, and it's reasonably priced too." —MacUser review

Call the Bar Code Experts
800 232-7625

Bear Rock TECHNOLOGIES

---

Your direct source for all the bright answers.

- Widest selection
- Instant availability
- Overnight shipping
- 30-day guarantee

Call Today 1-800-762-5757

---

CIRCLE 479 ON READER SERVICE CARD

---

CIRCLE 474 ON READER SERVICE CARD

---

CIRCLE 478 ON READER SERVICE CARD

---

CIRCLE 477 ON READER SERVICE CARD

---

CIRCLE 476 ON READER SERVICE CARD

---

CIRCLE 475 ON READER SERVICE CARD

---

CIRCLE 473 ON READER SERVICE CARD
The Recognized Macintosh Bar Code Experts

**UnifiedScan-300 ADR Code/Mag Stripe Reader**

*Price: $369*

- Industry's only lifetime warranty!
- Complete with wand & bar code printing software
- Compatible with all Macs from 128K to current models.
- Inventors of keyboard interface bar code reader for Macintosh.
- PICD-300 Portable System (1 year warranty) *Price: $999*
- Includes wand, communications software, cable, battery & AC adapter.
- 256K storage (128K RAM & 128K Flash EPROM) upgradeable to 1 meg.
- Data collection program — inexpensive program generator
- 30-Day Money-Back Guarantee on All Products

Established 1978 - Newton Scanners and Software Available Now!

Discounts for Resellers, Schools, Non-Profit & Government Agencies

2495 Old Middletown Way, Min. View CA 94041
(415) 988-0141 Fax (415) 988-0289
(800) 526-9520 AppleLink: BARCODE

ELECTRONIC MEDICAL RECORDS

You ARE ready for a computerized health chart. CARE4TH® PRO ELECTRONIC MEDICAL RECORDS is a mature, reliable, doctor-designed program, iL feels like a change, yet is Compatible with all Macs from 414/351-1954
Fax: 414/351-1988

Rapid reforming, sophisticated searches, import from major data sources. Import/ Export, Automati cally update and maintain, controls multiple catalogs and the ability to catalog inside popular archive formats and Retrospect™ backup logs.

"...the best solution to your disk-cataloging woes." - Macworld, July 94

**VirtualDisk™**

**Completely Automatic Cataloging**

Know where every file is on every disk you own without any effort on your part.

VirtualDisk automatically catalogs all disks and removable media as encountered. You don't even have to launch an application. Your catalog is always available in compact, alias form on your desktop. You can search, view, or open any file on any off-line disk with simple Finder commands.

Along with an impressive alias interface version 2.0 offers faster cataloging, more user controls, multiple catalogs and the ability to catalog inside popular archive formats and Retrospect™ back-up logs.

"...the best solution to your disk-cataloging woes." - Macworld, July 94

**Make Intelligent Buying Decisions**

Subscribe to

The Mac Buyer's Journal

- Find out where to find the lowest prices
- Cover routines with PowerMac, PowerBook, Quicken, monitors, printers, networking and more.
- Tips on how to say money when buying
- Double by-builer price comparisons
- Ideal for anyone who buys Macintosh

1-800-813-7549

E-mail: westing@nol.com

**FINISH YOUR PAPERS, MANAGE YOUR REFERENCES FASTER AND EASIER THAN EVER BEFORE WITH BORLAND ENDLESS PRO, THE MODERN BIBLIOGRAPHIC SOFTWARE.**

Rapid reformatting, sophisticated searches, import from major databases. Data Validation. Macworld Special only $99. Student version available.

WESTING SOFTWARE

Tiburon, CA 94920
1-800-325-1862
FAX 707-224-7518
e-mail: westing@nol.com

CALL THE MAC EXPERTS!

You won’t find anyone with more Macintosh expertise than the experienced consultants at PowerMax. Give us a call today for a competitive quote and expert advice.

**Mac CPU’s & Powerbooks**

- PowerMac 900/100...$1399
- PowerMac 900/150...$1899
- PowerBook 1000/160...$1699
- PowerBook 150/100...$1099
- PowerBook 500/120...$899
- PowerBook 1000/120...Call
- PowerBook 500/150...Call
- PowerBook 1000/150...Call
- PowerBook 200/100...Call
- PowerBook 300/100...Call

- PowerBook 500/150...Call
- PowerBook 1000/150...Call
- PowerBook 200/150...Call
- PowerBook 300/150...Call

- PowerBook 500/150...Call
- PowerBook 1000/150...Call
- PowerBook 200/150...Call
- PowerBook 300/150...Call

- PowerBook 500/150...Call
- PowerBook 1000/150...Call
- PowerBook 200/150...Call
- PowerBook 300/150...Call

**We carry only the best third-party peripherals & software**

- SuperMac 21” ThunderDisplay...$1989
- Apple Studio Display...$1699
- Apple HP LaserJet...$1099
- Apple Laserwriter...$999
- Apple QM 1000/1500...Call
- Apple QM 2000/2500...Call
- Apple QM 3000/3500...Call
- Apple QM 4000/4500...Call
- Apple QM 5000/5500...Call
- Apple QM 6000/6500...Call
- Apple QM 7000/7500...Call
- Apple QM 8000/8500...Call
- Apple QM 9000/9500...Call

Call us today to experience the PowerMax™ Difference.

**The PowerMax Difference**

We’ve been dealing complete Macintosh systems since 1987. Most of us are at PowerMax have used Macs personally since well before Mac. That’s what makes that we don’t just sell you a box we can help you review the box. We give you terms, custom options and match-test your system, and support you before, during and after the sale. Call us today to experience the PowerMax™ Difference.

CALL NOW!

800-844-3599

24 hour fax line: 1-503-232-7101

West Coast—but we’re not in California!

Available items include:
- CD, Visa, MasterCard, American Express and Company PO’s
- Mac размер business listing program!
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerMac 72 Pin SIMMS</td>
<td>900-110MHz, PowerPC 601 RISC Processor</td>
<td>$1,288</td>
</tr>
<tr>
<td>Quantum</td>
<td>1.5-year warranty 20MB External Drive</td>
<td>$1,499</td>
</tr>
<tr>
<td>FWB Slidejammer</td>
<td>Desk Arm System</td>
<td>$1,699</td>
</tr>
<tr>
<td>Nikon</td>
<td>Spectrum Series V24 Bit</td>
<td>Call</td>
</tr>
<tr>
<td>Quantum</td>
<td>3.5/240MB Internal Drive</td>
<td>$1,999</td>
</tr>
<tr>
<td>Quantum</td>
<td>5.25/480MB External Drive</td>
<td>$2,499</td>
</tr>
<tr>
<td>Quantum</td>
<td>11.2/900MB Internal Drive</td>
<td>$2,999</td>
</tr>
</tbody>
</table>

**MAGICAL**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$2,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$3,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$3,699</td>
</tr>
</tbody>
</table>

**AHP**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$4,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$4,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$5,199</td>
</tr>
</tbody>
</table>

**PLI Removables**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$5,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$6,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$6,699</td>
</tr>
</tbody>
</table>

**MICROPRO**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$7,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$7,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$8,199</td>
</tr>
</tbody>
</table>

**Hewlett-Packard**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$8,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$9,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$9,699</td>
</tr>
</tbody>
</table>

**MAC**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$10,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$10,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$11,199</td>
</tr>
</tbody>
</table>

**Toll-Free 1-800-223-4622**

**Contact Information**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$11,699</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$12,199</td>
</tr>
<tr>
<td>PowerBook 500 Series</td>
<td>PowerBook 170 1.1GHz, 68LC040, 33MHz</td>
<td>$12,699</td>
</tr>
</tbody>
</table>

**Additional Features**

- Prices are subject to change without notice.
- All returns are subject to restocking fees.
- All products come with a 90-day warranty.
- All prices are subject to change without notice.
- All prices are subject to change without notice.
- All prices are subject to change without notice.
- All prices are subject to change without notice.
### MACS FOR LESS

- **BUY** • **SELL** • **TRADE**
- **NEW** • **USED**

**FAX** 310-317-1583

**CALL** 800-432-2983

Open Monday-Saturday

22775 PCH, Malibu, CA 90265

**CIRCLE 439 ON READER SERVICE CARD**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac TTmx/cx/ci/fx/vx/si</td>
<td>$199</td>
</tr>
<tr>
<td>Mac+, SE, SE/30, LCTITI/111</td>
<td>$199</td>
</tr>
<tr>
<td>Power Macs</td>
<td>$999</td>
</tr>
</tbody>
</table>

**CALL FOR DAILY SPECIALS!!!!**

**415.988.0509**

**FAX** 310-317-1583

**CIRCLE 450 ON READER SERVICE CARD**

---

**MACBYTES SERVING MAC USERS SINCE 1999**

**LOW & HIGH END CUSTOM SETUPS**

**CASH FOR MACS**

**FAX** 310-317-1583

**CALL** 800-432-2983

Open Monday-Saturday

22775 PCH, Malibu, CA 90265

**CIRCLE 439 ON READER SERVICE CARD**

---

**WE BEAT ANY PRICE!**

**POWER PC**

Quadras & Powerbooks

DISPLAYS, SCANNERS, PRINTERS, MODEMS

DEALERS AND INTERNATIONAL SALES ONLY

800-822-5567

(818) 225-9327

**FAX** (818) 225-6627

23543 Ventura Blvd., Suite 226

Woodland Hills, CA 91364

**CIRCLE 540 ON READER SERVICE CARD**

---

**MacUSA**

**Since 1983**

**800-809-0880**

- **Voice:** 818-704-8923
- **Fax:** 818-704-9858

**Quadrus**

- **Power Mac**
  - **6100/6200**
    - **$1469**
  - **7100AV/1600AV**
    - **Call**
  - **PowerBook**
    - **150/240**

