EXTRA! Macworld's Top 101 Tips, page 102

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PAGE 92

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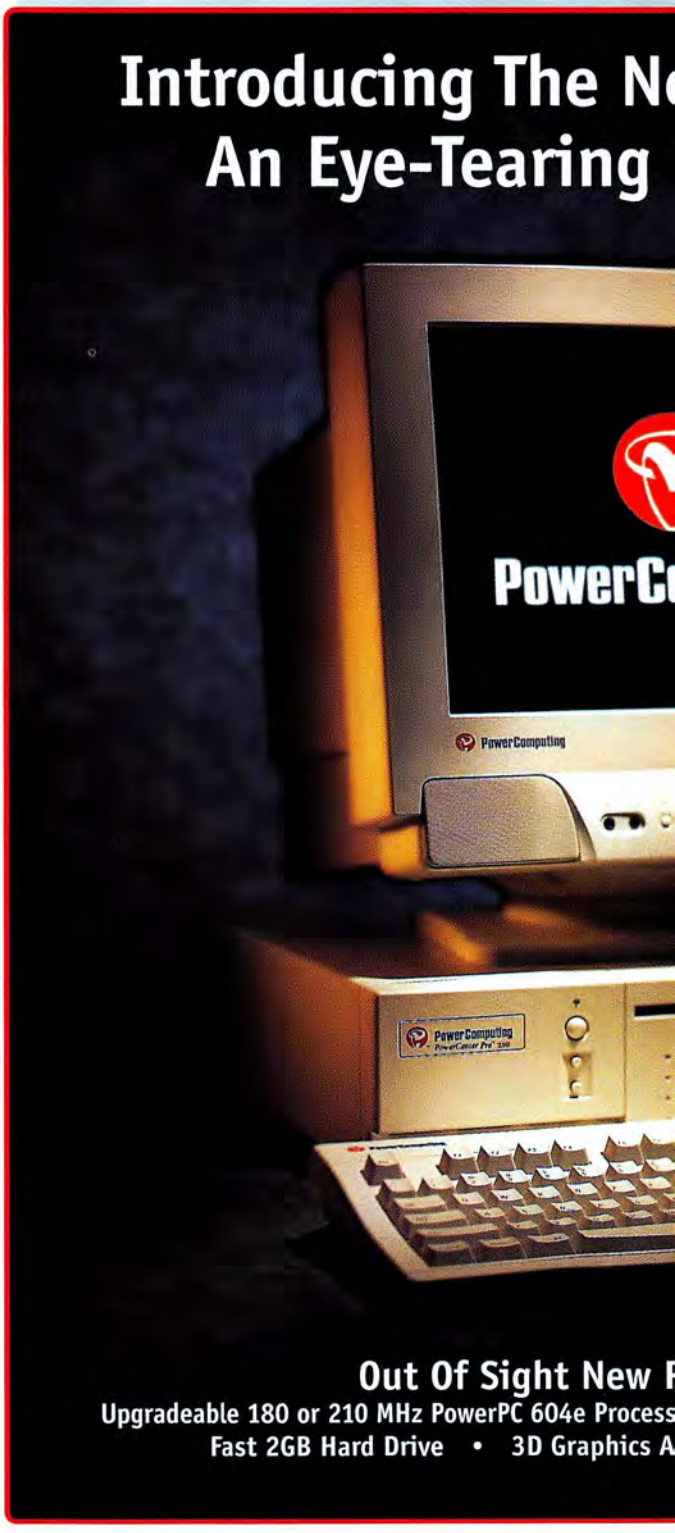

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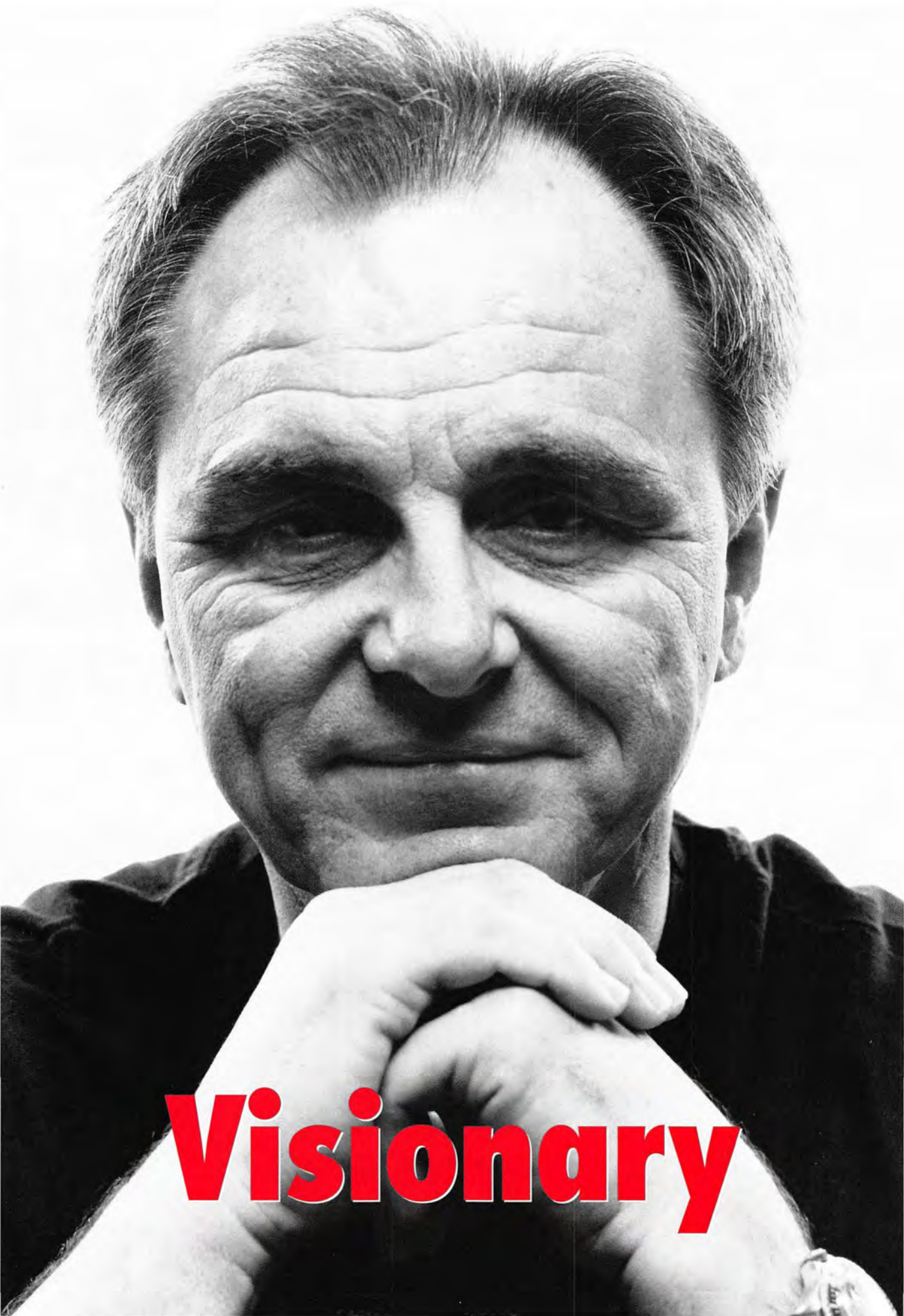
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Features

LAB TEST

92 The Mac Wins the Race

BY LON POOLE AND HOWARD BALDWIN Not so fast, Intel. Macworld Lab pits the fastest PCs against the fastest Macs and proves that despite the MMX blitz, Macs win the speed race.

102 Macworld's Top 101 Tips

A variety of experts share their best productivity tips for systems, business, e-mail, graphics, desktop publishing, and the Web to turn you into a powerhouse—and efficient—user.

Energize your Mac's performance with these System-slimming Secrets, page 129.

LAB TEST

117 17-Inch Screen Stars

BY PETER M STOLLER A Macworld Lab bonanza: 31 color 17-inch monitors tested and rated, plus buying advice on how to choose the monitor best for you. The good news? Seven excellent choices under $800.

Macworld Lab tests a full spectrum of 17-inch color monitors, page 117.

News

LAB TEST

30 First Exponential Chip Tests

Speed questions dog the first 450MHz CPU.

LAB TEST

31 The Smallest PowerBook

A hands-on look at Apple's PowerBook 2400c subnotebook.

Sneak Peek

36 Painter 5

Eye-catching effects enhance the newest version.

Apple's MessagePad 2000 reviewed in all its pricey glory, page 69.

36 Thriving in an NT World

Keeping your Mac in an increasingly NT-dominated office.

43 New Products

ON THE COVER

Photograph by Robert Cardin; screen image by Graphistock

Digital-camera showdown: Five cameras go head-to-head in Reviews, page 48.

Opinion

17 **Letters**

25 **State of the Mac**
BY ADRIAN MELLO Apple and the changing hardware business.

214 **The Desktop Critic**
BY DAVID POGUE Mac Libs: another *(adjective)* column.

This PaperPort does color—the speedy little Strobe, page 34.

Secrets

129 **System Software Snip and Clip**
BY JOSEPH SCHORR Trim down your System Folder for better system performance.

131 **Quick Tips**
BY LON POOLE Tips, tricks, and shortcuts.

12 **How to Contact Macworld**

Buyers' Tools

83 **Star Ratings**
Macworld's ratings for hundreds of hardware and software products at a glance.

LAB TEST
88 **Mac Superguide**
Macworld's guide to every Mac system and clone on the market, lab tested and Star Rated.

Media

135 **Working with Clip Media**
BY JIM HEID Choose, use, and customize off-the-rack media.

138 **Publishing Workshop**
BY DAVID BLATNER Tricks to get your Photoshop 4.0 work done faster (not just better).

140 **Graphics Workshop**
BY CATHY ABES Maximizing masking techniques in Photoshop.

Mac networking: Surviving in an NT office world, page 36.

Reviews

48 ★★★★/7.3 **Apple QuickTake 200;**
★★★/6.1 **Epson PhotoPC 500;**
★★/4.9 **Kodak DC25;**
★★★★/7.4 **Olympus D-300L;**
★★★★/7.1 **Sony DSC-F1**
Digital cameras compared

52 ★★★★/8.2 **Claris Emailer 2.0**
E-mail organizer

54 ★★★/6.9 **OrangePC 540;**
★★/4.7 **SoftWindows 95 4.0**
Windows 95–on-a-Macintosh solutions compared

56 ★★★★/8.1 **CyberStudio 1.0**
Web-page authoring tool

58 ★★/3.7 **CD Speedster;**
★/1.5 **d-Time**
CD-ROM accelerators compared

60 ★★/3.9 **Image Alchemy PS 2.1.4;**
★★/4.0 **Tailor 2.0**
PostScript utility packages compared

62 ★★★★/8.2 **QuicKeys 3.5.2**
Macro program

62 ★★★★★/9.3 **Conflict Catcher 4.01**
System Folder manager

67 ★★★/6.8 **Courier V.Everything 56 K**
x2 fax modem with caller ID

68 ★★/4.8 **FrontPage 1.0**
Web-page authoring suite

68 ★★★★/7.8 **Spreadsheet 2000 2.01**
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69 ★★★/5.0 **MessagePad 2000**
Apple's latest Newton

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74 ★★★★/8.1 **MATLAB 5**
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76 ★★★/5.8 **Bookends Plus 4.0**
Web-ready reference-management tools

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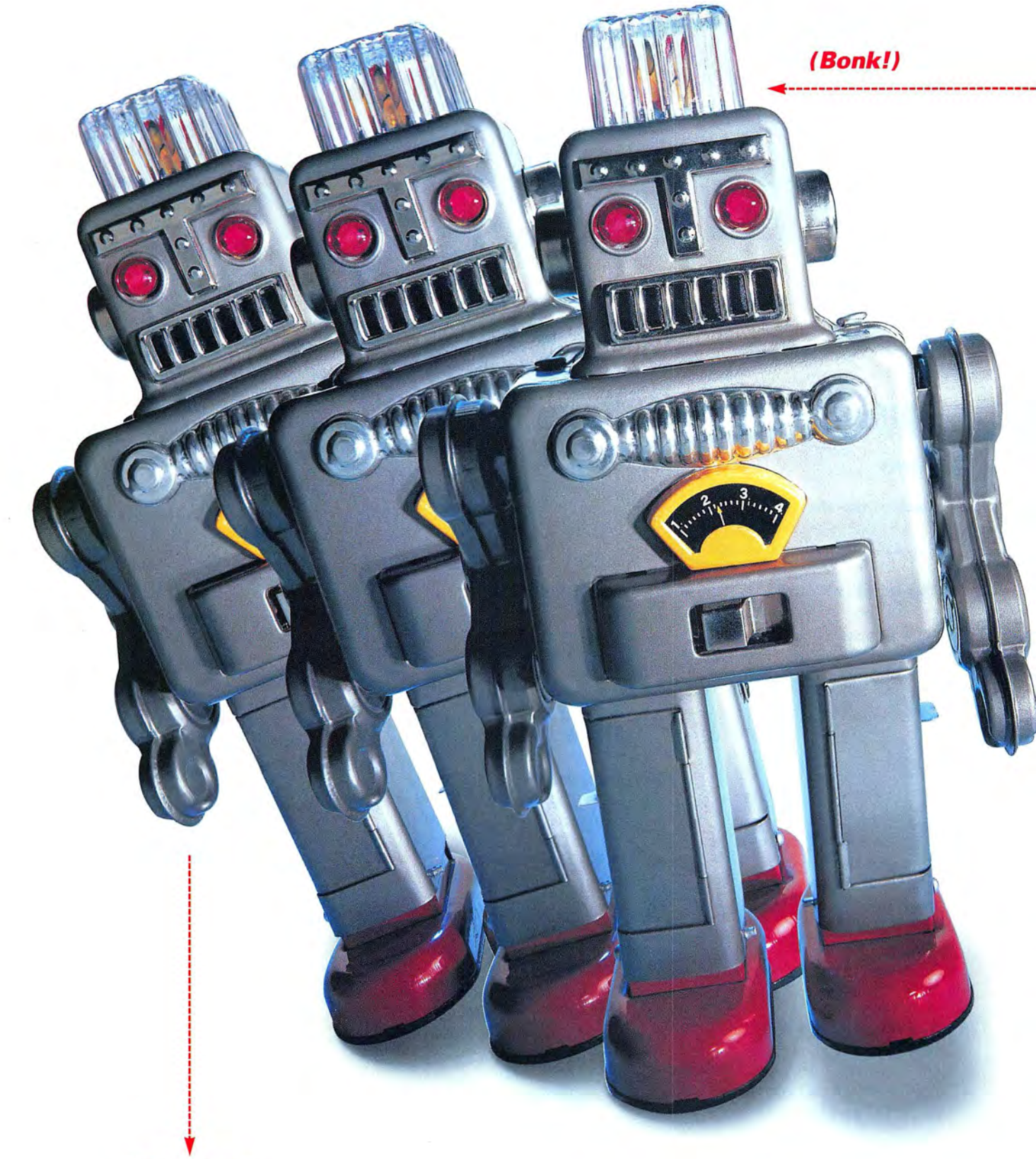

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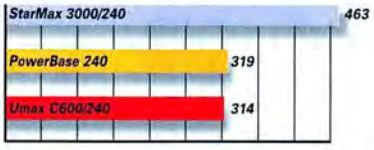

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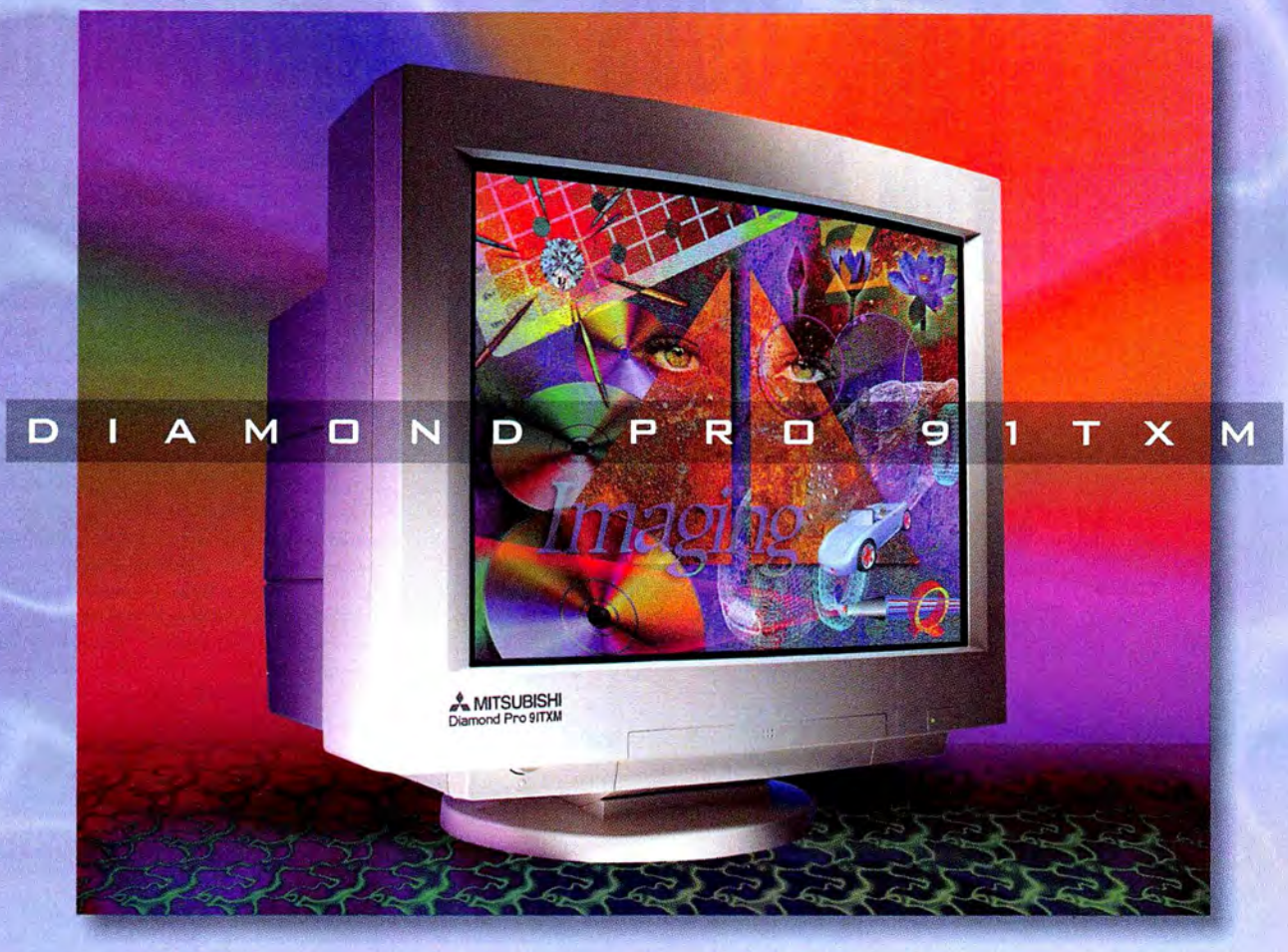