**Printers**

- **HP Laser Jet**
- **Canon S55**
- **Olplomo 270**
- **Olplomo 170**
- **Quantum 15m**
- **Olplomo 65**
- **Quantum 12m**

**Scanners**

- **ILP, Inc.**
- **$395**

**Software**

- **Microsoft Office**
- **Lotus 1-2-3**

**We Buy New & Used Macs**

**Visa, MasterCard No Surcharge**

**Better Business Bureau Member**

**1-800-334-KIWI**

**New Macs**

- **Quadra 605**
- **Quadra 530**
- **Quadra 500**
- **Quadra 400**
- **Quadra 320**
- **Quadra 200**
- **Powerbook 140**
- **Powerbook 520c, 540c**

**Used & Refurbished Macs**

- **LC II, III**
- **Powerbook 400, 450, 460**

**Mac Store**

**New & Used Macs**

**Visa, MasterCard No Surcharge**

**Better Business Bureau Member**

**1-800-334-KIWI**

**New Macs**

- **Quadra 605**
- **Quadra 530**
- **Quadra 500**
- **Quadra 400**
- **Quadra 320**
- **Quadra 200**
- **Powerbook 140**
- **Powerbook 520c, 540c**

**Used & Refurbished Macs**

- **LC II, III**
- **Powerbook 400, 450, 460**

**Mac Store**

**New & Used Macs**

**Visa, MasterCard No Surcharge**

**Better Business Bureau Member**

**1-800-334-KIWI**

**New Macs**

- **Quadra 605**
- **Quadra 530**
- **Quadra 500**
- **Quadra 400**
- **Quadra 320**
- **Quadra 200**
- **Powerbook 140**
- **Powerbook 520c, 540c**

**Used & Refurbished Macs**

- **LC II, III**
- **Powerbook 400, 450, 460**

**Mac Store**

**New & Used Macs**

**Visa, MasterCard No Surcharge**

**Better Business Bureau Member**

**1-800-334-KIWI**

**New Macs**

- **Quadra 605**
- **Quadra 530**
- **Quadra 500**
- **Quadra 400**
- **Quadra 320**
- **Quadra 200**
- **Powerbook 140**
- **Powerbook 520c, 540c**

**Used & Refurbished Macs**

- **LC II, III**
- **Powerbook 400, 450, 460**

**Mac Store**

**New & Used Macs**

**Visa, MasterCard No Surcharge**

**Better Business Bureau Member**

**1-800-334-KIWI**

**New Macs**

- **Quadra 605**
- **Quadra 530**
- **Quadra 500**
- **Quadra 400**
- **Quadra 320**
- **Quadra 200**
- **Powerbook 140**
- **Powerbook 520c, 540c**

**Used & Refurbished Macs**

- **LC II, III**
- **Powerbook 400, 450, 460**

---

**SYSTEMS & PERIPHERALS**

---
TRADE IN YOUR OLD MAC FOR A NEW MAC
UPGRADE YOUR MACINTOSH TO 8100/110 MHZ

POWERMACS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPC 8100/110/16/26/CD</td>
<td>$4950</td>
</tr>
<tr>
<td>PPC 8100/110AV/16/26/CD</td>
<td>$3150</td>
</tr>
<tr>
<td>PPC 8100/72/20/CD</td>
<td>$5959</td>
</tr>
<tr>
<td>PPC 7100/40/40/CD</td>
<td>$5170</td>
</tr>
<tr>
<td>PPC 6100/240/26/CD</td>
<td>$3250</td>
</tr>
</tbody>
</table>

QUADRAS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840AV 8/230 D</td>
<td>$2975</td>
</tr>
<tr>
<td>800 8/230 D</td>
<td>$2495</td>
</tr>
<tr>
<td>650 8/230 D</td>
<td>$1975</td>
</tr>
<tr>
<td>610 8/230/FPU</td>
<td>$1395</td>
</tr>
<tr>
<td>660AV 8/230 D</td>
<td>$1495</td>
</tr>
</tbody>
</table>

COMPLETE UPGRADES

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCII to LCIII</td>
<td>$495</td>
</tr>
<tr>
<td>LCII to O</td>
<td>$405/525 MHZ</td>
</tr>
<tr>
<td>LCII to PPC 6100/60</td>
<td>$850</td>
</tr>
<tr>
<td>LCII to PPC 7100/60</td>
<td>$1265</td>
</tr>
<tr>
<td>LCII to PPC 8100/80</td>
<td>$1650</td>
</tr>
<tr>
<td>LCII to PPC 8100/800</td>
<td>$1850</td>
</tr>
</tbody>
</table>

POWERBOOKS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPC 8100/110/16/20/CD</td>
<td>$5150</td>
</tr>
<tr>
<td>PPC 7200/240/20/CD</td>
<td>$2950</td>
</tr>
<tr>
<td>PPC 7200/120/20/CD</td>
<td>$2650</td>
</tr>
</tbody>
</table>

HARD DRIVES

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYQUEST 88/44</td>
<td>$350</td>
</tr>
<tr>
<td>F6/100/20/CD</td>
<td>$150</td>
</tr>
<tr>
<td>1 GIG HD</td>
<td>$450</td>
</tr>
<tr>
<td>4 GIG HD</td>
<td>$2175</td>
</tr>
<tr>
<td>540MB 3.5&quot;</td>
<td>$245</td>
</tr>
<tr>
<td>250/340MB 2.5&quot;</td>
<td>$320</td>
</tr>
<tr>
<td>540MB 2.5&quot;</td>
<td>$450</td>
</tr>
</tbody>
</table>

APPLE PARTS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.44 FLOPPY</td>
<td>$195</td>
</tr>
<tr>
<td>MOUSE II</td>
<td>$75</td>
</tr>
<tr>
<td>7100 L/BORAD</td>
<td>$1550</td>
</tr>
<tr>
<td>CI/L/BORAD</td>
<td>$395</td>
</tr>
</tbody>
</table>

ACCELERATION & NETWORKING TRADIFS • UPGRADES • SYSTEMS • PARTS

UPGRADE OR TRADE YOUR OLD MAC FOR A POWER MACINTOSH

AT OUR PRICES

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>S40C 36/500</td>
<td>$465</td>
</tr>
<tr>
<td>S20C 36/500</td>
<td>$3750</td>
</tr>
<tr>
<td>S20C 4/160</td>
<td>$2095</td>
</tr>
<tr>
<td>150 4/120</td>
<td>$1359</td>
</tr>
<tr>
<td>DUO 270C 4/240</td>
<td>CALL</td>
</tr>
<tr>
<td>DUO280C 12/240/MB</td>
<td>$2850</td>
</tr>
<tr>
<td>DUO280C 12/240/MB</td>
<td>$3705</td>
</tr>
</tbody>
</table>

EXCHANGE ANY OLD POWERBOOK TO NEW 500 SERIES

call..... iCN
310-445-6600
fax: (310) 445-6611
2045 B South Barrington Avenue
Los Angeles, California 90025

CIRCLE 439 ON READER SERVICE CARD

Our service is the difference.

At AEM we specialize in optimal
storage protected memory and
tanbery personal computer tech-
nicians. We take pride in our pro-
blem solving on any model of
or, which means they can be
chipped into your system by the end of
the day. Signed up as we will show you
personalized real training can be.

Call for prices on any item not
listed. Government, School &
Corporate PTA's accepted.
We proudly offer Priority in
most cases.

CIRCLE 437 or READER SERVICE CARD

AEM TECHNOLOGY

1-800-937-2366

We Buy and Sell New and Used Macs

DIGITAL VIDEO/PUBLISHING WORKSTATION SPECIALISTS

SOFTWARE

MACINTOSH SYSTEMS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadra 850 90</td>
<td>$940</td>
</tr>
<tr>
<td>Quadra 860 830</td>
<td>$3350</td>
</tr>
<tr>
<td>Quadra 860 610</td>
<td>$2300</td>
</tr>
<tr>
<td>Quadra 830 410</td>
<td>$1900</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
<tr>
<td>Quadra 830 210/200</td>
<td>$1795</td>
</tr>
</tbody>
</table>

SUPERMACS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thunder II GX 1600</td>
<td>$2495</td>
</tr>
<tr>
<td>Thunder I GX 1600</td>
<td>$3495</td>
</tr>
<tr>
<td>Thunder II GX 1152</td>
<td>$3495</td>
</tr>
<tr>
<td>Thunder II 24</td>
<td>$3495</td>
</tr>
</tbody>
</table>

MONITORS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Popular 17&quot; Monitor</td>
<td>$495</td>
</tr>
<tr>
<td>Most Popular 20&quot; Monitor</td>
<td>$595</td>
</tr>
<tr>
<td>Most Popular 24&quot; Monitor</td>
<td>$695</td>
</tr>
</tbody>
</table>

PRINTERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konica ColorView</td>
<td>$625</td>
</tr>
<tr>
<td>Fargo Primera Pro</td>
<td>$345</td>
</tr>
<tr>
<td>ColorView Primera Pro</td>
<td>$179</td>
</tr>
<tr>
<td>HP LJ 11&quot; 17&quot;</td>
<td>$3250</td>
</tr>
</tbody>
</table>

SCANNERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGFA Scan f</td>
<td>$705</td>
</tr>
<tr>
<td>Microtek Scan f</td>
<td>$179</td>
</tr>
<tr>
<td>Microtek Scan f</td>
<td>$179</td>
</tr>
<tr>
<td>Microtek Scan f</td>
<td>$179</td>
</tr>
</tbody>
</table>

COMPLETE VIDEO WORKSTATIONS FOR AS LOW AS $8,995

Prices subject to change without prior notice. Reflect a cash price only.
For additional savings, contact your dealer, reseller or consultants.