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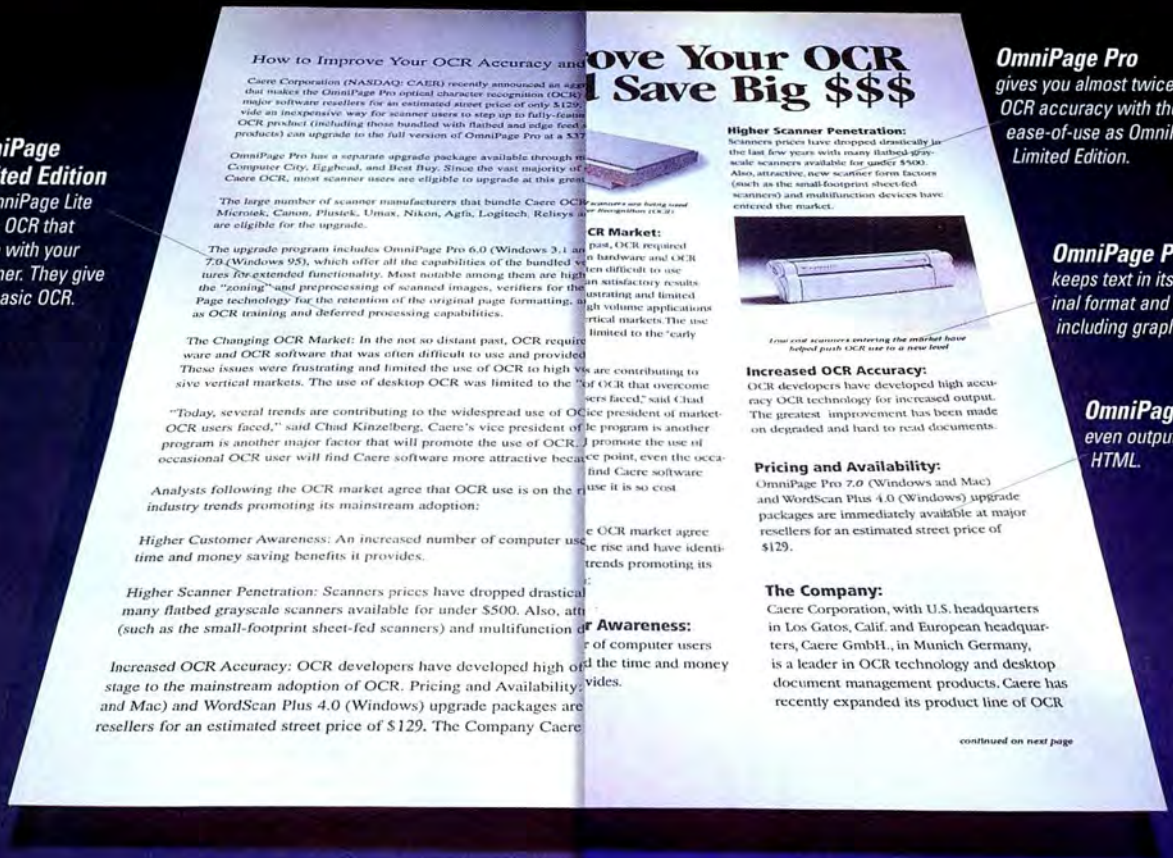
New OmniPage Pro 7.0 gives you the recognition you deserve.

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

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

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

OmniPage Pro *even outputs to HTML.*



How to Improve Your OCR Accuracy and

Caere Corporation (NASDAQ: CAER) recently announced an aggr
that makes the OmniPage Pro optical character recognition (OCR)
major software resellers for an estimated street price of only $129.
vide an inexpensive way for scanner users to step up to fully-featu
OCR product (including those bundled with flatbed and edge feed s
products) can upgrade to the full version of OmniPage Pro at a $37

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

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

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

The Changing OCR Market: In the not so distant past, OCR require
ware and OCR software that was often difficult to use and provided
These issues were frustrating and limited the use of OCR to high vo
sive vertical markets. The use of desktop OCR was limited to the "

"Today, several trends are contributing to the widespread use of OC
OCR users faced," said Chad Kinzelberg, Caere's vice president of
program is another major factor that will promote the use of OCR.
occasional OCR user will find Caere software more attractive beca

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

Higher Customer Awareness: An increased number of computer use
time and money saving benefits it provides.

Higher Scanner Penetration: Scanners prices have dropped drastical
many flatbed grayscale scanners available for under $500. Also, att
(such as the small-footprint sheet-fed scanners) and multifunction d

Increased OCR Accuracy: OCR developers have developed high of
stage to the mainstream adoption of OCR. Pricing and Availability:
and Mac) and WordScan Plus 4.0 (Windows) upgrade packages are
resellers for an estimated street price of $129. The Company Caere

ove Your OCR
l Save Big $$$

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

CR Market:
past, OCR required
n hardware and OCR
ten difficult to use
an satisfactory results
ustrating and limited
gh volume applications
rtical markets. The use
limited to the "early

e OCR market agree
e rise and have identi-
trends promoting its

r Awareness:
r of computer users
d the time and money
vides.

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

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

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

continued on next page

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

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Mac OS

MacUser ★★★★ AUGUST 1994

MacWEEK ★★★★ AUGUST 1994

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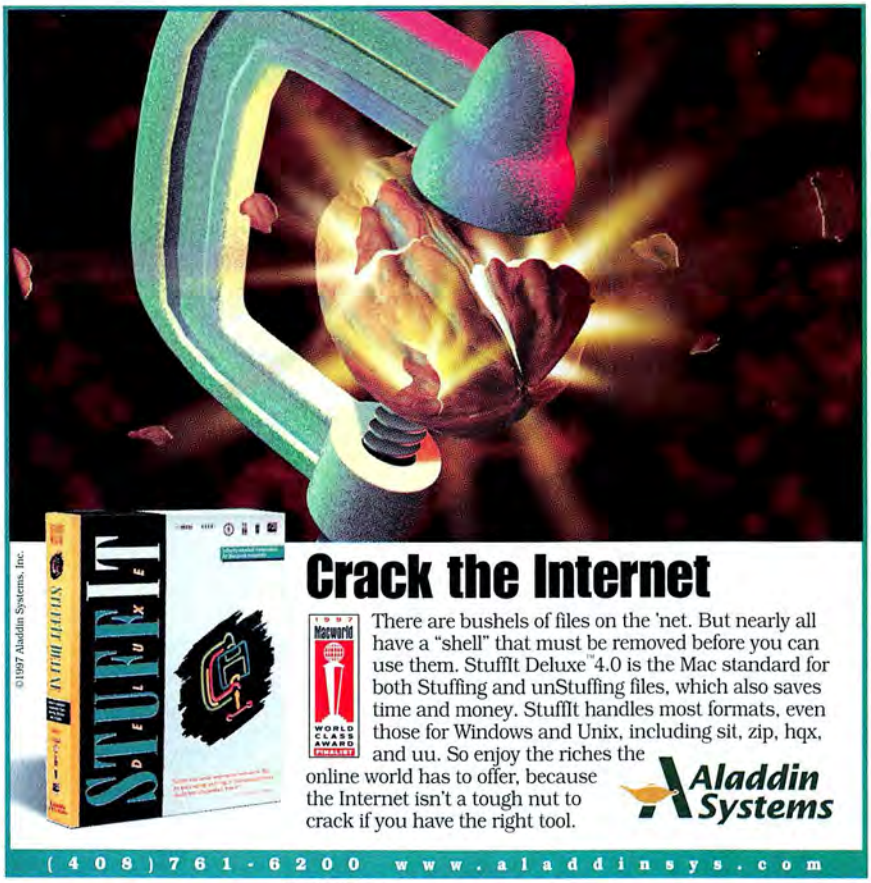

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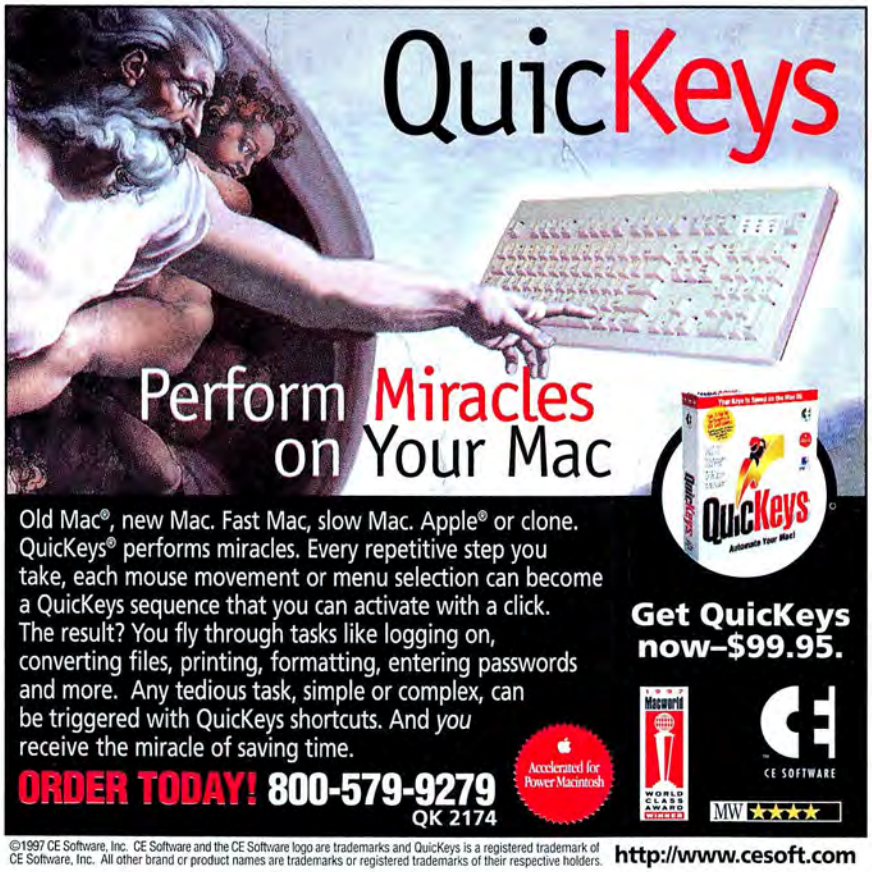

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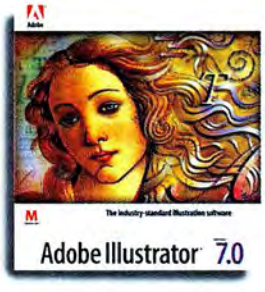

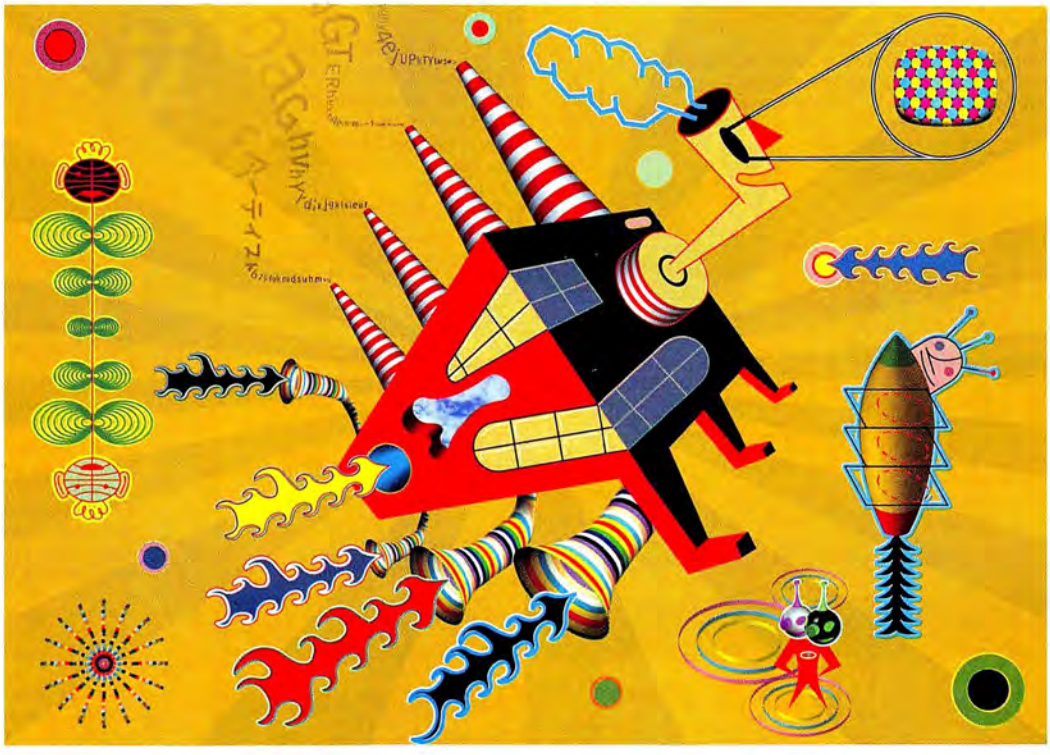

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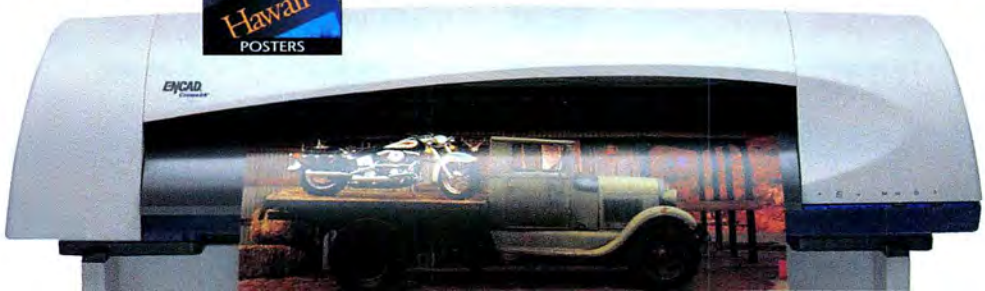

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Circle 65 on reader service c

Letters

System 7.6: The Good, the Bad, and the Ugly

OS 7.6 MIGHT NOT OFFER MUCH IN new features, but it's an important step for Apple ("What's New in Mac OS 7.6," *News*, April 1997). Your article emphasized that it may cost as much as $129, when in fact for Macintosh users who upgrade regularly (like most of us), the upgrade will cost only $69. I preordered mine the other day in two minutes using Apple's 800 number. Simple and friendly.

JEFF JAY
Northville, Michigan

I AGREE WITH YOUR ASSESSMENT. Apple should be offering 7.6 at a nominal fee. I, for one, do not run most of the stuff 7.6 includes. Most of it is already available. I am upgrading to Casady & Greene's Conflict Catcher 4.0 with my money and waiting to see what the next system release offers.

DANNY L. SHOWALTER
Citrus Heights, California

YOUR DESCRIPTION OF MAC OS 7.6 MENtions that "the new system requires virtual memory if you have less than 16MB of physical RAM installed." I have some programs on my Mac Performa 575 (using System 7.5.5 with 12MB of physical RAM)—mostly games for my kids—that won't run unless virtual memory is turned off. Will we users whose Macs have less than 16MB of RAM still be able to run these programs under Mac OS 7.6?

MIKE DURISIN
Midland, Michigan

We checked with our sources at Apple, and it's not supporting that configuration. That doesn't mean it won't work, just that Apple won't guarantee it'll work. Your best bet is to add more RAM. The good news is that RAM prices are superlow right now. You can get a 16MB SIMM for under $100. If that's not enough to convince you, keep in mind that many newer programs recommend at least 16MB of RAM.—Ed.

JEFF NEUMANN

Rhapsody in Blue

WHAT THE NEW OS STRATEGY MEANS to You" (*News*, April 1997) listed the Macs that will run Tempo, Allegro, Sonata, and Rhapsody. Missing from the list were the Performa 6300 (with the new board) and the Power Mac 7100. Why will the 6360 and 7200 be compatible? They seem to be different from the 6300 and 7100 only in CPU speeds.

ROBERT J. RENNIE
Biloxi, Mississippi

The short answer is that the 7200 and 7100 have completely different motherboards. The 6300 is similar to the 6360 but does use some older components.

The reason Apple hasn't committed to having the Rhapsody OS run on NuBus Power Macs is that those systems and the PCI systems use different control chips on their motherboards to handle NuBus, serial ports, and SCSI. When creating an OS, adding support for the specific needs of chips on specific machines is a huge amount of work, and at some point a company has to decide where to draw the line of backward compatibility.

Apple has decided it will not make the effort for pre-PowerPC Macs. It will decide on the non-PCI PowerPC Macs after it has finished making Rhapsody work on current Macs. Depending on how much time and money is left at that point, Apple will decide if it has the resources to take care of the previous PowerPC Macs. That's why Apple won't know for a while what additional systems, if any, Rhapsody will support beyond the ones we listed.—Ed.

CHRP and CHeaPeR?

I AM CURIOUS ABOUT THE CHRP PLATform. Recently I read in *Macworld* that IBM and Motorola had dropped Windows NT for CHRP ("IBM, Motorola Drop NT for PowerPC," *News*, March 1997). Does this mean that a CHRP system can run a modified version of Windows NT? Or can you just buy a copy of Windows NT off the shelf and install it on a CHRP machine without any special code modifications? And if that's true, does that mean Windows 95 will run on a CHRP system? What's the deal?

GREG WALKER
Camarillo, California

REGARDLESS OF HOW GOOD THE MAC OS is now or will be in the future, the majority of consumers want value for their money. I recently upgraded my

continues

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CORRECTIONS

- *The SyJet's storage capacity is 50 percent larger than the Jaz drive's, not the Zip drive's* (Reviews, *May 1997*).
- *The Power Mac 9000/200 and 9600/200MP's standard and maximum VRAM is 4MB, not 8MB (in the table, "The Right Options: Apple's New Lineup," in "More Mac for Your Money," April 1997, and* Reviews, *May 1997), lowering the Star Rating to* ★★★★/8.0.
- *All APS systems are shipping with a SCSI-2 internal bus and a 10× CD-ROM drive ("Super Mac Values," May 1997). The CPU speed of the APS MPower 603e180 is 180MHz.*

aging Mac SE/30 to a Power Computing PowerBase 180, and in doing so compared the prices of comparably equipped Windows boxes. For hundreds of dollars less, I could get the same hardware specs on the Windows box. Not only is the computer itself cheaper, but you also have a much wider variety of printers, monitors, other peripherals, and software to choose from. For many consumers, including those making purchases for businesses, it just isn't worth spending more for an easier-to-use system.

The solution to this is clear: Apple should write a version of the Mac OS that runs on a Pentium-based computer. This will do a number of things. First, it will allow the Mac OS to run on virtually every PC out there and therefore expand its potential market to an even larger share than Microsoft's. Second, it will allow consumers to purchase cheaper hardware and give them a greater choice of brands and models. Third, consumers can compare Windows and the Mac OS without risking thousands of dollars.

If many forgo Windows completely, the Mac OS market share will increase, more code will be written, and prices will drop. Finally, if the Mac OS becomes the more popular OS, PC makers such as Packard Bell will start switching their production to PowerPC-based computers, increasing the market for peripherals and lowering prices.

The above may sound like sacrilege to many hard-core Mac types, but as they say, if you can't beat 'em, join 'em.

IAN CROOKS
New Haven, Connecticut

WHATEVER HAPPENED TO MULTIPLATFORM computers? According to news reports just six months ago, I expected that by now we'd be drooling over Mac machines that would run Windows NT, Unix, the Mac OS, or whatever. These were to be Apple's salvation. Now, is that salvation delayed, or was it all a mirage?

BOB BAMBERG
Sparta, North Carolina

It was only partly a mirage. And it's not *Apple's way of saying, "If you can't beat 'em, join 'em." CHRP systems are not multiplatform computers, meaning they won't run just any OS. They will run the Mac OS, Rhapsody, the BeOS, and possibly IBM's AIX version of Unix. They were originally planned to run Windows NT and OS/2, but these projects have been killed. There are no plans for CHRP machines to run Windows 95—nor have there ever been.*

However, CHRP will offer higher performance, lower cost for parts (which may mean lower prices, or more features for the same price), and the ability to support PC technologies that give Mac owners more access to PC peripherals. See "Apple's Clone Support in Question," News, *June 1997, for more information.—Ed.*

Control Strip—Play Dead

IN RESPONSE TO JOSEPH SCHORR'S ARticle "Control Strip Obedience School," there is actually a much easier way to hide and reveal the Control Strip on the desktop without ever touching the keyboard (*Secrets*, April 1997). Using a $5 shareware module called Terminator Strip written by Ammon Skidmore (*http://www.macworld.com/software/user.interface.html/*), you can set the Control Strip to appear only when your cursor is in the area where the strip normally resides and to miraculously disappear the rest of the time, leaving your desktop free of Control Strip clutter. There are also a few other useful utilities included in the module, such as Restart, Shutdown, and making the Finder inactive. Terminator Strip has been instrumental in keeping the Control Strip alive and well on my desktop.

JIM RISPIN
Pasadena, California

I'M QUITE IMPRESSED WITH THE ARticle on the Control Strip and would like the chance to check it out. But when I did a Find File on my hard drive for *con-*

continues

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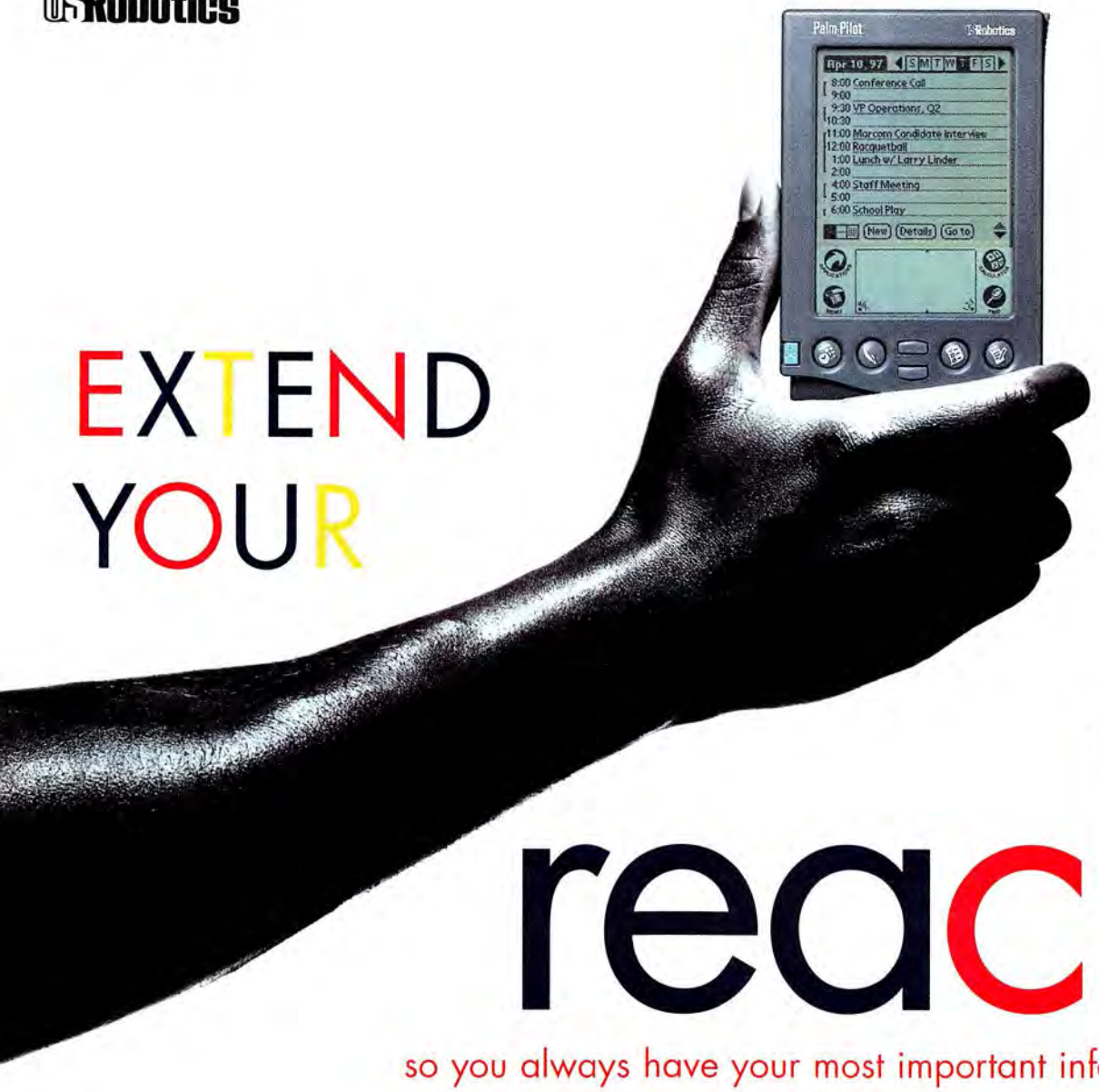

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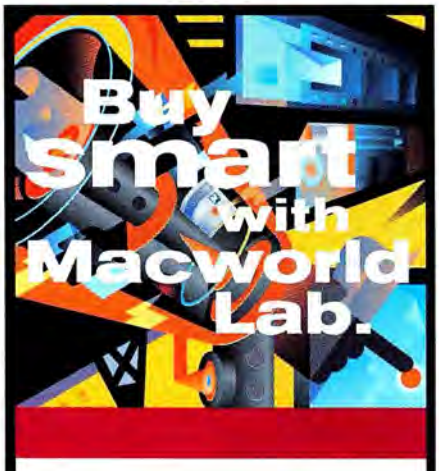

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trol strip, nothing came up. The article said, "System 7.5.5 comes with a half-dozen standard Control Strip modules to handle tasks . . ." Does the Control Strip come with System 7.5.5 only if the system software was purchased rather than downloaded? Or did I not get everything?

RHONDA NADEAU
Rochester, New Hampshire

The Control Strip is included with System 7.5.3 and later, but it isn't installed by default. So, whether you upgraded to System 7.5.5 yourself or you purchased a machine that came with System 7.5.3, most likely you will have to use the installer and click on the Custom Install option, look for Control Strip, and select it. This should also be true if you downloaded your system update.—Ed.

More to Life Than the Internet?

THIS MAY COME AS A SHOCK TO SOME people, but not every business relies on Web pages and the Internet to exist. As the CEO of a Mac-based company, I am concerned about fast, stable databases to handle my billing and customer-service needs, and an accounting package that is quick and reliable. I wonder if the development team at Claris is working to make FileMaker 4.0 faster, or is being Internet savvy their only concern?

The consensus appears to be that our next OS will be whichever Web browser we choose. I want (and need) an operating system that is fast and stable. I like the Internet—e-mail is a great convenience and Web pages are cool—but I care a lot more about software and an OS that will help me run my business. It seems that major software upgrades consist of better Internet integration and little else. I hope developers don't lose sight of business users who have existed long before the Internet came around.

JONATHAN KRUTCHIK
via Macworld Online

The Internet has just added a new dimension to the way we work with computers. Naturally, companies want their applications to take advantage of all that the Internet and the Web have to offer their customers. It's not surprising that this is where a lot of upgrade focus has been over the last year or two.

As for FileMaker Pro 4.0, I couldn't care less about Internet support, as long as Claris does something about portal sorting.—Ed.

Multimedia Know-How

I JUST FINISHED READING JIM HEID'S "Online On Time" (April 1997), and I realized I should stop what I was doing and drop you a line to commend you on the clarity and helpfulness of his articles.

It seems as though whenever I begin to look at an emerging field of hot Mac technology—whether it's Web-database publishing, QuickTime VR, or MIDI authoring—and begin to get bogged down in the technical complexities, along comes an article in *Macworld* offering a high-level conceptual overview and clarification of the most perplexing issues involved. Heid always has the right amount of coverage to enlighten a basic Mac lover on the crucial matters and reinstill the hope that it's still possible to really do something with this machine.

What I find perhaps the best feature of Heid's articles is the sidebars that schematically describe the development and authoring processes involved. This is something usually lacking in all the articles, white papers, and manuals that one must slog through to get a basic understanding of newer technologies. Thanks, Jim Heid, and keep them coming.

JASON VOIGT
via Macworld Online

Step Right Up, Win a Prize

WHILE VISITING A LOCAL EXPO FOR home and garden stuff, my wife and I came upon a booth for a popular local radio station. The booth was titled "Countdown 2000." Visitors could win prizes that were considered "The Best of Everything." And what did my eyes discover but an Apple Performa 6400 being offered in the computer category. Ah, a sight to bring tears of joy to the eyes.

STEVE GRENDZINSKI
Pittsburgh, Pennsylvania

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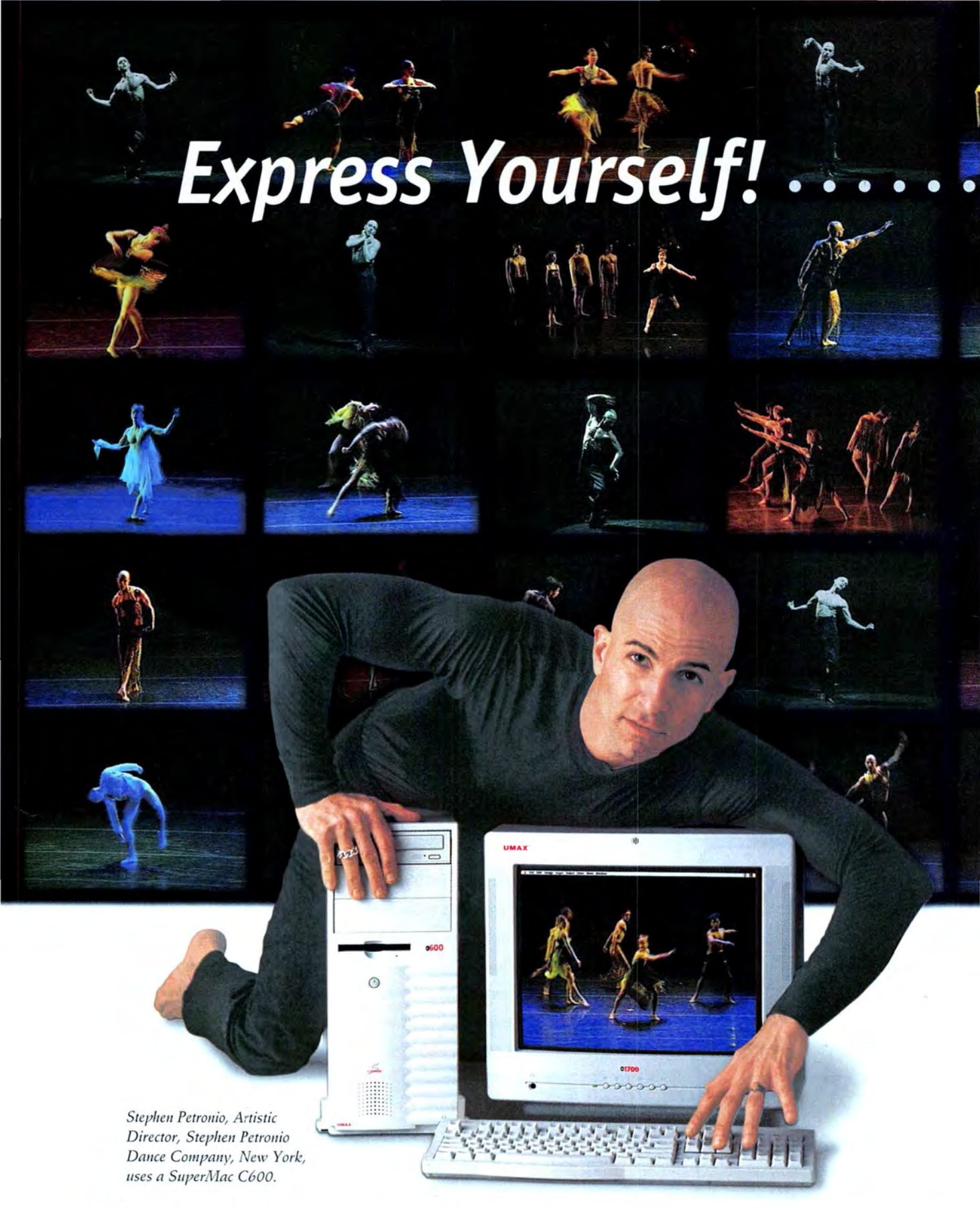

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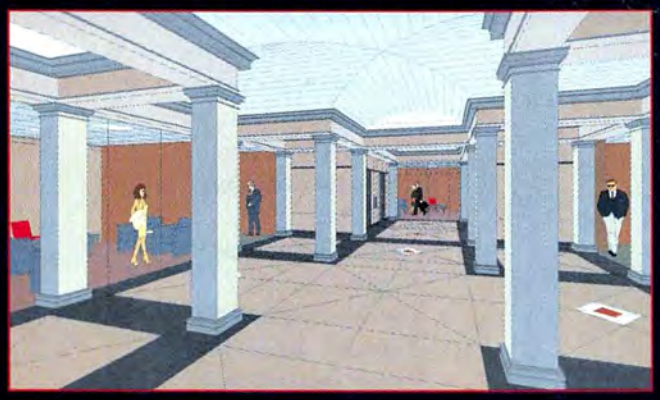

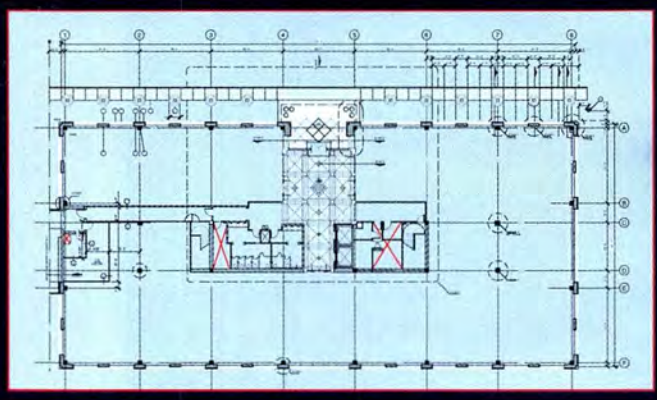

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—Audience Vote at the Designers CAD Shoot-Out

The general-purpose MiniCad went toe-to-toe against industry-specific CAD programs nearly six times as expensive—and came out on top—at the first-ever Designers CAD Shoot-Out for Architectural CADD Systems. In this advent of "architecture as a spectator sport," the audience at Boston's World Trade Center awarded MiniCad 6, fittingly, six first-place awards:

- Most Cost Effective
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- Best Elevations
- Best Sections

MiniCad also placed a close third in the Overall Winner category (garnering 21% of the audience vote compared to Arris' 25% and ArchiCad's 24%), beating out AutoArchitect, Microstation Triforma, AllPlan, Architrion, and DataCAD. Even more impressive: MiniCad was the only software program running on both a Macintosh and a Windows machine during the event. This recent success is not surprising. For years MiniCad has been the top-selling CAD program on the Macintosh, winning industry awards worldwide. And the reviews for the recently released Windows version have all been emphatic.

To find out more about the CAD Shoot-Out or how professionals in more than 80 countries have used MiniCad—designing everything from a guitar to a zero-gravity manufacturing device; building houses, luxury high rises, shopping centers, and hockey arenas; planning the stage set and lighting for worldwide Metallica tours; even helping reconstruct Shakespeare's historic Globe Theatre—check out our web page (www.diehlgraphsoft.com) or call 1-800-413-0935.

MiniCad has a suggested retail price of $795, and it comes with 18 months of free tech support and a 30-day money-back guarantee from participating dealers. MiniCad 6 supports Windows 95, NT, 3.1, and Macintosh OS.