CIRCLE 450 ON READER SERVICE CARD

800-422-57719

CIRCLE 439 ON READER SERVICE CARD

MACworld

March 1995

224
Mac Attack

We Attack High Prices!!!

Prices subject to change — please call for latest pricing. We carry hundreds of items — call for availability. Your satisfaction is our goal. Prices are C.O.D. and subject to change. International Orders and Fax Orders Welcome.

PowerMacs
- iMac 600/120... $1651
- iMac 600/250CD... $1841
- iMac 610/300CD... $2331
- iMac 610/500CD... $2432
- iMac 610/600CD... $2433
- iMac 610/650CD... $2333
- iMac 610/800CD... $2495
- iMac 610/1000CD... $3245
- iMac 610/1200CD... $3585
- iMac AV 1000CD... $3051
- iMac AV 1600CD... $4383
- iMac 10000CD... $5300

Powerbooks
- Powerbook 2600... $3243
- Powerbook 2800... $3578
- Powerbook 2850... $3578
- Powerbook 2900... $3578
- Powerbook 3000... $3578
- Powerbook 4000... $3578
- Powerbook 4400... $3578
- Powerbook 4493... $3578
- Powerbook 4497... $3578

Scanners
- HP ScanJet 250... $900
- HP ScanJet 400... $900
- HP ScanJet 820... $900
- Apple Color One Scanner... $850
- Apple Color One Scanner... $850
- Apple Color One Scanner... $850
- Apple Color One Scanner... $850

Software
- QuickTime 2.0... $219
- Macromedia Flash 3.0... $219
- Neuron Engine Set... $219
- ProTools 7.0... $219
- ProTools 7.0... $219
- SoundWriter II... $219
- SoundWriter II... $219
- SoundWriter II... $219
- SoundWriter II... $219

Modems
- V.90 Telexmodem... $271
- V.90 Modem... $271
- V.90 Modem... $271
- V.90 Modem... $271
- V.90 Modem... $271
- V.90 Modem... $271

Printers
- PrintMaster 2.1... $289
- ColorWriter 2400... $289
- ColorWriter 2400... $289
- ColorWriter 2400... $289

Monitors
- Apple Display 14"... $289
- Apple Display 17"... $289
- Apple Display 19"... $289
- Apple Display 21"... $289
- Apple Display 24"... $289
- Apple Display 25"... $289

Keyboards
- Apple Desktop Keyboard... $289
- Apple Deluxe Keyboard... $289
- Apple Quicksilver... $289

Other Stuff
- Input Devices 45B20... $289
- Input Devices 45B20... $289
- Input Devices 45B20... $289
- Input Devices 45B20... $289

Fax: 409.690.5353 (Sales) 409.690.5345 (Fax). Contact Us Via Internet! MACSales@aol.com

We only sell brand new products. No tax outside CA. One year warranty.

Call Today About Other Great Product Offers!!

Macworld Shopper

Circle 438 on Reader Service Card

Mac Professional

We guarantee best pricing.

Call for New Generation of Powermac's Power Mac's

800/110... 8100... 8100... 7100... 7100... 6100... 6100... 6100...
8/0... $4595... $2495... $2795... $1992... $2500... $1200... $1590...
8/250... 4685... 2625... 2995... 2122... 2425... 1325... 1750...
8/500... 4800... 2750... 3050... 2250... 2550... 1450... 1850...
16/1GB... 5450... 3395... 3595... 2892... 3200... 2100... 2490...
16/2GB... 5750... 3695... 3895... 3192... 3500... 2400... 2790...
24/3GB... 5950... 3995... 4095... 3392... 3700... 2600... 2990...
40/2.4... 6650... 4595... 4895... 4092... 4400... 3500... 3690...
72/4.0... 8850... 6795... 7095... 6500... 6800... 5200... 5590...
156/4.0... 11100... 8995... 9295... 8492... 8795... N/A... N/A...
256/0... 12995... 10595... 10995... N/A... N/A... N/A... N/A...

Prices are subject to change without notice. In business since 1988.

To Order: 800-258-2582

Circle 495 on Reader Service Card
COMPULAGE

THE SOURCE TO MACINTOSH WORLD

310 N. LA CIENEGA - LOS ANGELES, CA 90048

Macworld Shopper

SYST:EMS & PERIPHERALS

1-800-319-4MAC (4822)

LOWEST PRICES BEST SERVICE

QUADRAS POWERBOOKS
PRINTERS WATCH FOR QUOTES
MONITORS POWER PCs

CALL FOR

FAX 310-358-9100

Disk Drives & International Orders Welcome
Same Day Shipping in USA
We Only Sell Brand New Systems
Full One-Year Warranty

CIRCLE 442 ON READER SERVICE CARD

Make your PC peripherals Macintosh compatible!

MEDIATOR lets you use your PS/2 style peripherals just as if they were connected directly to your Mac. Use the Cybex AutoPort™ Commander in conjunction with the Mediator to control a mixture of PCs and Macs from a single keyboard, monitor and PS/2 mouse. Or allow several users to share a Mac with PC-Exander Plus™. With the Mediator, going multiplatform is easy!

- Compatible with most Macintosh computers with detachable monitors
- Supports VGA, SVGA and Macintosh HiRes video
- Supports PS/2 style keyboard, mouse or peripherals

For Sun® workstation support, ask about our Mediator for Sun!

MEDIATOR™ for Macintosh

Cybex Corporation
4012 Research Drive • Huntsville, AL 35806 USA
(205) 430-4000 • FAX (205) 430-4030

CIRCLE 433 ON READER SERVICE CARD

• The source to Macintosh world

310 N. LA CIENEGA - LOS ANGELES, CA 90048

CIRCLE 442 ON READER SERVICE CARD

MEDIATOR for Macintosh

Cybex Corporation
4012 Research Drive • Huntsville, AL 35806 USA
(205) 430-4000 • FAX (205) 430-4030

CIRCLE 433 ON READER SERVICE CARD
**SUPER DEALS ON USED**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performa 466 (68030 33MHz Factory Refurb)</strong></td>
<td>$599.00</td>
</tr>
<tr>
<td><strong>Mac LC II 4/80 w/kyb</strong></td>
<td>$479.00</td>
</tr>
<tr>
<td>Mac Quadra 950 8/0</td>
<td>$2,175.00</td>
</tr>
<tr>
<td>PB 145B 4/80</td>
<td>$849.00</td>
</tr>
<tr>
<td>Duo 210 4/80</td>
<td>$599.00</td>
</tr>
<tr>
<td>Duo 230 4/80 w/Floopy</td>
<td>$949.00</td>
</tr>
</tbody>
</table>

**NEW ACCESSORIES**

- Laser CRT Logic Bd. Upgrade: $229.00
- Laser II Logic Bd. Upgrade: $499.00
- StyleWriter AC Adapters: $89.00
- PowerBook Running Cases: $39.00

**NEW MS Word/Excel Bundle - $149.00**

ONLY $99.99 With Any CPU

**BOTH FOR ONLY-$199.00**

- New NEC CD Drive - $99.00

Includes Over $200 Software Free:

- T/Maker Clickart 2000 & DRIVE 7 CD & The Merchant

- New Microsoft Works - $29.00

**New PowerBook Bundle: Cordura Carrying Case - $39.00**

& over $500 Software: Write Now, Amer. Heritage Dict., Gram-natch, Mac Correct Quotes, FaxMania, Click Art Holidays

**USED**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac Plus</td>
<td>$199.00</td>
</tr>
<tr>
<td>Mac SE (800K)</td>
<td>$225.00</td>
</tr>
<tr>
<td>Mac SE (FDHD)</td>
<td>$225.00</td>
</tr>
<tr>
<td>Classic</td>
<td>$429.00</td>
</tr>
<tr>
<td>Mac LC II</td>
<td>$399.00</td>
</tr>
</tbody>
</table>

**NEW**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac II</td>
<td>$199.00</td>
</tr>
<tr>
<td>Mac SE</td>
<td>$89.00</td>
</tr>
<tr>
<td>Mac Classic</td>
<td>$179.00</td>
</tr>
</tbody>
</table>

**LIMITED QUANTITIES/PRICES SUBJECT TO CHANGE**

We want to buy your new/used Mac equipment.