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Above building designed by David A. Bruhnke, Herring & Trowbridge Architects.

MiniCad 6—The only thing small is the price.

Circle 46 on reader service card

by Adrian Mello

Wrestling with Apple's Divided Loyalties

APPLE NEEDS TO SEPARATE ITS HARDWARE AND SOFTWARE DIVISIONS

LAST MONTH I DISCUSSED the possibility of Apple's becoming a software-only company. Whether you agree with this idea or not, it's clear that Apple must produce computers for the next few years. It needs the hardware revenue, and Mac OS licensees need time to build enough computers to sustain the market. Selling both hardware and software creates problems for Apple. It results in a conflict of interest and a level of business complexity that's difficult to manage. I think these problems can be solved, but to do so, Apple must separate its hardware business from its software business.

Apple is in the awkward position of competing with a crucial group of its own customers—system vendors such as Motorola, Power Computing, and Umax who license the Mac OS so they can sell computers. Apple can't afford to alienate its licensees. The Mac market's historical dependence on a single company means that every time Apple makes a bad forecast or bets too much on Performas, the whole market suffers, making it harder for Apple to recover from its own mistakes.

If its licensing effort is to succeed, Apple must start treating its licensees like customers instead of banana republics. The only way Apple can overcome the conflict of interest is to truly separate its software and hardware business into two independent operating units. Apple can operate both, but the two can't be tied together in a way that compromises Mac licensees.

Licensing Strategy

Licensees need to know that Apple will not seek an unfair advantage from its system software business. Although Apple claims that it is fully committed to its licensing efforts, its actions don't always show this commitment. Since Apple began its licensing effort, it has insisted on certifying systems produced by Mac licensees for compatibility. This permits Apple to determine what components, and ultimately what kinds of systems, licensees can offer. For example, Apple has not permitted licensees to encroach on its profitable notebook business. It's obvious why licensees are uncomfortable with the degree to which Apple limits their options, considering that Apple also competes with them for hardware sales.

Apple's divided loyalties are also evident in its current effort to renegotiate its system software licenses. Apple rightfully points out that it hasn't been charging enough to cover the cost of developing the operating system. This puts the Apple hardware business at an unfair competitive disadvantage, since it must charge more for its systems to make up its OS development costs. Licensees agree with Apple on this point.

However, licensees disagree with Apple's attempts to use the fee structure to control the types of computers licensees make and where they market those computers. *Macworld*'s sources claim that Apple has proposed higher fees based on system performance, as well as rebates to encourage licensees to enter new geographical regions or market segments. Apple seems to have backed off from basing fees on system performance but is still holding onto the idea of incentives for licensees to go into new regions and market segments.

Giving Up Control

Apple should abandon its attempts to use licensing terms to get licensees to invest in market expansion. Apple has a right to expect a level playing field. So do its licensees. To create a truly level playing field Apple should avoid exerting undue influence on the licensees' business plans. This is a bad habit that Apple must give up. Instead, Apple should lead a cooperative effort to expand markets through business partnerships and combined marketing efforts.

The reality of the situation is that Apple may need to maintain some advantage in the short term so that it can extract itself from its current financial difficulties. I suspect that Apple's licensees would be more than willing to help with such a transition. For their own success, the licensees need a healthy Apple, but they need Apple as a trusted business partner, not a market overlord.

Managing Complexity

Many of Apple's problems are a result of its failure to manage complexity. If Apple separates its hardware and software businesses, it will have a better chance of succeeding at each. It will be able to compare each business with industry models, making it easier to spot problems and deal with them.

continues

HANK OSUNA

In the past, Apple has viewed itself as a unique company offering unique products. Apple's products *are* special, but that doesn't exempt it from the realities of the computer business. Apple's myopia has proven disastrous. The company didn't take the measures necessary to compete with PC vendors, and then it repeated the mistake with Mac licensees. Under Gil Amelio's leadership, Apple is taking measures to solve some of these problems, but I think Apple still befuddles itself by mixing its software vision with its hardware vision. The key issue is not whether the company will ultimately abandon its hardware business to become a software-only business, but how it handles each.

Computers as Commodities

Gil Amelio doesn't believe the software-only model has much merit. In his words, "the software-only scenario is a very shallow analysis." Amelio believes that Apple's strength lies in keeping hardware and software together. He is convinced that most people will want to buy computers the way they buy stereo systems: a complete system from a single company. Customers don't want to worry about whether they have all the pieces they need or whether some pieces work with other available pieces. Amelio expects computers to become increasingly specific to meet different user needs. As an example, he points to educators, who prefer the all-in-one integration of models like the 5500.

Although Amelio offers a compelling vision of what computing should be like, it has problems. Most customers don't currently choose among computer brands based on how well integrated the components are. They probably should, but they don't. The bulk of computer systems are increasingly sold as commodities—much as in other areas of consumer electronics.

Even well-integrated products are subject to competition and resulting price reductions. Competitors quickly copy successful product ideas, and offer similar features at lower prices. Consumer electronics products may be examples of integrated solutions, but they are also a prime example of commodification. Wintel vendors like Compaq and Hewlett-Packard now sell PCs that combine the necessary hardware and software for particular tasks such as playing multimedia titles (the integration that PC vendors offer is not nearly as good as the Mac's, but it's sufficient to convince most customers of its value). Apple adds some value to its products through integration and industrial design, and therefore can command somewhat of a premium, but it can't avoid the fundamental realities of commodification.

Recipe for Success

The Mac's system software (including its adjuncts such as QuickTime and ColorSync) provides the greatest opportunity for differentiation and is the least subject to commodification. That's why Apple needs to do what's necessary to ensure the success of its software platform. This is the best way to keep all Mac hardware, including Apple's own, a notch above the PC commodity pit.

I'm afraid that Apple's focus on integrated solutions will maintain the incestuous relationship between hardware and software that prevents both parts of its business from growing. I believe that separating the two businesses would improve the performance of both and provide the greatest opportunity for Apple to succeed overall. **m**

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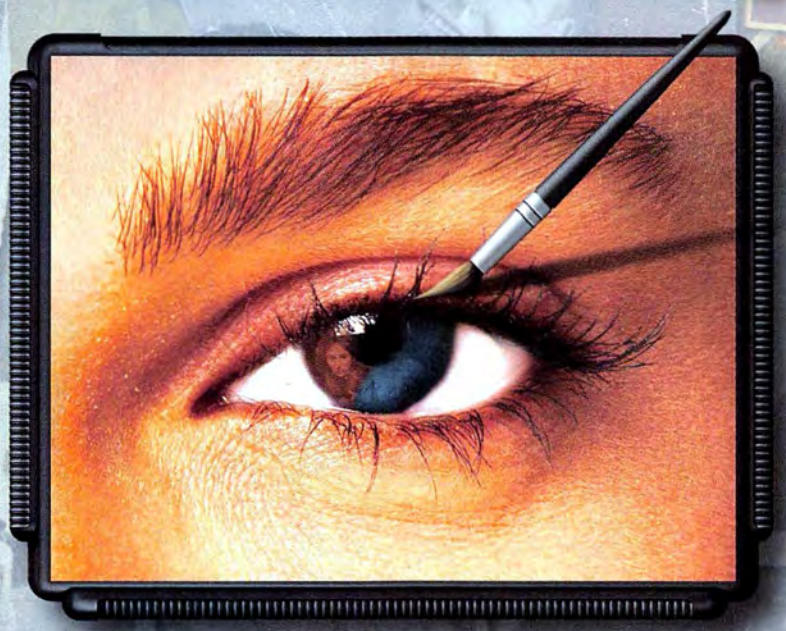

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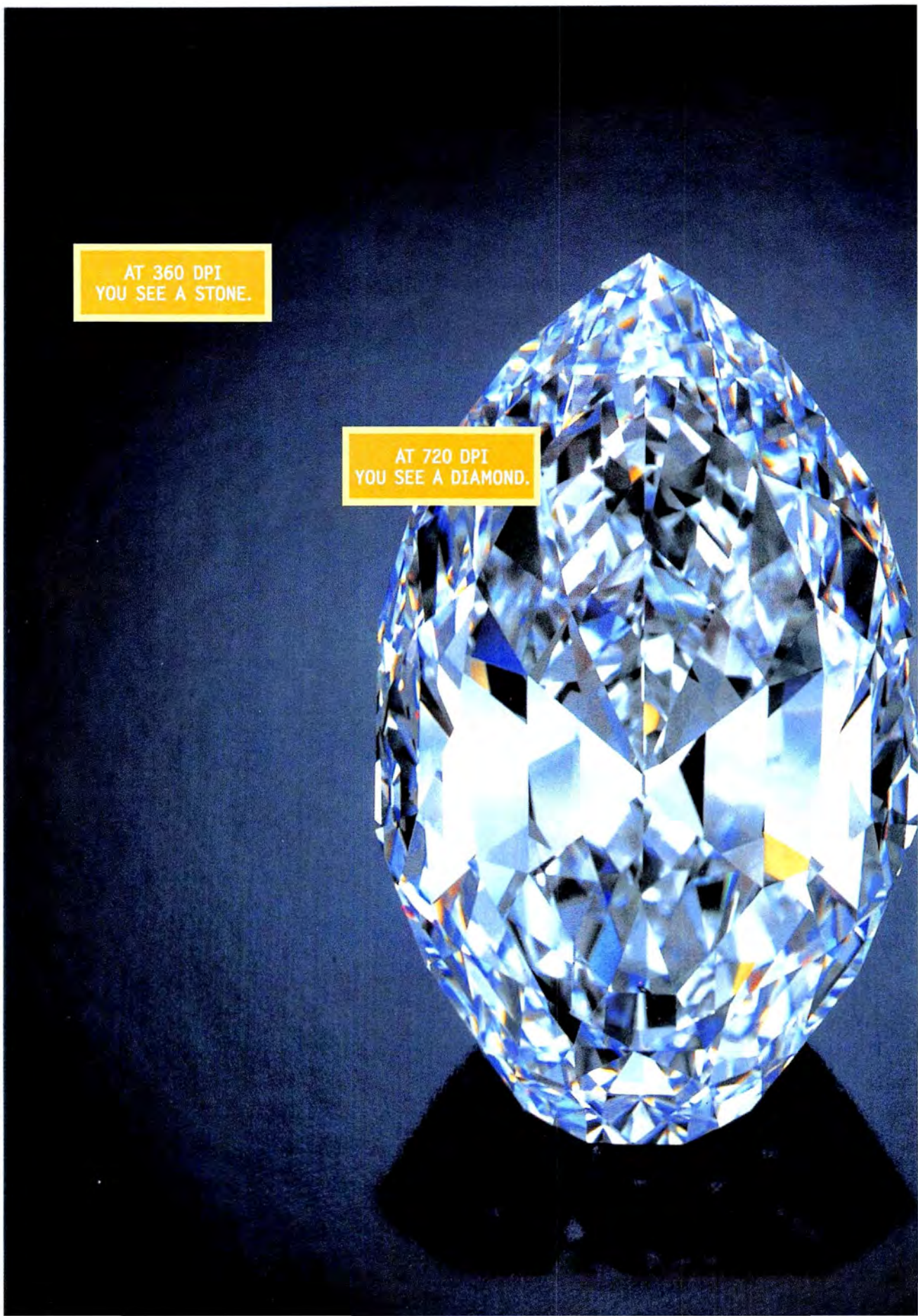
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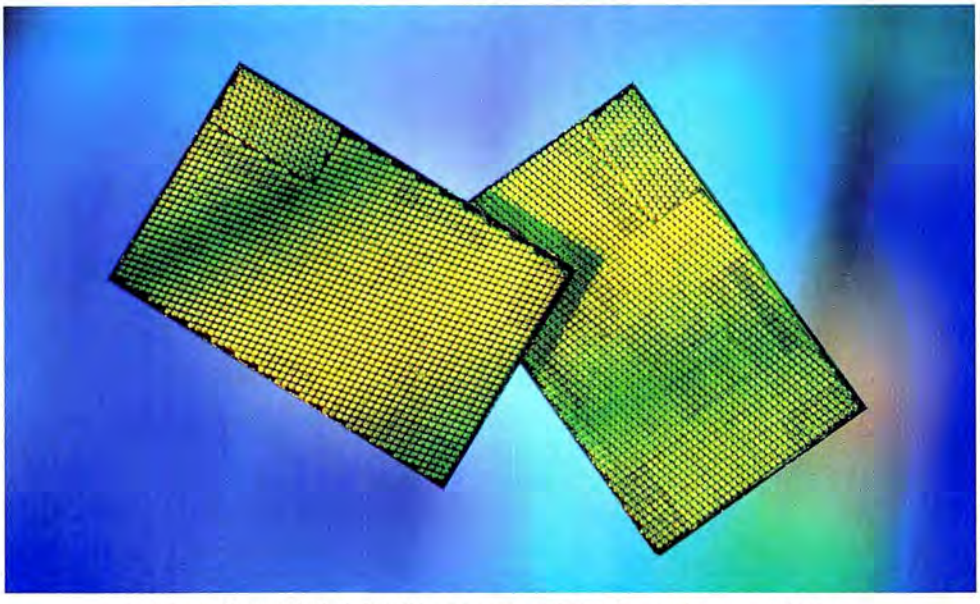
by Galen Gruman



KEVIN CANDLAND

In our tests, Exponential's X704 CPU ran up against the Mac's—and its own—limitations.

Even with the knowledge that the Macintosh is now comfortably outpacing Pentium-based PCs (see "The Mac Wins the Race," in this issue), many Mac owners have been anticipating a development that would put the Mac so far ahead of the PC that Intel and Microsoft might never bridge the gulf. The novel X704 CPU from Exponential Technology (408/441-6050, *http://www.exp.com*) is what has given the Mac community that anticipation. The X704 is designed to run at 533MHz—a level far beyond what any CPU can do today.

However, the first Macworld Lab tests of the PowerPC-compatible X704 don't show that promise. In fact, the modified Apple Power Mac 9600 that we tested running a 450MHz X704 was only on par with a Umax SuperMac S900/225—a Mac that uses the 225MHz PowerPC 604e. While 225MHz PowerPC 604e performance is nothing to sneeze at, it does not meet the expectations of a 450MHz rating. (Promised to run at 533MHz, the X704 is not yet fine-tuned for that speed. Also, to run at 533MHz requires a bus speed of 66MHz, which no shipping Mac yet offers.)

And when pitted against a Motorola Viper system using the Common Hardware Reference Platform (CHRP) design and a 266MHz PowerPC G3 CPU, the X704 prototype looks downright pedestrian.

Typically, we saw speed gains of only 20 to 30 percent above the S900/225's for CPU-intensive work in Macromedia FreeHand 7, Adobe Photoshop 4, Fractal Design Painter 4, and QuarkXPress 3.32.

Equally typical was slower-than-S900/225 performance in tasks that used the disk and video subsystems—the X704-based 9600 ran 20 to 30 percent slower than the S900/225.

And in many tests (such as database sorts, spreadsheet calculations, and some graphics-manipulation tasks), the X704-based 9600 was merely on par with the S900/225.

Work in Progress Though not promising, our test results should still be taken with a grain of salt: the X704 is not a finished CPU, and the modified Power Mac 9600 it was running in is by no means a stable, optimized system.

First, the X704 was greatly hobbled by the modified 9600's 45MHz system bus speed. The

X704 ran at 450MHz, or ten times the bus speed. The 225MHz S900's 604e ran at five times its 45MHz bus speed, while the 266MHz Viper's G3 ran at four times its 66MHz bus—so both spent considerably less time waiting for the bus.

On a 66MHz CHRP-based Mac, I would expect the optimized X704 to perform noticeably better. On such a system, it could run at its 533MHz promised speed—eight times the 66MHz bus speed—a much smaller speed gap between the CPU and the bus than between the 450MHz X704 and the Power Mac 9600 prototype's 45MHz bus. Spending much less time in a waiting state, the CPU could operate more efficiently, letting the X704 deliver more of its raw speed to the Mac.

Second, the modified 9600 was clearly unstable—it crashed often (unlike the S900 and prototype Viper systems). And it had compatibility problems that may have affected performance; for example, the X704-based 9600 could not run with virtual memory enabled, and it could not run Microsoft Word 6.01.

The 9600 had several modifications that Apple would not let Exponential

continues on page 34

systems

New Apple Subnotebook Fills Gap

WILL TINY KEYBOARD COME UP SHORT?

by Cary Lu

Apple's diminutive PowerBook 2400c, designed with and built by IBM Japan, was originally intended only for the Japanese market. But the 4.4-pound subnotebook is now set to debut in the United States in August. The sticking point was the tiny keyboard, 87 percent of standard size (similar to the Newton external keyboard), compared with the discontinued Duos' 95 percent. On the positive side, the new keyboard layout does have inverted-T cursor keys— previously lacking in PowerBooks—and the keys have a solid feel.

For $3499, you get an external floppy drive (not compatible to earlier external PowerBook floppy drives), 16MB of RAM, and a 1.3GB internal IDE hard drive. The only internal upgrade possible is an industry-standard SO-DIMM (small outline DIMM) slot that can hold up to 32MB, bringing the total RAM to 48MB.

Keeping Up with the 3400

The 2400c motherboard is based on the PowerBook 3400 design, made smaller to fit into a case ⅔ inch thicker than a Duo's. The PowerPC 603e processor runs at 180MHz with a 256K L2 cache. Not surprisingly, the 2400c turns in test scores that nearly match the 3400c/180's (see "Subnotebook Keeps Pace with 3400c"). The 2400c includes the same video subsystem as the 3400, complete with an external VGA video connector; aside from mirror mode it supports only a single logical monitor. On the 10.4-inch diagonal active-matrix color LCD screen, you get an 800-by-600-pixel 105-dpi image; it's a little squeezed, but usable.

ARNOLD TIOSEJO

The PowerBook 2400c is speedy, but its tiny keyboard may not appeal to U.S. users.

Full Complement of Ports

Though it lacks the 3400's internal PCI-style expansion slot, the 2400c does support CardBus PC Cards for PCI functionality with future PC Cards. Apple says it will offer PCI drivers when CardBus cards arrive. The PC Card slots also support Zoomed video for displaying television-style images. The 2400c has the full set of PowerBook ports, including ADB, SCSI (HDI-30 connector), a GeoPort-enabled serial port, infrared, and a floppy drive. The infrared supports 1-Mbps IrDA protocols—provided drivers are available—and the floppy drive connector, new to PowerBooks, is the same one used in IBM's subnotebooks. With a full set of ports and CardBus, the 2400c requires no docks. Ethernet and modem connections require an appropriate PC Card.

continues

Macworld LAB TEST

X704 Prototype Delivers No Wallop

At speeds expected to hit 533MHz, the PowerPC-compatible X704 CPU from Exponential Technology should make the Mac soar to heights unmatched by any PC. But the first tests of an X704-based Power Mac 9600 prototype, running at 450MHz, don't show that performance. Overall, the X704-based prototype runs slightly slower than a 225MHz PowerPC 604e-based Mac—essentially at the speed of a normal, unmodified Power Mac 9600/200—and it is much slower than a 266MHz PowerPC G3-based prototype. Note that these test results are not comparable to *Macworld*'s standard systems tests; the tests here were optimized for high-performance Macs.

Best result in test. Longer bars are better. Results are times as fast as a Power Mac 7500/100 (7500/100 = 1.0). Products are listed from fastest overall to slowest overall. ► indicates a prototype system (not yet shipping).

	Overall Score	CPU-Intensive	FPU-Intensive	Disk-Intensive	Video-Intensive
► 266MHz G3-based Motorola Viper	3.0	3.0	3.3	2.9	2.2
► Power Computing PowerTower Pro 250	2.7	2.7	3.0	2.3	3.6
Umax SuperMac S900/225	2.3	2.3	2.7	1.8	3.2
► 450MHz X704-based Apple Power Mac 9600	2.2	2.3	2.3	1.8	2.3

Behind Our Tests

Macworld Lab tested several tasks in each of 14 programs to determine overall system performance as well as performance for each of the Mac's key subsystems. All systems had 32MB of RAM, used Mac OS 7.6.1, and ran at 832-by-624-pixel resolution in 16-bit color mode.—**Macworld Lab testing supervised by Mark Hurlow**

A lithium battery provides two to four hours of use, according to Apple, and the 2400c uses the same AC power adapter (interchangeable with Duo power supplies) as the 1400 and 3400 models.

A speed upgrade is possible, but Apple offers no word yet on a 200MHz or 240MHz version. The CPU is soldered on the motherboard, so an upgrade means a motherboard change.

online

Vector File Formats Duel on the Web

WHICH ANIMATION SOFTWARE WILL WIN?

by Stephen Beale

A headline moves across the home page and explodes into a jumble of letters. A balloon inflates and bursts, revealing catchy ad copy inside. Now, thanks to emerging Web-based vector-animation technologies, you can create effects like these using less file space than the typical GIF or JPEG image takes up.

Sounds great, but there's a catch: three incompatible vector-animation formats are being promoted by three companies—Macromedia (415/252-2000, *http://www.macromedia.com*), PaceWorks (415/261-6180, *http://www.paceworks.com*), and Lari Software (919/968-0701, *http://www.larisoftware.com*)—and now Apple Computer has entered the fray by adding vector capabilities in QuickTime 3.0.

The Vector Advantage In a vector animation, each graphic element is stored not as an image, but as a mathematical expression that describes its size, shape, position, and other characteristics. With many animations, these expressions take up much less file space than the equivalent bitmapped animated GIF. Vector animations are especially well suited for logo treatments and other effects that can be easily rendered as lines and curves.

Unfortunately, each animation technology requires its own plug-in or other software for playback.

One solution to the morass of competing formats is QuickTime 3.0, which supports vector animation. You can view QuickTime-based vector animations on any QuickTime-enabled browser—including Netscape Navigator and Microsoft Internet Explorer. To view animations, you need QuickTime 3.0 but not a new version of the plug-in.

Despite QuickTime's broad acceptance in the marketplace, only Lari Software has wholeheartedly embraced the QuickTime vector-animation format, and even Lari is hedging its bets by supporting its own

Electrifier technology in addition to QuickTime.

Lari Electrifies Lari introduced a QuickDraw GX–based vector-animation format called Electrifier in August 1996. Although Electrifier did not require GX, it was Mac-only technology, and the playback software needed to view the animations would not run under Windows.

But now Lari has adopted the new QuickTime format. Its $99 LightningDraw Web lets you create QuickTime vector animations that can be viewed with any QuickTime-enabled browser on a Mac or PC.

Electrifier Studio, a $99 package launched at Seybold New York, lets you create Electrifier animations with GX features, such as automatic ligature substitution, that Lari says are not available in the QuickTime format. To view these animations, you'll need a QuickTime extension that Lari is currently developing.

Keeping Pace PaceWorks offers Vectorium, a format-independent animation technology, as part of ObjectDancer, a ~~$445~~ program that produces both vector and bitmapped animations. Vectorium animations can be viewed with a free extension to QuickTime 2.5.

PaceWorks will probably support the new QuickTime vector format, but expect to see a Java version of Vectorium that will let Java-enabled browsers view the animations.

Macromedia Flashes Last year Macromedia acquired FutureWave's FutureSplash, which it repackaged as the $199 Flash. Animations are viewable with a free Shockwave Flash Player.

Macromedia anticipates widespread adoption of the Shockwave Flash plug-in and is encouraging developers to include it with their products.

In the standards race, Macromedia clearly has the lead. But the emergence of QuickTime and Java still gives PaceWorks and Lari Software a chance to establish their formats as viable alternatives.

Macworld LAB TEST

Subnotebook Keeps Pace with 3400c

The PowerBook 2400c/180, with a PowerPC 603e/180, keeps pace with its larger sibling—the PowerBook 3400c/180. But its speedy performance doesn't make up for the lack of an internal floppy drive, a CD-ROM drive, and built-in Ethernet.

Longer bars are better. Results are times as fast as a Centris 650 (Centris 650 = 1.0). Products are listed from fastest overall to slowest overall. ▶ indicates a prototype system (not yet shipping).

	Overall Score	CPU-Intensive	FPU-Intensive	Disk-Intensive
Power Macintosh 9600/200	8.7	8.9	12.1	3.5
PowerBook 3400c/200	5.5	5.3	8.3	2.4
PowerBook 2400c/180	5.0	4.9	7.6	2.2
PowerBook 3400c/180	5.0	4.9	7.5	2.1
▶ PowerBook 1400c/133	3.5	3.7	4.6	1.5

Behind Our Tests For details on *Macworld's* system benchmarks, see *Mac Superguide*, January 1997.—**Macworld Lab testing supervised by Mark Hurlow**

JAMIE BENNETT

networking

AppleShare Finds a New Home

LATEST APPLE SERVERS TARGET WORKGROUPS

by Elizabeth Dougherty

Apple Computer's (408/996-1010, *http://www.apple.com*) two new workgroup servers build on the company's latest system designs and offer a slew of bundled software, including the long-awaited AppleShare/IP 5.0. The Workgroup Server 7350/180 and the Workgroup Server 9650/233 target workgroups in Apple's traditional markets: publishing, education, small businesses, and corporate departments.

Apple will offer each server in three software versions. Due in May is the Applications Server Solution ($2899 for the 7350, $6199 for the 9650). The Apple Internet Server Solution ($3399 and $5799) and the AppleShare Server Solution ($3599 and $6899) are slated to be available late in May, when AppleShare/IP 5.0 ships.

AppleShare/IP, Apple's file- and print-server software, adds TCP/IP, FTP, POP3/SMTP, and HTTP Web server capabilities. Claris (408/727-8227, *http://www.claris.com*) will sell an unlimited-user version for $1999, a 50-user license for $1349, and a 5-user license for $799. Users will pay $499 for an upgrade from version 4.X.

Improved Hardware The 7350/180 uses the Power Mac 7300 motherboard with a 180MHz 604e CPU. It ships with 48MB of RAM, expandable to 256MB; a 4GB hard drive; a 12× CD-ROM drive; and one free expansion bay. It has three standard PCI slots, an internal SCSI-2 Fast (10-MBps) bus, an external SCSI-1 (5-MBps) bus, 256K cache, and a 10BaseT Ethernet port.

The 9650/233, with the Power Mac 9600 motherboard and a 233MHz 604e CPU, ships with 64MB of RAM (expandable to 768MB). It comes with ultrawide hard drives and an Ultra SCSI (40-MBps) PCI card. The AppleShare and Applications versions come with two 4GB ultrawide hard drives or with one 4GB ultrawide hard drive and a DDS-2 DAT drive for the same price. The Internet server has one 4GB ultrawide hard drive.

The 9650 has an Integrated Micro Solutions TwinTurbo 128 PCI video card and four open PCI slots. It ships with a 12× CD-ROM drive and, depending on the configuration, three or four expansion bays. The 9650 has nonupgradable 512K cache, an internal SCSI-2 Fast bus, an external SCSI-1 bus, and AAUI and 10BaseT ports.

KEVIN CANDLAND

New workgroup servers, the 9650/233 (left) and the 7350/180, target Apple's core markets.

Lots of Software Apple preinstalls Mac OS 7.6.1, Open Transport 1.1.2, Apple RAID 1.5, and, in some configurations, AppleShare/IP 5.0 on the servers. The other software comes on CDs with licenses for ten users.

For a complete list of the software programs included with each configuration, see *http://www.macworld.com/daily/daily.1227.html.*

systems

OS 7.6.1 Adds New Bugs

UPDATE FOR NEW POWER MACS CAUSES MORE PROBLEMS

by Allyson Bates and Tova Fliegel

The search for a universal Mac OS release—a single system release that runs on all Macintosh models—is still not over. Although Mac OS 7.6 shipped in late January, the new Power Macintoshes—the 4400, 7300, 8600, and 9600 systems announced in mid-February, as well as the 5500's and 6500's announced in March—do not support it. In April, Apple introduced Mac OS 7.6.1 in an attempt to solve two problems: to improve stability for existing 7.6 users and to enable recently introduced computers to run Mac OS 7.6.

But while it reduces the number of system crashes, 7.6.1 introduces new problems. And although the 7.6.1 update was widely available for 7.6 users, at press time purchasers of the new Power Macs were still waiting for Apple to distribute a full system release of 7.6.1. (Mid-May is the company's outside estimate for availability of the full release.) Among the problems and gotchas with 7.6.1:

- L2 cache is disabled on Alchemy-based systems running 7.6.1. These include the Apple Power Macintosh 5400's, Performa 6360's and 6400's, Power Computing PowerBase machines, and Umax Computer SuperMac C600's and C500's. A patch that reenables the L2 cache is available from *http://www.macworld.com/software/IndexSoftware.AppleSoftware.html* or *http://support.info.apple.com.*
- Older versions of Connectix's Speed Doubler are purposely disabled with 7.6.1. Users can avoid disabling Speed Doubler by downloading versions 1.3.2 or 2.01 or higher from *http://www.connectix.com/connect/upda.spee.html.*
- PowerBook 3400's run a different version of the 7.6.1 installer. The download areas ask which machine you're using, so be sure to specify. PowerBook 3400 users who are running Open Transport 1.1.2 also must install Mac OS 7.6.1 immediately after they install OT 1.1.2.

Several other bugs exist. The QuickTime MPEG card does not work with either Mac OS 7.6.1 or 7.6. Although there's currently no fix, Apple notes that 7.6.1 now allows MPEG software decompression, whereas 7.6 does not. Those using 680X0 machines will experience problems printing with the LaserWriter 8.3.4 driver; the workaround is to install LaserWriter 8.4. Macintosh network managers are also reporting an increased sensitivity to the Ping o' Death (see "A Ping to Die For," *News*, February 1997), a problem Apple is still researching. For a complete listing of known problems, see *http://devworld.apple.com/dev/technotes/tn/tn1096.html.*

Apple says there will be no more 7.6 updates and Mac OS 8 is on track for July release.

X704 NOT EVEN CLOSE TO ECLIPSING PENTIUM

continued from page 31

reveal, and there were several extensions in the System Folder to deal with them and with the X704 CPU itself. These may have contributed to the unexpectedly slow performance. Mac OS 7.6.1 (which the X704 prototype requires) has had difficulties with some cache architectures, although it's unclear if that affected the speed. *Macworld* has learned that the modified 9600 probably included the very fast cache that Apple is designing for its next set of 9600-based Macs. Code-named Kansas, this fast-bus Power Mac design will likely debut this fall. Also, the video circuitry was the standard Power Mac 9600's, not a fast video card's as in the other systems we tested.

Unoptimized Design But not all the slowdown can be blamed on hardware flaws; some of it was definitely due to the X704's design.

For example, the X704's speed plummets when it runs 680X0 code—which Exponential admits. Even with programs labeled PowerPC-native, expect to have some chunks still using 680X0 code. And many plug-ins and filters are written in 680X0 code, which will slow down an all-PowerPC program when it runs that plug-in or filter. For example, our tests show that although the X704 performed speedily in Photoshop 4.0, it choked when running an Adobe Gallery Effects Photoshop filter that happened to be in 680X0 code.

And the X704 has not been optimized for floating-point performance. While most everyday programs use integer math, many high-end programs use floating-point calculations—including some Photoshop operations and many rendering operations in programs such as Infini-D.

Too Soon to Tell Despite these early results, don't count the X704 out. Exponential has already cleared a major stumbling block by producing the CPU at all. Because it combines two chip technologies—one called CMOS and one called bipolar—many industry watchers thought it would never work at all.

Then its huge heat dissipation—60 watts, or the same as a low-level lightbulb, which is four times that of a Pentium—threatened to make sufficiently cooled case designs too difficult or expensive to produce. But the modified Power Mac 9600 didn't seem to overheat through eight hours of continuous usage, and Exponential has shown *Macworld* fairly straightforward cooling approaches that should work in most of today's tower cases.

Work continues at Exponential and at several Mac makers to bring the X704 into Mac systems. When the CHRP architecture arrives (likely this summer, if the CHRP-compatible Mac OS isn't delayed again), the X704 should have a better-equipped platform on which to run. Although that won't address its poor performance with 680X0 code, it should let the X704 deliver more on its promise for PowerPC-native programs.

SUZANNE ROADY

PaperPort in Living Color

The PaperPort Vx from Visioneer (510/608-0300, *http://www.visioneer.com*) has long been a popular peripheral for scanning text and the occasional gray-scale image into a computer system. Now, with the new PaperPort Strobe, the company is adding color to its vision. The $329 sheetfed scanner captures images at 300 dpi in 24-bit color, using Visioneer's MicroChrome technology to optimize picture quality. The company claims that the PaperPort can exceed the image quality of flatbed scanners thanks to its simpler optics. It's bundled with Xerox Textbridge software for text recognition, PictureWorks PhotoEnhancer for image retouching, and Connectix QuickCards for creating custom greeting cards.—STEPHEN BEALE

storage

PC Card Readers on the Horizon

LOW-COST UNITS TARGET DIGITAL CAMERA USERS

by Stephen Beale

Apple's PowerBooks have long featured PC Card interfaces that let them use modems, network connectors, and other PC Card peripherals. Until recently, PC Card readers for desktop Macs have been rare commodities. But with the emergence of low-cost digital cameras that store images on CompactFlash PC Cards, vendors of PC Card readers are targeting the Mac market, so you're likely to see under-$200 PC Card readers within the next several months.

Portable Origins The PC Card standard was originally developed to allow vendors to create compact peripheral products—modems, storage devices, and more—for portable computers. But thanks to the PC Card's form factor—no bigger than a small pocket calculator—the technology also provides an attractive solution for storing images in digital cameras.

A PC Card reader transforms the PC Card from a pure storage to a fast data-transfer device. Sending images via a serial cable can be painfully slow. With a PC Card reader, you can pop the card out of the camera, insert it in the reader's slot, and copy the images—as if they were stored on a disk—in seconds.

Most digital cameras with PC Card interfaces use a stor-

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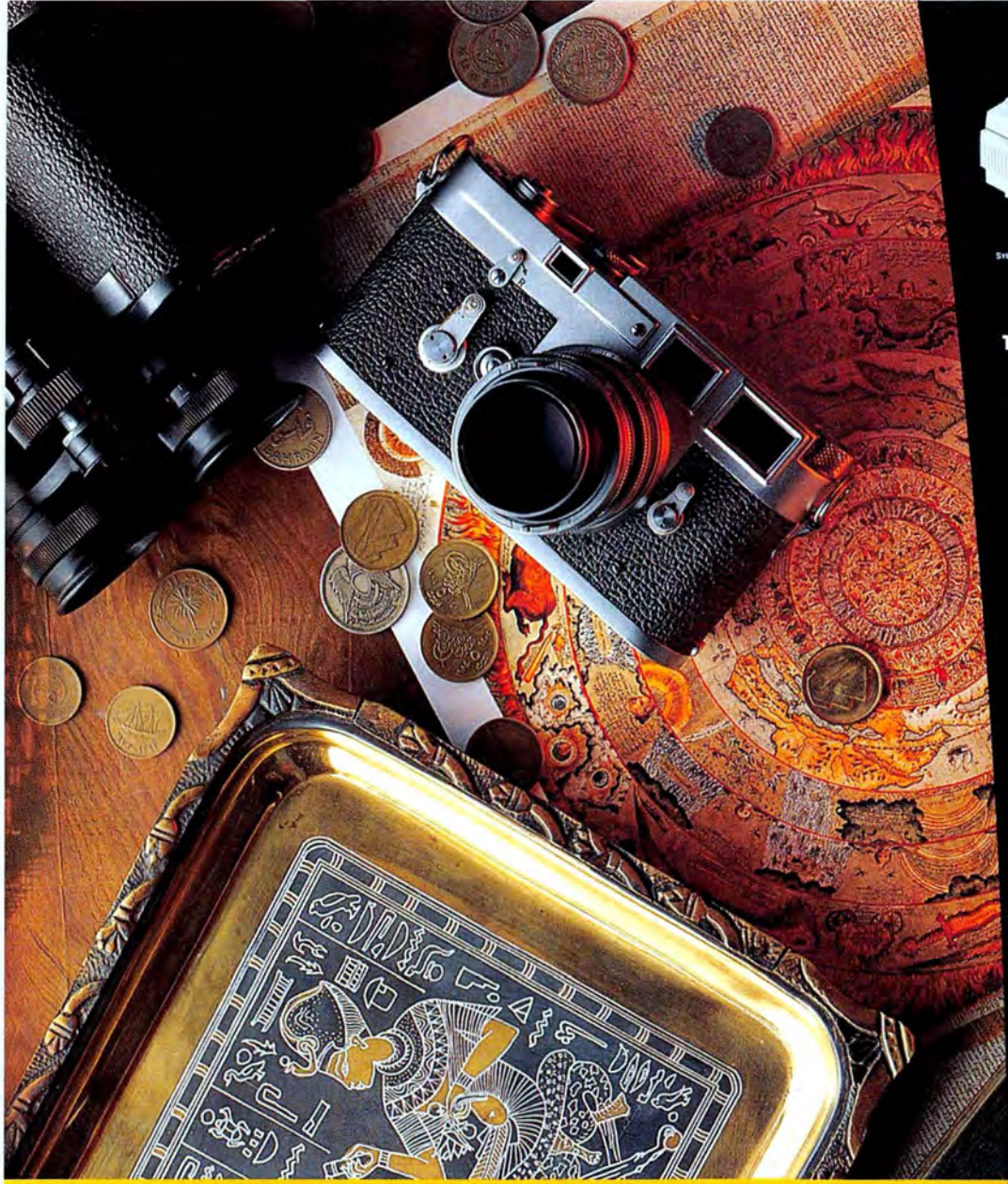

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Circle 45 on reader service card

Sneak PEEK

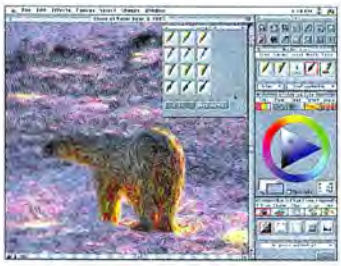
Painter 5 Offers Eye-catching Effects

BY CARLOS DOMINGO MARTINEZ

Sometimes product upgrades can be disappointing, adding needless complexity or altering a well-defined interface. Happily, that's not the case with Fractal Design Painter 5, due to ship by early June. The prebeta prototype version I looked at adds many useful features that should prove popular with artists, illustrators, and Web-site designers. Still, Painter's essential character remains unchanged, so while veteran users will feel right at home, novices should expect a learning curve.