1-800-729-7031

CIRCLE 401 ON READER SERVICE CARD
Clearance Sale!

**Bargains Aplenty!**

**SE POWER SUPPLY** | 129.
**SE ANALOG BOARD** | 149.
**APPLE 4D-MAC TAPE BACKUP** | 129.
**LaserWriter to Plus RC5 UPGRADE** | 99.
**ABD MOUSE** | 49.
**Rewinds Power Supply** | 149.
**1200 Baud PERSONAL MODERN WRITER** | 29.
**LC Ethernet Board** | 49.
**CRT & YORK ASSEMBLY FOR PLUS & SE** | 49.
**MAC PLUS KEYBOARD** | 69.
**MAC PLUS MOUSE** | 69.
**PORTABLE 2-400 Base Internal Modem** | 99.
**40-Meg External Hard Drive** | 169.
**MAC Classic Power Supply** | 99.
**AppleDesign Powered Speakers** | 99.
**PERSONAL NT Logic Board** | 179.
**MAC Plus Power Supply** | 119.

**LOGIC BOARD UPGRADES!**

**Mac IIX to IIFX:** $499

**New!**

**IVX to CENTRIS 650:** $499

**1200 baud Ethernet, 25 MHZ**

**IIci to CENTRIS 650:** $699

Price includes installation!

**CENTRIS 610 to QUADRA 660av:** $499

**25 MHz, floating point unit, Ethernet, AV Technology**

**QUADRA 800 to QUADRA 840av:** CALL!

**40 MHz 68040, AV Technology, 66 MHz DSP**

**E-MACHINES E20 (NEW)** | 129.
**E-MACHINES T16 (NEW)** | 89.
**14" Classic Color VGA** | 169.
**Apple Display** | 299.
**EMACHINES E20 (NEW)** | 1299.
**EMACHINES T16 (NEW)** | 899.
**SEIKO CM-144 14" Monitor** | 299.

**WHAT ARE YOU LOOKING AT?**

**MITSUBISHI**

**DIAMOND PRO 21T**

**21" MULTI-SCAN**

**RESOLUTIONS TO**

**1600 x 1200 NTSC**

**ONLY** | $1,795

**MITSUBISHI**

**FG-600**

**15" FIXED-RES 16"**

**RESOLUTIONS OF**

**832 x 625**

**ONLY** | $45

**Call Today!**

**CAPETRONICS**

**C03-23W**

**MULTI-MODE 17"**

**RESOLUTIONS TO**

**1152 x 870**

**ONLY** | $699

**WHAT ARE YOU LOOKING AT?**

**ONLY THE BEST MONITOR PRICES IN THE NATION**

Computer Revelations Inc.

1 800 275-9924

in NY 516 737-0800

ALL MACINTOSH, & PCS,

Sales, Leasing, Service & Support

336-10-TRENT COURT,HOLBROOK NY 11741 FAX 316-729-3395

Circle 425 on Reader Service Card
POWERPC MEMORY $157

POWERPC, Centris, Quadra, LC III
4MB-70ns / 4MB-60ns $157 / $159
8MB-70ns / 8MB-60ns $292 / $312
16MB-60ns non-composite $485
32MB-60ns $992

STANDARD 30 PIN MEMORY
4x8x80 $137
4x8x80 (IFX) $145
4x8x70 $139
4x8x70 (IFX) $147
4x8x100 $128
4x8x80 (IFX) $145
2x8x80 $77
2x8x70 $79
8x8x70 (IFX) $319
4x8x60 $132
16x8x60 (Low Profile) $699
4x8x70 $134
16x8x70 (IFX) $699

LaserWriter 810 4MB / 8MB $299 / $299
HP 4, 4MB / 8MB $319 / $339
TI FISPL-351MB $56

PRINTERS

PowerPC, Centris, Quadra, LC III
4MB-70ns / 4MB-60ns $157 / $159
8MB-70ns / 8MB-60ns $292 / $312
16MB-60ns non-composite $485
32MB-60ns $992

STANDARD 30 PIN MEMORY
4x8x80 $137
4x8x80 (IFX) $145
4x8x70 $139
4x8x70 (IFX) $147
4x8x100 $128
4x8x80 (IFX) $145
2x8x80 $77
2x8x70 $79
8x8x70 (IFX) $319
4x8x60 $132
16x8x60 (Low Profile) $699
4x8x70 $134
16x8x70 (IFX) $699

LaserWriter 810 4MB / 8MB $299 / $299
HP 4, 4MB / 8MB $319 / $339
TI FISPL-351MB $56

OTHER MAC NEEDS

SyQuest 270MB CARTRIDGES $62
Syquest 44MB Cartridge 1-4/5-9/10 $59 / 62 / 62
Syquest 88MB Cartridge 1-4/5-9/10 $61 / 66 / 66
Syquest 100MB Cartridge 1-9/10 $61 / 66 / 66
Syquest 200MB Cartridge 1-9/10 $79 / 81 / 81
Syquest 270MB Cartridge 1-4/5-9/10 $62 / 61 / 60

SyQuest 270MB CARTRIDGES $62
Syquest 44MB Cartridge 1-4/5-9/10 $59 / 58 / 57
Syquest 88MB Cartridge 1-4/5-9/10 $61 / 66 / 66
Syquest 100MB Cartridge 1-9/10 $61 / 66 / 66
Syquest 200MB Cartridge 1-9/10 $79 / 81 / 81
Syquest 270MB Cartridge 1-4/5-9/10 $62 / 61 / 60

VERBATIM AS LOW AS $10

128MB 3.5" Optical $80
128MB 3.5" Optical, Apple Format $96
256MB 3.5" Optical $99
600 / 650MB 5.25" Optical (812 b/s / 1024 b/s) $105
1.2 / 1.3GB Optical (812 b/s / 1024 b/s) $105
DC2000 with QIC40 $16.90
DC2080 with QIC30 $16.90
DC2120 with QIC80 $19.50
4mm 90m / 60m $11.50 / 9.90
8mm 12mm $9.90

CD / Recordable 460 / 74 min $13.99
CD-Recordable 90 / 74 min $13.99

WE ALSO CARRY PARALLON & DAYNA NETWORKING PRODUCTS, CABLES, PRINTER SUPPLIES, KEYBOARDS, MICE, SCANNERS.... CALL US TODAY

FAX 206-746-5168
EDUCATIONAL GOVERNMENT 1-800-848-1424

POWERBOOK MEMORY

POWERBOOK MEMORY
PB140-170/4.6 $99 / $159
PB160-180-4.6/8.10 $105 / $159 / $209 / $279
PB160S-330C-4.6/8.10 $105 / $149 / $209 / $255
DUO 210 - 240C $175 / $199 / $329
DUO 210 - 240C 14/20/28 $575 / 960 / 1279
PB 520 - 540C 4/8/16/32 $179 / $333 / 645 / 1379

POWERBOOK ACCESSORIES

Battery Charger / Conditioner $75
Automotive Adapter 100-180 / DUO $69
Newer Technology DUO Micro Dock SCSI / Color $161 / $259
Rastershop DuoMate 8 / 16 SC $269 / $399

VIDEO RAM / FPUS ETC...

Video RAM 256K / 512K $20 / $138
64MHz LC or Color Class $49
25MHz LC III $49
33MHz Performa 600 / Duo Dock FPUS $65
Centris FPUS $299

COMPANY SHOWS

Compact Mac Tool Kit / PB Tool Kit $6 / $750
SIMM Remover (80 pin only) / Grounding Strap $95 / $150
Modem Cable / High-Speed Hand Shaking $75 / $12
Printer Cable D1N-8 to DIN-8 / DIN-8 to DB-25 $7.50 / $30
Newer Technology VSO C700 / 900 / 950 / IFX $170
Long Life Battery 140-180c $269 / $399
SCSI Cables M25-M50 18" / M25-M50 6" $9 / $19
SCSI Cables M50-M50 18" / M50-M50 6" $9 / $19

MODEMS

Super S32bis 28.8 (MCI) Fax 14.4 w / C & S $205
Super S32bis 28.8 MCI Fax 14.4 w / C & S $205
Super S32bis PowerBook 14.4 $229
Super 28.8 VPC External w / C & S $239
Super 28.8 VPC Powerbook w / C & S $239
Global Village Teleport / Powerport (Bronze) $97
Global Village Teleport (Gold) 14,400 $135
Global Village Powerport (Gold) 14,400 $249
Global Village Teleport (Mercury) 19,200 $289
Global Village Powerport (Mercury) 19,200 $292

COMMUNICATIONS

Mercury for Duo 2xsc / PB6xx $329 / $341
U.S. Robotics Sportster 14.4 / S/ R Fax $160
U.S. Robotics Sportster 28.8 V34.4 / S/ R Fax $268
Prometheus PowerBook 14.4 w / Voice $309
Prometheus Frommodem 144 144 $129
Practical Peripherals 144 $239
Zoom 14.4 w / Voice $189
Zoom V. fast 26.8 modems $249