Brushes, Floaters, and Plug-Ins Most significant is Painter 5's redesigned architecture, permitting additional tools and plug-ins that exploit Painter's strengths. A developer's kit will be provided to encourage other vendors to develop plug-ins. Among the slick new add-ins is a set of Photo brushes that provide effects such as darkroom manipulation (dodge and burn), color management (adding hue, saturation, and value), and retouching (scratch and dust removal). Other plug-in brushes let you twist and pull colors across an image and produce glows by simply painting them. Although still unfinished, these brushes worked fairly well.

Painter 5 also incorporates plug-in Dynamic Floaters (layers) for such effects as glass distortions, edge tearing and edge burning on floating selections, and brightness and contrast adjustments on underlying layers. Another Dynamic Floater lets you define bevels for floating objects; using its extensive controls, you can manipulate eight beveling attributes to create unique image buttons for Web pages and interactive multimedia applications.



Painter 5's Liquid Metal Dynamic Floater lets you apply metallic paint that behaves like liquid mercury and reflects its surroundings.

Tear-Off Tools Working palettes (for art materials, objects, tools, and the like) have been only slightly revised, but Painter 5 restores the ability—missing since version 2—to tear off tools for easy access. In fact, it improves on that feature by adding user-definable custom palettes, so you can organize tools and menu commands to suit specific projects. In response to user requests, Painter's selection and masking tools have been simplified and revised to work similarly to those of other programs, particularly Adobe Photoshop. Other important additions to the product are the inclusion of the Kodak Color Management system and support for CYMK and Pantone's six-color Hi-Fi Hexachrome output.

Of course, given its alpha status, the Painter 5 I previewed didn't always behave perfectly. Not all the features were fully implemented or worked properly, but overall, I'd say Painter 5 seems to be headed in the right direction.

age technology called CompactFlash developed by SanDisk (408/542-0500, *http://www.sandisk.com*). SanDisk and other vendors offer CompactFlash cards with capacities between 2MB and 100MB; prices begin at about $100. However, some recently introduced cameras, including Apple's QuickTake 200, use an alternative technology called SSFDC (for solid-state floppy disk card). Much less costly than PC Cards, they can be used with a PC Card reader through an adapter.

GIBSON

Adtron's $500 dual-slot PC Card reader is aimed at professional photographers.

Migrating Down The first cameras that used PC Card storage were professional models—with five-figure price tags to match—from Kodak and Nikon, and as a result, the first PC Card readers available for the Mac were relatively costly. Adtron (602/926-9324, *http://www.adtron.com*) offers a $500 dual-slot PC Card reader for users of these cameras. Intermart (408/379-0770, *http://www.intermartsys.com*) has a $300 internal dual-slot reader, a $425 external dual-slot reader, and a $399 external single-slot reader.

Now that Kodak, Ricoh, and other companies have introduced digital cameras with PC Card storage in the under-$1000 range, vendors of PC Card readers are developing inexpensive single-slot versions of their products. This summer, for example, Adtron will offer a single-slot reader in the $150-to-$200 range. Intermart says it's also considering such a product.

You can expect prices for CompactFlash storage cards to come down, especially given competition from SSFDC media. PC Cards also change the way you use your digital camera software—instead of opening and saving the images with the software that comes with your camera, you can transfer them in the same way you copy images from any other storage device. As a result, you can expect developers of digital camera software to add features that let you batch-convert images from their proprietary formats into standard TIFF or JPEG files.

networking

Macs Can Thrive in an NT World

YOUR PROGRAMS CAN RUN ON AN NT SERVER

by Cathy Abes

As more companies standardize on Windows NT–based networks, Macintosh users are being pressured to switch platforms. If you're a typical Mac loyalist in a Windows world, chances are your IS manager has insisted that you must be on Windows to connect to the company's NT server, but you don't want to give up your Mac. Well, guess what? You don't have to.

NT at Your Service Many people don't realize that Macs can seamlessly coexist with

continues

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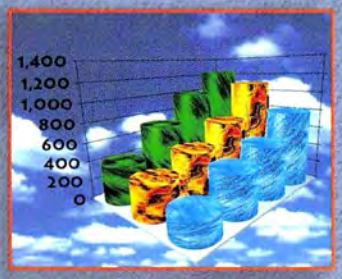

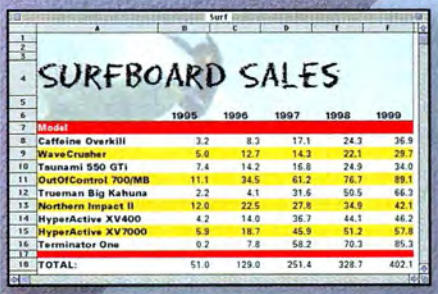

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Model	1995	1996	1997	1998	1999
Caffeine Overkill	3.2	8.3	17.1	24.3	36.9
WaveCrusher	5.6	12.7	14.3	22.1	29.7
Tsunami 550 GTi	7.4	14.2	16.8	24.9	34.0
OutOfControl 700/MB	11.1	34.5	61.2	76.7	89.1
Trueman Big Kahuna	2.2	4.1	31.6	50.5	66.3
Northern Impact II	12.0	22.5	27.8	34.9	42.1
HyperActive XV400	4.2	14.0	36.7	44.1	46.2
HyperActive XV7000	5.9	18.7	45.9	51.2	57.8
Terminator One	0.2	7.8	58.2	70.3	85.3
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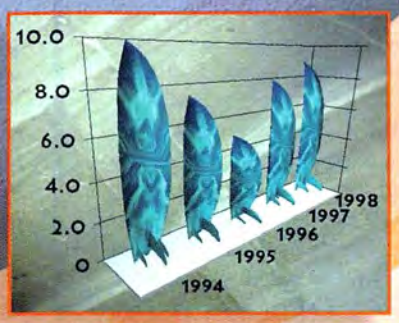

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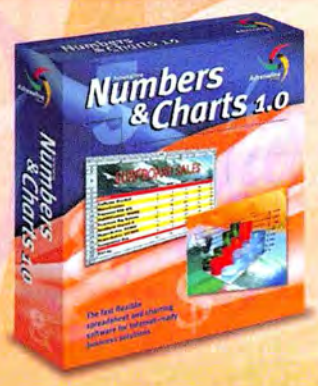

Adrenaline Numbers & Charts is available right now at Cyberian Outpost, the Mac-friendly cool place for computer stuff. You may order via their web site at http://www.cybout.com/ or at 1-800-856-9800. Adrenaline Numbers & Charts is also available from MacWarehouse in the USA at 1-800-397-8508 or in Canada at 1-800-268-7805. An electronic version of Numbers & Charts is available from C/Net at http://BuyDirect.com

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Circle 23 on reader service card

Ready for MacOS 8

As the first spreadsheet and charting package to be released in over two years, Adrenaline Numbers & Charts is optimized for the technologies of today's MacOS system software as well as tomorrow's MacOS 8.

Adrenaline Numbers & Charts 1.0

Features

- *PowerPC™ native calculation kernel*
- *149 essential spreadsheet functions*
- *TrueDimensioning™ formatting (pixels, inches, cm, points, picas) for spreadsheets and charts*
- *Advanced scripting capabilities*
- *Export spreadsheets as HTML*
- *Microsoft Excel 5.0 data compatible*
- *23 2D/3D chart types to select from*
- *Simple interface for direct manipulation of objects*
- *Texture mapping of images and movies*
- *Import 3D objects (3DMF files)*
- *Full QuickDraw 3D support*
- *Innovative ObjectTransporter™ technology for creating custom 3D charts*
- *Complete OpenDoc support*

System requirements

- *Macintosh with PowerPC processor*
- *System 7.5.3 or later*
- *16 MB of physical RAM*
- *5 MB of hard disk space*

Adrenaline Software

Adrenaline Software, Inc.
1400, boulevard du Parc technologique
suite 210
Québec (Québec)
G1P 4R7 CANADA
info@adrenaline.ca
www.adrenaline.ca

Systems WATCH

BY TOVA FLIEGEL

PowerBook Memory at Risk

A slight misalignment in the enclosure of some PowerBook 3400's can cause add-in memory cards to pop loose so that the system fails to recognize additional memory. Apple's (408/996-1010, *http://www.apple.com*) fix is a foam strip that adheres to either the RAM card or the keyboard and wedges the card into the motherboard connector. Although the strip is already shipping with the latest 3400's, and memory-card maker Newer Technology's (316/943-0222; *http://www.newertech.com*) 3400 add-ins, at press time it was not yet available from Apple tech support (800/767-2775 [800/SOS-APPL]).

Greater Cross-Platform Compatibility

Macintosh users who want to run Windows applications now have more options: new hardware from Apple and PC-emulation software from Connectix (415/571-5100, *http://www.connectix.com*).

Apple is shipping a $1000 full-slot PC compatibility card that adds a 166MHz Intel Pentium CPU to the Power Mac 7300/180. More economical are the bundled systems, due in May. The Power Mac 7300/180 PC Compatible comes with the Intel card for $3200, only $401 more than the 32MB 7300/180 alone. For $2400, you can get a Power Mac 4400/200 with a Cyrix P166 CPU card and 16MB of PC RAM, 32MB of Mac system RAM, a 2GB hard drive, and a 12× CD-ROM drive. You can't get the Cyrix card separately. (The 4400/200 without the card, 16MB of RAM, a 1.2GB hard drive, and an 8× CD-ROM drive costs $1749.)

Connectix has announced Virtual PC, an emulator that lets Power Macintosh users run PC productivity applications, games, multimedia titles, and various PC operating systems. Virtual PC is set to ship in June; pricing has not been set.

New Fast Systems

Following Apple's lead, Motorola Computer Group (602/438-3000, *http://www.mot.com/starmax*) plans to ship a 300MHz 603e system in May. The $2899 minitower includes Mac OS 7.6, 512K of cache, a 16× CD-ROM, five PCI slots, a 4.3GB hard drive, 32MB of RAM, and 4MB of VRAM, plus 10BaseT Ethernet on board and an Iomega Zip drive. With an 8MB IMS TwinTurbo graphics card, the 5000/300 costs $3399.

Although both Umax Computer (510/226-6886, *http://www.supermac.com*) and Power Computing (512/388-6868, *http://www.powercc.com*) had announced 250MHz 604e systems, neither the S900/250 nor the PowerTower Pro 250 was shipping at press time, because the CPUs from chip maker IBM Microelectronics were not available in quantity. IBM plans to have the chips available by mid-May, but you should verify availability before ordering.

PCs on Windows NT networks while also taking advantage of many NT services.

A module built into NT called Services for Macintosh (SFM) provides a client-server environment that makes it easy to create Mac volumes on—and access them from—an NT server. SFM doesn't turn on automatically, though; it must be activated via the Mac's Network control panel. And Macs can access only drives or volumes formatted via NTSF, a standard NT drive format.

SFM provides AppleTalk support, including the AppleTalk Internet Router; AppleShare support (allowing an NT volume to appear on the Mac clients' desktops); and such NT services as file sharing and print spooling.

Sharing Files Once a Mac volume has been set up on the NT server, you can store all your Mac applications there, accessing them just as you would from an AppleShare server. NT-server–based applications such as Claris FileMaker Pro Server, Luminous Open and Color Central, ACI US's 4D Server, and SoftArc's FirstClass Server all have client components that run on the Mac, allowing Macintosh and Windows users to share the same files. You can edit Microsoft Excel spreadsheets, Word documents, and other cross-platform files on your Mac, then save them to the NT server, where Windows users on the network can also access them.

There are some limitations, though. Because NT provides only an AppleShare server and not a client, Macs can't directly access individual Windows machines on the network; nor can the server or the Windows machines access the Macs. But other products address those problems. Thursby Software's Dave gives Macs access to shared Windows directories (similar to Mac volumes) via TCP/IP. With Dave, Macs can directly access and share files and printers with any Windows NT, Windows 95, or Windows for Workgroups computer on the network. On the Windows side, Miramar's MacLAN Connect provides an AppleShare client that gives Windows users direct access to shared Mac volumes, and Macintosh users direct access to shared Windows volumes.

You can use an NT server to run an AppleTalk network

simultaneously with Ethernet, Token Ring, FDDI, and any other NT-supported network media. And because it can function as an AppleTalk router, an NT server reduces network administration costs and eliminates the need to buy additional routers—a big plus for budget-minded companies and schools. There's also a PostScript Level 1 RIP that allows Macs to use printers that don't have Mac drivers.

A Mac can even become an NT administrator. Microsoft's free Web Administration Tool (downloadable from *http://www.microsoft.com/ntserver/webadmin/webadmindl.htm*) lets a Mac client administer an NT server via Internet Explorer or Netscape Navigator.

Surprisingly, much confusion remains among users, IS managers, and even some software developers about how—or even whether—Macs can fit into a Windows NT world. But with NT's Mac client services, there's no reason you can't keep that Mac on your desk.

JAMIE BENNETT

Introducing the MessagePad 2000, the only handheld computer you can actually use.

Of all the handheld computers, only the MessagePad 2000 offers sharp, crisp backlighting and a 16-level, high-resolution gray-scale screen that rotates on command. Which means you can always see your work in the best orientation—horizontal or vertical, even upside down. And in the best light. Bright. Or dim.

The MessagePad 2000 gives you more flexibility, thanks to its two PC slots (other handhelds have only one slot). So, for example, you can dedicate one to a wired or wireless modem and use the other for additional memory.

How much can you do in three to six weeks? That's how long a set of AA batteries lasts under normal usage. Note: normal usage here means a lot. Like having backlighting on, using the modem, crunching numbers, writing e-mail, drawing, doodling, whatever.

Built-in software lets you connect directly to a variety of serial, IrDA and LocalTalk® printers—unlike most Windows® CE devices, which have to be hooked up to a PC in order to print.

There's fast. And then there's fast. The MessagePad 2000 comes with a screaming 160 MHz RISC processor, which offers up to five times the performance of the 20-40 MHz processors you get with other handheld devices.

The usable area of the MessagePad 2000 screen is up to 56% larger than what you'll find on most Windows CE products. So, instead of having to decipher small sections at a time, you can read the entire width of a fax or Web page.

A built-in microphone and speaker let you record and play back voice dictation. And the MessagePad 2000 is the only handheld computer that lets you record and take notes simultaneously.

The MessagePad 2000 works easily with desktop computers. So you can create documents on the MessagePad 2000, then transfer them to and from Microsoft® Excel or Word on any Windows or Mac® OS-based system. Or you can keep your calendar and address book current by synchronizing them with desktop programs like Microsoft Schedule+ 7.0 or Claris Organizer™ 2.0. And it's easy: with Auto Dock, the MessagePad 2000 makes these transfers automatically.

Unlike Windows CE-based devices, MessagePad 2000 is the only handheld computer that lets you exchange data with both Windows and Mac OS-based computers.

The MessagePad 2000 handheld computer offers a real detachable keyboard (not a tiny, finger-cramping version). So you can quickly and easily type e-mail, business letters, project reports. Only your superb writing style—not your aching fingers—will determine the length of your documents.

Of all the handheld computers out there, only one makes it truly easy to be productive on the road. Introducing the MessagePad® 2000. Rather than just letting you view data, the MessagePad 2000 lets you carry out sophisticated tasks with the greatest of ease. For example: you can now write a full-length proposal, insert information downloaded from the Web—even include pricing from your company's Intranet—and then fax or e-mail it to a client. Try that with an ordinary handheld computer. The MessagePad 2000 has more power, more storage, more flexibility. All contained within the most innovative design, optimized for usefulness. Of course, there's only one real way to understand how incredible the new MessagePad 2000 is: try it yourself. For the name of a dealer near you, or to get more information, call 800-909-0260. Or visit us at www.newton.apple.com/useit.

Newton

Modem and ISP required for Internet access. Competitive specifications as of February 1997. ©1997 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, the lightbulb logo, LocalTalk, Mac, Macintosh, MessagePad and Newton are registered trademarks of Apple Computer, Inc. Claris Organizer is a trademark of Claris Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. All Macintosh® computers are designed to be accessible to individuals with disability. To learn more (U.S. only), call 800-600-7808 or TTY 800-755-0601.

SPECIAL REPORT

New Products Abound at Seybold

DESPITE INTEL THREAT, MAC STILL DOMINATES

by Stephen Beale

QuarkXPress 4.0, PostScript 3, and a new threat from Intel were among the major developments at this spring's Seybold conference in New York.