CIRCLE 580 ON READER SERVICE CARD

232 March 1995 MACWORLD
SYQUEST DRIVES ONLY $279

Rumi SYQUIET DRIVES

Rumi 44MB SyQuest (FREE Cartridge) $279
Rumi 88c (R/W 44) SyQuest (FREE Cartridge) $399
Rumi 105MB SyQuest (FREE Cartridge) $379
Rumi 200MB SyQuest (FREE Cartridge) $539
Rumi 270MB SyQuest (FREE Cartridge) $539

Rumi CD-ROM DRIVE

CD-ROM Bundle Includes
RUMI CD-ROM Drive, Sony Speakers and 4 CD Titles
World Atlas Myst Imagica
Where in the World is Carmen Sandiego

Rumi DAT DRIVES

Rumi 2.0GB Dat Drive w/Retrospect (Includes Tape) $979
Rumi DDS / 1GB w/Retrospect (Includes Tape) $1119

Rumi HARD DRIVES

Rumi 170MB Internal $199
External (Quantum) $269
Rumi 270MB Internal $219
External (Quantum) $279
Rumi 340MB Internal $279
External (Quantum) $339
Rumi 540MB Internal $309
External (Quantum) $369
Rumi 1.4GB Internal $959
External (Quantum) $1019
Rumi 2.1GB Ext (Seagate Barracuda) $1709
Rumi Powerbook 340 Int (Toshiba) $449

Rumi DRIVE CARTRIDGES

PM0 RCD 1.4GB Internal $339
PM0 RCD 1.4GB Internal $279
PMO RCD 1.4GB Internal $939
Rumi 1.4GB Internal $959
External (Quantum) $1019
Rumi 2.1GB Ext (Seagate Barracuda) $1709
Rumi Powerbook 340 Int (Toshiba) $449

Rumi OPTICAL DRIVE

128MB Optical Drive Double Speed with TEAC Mechanism

SCANNERS / PRINTERS

HP LaserJet II X $999
HP LaserJet II P $999
UMAX UC 600 LE $639
UMAX UC 800 $945
UMAX UC 800 $1059
Microtek ScanMaker II $149
Microtek ScanMaker II IS $149
Microtek ScanMaker II IS $149
Microtek ScanMaker II IS $149
Microtek ScanMaker II IS $149
Citizen Notebook II Color Printer $129
Notebook II Ink-jet Battery Pak $149
Labelware II XL $149
HP DeskWriter 540 $325

HEWLETT® PACKARD

HP Deskwriter Printers Now Available

"Customer Service Guaranteed! Depend on LLB for Quality, Service and Value
- Airborne Express Overnight S6 and up
- First quality New, Refurbished products
- Return & exchange within 30 days
- All major credit cards accepted, no surcharge
- Credit card not charged until order is shipped
- Orders received before 2:00 PM Eastern time weekdays shipped same day
- No extra charge to most countries in the world
- All returns require approval and are subject to a restocking fee
- Price subject to change
- Open 7 a.m. to 7 p.m. M-F, 9 a.m. to 6 p.m. Saturdays

13228 NE 20th ST, Suite B, Bellevue, WA 98005, (206) 746-0229

RASTEROPS

RASTEROPS
THE ART & SCIENCE OF COLOR™

1 - 800 - 848 - 8967

1 - 800 - 848 - 8967
## NEWER HABITAT

**Why buy NEWER products?**
- Great prices for high quality products
- All products U.S. manufactured
- Easy and individually boxed
- Detailed instructions for installation
- Knowledgeable and friendly sales staff

### ACCELERATORS

- Versatile Speed Overdrive-Quadra...: 70/50/91/48
- VSO-Quadro050 40MHz: 149
- VSO-128MHz: 149
- Power Clip Quad: 610, 650, 660, 800: 149
- Power Clip Quad: 510, 550, 560: 149
- Memory Accelerator: 70/50/Quadra: 798
- Memory Accelerator: 50/Quadra: 70/300, 609: 71,499

### MEMORY

- Power Mac, Centris, Quadra, LC II, Performa
  - 32-bit Memory
    - 4MB-70/60MHz: 149
    - 8MB-70/60MHz: 149
    - 16MB-70MHz: 149
  - 8-bit Memory
    - 512K: 44

### POWERBOOK ACCESSORIES

- PowerBook Memory: 125/110
- Power Book Memory Upgrade Kit: 119

### ACCESSORIES

- PowerBook Memory: 125/110
- Power Book Memory Upgrade Kit: 119

### HOT CD TITLES!

- $49

### OVER 2,000 CD TITLES AVAILABLE!

### Rumi CD-ROM 2x Bundle... Only $399!

### Call 1-800-840-2221

---

## SONY

- 8mm 120 Min. Video: 4,99
- 8mm 120 Video High Grade: 6,99
- 8mm 180 Video Metal Evap: 24,99
- Hi-8 120 Metal Parallel: 3,99
- VHS 120 Min. Video: 3,99
- S-VHS 120 Min. Video: 8,99

### Beta, DAT, Audio, Mini-Disc, and other Sony Media Available! Call Today!

## Call 1-800-882-4552
**PERIPHERAL 800 259-6565**

Call us last! We will try to beat all reasonable competitor's price!

---

**DiiMOCache 50MHz Accelerator $445**

Speed up everything you do by up to 400%

with this 50MHz 68030 accelerator by DiiMO Technologies. Awarded 4½ Mice in MacUser’s April '93 Accelerator Review, the DiiMOCache 50MHz 68030 Accelerator outperformed not only DayStar’s PowerCache 50MHz but also most of the 68040 25MHz accelerators. And it costs less too! For the LC, LCII, LCIII, II, IIx, IIIc, IIIci, Ivi, Ivi, SE/30, and Performa 600 and 400 series. Call for adapter prices.

DiiMOCache 50MHz 68030 Accelerator

without FPU $445.00  with FPU $519.00

---

**We will buy your old memory at great prices! Call for details.**

**72 Pin Memory for the new Macs!**

80ns 70ns 60ns

<table>
<thead>
<tr>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Megabyte</td>
<td></td>
</tr>
<tr>
<td>8 Megabyte</td>
<td></td>
</tr>
<tr>
<td>16 MB - Non Composite</td>
<td></td>
</tr>
<tr>
<td>32 MB - Non Composite</td>
<td></td>
</tr>
</tbody>
</table>

Prices Changing — Call for Best Prices!

---

**68040 Accelerators for 610s**

The CentrisBooster and QuadraBooster take your Centris/Quadra 610 to super-sonic speeds! Double the clock speed of your Centris 610 by installing our 40MHz 68040 accelerator, or make your Quadra 610 fly with the 50MHz version. The Centris version is also available in a $245.00 configuration which includes Motorola’s ‘maltless’ 68LC040 processor.

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>68040 40MHz Accelerator for Centris 610</td>
<td>$395</td>
</tr>
<tr>
<td>68040 50MHz Accelerator for Quadra 610</td>
<td>$595</td>
</tr>
</tbody>
</table>

---

**Newton PDA Upgrade Products**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>512K Static RAM Storage Card</td>
<td>$115.00</td>
</tr>
<tr>
<td>1 Megabyte Static RAM Storage Card</td>
<td>$165.00</td>
</tr>
<tr>
<td>2 Megabyte Static RAM Storage Card</td>
<td>$279.00</td>
</tr>
<tr>
<td>2 Megabyte Flash Storage Card</td>
<td>$235.00</td>
</tr>
<tr>
<td>4 Megabyte Flash Storage Card</td>
<td>$399.00</td>
</tr>
<tr>
<td>8 Megabyte Flash Storage Card</td>
<td>$525.00</td>
</tr>
<tr>
<td>16 Megabyte Flash Storage Card</td>
<td>$895.00</td>
</tr>
</tbody>
</table>

---

**TOLL FREE TECH SUPPORT**

LIFETIME WARRANTY ON ALL MEMORY PRODUCTS

ORDER BY 6:30 PM CST FOR SAME DAY SHIPPING*

OVERNIGHT DELIVERY FROM $8.00 *some restrictions apply

---

**PERIPHERAL OUTLET, Inc.**

327 East 14th, PO Box 2329 • Ada, Oklahoma 74820

405/332-6581 FAX405/436-2245 • AppleLink-PERIPHERAL

HOURS: Monday-Thursday 7 AM-7 PM CST, Friday 7AM-6 PM

---

Due to volatility in the market all prices and availability are subject to change without notice. We accept Visa/MC/Amex/Discover, and COD Cashiers check upon approval. Educational, Government, and Fortune 500 POs accepted upon approval.
**TeleFinder BBS**

Create Your Own GUI On-Line Service!
- Easy-to-use Electronic Mail
- Gateways to the Internet and Telnet
- Fast ZMODEM File Transfer
- View GIF and PICT graphics online
- Conference and Message Forums
- Multi-User Chat and Instant Messages
- File Search and Thumbnail Previews
- New TelNet and UUCP support
- Custom software for Mac and Windows

Spider Island Software • 4755 Irvine Blvd #105-547 Irvine, CA 92720
Voice (714) 606-9269 • Fax (714) 606-1983 • BBS (714) 730-5785

CIRCLE 597 ON READER SERVICE CARD

---

**Family Roots™**

Genealogy. Do it YOUR way! Huge variety and capacity for your family history. Make pedigree charts, descendants charts, person sheets, group sheets, indexes and much more. Customize to your own preferences. Standard Mac interface. Call for FREE information. Satisfaction guaranteed. MC/Visa/AE.