The Macintosh still dominates among publishing pros, but Intel, along with such partners as Intergraph, Compaq, Microsoft, and Adobe Systems, was highly visible at the show, promoting Windows NT systems for publishing and graphics. Microsoft has licensed Linotype-Hell's LinoColor color-management technology, one area where the Mac still has a clear lead over Windows.

During a keynote session, Apple executive vice president Ellen Hancock responded by touting the latest Mac hardware and describing Rhapsody OS features of special interest to publishers, such as the ability to install and share on a server an unlimited number of fonts. She also reminded publishers that Microsoft is now a content provider through MSNBC and other ventures. "If you invest in Microsoft, they may use that money to compete with you," she said.

Quark Returns The biggest product news at Seybold was QuarkXPress 4.0, a long-awaited upgrade that adds index and table-of-contents generation; character style sheets; and new graphics capabilities, including running text along a path, building complex shapes, and dropping out white or near-white backgrounds from imported images for irregular text wraps.

NetObjects and Astrobyte announced upgrades of their Web authoring tools. NetObjects Fusion 2.0 adds frames support, a Master Borders feature similar to Master Pages in QuarkXPress and Adobe PageMaker, and the ability to import an entire Web site in addition to individual pages. Astrobyte's BeyondPress 3.0, which converts QuarkXPress documents into Web pages, now supports cascading style sheets and Bitstream's TrueDoc font technology, which allows graphic designers to use formatted text in HTML documents.

Plug-ins and Xtras Chroma Graphics (415/375-1100, *http://www.chromagraphics.com*) and Extensis (503/274-2020, *http://www.extensis.com*) both showed new Adobe Photoshop plug-ins—MagicMask and MaskPro, respectively—with enhanced masking capabilities. Extensis also announced Flight Pro, a $400 package that prepares QuarkXPress files for prepress output (PageMaker support is promised), along with new versions of Intellihance and Fetch (now called Portfolio).

Altamira Group (818/556-6099, *http://www.altamiragroup.com*) showed a $129 Photoshop import-export module called Genuine Fractals that uses fractal mathematics to convert scanned images into a resolution-independent format. It lets you scan an image at 15MB to 25MB, store it in a Fractal Image File, and print it at a size and resolution that would otherwise require a 400MB to 500MB scan without compromising quality.

Vertigo 3D Software (604/684-2113, *http://www.vertigo3d.com*) introduced Vertigo 3D Words, a $100 Adobe Illustrator plug-in for creating 3-D text effects. Hot Door (562/438-0377, *http://www.hotdoor.com*) introduced CADTools, a $129 plug-in that converts Illustrator into a CAD program.

Macromedia (415/252-2000, *http://www.macromedia.com*) announced three free FreeHand Xtras: export modules for GIF89 and the Flash format, and a PDF import/export plug-in. A FreeHand update, version 7.0.2, supports drag and drop of Photoshop 4.0 files, and import and export of Photoshop 4.0 EPS files.

SUZANNE ROADY

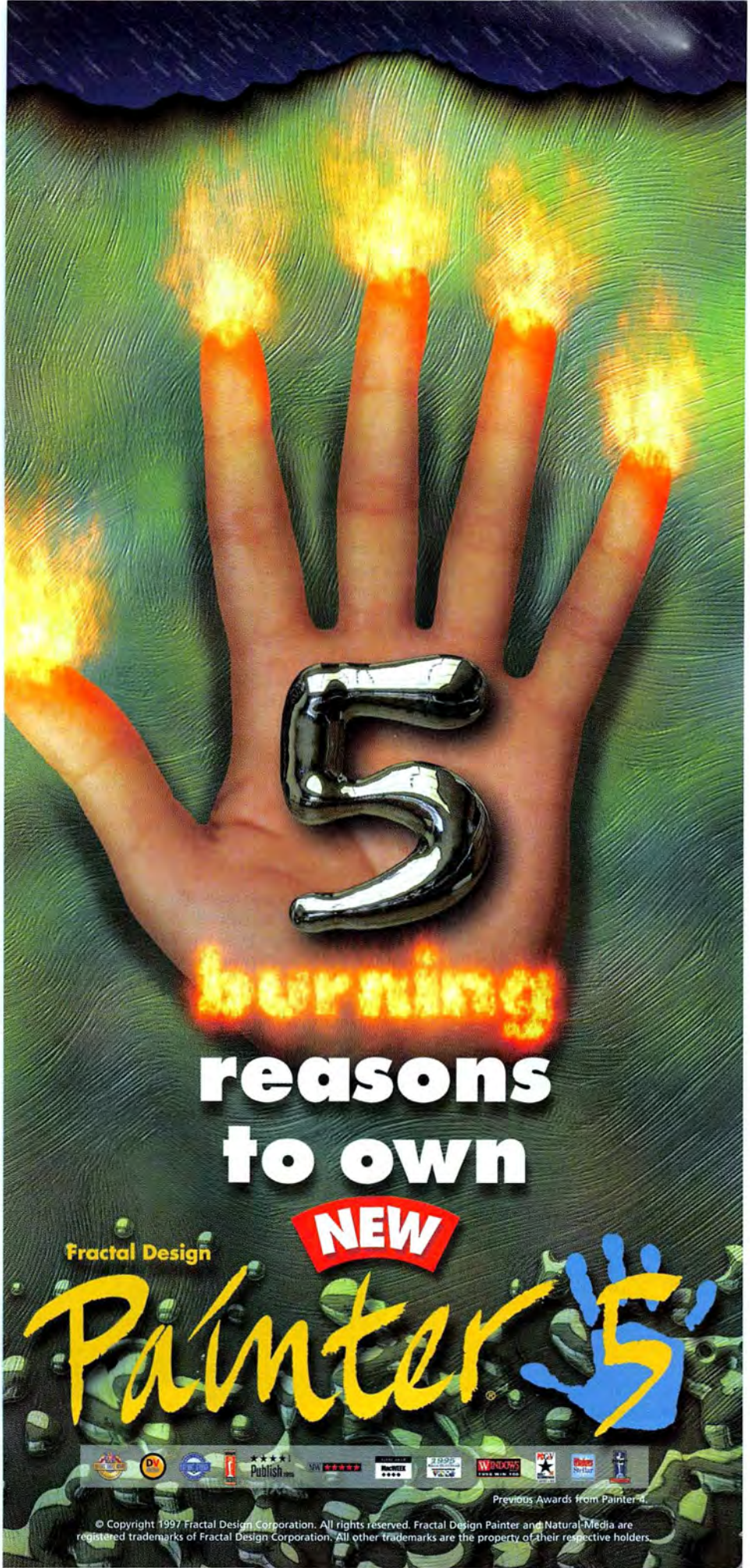
Umax's Mirage II provides high-resolution scanning at a reasonable price.

PostScript and PDF Adobe officially launched PostScript 3, which was first announced at last fall's Seybold in San Francisco (see "PostScript Level 3 Adds Web Features," *News*, December 1996). PostScript 3 printers will include numerous Web-oriented features, including a built-in Web server that provides access to printer drivers, status information, online help, and printer controls. Printers can directly process HTML, PDF, GIF, JPEG, and text files. A Smooth Shading function speeds color printing and reduces or eliminates banding effects. Masked Images improves the printing of composite images, a common cause of PostScript errors.

Adobe also announced Adobe PostScript Extreme (formerly Supra), which uses new printing features in the Acrobat PDF format to streamline prepress workflow (see "Acrobat Climbs Higher on the Web," *News*, April 1997). Lantana Research (510/744-0282, *http://www.lantanarips.com*) unveiled Crackerjack, a $495 Acrobat plug-in that lets you control the printing of PDF files.

New Hardware Much of the new hardware introduced at Seybold was high-end equipment aimed at service bureaus. For those who balk at five-figure hardware, Umax (510/651-9488, *http://www.umax.com*) introduced the Mirage II, a $7995 dual-lens flatbed scanner that offers 700-dpi optical resolution when scanning large images (up to 11.4 by 17 inches) and 1400-dpi resolution when scanning smaller images. It has a built-in transparency adapter and is bundled with color-correction software from Binuscan.

GCC Technologies introduced the Elite 1212, a 1200-dpi, 12-pages-per-minute monochrome laser printer (617/275-5800, *http://www.gcctech.com*) with an estimated price of $1499; the printer is equipped with AMD's 50MHz 29040 microprocessor and offers a two-sided printing option. Olympus (516/844-5000, *http://www.olympus.com*) also showed two prototype units: the P150, a 4-by-5-inch dye-sublimation printer, which allows Olympus digital camera owners to print directly from their cameras via a serial cable; and a 35mm film scanner that supports Kodak's Advanced Picture System technology. QMS (334/633-4300, *http://www.qms.com*) broke into the dye-sublimation market with two new models, the ColorScript 460 and 480, priced at $7999 and $12,999 respectively.—*Additional reporting by Jeff Sacilotto.*



Previous Awards from Painter 4.

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New Fractal Design Painter® 5 is the ultimate way to create sizzling original artwork–combining comprehensive image-editing features with Fractal Design's patented Natural-Media® technologies.

1 **Expandable plug-in brushes** let you paint with fire and neon, retouch in a snap, and transform images into hand-rendered paintings you can scale, twist, skew, and mirror—the possibilities are endless. And an extensible architecture means that as more brushes become available, you can add them to your existing software.

2 **Dynamic plug-in floaters** perform special effects like burning and tearing edges, Liquid Metal, Glass Distortion, Bevel World, Impasto and more—all available only in Painter. You get the flexibility of a Photoshop-style Adjustment Layer, with virtually unbounded imaging functions.

3 **Powerful Internet publishing tools** help you create red-hot Web sites using seamless background patterns, instant 3-D buttons, and multi-frame GIF animation.

4 **Industry-standard masking** means you don't have to burn up time learning how to do it. And Painter 5 reads and writes files in Photoshop's native format, so moving between programs is easy.

5 **Terrific tear-off tools.** Spark your creativity by working the way you want to—just tear off brushes, art materials, and menu items and place them on custom palettes that fit your needs precisely.

With scorching features like these, why waste another minute. Get the world's most creative design tool now. **Painter 5. It's hot. It's cool.**

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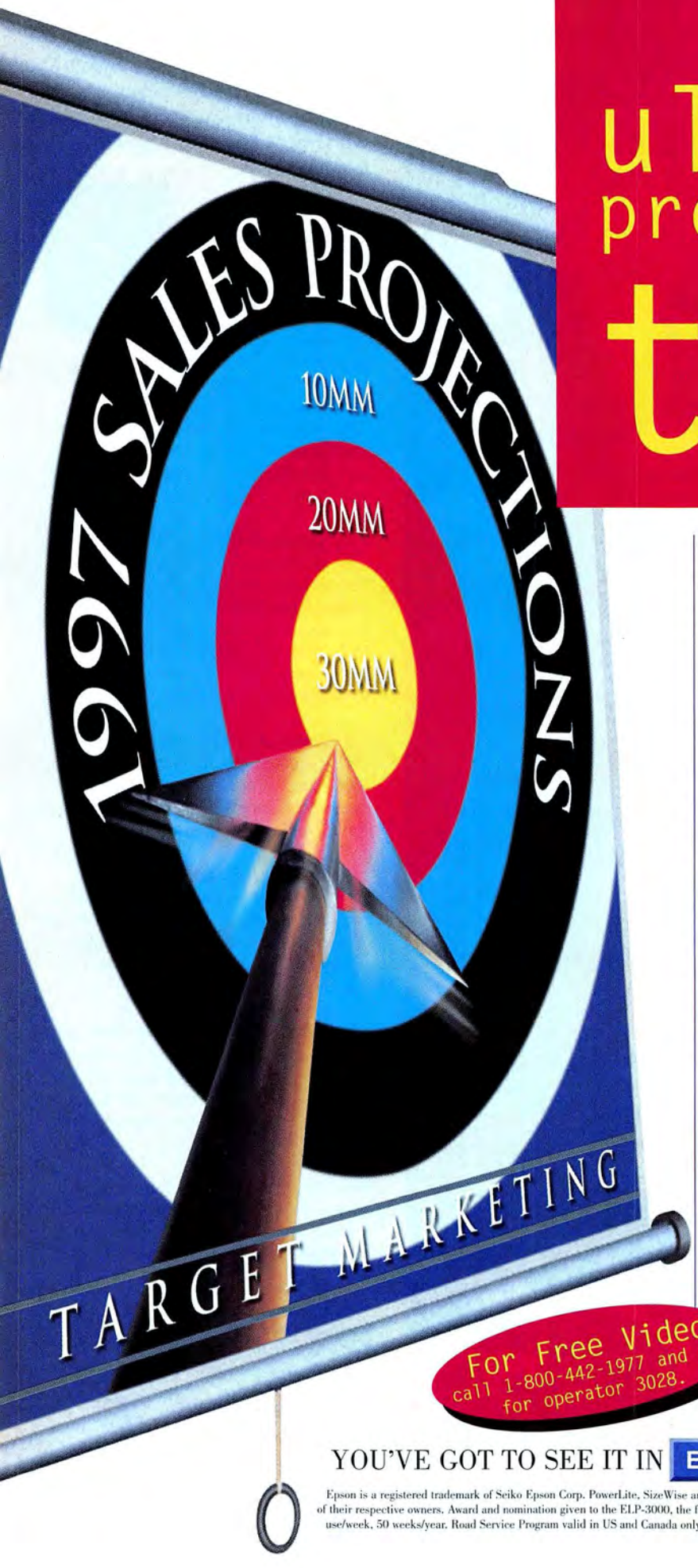

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MACWORLD EDITORS' CHOICE AWARD 1995 FINALIST

PRESENTER'S CHOICE Presentations Magazine

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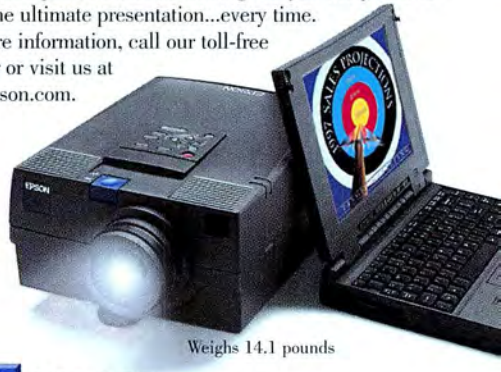

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New Products

THE LATEST MACINTOSH RELEASES

Edited by Keith Mitchell

COMMUNICATIONS

Can't Drive 55

Put the pedal to the metal and surf at 56 Kbps with new modems from U.S. Robotics (847/676-7010, *http://www.usr.com*) and Motorola (847/576-5000, *http://www.mot.com*).

• U.S.R.'s $200 modem uses x2 technology to boost Internet download speeds up to 56 Kbps. Owners who purchased the U.S.R. Sportster 33.6 after August 15, 1996, can upgrade to 56 Kbps for $60.

• Motorola's ModemSurfr 56K comes in a $159 internal version and a $179 external model. The VoiceSurfr 56K adds answering-machine and speakerphone capabilities.

DISPLAY

Big Projection, Small Package

Projectors keep getting more portable. Here are three new lightweight entries.

• Boxlight (360/779-4479, *http://www.boxlight.com*) has released the Model 3700, an $8199 SVGA projector with 800 by 600 resolution and a brightness of 450 lumens. It weighs 12 pounds.

• In Focus's (503/685-8888, *http://www.infocus.com*) $9199 LitePro 720 weighs less than 12 pounds, offering 800 by 600 resolution and a brightness of 450 lumens.

LitePro 720

• CTX Opto (408/541-6060, *http://www.ctxopto.com*) offers the $6495 EzPro 550. This projector weighs in at 9.8 pounds and offers 800 by 600 resolution and a brightness of 270 lumens.

Budget Monitor

Hansol Multitech (714/562-5151, *http://www.hansol-us.com*) is giving monitor buyers more bang for the buck with the 15PX, a $379 15-inch monitor with a 13.8-inch viewable area, 1280 by 1024 resolution, and 0.28mm dot pitch.

GRAPHICS

A Model Citizen

ModelShop 3.0 is a 3-D modeling package geared toward interior, site, city, and building design. Formerly a Macromedia product, it is now offered, for $399, by Electric Cafe (415/675-7480, *http://www.eleccafe.com*). The latest version adds photo-realistic rendering, including fog, transparency, and shadows. It also supports VRML 2.0, QuickTime VR 2.0, and QuickDraw 3D 1.5. Owners of ModelShop II can upgrade for $99.

ModelShop 3.0

Photoshop Unmasked

Adding to its growing line of extensions and plug-ins, Extensis (503/274-2020, *http://www.extensis.com*) has announced Mask Pro, a plug-in that offers enhanced masking capabilities to Adobe Photoshop users. The program is due to ship by June 1, and will cost $300.

Picture This

New formats and tools grace the new version of Live Picture (408/438-9610, *http://www.livepicture.com*). Version 2.6 now supports the FlashPix graphics format and adds tools to create and edit textures, gradients, and paths. The $695 package requires at least 24MB of RAM.

MULTIMEDIA

mPressive Upgrade

mFactory (415/548-0600, *http://www.mfactory.com*) has released the first major upgrade of mTropolis, its popular multimedia authoring software. Version 2.0 adds wizards that run within the program and monitor memory and objects. Other features include new Internet and networking capabilities, and preauthored sets of actions and sequences, called mPacks, that you can apply to objects. mTropolis 2.0 costs $1195; current owners can upgrade for $199.

Hot and Spicy

If the dearth of video transitions has left a bad taste in your mouth, try the Video SpiceRack from Pixélan Software (360/647-0112, *http://www.pixelan.com*). The $179 package includes more than 300 new transitions and effects that work within Adobe Premiere and After Effects, and Media 100 editing software. All effects are broadcast quality and are suitable for MPEG and Web movies.

Cloud Nine

Does 8MB of VRAM, accelerated QuickDraw 3D, 30-frames-per-second QuickTime 2.5 movies at 1600 by 1200 pixels, 128-bit graphics, and 256-bit video—all for $799—sound too good to be true? The Imagine 128-8M visual accelerator card from Number Nine (617/674-0009, *http://www.nine.com*) will make a believer out of you. The card includes support for 24-inch monitors.