Quinsept
Box 216
Lewiston ME 04240
617-1641-2930
800/637-ROOT

---

**Mac ISDN**

ISDN, the breakthrough communications technology being hailed by Microsoft, IBM, Intel, and the Baby Bells, is now available for the Macintosh. Across town or around the world, ISDN enables superfast file transfers (>1Mbits), LAN bridging, ARA connectivity, and high-speed BBS access. Synapse offers complete Macintosh ISDN installations and support, featuring world class products from Euronis and Group Logic:
- Planet-ISDN II NuBus Board $805.00
- GazezTransfer™ Board for PCs $850.00
- EasyTransfer™ software $445.00
- TheLink™ AppleTalk/LAN/Router $545.00
- ImageSet Interactive Groupware $745.00

Sales: 1-800-454-ISDN
Internet: synapse@mcs.com

---

**LXR-TEST**

Best In Testing

Highest-rated software for every testing environment: research, school, district, government, industrial, and certification.
- Item Banking & Test Production
- Test Scoring & Analysis
- Scoring & Analysis
- Interactive Testing & Analysis
- Weighted & Unweighted Testing
- Accommodates All Devices
- Integrated Design (Mac & Windows)

989-886-0406 Fax: 987-47401
7180 Archibald Ave, Suite 240
Rancho Cucamonga, CA 91701

CIRCLE 407 ON READER SERVICE CARD

---

**Family Heritage File™**

Genealogy. New Version 3.3! Most powerful and easy genealogy program on Mac. Rated **"BEST"** by Macworld. Designed by genealogy professionals. • Stand alone
- Graphic Pedigree, Descendants, Family Group, Individual, Marriage, Source
- Unlimited generation • Sorted Lists • Export to Word/Excel/HTML • GEDCOM compatible
- Jewish/ LDS features

Stamf, Free Lit Pack.
StarCom Microsystems
Windsor Park East
25 West 1480 N, Orem, UT 84057
801/225-1480

---

**PROTECT YOUR MAC WITH ALL FABRIC DUST COVERS**

Co-De-Cr Computer Dust Covers
4632 W, Visc AVE. ARLYN, VA 22201
703-178-1569 ON 703-178-3357 FAX

CIRCLE 465 ON READER SERVICE CARD

---

**Macworld SHOPPER**

---

**STUDENT - TEACHER - SCHOOL DISCOUNTS!!!**

**"Latest Versions & Full Packages* **

**Strata Studio Pro 1.5**

$495

$Power PC Titles Available*

- Astound 1.5 $129
- Adobeware Pro 2.02 $995
- Autocad 12 w/AME $199
- Blueprint 5 $150
- Canvas 3.5.2 $175
- Claris Works 3.0 $89
- Coca Cola 3.2 $249
- Codewarrior Gold $149
- Collage 2.0 $175
- Design Workshop $249
- Director 4.1 $595
- Encore 3.0 $249
- Fractal Painter 3.0 $219
- Framemaker 4.0.3 $399
- Infiniti-D 2.6 $249
- JMP Version 3 $329
- Kai's Power Tools 2.1 $85
- KPT Bryce $85

We Will Beat Any Advertised Price!!

THE SOFTWARE SOURCE CO. INC. • 2517 Hwy 36, Bldg L, Manasquan NJ 07736
Phone (908) 528-0030 Fax (908) 528-9378
CIRCLE 576 ON READER SERVICE CARD

---

**PHONE**

(800) 289-3275

Microsoft products available to qualified students, teachers and schools.

Microsoft Products Available
- Produced Available by Adobe Symantec.
- IBM Products Available
- Thousand of other Titles!
- School P.O.'s Welcome!
- Visa, Mastercard, Amex & Discover Accepted!
- No Surcharge on Credit Cards!
- Fast Turn Around!

---

**DUPLICATION FROM $8.49**

Highest Quality Media

- From $6.49 (0.25") and $8.99 (0.69")
- All Diskettes Formatted
- Diskette Labels
- Catelogue Services
- Generous Volume Discounts

CIRCLE 464 ON READER SERVICE CARD
Are you Fascinated By the Internet But Don't Know How to Get Started?

Start exploring today with The Internet For Everybody™, a lively and entertaining multimedia CD-ROM or videotape.

It's easy to follow and understand the instruction given by international computer and Internet expert Dick Rubinstein. Dick's personal guided tour gives you the benefit of first-hand experience in exploring the Internet from the perspective of four different people: a business person, teacher, retiree, and high school student. Watch over Dick's shoulder and actually see what he types on-line as he travels the hidden depths of the information superhighway using the following tools:

- Electronic Mail
- Gopher
- Telnet
- Newsgroups
- Global Network Navigator
- WAIS
- Mailing Lists
- World Wide Web
- MUDS
- Jumpstation

Call Now 1-800-285-3821 Ext. 210
Outside the US: (508) 879-0006

COST: $49.95 (CD-ROM or Videotape) plus $5 dom./$15 int'l. shipping and handling. Visa and Mastercard accepted. Mail prepaid orders to: ETA, 111 Spen Street, Suite 202, Framingham, MA 01701. Specify Windows or Macintosh for CD-ROM. Email: tife@aol.com

Here's what satisfied Internet explorers have had to say about The Internet For Everybody™:

"I feel as though there is some hope for me re: navigating the Internet..."

"For neophytes, it's a tremendously clear introduction to many Internet pathways..."

"...it immediately sent me to my computer to try some of them out."

Software Discounts Up to 80%!

*) Student / Teacher / School

Full Packages & Latest Versions

QuarkXpress 3.3
PowerMac Version 699
Desktop Publishing Bundle
PowerMac Versions
PageMaker 5.0 249
Strata Studio Pro 1.5 495
Director 4.0/4.1 S99
AutoCAD Rel.12
Filemaker Pro 2.1 S99
F reel Windows 1.0 228
Form-2 2.6 799
Strata Vision 3D 250
Fractal Painter 3.0 519
Symantec Corp. 7.0 149
FrameMaker 4.0 399
Freehand 4.0 189
PowerPerfect 3.1 99
Infini-D 2.6 269
Kai's Power Tools 2.1 84

Add Depth
Authorware Pro.01
ClarisWorks 3.0
CodeWright 3.0
Director 4.0/4.1
Filemaker Pro 2.1
Form-2 2.6
Fractal Painter 3.0
FrameMaker 4.0
Freehand 4.0
Infini-D 2.6
Kai's Power Tools 2.1

KPT Bryce 1.0 $84
Mathematica 2.21 $159
Mini CAD-5 $99
Norton Utilities 2.0 $99
Ray Dream Designer 3.0 $175
SoftWindows 1.0 $228
Strata Vision 3D $250
Symantec Corp. 7.0 $149
WordPerfect 3.1 $99
PowerPerfect 3.1 $99

* We also Carry Adobe & Microsoft products.
Mac Gamers Club
Mac games hard to find, too expensive? Join MGC. For $18 a year ($1.50/month) buy newest, most complete collection of great Mac games, accessories, and adult titles at dealership price not discounted prices. Call for FREE price listing.
FTIA Korean Crisis $27.50
Populous II $27.25
WolfPack $26.00
Virtual Valiance 2 $29.00
Theme Park CD $35.00
220 W. Helm Ave. #A
Monterey Park, CA 91754
Tel: 818-230-2456 Fax: 818-307-0180
eMail: gamersclub@aol.com

DirectMail 4.03
Includes: Free CD-ROM & Training Video
$789
Apple Authorized
Fax: (800) 689-9899

Macworld
SHOOPER

EDUCATIONAL & RECREATIONAL
MULTIMEDIA & CD ROM

GRADING MADE EASY!
Grade Machine is fast, realistic and easy to learn! Design custom reports, narrative comments, graphs and much more. New special features for elementary, secondary, and college. Affordable site licenses and multi-teacher packages available. Networkable.
"Extremely easy to learn to use."
—Electronic Learning 8/94, p.37
$199 +S/H (Deluxe Edition adds creating exams, attendance reports & more)
Call (800) 795-0049 to receive yours today!
CIRCLE 543 ON READER SERVICE CARD

Free CDROM Catalog
Mac Internet CDROMs
InfoMac, Hyperstacks, MacGames, MacSource
Paper backgrounds CDROMs
Color Illustrations CDROMs
Photograph CDROMs
Jupiter Impact CDROM

$39.55 each + $5/US $9/int s&h
Pacific HiTech, Inc.
Tel: 801-261-1224 Fax: 801-251-0310
800-765-8369
eMail: orders@phl.com

CIRCLE 598 ON READER SERVICE CARD

Macworld Shopper

CREATE DTP MAGIC
Featuring QuickLearn Format
• Pages of Tutorials and Idea Starters
• Professional Techniques Explained
• For Macintosh and Windows
= CD-ROM Included

SAFETY GUARANTEE
ASC-DTP Corporation

Value: (480) 779-4482
Fax: (480) 779-4432
F1664 South Drive
Morgan Hill, CA 95037
AOL: ASCPhoto
Component: 74372,2381

CIRCLE 407 ON READER SERVICE CARD

HOT SHOPPER PRODUCT CATEGORIES
HELP BUYERS FIND THE PRODUCTS THEY NEED FAST

OVER 1/2 MILLION ACTIVE BUYERS FIND WHAT THEY ARE LOOKING FOR IN THE MACWORLD SHOPPER SECTION.

Now at MacWarehouse
1-800-535-6277
Orders taken M-F 8-6 Pacific, 9-6 ET
Fax orders 801-284-1210

CIRCLE 544 ON READER SERVICE CARD

First
Detailed Networks in Minutes with NetDraw® 2.0!

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just $129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. Call 800-643-4668 to order your copy today!

NetDraw
Clip Art for Building Networks®

Results! Are what our customers want...
And results are what they get via
• 50 Vector Input Formats - 2D & 3D
• 40 Vector Output Formats - 2D & 3D
Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with - CADMOVER® - Graphic Translator
Call 703-532-0213 for more information.

Centralized Color Creation
Blend PANTONE® Colors & Much More!

Introducing Color Compass, the first high-end color blending utility which offers unprecedented ease and flexibility to create, modify, and blend colors for use in your favorite Mac and Power Mac applications. Using our 2, 3, and 4 color blending windows, you can create and manipulate colors in ways never dreamed of before.

Color Compass' intuitive drag and drop interface allows you to hone in on specific colors quickly...even that! Drag between any of our windows or keep them linked for instantaneous updates. Use Color Compass for centralized color creation on your next graphics or multimedia project.

Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with - CADMOVER® - Graphic Translator
Call 703-532-0213 for more information.

PaloPhoto
2313 C St. Sacramento, CA 95816

800 735-1950

CIRCLE 431 ON READER SERVICE CARD

Detailed Networks in Minutes with NetDraw® 2.0!

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just $129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. Call 800-643-4668 to order your copy today!

NetDraw
Clip Art for Building Networks®

Results! Are what our customers want...
And results are what they get via
• 50 Vector Input Formats - 2D & 3D
• 40 Vector Output Formats - 2D & 3D
Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with - CADMOVER® - Graphic Translator
Call 703-532-0213 for more information.

Centralized Color Creation
Blend PANTONE® Colors & Much More!

Introducing Color Compass, the first high-end color blending utility which offers unprecedented ease and flexibility to create, modify, and blend colors for use in your favorite Mac and Power Mac applications. Using our 2, 3, and 4 color blending windows, you can create and manipulate colors in ways never dreamed of before.

Color Compass' intuitive drag and drop interface allows you to hone in on specific colors quickly...even that! Drag between any of our windows or keep them linked for instantaneous updates. Use Color Compass for centralized color creation on your next graphics or multimedia project.

Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with - CADMOVER® - Graphic Translator
Call 703-532-0213 for more information.

PaloPhoto
2313 C St. Sacramento, CA 95816

800 735-1950

CIRCLE 431 ON READER SERVICE CARD

Detailed Networks in Minutes with NetDraw® 2.0!

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just $129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. Call 800-643-4668 to order your copy today!

NetDraw
Clip Art for Building Networks®

Results! Are what our customers want...
And results are what they get via
• 50 Vector Input Formats - 2D & 3D
• 40 Vector Output Formats - 2D & 3D
Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with - CADMOVER® - Graphic Translator
Call 703-532-0213 for more information.

Centralized Color Creation
Blend PANTONE® Colors & Much More!

Introducing Color Compass, the first high-end color blending utility which offers unprecedented ease and flexibility to create, modify, and blend colors for use in your favorite Mac and Power Mac applications. Using our 2, 3, and 4 color blending windows, you can create and manipulate colors in ways never dreamed of before.

Color Compass' intuitive drag and drop interface allows you to hone in on specific colors quickly...even that! Drag between any of our windows or keep them linked for instantaneous updates. Use Color Compass for centralized color creation on your next graphics or multimedia project.

Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with - CADMOVER® - Graphic Translator
Call 703-532-0213 for more information.
Award-Winning Photos on CD-ROM!

Perfect for ads, newsletters, brochures, stationery and more!

- High resolution, ready for color or B&W printing or laser output.
- Royalty free for marketing, advertising, multimedia and more.
- Artistic and technical quality makes PhotoDisc the 10 to 1 favorite.

Preview PhotoDisc for Only $29!
Over 4,000 low-res images plus 25 high-res images.
You also get this 232 page image reference book. An incredible value!

CALL TODAY
HAVE IT ON YOUR DESKTOP
TOMORROW!
1 800 528 3472

CIRCLE 533 ON READER SERVICE CARD

CIRCLE 453 ON READER SERVICE CARD

Native Application for Power Macintosh

HiQ
Real-World Math
for Macintosh

- Interactive applications and graphics in a WYSIWYG notebook interface
- Ingenious 2D and 3D graphics
- Annotation for technical reports, journals, and presentations
- Publication-quality output

Numerical Analysis Power
- More than 600 math, scientific, and engineering functions
- Efficient algorithms with optimal convergence
- User-defined error tolerances

Problem Solvers
- Intuitive GUIs for solving sophisticated problems
- Automatic code generation

HiQ-Script
- A language built for scientists, engineers, and mathematicians

Call for FREE demo.
(800) 433-3488 (U.S. and Canada)

CIRCLE 444 ON READER SERVICE CARD
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've 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 and accidental damage. Your SAFEWARE Policy even covers damage caused by power surges—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
COMPUERVERSE MAGAZINE... "If you use your computer for business, chances are your homeowners' policy won't cover it. Instead, you need to purchase special insurance. If you're self-employed, the premiums are tax-deductible."

THE WASHINGTON POST... "According to Industry analysts, thefts of personal computers have risen by 400 percent since 1991."

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, MasterCard or American Express. You can also mail the coupon along with your check or credit card payment.

<table>
<thead>
<tr>
<th>Total Hardware, Media &amp; Software System Value</th>
<th>Annual Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to $2,000</td>
<td>$49</td>
</tr>
<tr>
<td>2,001 - 5,000</td>
<td>69</td>
</tr>
<tr>
<td>5,001 - 8,000</td>
<td>89</td>
</tr>
<tr>
<td>8,001 - 11,000</td>
<td>109</td>
</tr>
<tr>
<td>11,001 - 14,000</td>
<td>129</td>
</tr>
</tbody>
</table>

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.
2929 N. High St.
P.O. Box 02211
Columbus, Ohio 43202

1-800-SAFEWARE
NOW AVAILABLE IN CANADA!

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.

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.

Please Print Clearly

[Name]

[Address]

[City, State/Zip]

[Total System Value $__________]

[Enclosed is my payment for one year]

[ ] Check enclosed  
[ ] MC  [ ] VISA  [ ] American Express

[Card #__________]

[Expiration Date__________]

[Signature__________]

[Daytime phone _________]

This ad is a summary of the provisions and qualifications of the insurance benefits included in the policy. Read your policy for full details. Call for coverage in TX, MI and NY. Void where prohibited.

Mail to:
SAFEWARE, The Insurance Agency Inc.
2929 North High St.
P.O. Box 02211
Columbus, Ohio 43202

Underwritten by
AMERICAN BANKERS INSURANCE COMPANY
11222 Quail Roost Drive, Miami, FL 33157
Data Recovery

We successfully recover Data 98% from:
- Drives with: Bad Motors
- Electronic Failure
- Mechanical Problems
- Damaged Heads
- Missing or Bad Boot Sectors
- Damaged or Missing Partitions
- FAT and File System Errors
- Damaged Directory Structure
- Accidental Mishandling
- Fire & Flood Damage
- At a Reasonable Cost!

CPR Recovery Services
11440 Okeechobee Rd., Suite 201
Royal Palm Beach, FL 33411
(800) 341-3282
(407) 791-2169

CIRCLE 467 ON READER SERVICE CARD
Some people think that by copying their software they'll make out like a bandit. They're right.

Copy software illegally and you're committing a federal crime with fines of up to $100,000. Help your organization comply with the law by ordering the Software Publishers Association's Software Management Guide. For only $80 you’ll receive SPAudit for DOS and Macintosh, comprehensive auditing software, a video and procedures for keeping your organization's software legal. And your record clean.

ATTENTION CROSS PLATFORM COMMUTERS

SHIFT INTO THE FAST LANE
WITH PKZIP®

The world's most popular data compression comes to Mac!

CALL FOR INFORMATION
513-885-2031
ASCENT SOLUTIONS Inc. (Asi)
10460 Maing/Springboro Pike • Miamisburg, OH 45342
(513) 885-2032 FAX • (513) 885-2033 Data
CIRCLE 416 ON READER SERVICE CARD

FORTRAN 77 • System 7
LS FORTRAN is an ANSI/ISO standard FORTRAN 77 compiler for the Macintosh. Supports extensions from VAX and Cray FORTRAN, built-in debugging, background execution, software or hardware floating point, optimized code generation, and 2D or 3D graphics support. The complete solution to your FORTRAN programming needs.

Language Systems Corp.
P.O. Box 140
Sterling, VA 20164
703/478-0181
703/689-9593 Fax
800/252-6479

OVER 1/2 MILLION
ACTIVE BUYERS FIND
WHAT THEY ARE
LOOKING FOR
IN THE
MACWORLD
SHOPPER SECTION.
INTRODUCING THE SCHOOL INTERNET/INFORMATION SERVER THAT SERVES EVERYBODY

TEACHERS/ADMINISTRATORS
Teachers can participate in nationwide educational forums, and download the best lesson plans, grant writing tips, and software, available on the Internet. theLINQ also opens the doors of communication with parents and administrators. For administrators, theLINQ opens channels of communication with staff members, fellow administrators, and the surrounding community.

STUDENTS
Students can communicate within their building or around the world with theLINQ’s e-mail service. theLINQ also offers the most useful student discussion groups found on the Internet. They’ll have access to the best educational content the Internet has to offer, and it’s all filtered for their protection.

PARENTS
Parents can log onto theLINQ server with their home computer and a modem. Parents can send messages to teachers, catch up on school news, participate in community forums, download skill-building software, or use theLINQ server as a bridge to the Internet.

THE COMMUNITY
Schools can reach out to members of their community, such as businesses, retirement homes, charitable organizations, and local government. These organizations can stay abreast of school news and actively participate in school activities. It’s perfect for PTAs. theLINQ server can also be made available to them as a bridge to the Internet.

THE ANSWER TO ALL YOUR SCHOOL’S INTERNET & COMMUNICATION NEEDS
theLINQ is an information server tailored to the needs of schools. It delivers the finest educational content found on the Internet in a safe, organized, easy-to-use fashion. theLINQ also provides full-function e-mail, and direct access to the Internet at large. Unlike traditional online services, theLINQ doesn’t require individual dial-ups for every user. That’s because theLINQ server is installed on your school’s AppleTalk or Novell network. To use theLINQ, you just log on! You and your students don’t have to spend your valuable time searching the Internet for information—it’s all right there on your system, updated and delivered daily. With theLINQ, your entire school or district can enter the world of global communication at a price that makes sense—just 10¢ per user per month. Getting started costs under $1,000. For that you get a collection of powerful equipment and software plus 200 user I.D.’s. But don’t let these low prices fool you. theLINQ is a serious communications tool. To find out, call us and order your free information kit. It comes with a video and a 2-hour trial account to help you get to know theLINQ a little better.

Ouality Computers
For your free demo and video, call 1-800-777-3642
FREE CATALOG! 1,100 CD TITLES

EDUCORP® 1-800-843-9497

Foreign customers send $4.95 for the catalog. With any purchase you get EDUCORP's newsletter free.

"The Granddaddy of all CD-ROM catalogs is EDUCORP."

Action, Aliens & Mysteries!

FREE CATALOG! 100 CD TITLES

EDUCORP Multimedia

50107 Myst .. .... .. .... .. .... .. .... .. .... .. .... .. .... .. .47.95
50037 Teuis Gold ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ......
ACCORDING TO THE PRESS, financial analysts, and other ignoramuses, software developers will create Macintosh products only if more Mac-compatible computers are sold. So, they reason, Apple has to license the Mac Operating System to get more Mac boxes out the door. The logic is deceptively simple: if the software runs on more computers, developers can make more money, so they write software for the computer that's selling best.

Unfortunately, because Apple is managed based on the expectations of the press and other purported pundits, it seems to have fallen for this logic. Thus, Apple has embarked on the slippery slope so they write software for the computer aged based on the expectations of the year are too for, dumb, and happy to create software that matters. And if the hard­
ed focus on shipping boxes, Apple is
dev­
pers (back) by licen­
ing the Mac OS,
that's selling best.

The really bad news: How much does a developer feel wanted by Apple? I'm not talking about speeches by Apple executives saying how important developers are to Apple. Everyone knows the speechwriter just opened a canned speech and used search and replace to change dealer to developer. (Dealer was previously changed from national account, and that was changed from education reseller, which was changed from graphic arts community.) I mean rubber-meets-the-road, down­
and-dirty support, like technical infor­
mation, seeding with prototypes, and a little display of gratitude and enthusiasm.

The Foresight Saga
The following story illustrates how Apple makes developers feel unwanted. A programmer named Judy Spencer was the lead engineer for a contact manager called FastPace, published by Foresight Technologies. Do you recognize the name of the programmer, company, or product? Probably not, and that's OK, because you're not an Apple employee who's paid to keep the Judy Spencers and Foresights of the world happy.

As Judy was finishing FastPace in January of 1994, the folks at Foresight tried their damnedest to get a Power Mac from Apple for testing. They read about Apple's vast seeding program of Power Mac prototypes but couldn't get a Power Mac until four days before the computer shipped. Frustrated by this experience, the president of Foresight wrote a letter to the editor of MacWeek; it was immediately published.

Did Apple make any contact with Foresight to apologize, explain, or even refute the letter? Nope. (Another important question: Does anyone at Apple read anything but the Wall Street Journal?) What conclusion should Judy, Foresight, and every developer who's had a similar experience draw about how much Apple cares about them? These are programmers and developers who love the Macintosh, hate Microsoft, and would like to make software-development decisions based on love and hate. Ironically, making developers feel wanted is much easier than licensing the Mac OS—it's just not dramatic enough to appeal to the pundit­
atholics at Apple.

The Really Bad News
Judy's story gets worse. One day after his letter hit print, two people from Microsoft's developer-relations group contacted Foresight and started a courtship that eventually included a free membership in the Microsoft developer program, plus free copies of Windows NT, Visual C++, Microsoft Office, and various development tools. What conclusion should Judy, Foresight, and every developer who has had a similar experience draw about how much Microsoft cares about them? And Microsoft has an 85 percent market share. Perhaps good developer relations have some connection to market dominance.

Yellow Men Can't Jump
I wish that Apple would read this column and change its ways. I also wish I could slam dunk. Of the two, slam dunking is more likely to happen. Be a pragmatist: write Macintosh software because you love the machine or because it's financially rewarding, not because Apple makes you feel good. After all, feeling good comes from within—not from the vagaries of a large corporation.

GUY KAWASAKI'S views are his own and only sporadically represent those of Macworld. He has investments in Bit Jugglers, Global Village Communication, Bookmaker Corporation, and others. He can be reached at macway@aol.com.
INTRODUCING
A TECHNOLOGICAL
BREAKTHROUGH.
A CD-ROM READER
THAT CONVERTS
EXPECTATIONS INTO
REALITY.
Perhaps the only thing that's advanced faster than CD-ROM technology is the hype about it. No longer.

The NEC 4X CD-ROM readers achieve a level of performance that leaves no room for exaggeration.

Their increased transfer rate and throughput make quick work of even the most ponderous databases. And render video and animation with a fluidity previously unknown to multimedia.

They even come with a 2-year limited warranty and are compatible with both PC and Mac.

In short, NEC's MultiSpin® CD-ROM readers fulfill the most demanding of technological criteria. Namely, your expectations.
Faster Data Retrieval
With access times as fast as 180 ms, these readers will make you more productive. Instantly.

Smother Video
A transfer rate of 600 KB/sec means that video and animation will run. Not hop, skip and jump.

Improved Throughput
Simply stated, information traveling from your CD-ROM will no longer be taking the scenic route. We know you're in a hurry.

Easier to Use
LCD status displays, front-mounted audio controls and our Windows-based Simple Start® software make these machines among the friendliest you'll meet.
Because no two people think alike. Or work alike.

Introducing Thinking Mouse. The mouse designed for the way you work.

Unlike ordinary mice, Thinking Mouse is a programmable mouse. That means you can customize Thinking Mouse by assigning frequently used commands to different mouse buttons. And because each command executes with a single click, you work faster and save valuable time.

Create your own pop-up menu.

Want to save even more time?
Thinking Mouse lets you organize frequently used commands in a personalized pop-up menu.
First, you create the menu with our easy-to-use software. After that, simply click on the assigned mouse button when you want the menu to appear. Click once more to execute any command.
You can indent text, change fonts, even insert your signature into a document.

Comfortable.
Fits most hand sizes.
Satisfaction guaranteed.

The way you program Thinking Mouse all depends on how you work. For example, you can open an application more easily by double-clicking with just one click. You can drag, scroll or highlight with less effort by locking a button down with just one click. You can even execute multi-step commands faster with a single click—like printing and saving a document, entering a block of text, logging onto a network, even sending a fax. The possibilities are endless.

Thinking Mouse saves time, reduces hand movements and eliminates many repetitive tasks. Its tapered design, symmetrical shape and EasyGrip™ easily by double-clicking with just one click. hand sizes, and for both right-handed and left-handed users. You can drag, scroll or highlight with less The unique Kensington Satisfaction Guarantee gives you a 5-year warranty, toll-free technical support and a no-risk 90-day trial. Thinking Mouse is guaranteed compatible with System 6.0.7 and above, including System 7.5 and Power Macintosh. For more information, call 800-535-4242. Outside the US and Canada, 415-572-2700. For information by fax, dial extension 82 and request document 308.

KENSINGTON

5-Year Warranty
Satisfaction Guaranteed
No Risk 90-Day Trial

Thinking Mouse Control Panel

Thinking Mouse

KENSINGTON

EasyGrip and Thinking Mouse are trademarks and Brilliant Cursor and Kensington are registered trademarks of Kensington Microware Limited. All other registered and unregistered trademarks are the sole property of their respective owners. © 1994 Kensington Microware Limited 10/91. Industrial design and engineering by Taylor & Chu/MOTO, San Francisco.