Visions of Sound

Opcode (415/856-3333, *http://www.opcode.com*) has released new versions of its Vision and Studio Vision Pro packages. Both programs handle sequencing, recording, and MIDI integration. Vision 3.5 ($395) and Studio Vision Pro ($995) are now Power Mac native. Vision 3.5 can record up to 20 audio tracks and supports Audiomedia cards. Studio Vision Pro 3.5 adds support for Digidesign's Pro Tools II PCI cards and Adobe Premiere DSP plug-ins.

NETWORKING

Free Your Printer

The $695 M204 PCMCIA Print Server from Microplex (604/444-4232, *http://www.microplex.com*) and Lucent Technologies (908/582-8500, *http://www.wavelan.com*) lets you put your printer wherever you want, unhindered by a cable. It's a multiport, multiprotocol wireless print server that uses PCMCIA cards to take advantage of a preexisting wireless network. You can network and access up to eight printers at once.

Your First Network

If you've never done it before, setting up a network can be a chore. That's why Dayna (801/269-7200, *http://www.dayna.com*) created the Network Starter Kit. For $289, novice networkers get a DaynaStar MiniHub-8, three PCI networking cards, three 50-foot 10BaseT Ethernet cables, a setup guide, manuals for beginners, and installation disks.

SCSI Stretching

Forget about the SCSI-chain limitations of cable length and number of devices. The SCSI Expander from Atto (716/691-1999, *http://www.attotech.com*) lets network administrators attach up to 105 SCSI devices to one port. It uses 16-bit Fast/Wide SCSI with transfer rates up to 20 MBps, and it's compatible with SCSI-1 and SCSI-2. A variety of configurations are available, the cheapest of which is $495.

continues

New Products

ONLINE

Where the Action Is

Interactive Media (415/948-0745, *http://www.imcinfo.com*) has given its ActionLine 2.5 authoring tool some added features. A blueprint function shows all interactive actions and graphics built into a Web page. The program now supports mouse behavior and multiple layers of animation. It sells for $199; current owners of ActionLine can upgrade for $49.

Web Maintenance

You can use your browser to securely maintain HTML pages and other files on your Web server with SiteEdit Pro 2.0 from Pacific Coast Software (619/675-1106, *http://www.pacific-coast.com*). The $180 program has new editing features and now supports Microsoft Internet Explorer and ActiveX.

PRODUCTIVITY

FileMaker Resource

Can't get enough of Claris FileMaker? ISO Productions (510/454-0187, *http://www.iso-ezine.com*) is shipping Everything FileMaker, a $40 CD-ROM collection of useful shareware, tips and tricks, and other FileMaker resources.

No More Double Bookings

Meeting Maker 4.0, a new upgrade of the group scheduling application from On Technology (617/374-1400, *http://www.on.com*), adds client and server support for Windows NT. Other features include a snapshot function, which displays a quick view of available times among groups or rooms, and custom print formats. There is a free 30-day trial period, after which Meeting Maker 4.0 costs between $80 and $95 per copy, depending on the number of users. You also need a $299 System Pack that includes server software.

PUBLISHING

Taming VRML

The Official World Movers '97 CD-ROM from Viewpoint Datalabs (801/229-3000, *http://www.viewpoint.com*) includes 1300, 3-D models in the VRML format. The $2500 package features content and tools in four categories: accessories, transportation, nature and architecture. A $250 version includes 300 models from these categories.

The Official World Movers CD-ROM

Out in the Open

Prepress doesn't have to be a bad word, with OPEN 1.1 (Open Production Environment) from Luminous Technology (206/689-6700, *http://www.luminous.com*). The $795 package allows prepress operators to set up custom workflows in which a print job automatically passes through preflighting, color separation, proofing, trapping, and imposition operations. It can also be used in multimedia or Web production.

Pocket-Size Picture Taking

Konica (201/568-3100, *http://www.konica.com*) enters the digital camera market with the Qmini QM-3501. The camera gives digital shutterbugs 640 by 480 resolution, allows a shooting range as close as 3 centimeters, includes an LCD preview, and displays images on television sets. The $600 camera measures only 4 by 4 by 2 inches.

Konica's Qmini QM-3501

STORAGE

Removable IDE

Now there's an internal enhanced IDE version of the SyQuest (510/226-4000, *http://www.syquest.com*) EZFlyer 230 removable drive. The $199 drive uses 230MB cartridges for portable data. The drive plugs into the same connector as the hard drive.

Jukebox Hero

If you need to read and write to multiple CDs, the new Satellite from NSM Jukebox (630/860-5100, *http://www.nsmjukebox.com*) is for you. It holds up to 135 CDs and can accommodate one to five drives, including up to three 6× read/4× write drives. It also uses 12× read-only drives. Pricing begins at $10,000.

Rad RAID Tools

MegaDrive RAID ToolKit 2.0 from MegaDrive (818/700-7600, *http://www.megadrive.com*) is a $299 disk-array–management software package. The new version adds support for CHRP and removable modules.

Rewriteable CD

Ricoh (408/432-8800, *http://www.ricoh.com*) has released the MP6200S, a $599 internal CD-Recorder with rewriteable capability and a SCSI-2 interface. It records at double speed and reads at 6×. CD-RW media will cost $25 per disc and can be rewritten up to 1000 times.

SYSTEMS

Best of Both Worlds

If you need Windows applications on your Mac, Insignia Solutions (408/327-6000, *http://www.insignia.com*) has the answer. Ntrigue Net Client 2.0 allows Macs to access Windows 95, 3.X, and NT applications over an intranet. It costs $195; upgrades from version 1.0 are $29.

New PowerBook Memory

Two companies are now shipping memory upgrades for the PowerBook 3400.

- Lifetime Memory Products (714/444-4700) sells 16MB ($149), 32MB ($259), 64MB ($525), and 128MB ($1695) upgrades.
- Simple Technology (714/476-1180, *http://www.simpletech.com*) offers a 16MB upgrade for $260 and a 32MB upgrade for $505.

UTILITIES

Beyond Screen Shots

CameraMan 3.0 from Motion Works Group (604/685-9975, *http://www.mwg.com*) records the activity on your screen, including pull-down menus, dialog boxes, still screens, animations, video, and game sequences. You can save screen recordings as QuickTime movies, PICS, or sequential PICT, and then view them in Netscape Navigator, Adobe Premiere and Acrobat, and Microsoft PowerPoint. A new version costs $70; current owners can upgrade for $25.

Get Your Code Together

If that program you're writing has gotten out of control, CodeManager 4 from Metrowerks (512/873-4700, *http://www.metrowerks.com*) could be the answer. The $399 package manages millions of lines of code while maintaining version control. This release adds faster database access for network users—up to 16 times faster than the previous version.

VENDORS: TO HAVE YOUR PRODUCTS CONSIDERED FOR PUBLICATION IN *NEW PRODUCTS*, SEND A PRESS RELEASE WITH PRODUCT DESCRIPTION, PRICE, AVAILABILITY, AND CONTACT INFORMATION FOR READERS, PLUS OPTIONAL PHOTO OR SCREEN SHOT, TO NEW PRODUCTS EDITOR, *MACWORLD*, 501 SECOND ST., SAN FRANCISCO, CA 94107; *NEW_PRODUCTS@MACWORLD.COM*.

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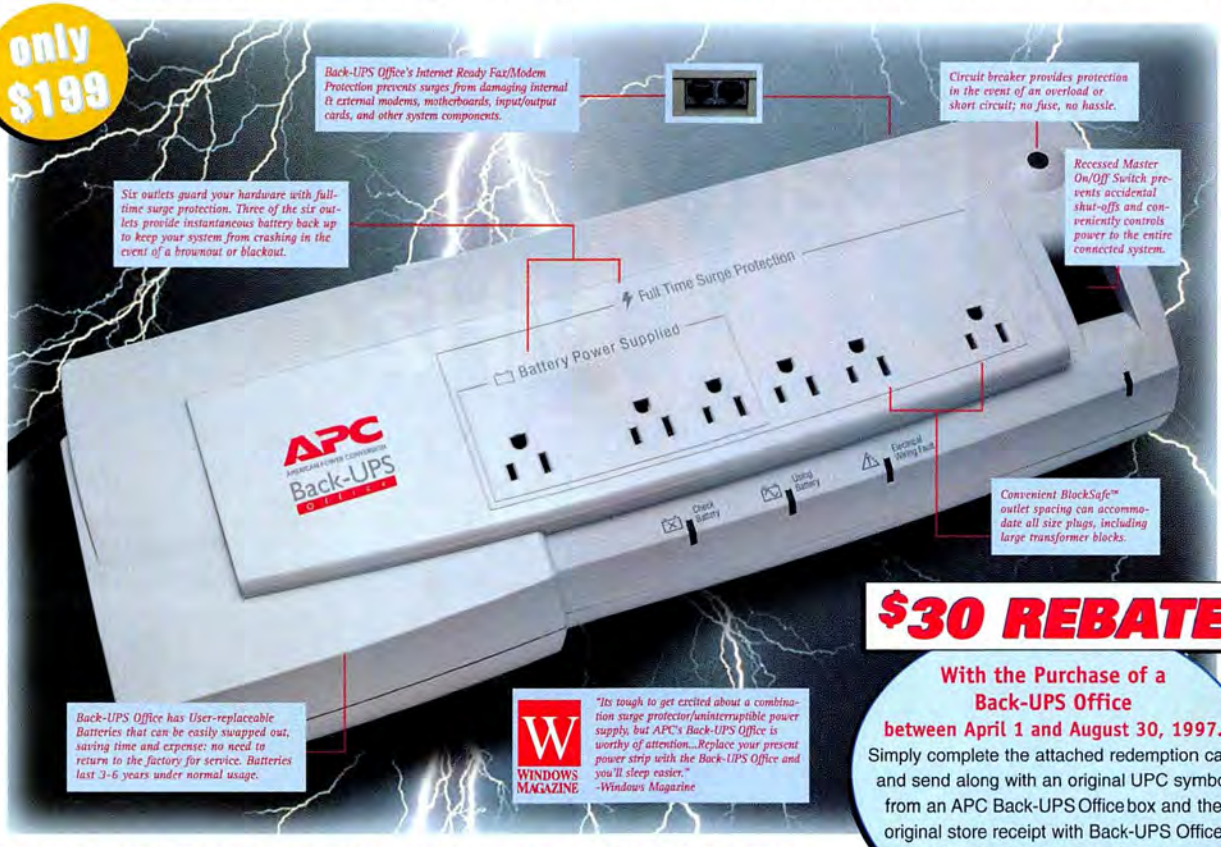

At last, a safe place to plug everything: multipath Back-UPS Office for workstations, PC's and peripherals

Power problems attack computers relentlessly. Did you know that you have a better chance of winning the lottery than of escaping power problems? They are the single largest cause of computer data loss and hardware damage.

Back-UPS Office provides clean, reliable power for your entire system. Instantaneous battery backup ensures uninterrupted operation of your CPU, monitor and an external storage device. Full-time surge suppression and site-wiring fault protection spreads a true multipath safety net under any remaining peripherals, like modems, printers, faxes and phone systems. Back-UPS Office also provides convenient BlockSafe™ outlet spacing to handle all size plugs – even large transformer blocks.

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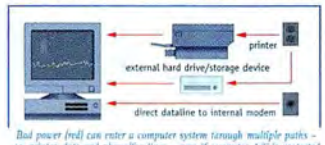
Plugging phone lines or other peripherals into your computer increases your vulnerability to power problems. When a surge hits an unprotected peripheral, it can blaze down serial cables and datalines, and toast your expensive PC. Multiple peripherals and datalines to and from your system are vital, but dangerous. Without them you can't do your job. If a power sag locks your keyboard or reboots your computer before you've saved work, or while you are downloading from the Internet, you can lose data, time and money. Don't spend another late night at the office to meet your deadline. Join over 6,000,000 computer users worldwide who prefer APC to protect hardware and data.

Multipath Means Total Power Protection



Bad power (red) can enter a computer system through multiple paths – eg. printer, data and phone/fax lines – even if computer A/C is protected.

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Back-UPS Office protects your entire system

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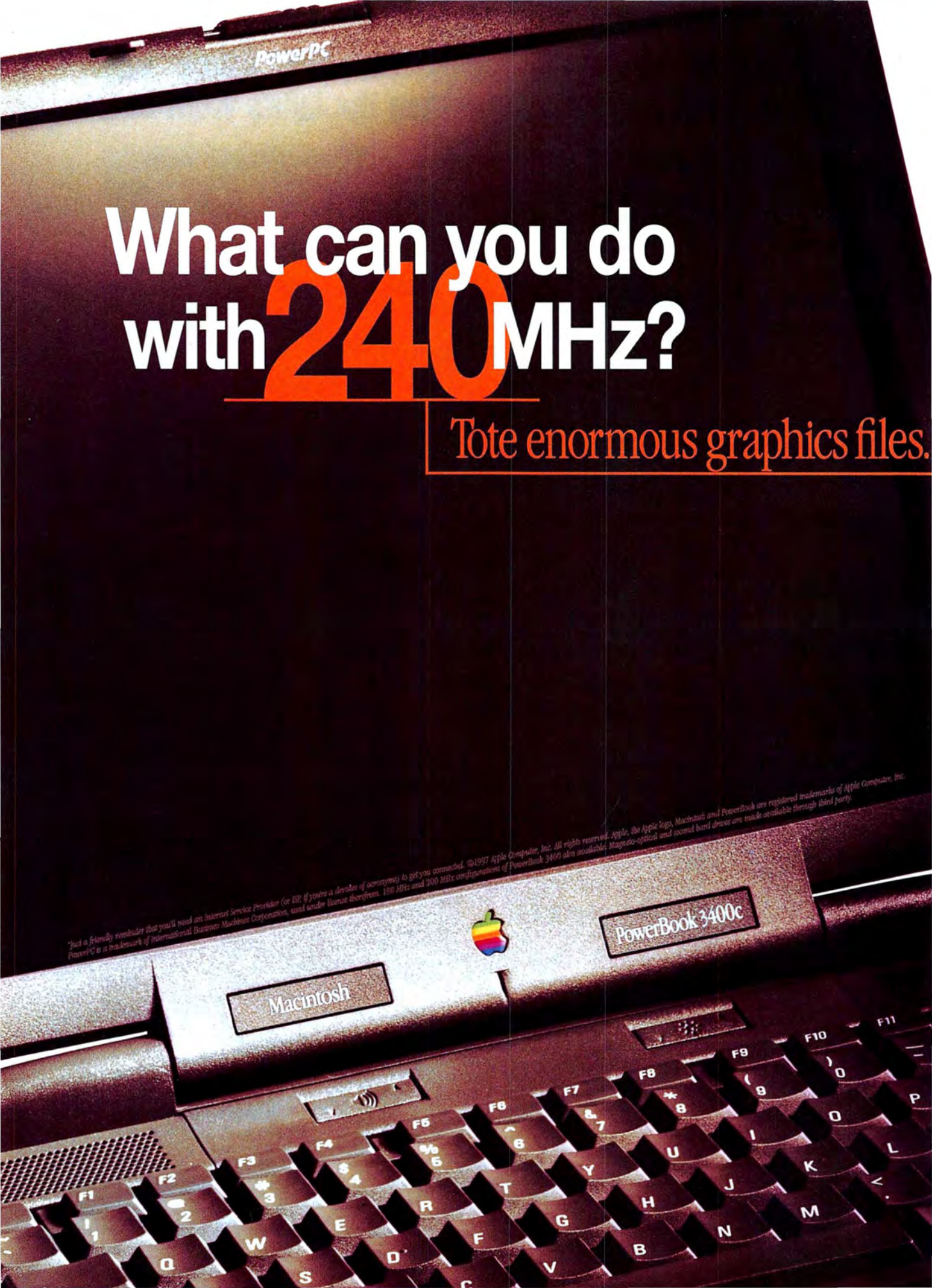

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Reviews

Low-Cost Digital Cameras

FIVE SUB-$1000 DEVICES RAISE THE BAR FOR AFFORDABLE IMAGES

KEVIN CANDLAND

A SCANT FOUR MONTHS AFTER we examined every low-end digital camera available for the Mac (see "Digital Cameras: Picture It Now," *Macworld*, March 1997), five spanking-new models have debuted: Apple Computer's QuickTake 200, Epson America's PhotoPC 500, Eastman Kodak's DC25, Olympus America's D-300L, and Sony Electronics' DSC-F1. But although none of these cameras are more than a few weeks old, all but one of the new devices bear striking resemblances to cameras of a season ago.

The QuickTake 200 is virtually identical to Fuji's DS-7, *Macworld*'s 1997 World Class Award finalist. The PhotoPC 500 looks like the original PhotoPC with a clunky LCD screen stuck to its side. Kodak's DC25 is larger than the DC20, but the controls and functionality are barely altered. And the Olympus D-300L is merely a higher-resolution version of the D-200L with a gold finish.

Only the Sony DSC-F1 is entirely new. But Apple, Olympus, and the others have done more than merely slap a new label on old equipment. Although I'm not overjoyed by every model, each is an improvement over its predecessor. Even Epson and Kodak—whose products I regard with the least enthusiasm—are working to correct their past mistakes.

See What You Snap

All five new cameras offer LCD screens so that you can play back images after you shoot them. This way, you can confirm your shots while you're on location and make changes immediately—or reshoot—if warranted. In most cases, the LCD screen is built into the back of the camera, just below the viewfinder. The one exception is the PhotoPC 500, for which the LCD is an optional $199 accessory. This awkward appendage snaps onto the left side of the camera and sticks out a good 3 inches, making the PhotoPC more than twice as wide as the narrowest camera, Sony's DSC-F1. Worse yet, you have to disconnect the LCD in order to download the images to a computer.

All five cameras also let you use the LCD as a framing tool when shooting pictures. But some cameras are better at this than others. Bringing up the rear is the DC25: Kodak is so worried you'll burn through your batteries that it makes live LCD preview as inaccessible as possible. You have to press and hold two very small buttons at the same time for three seconds. After you've cramped up your wrist with this clumsy maneuver, the DC25 rewards you with a sluggish refresh rate of three to four frames per second, just fast enough to give you a sense of

REAL PRODUCTS REAL RATINGS Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

where you *were* pointing the camera. I quickly gave up on this unpleasant little feature and went back to the viewfinder.

Using a live LCD preview with the Olympus D-300L is likewise a nuisance—you have to press and hold a button on the back of the camera if you want the screen to stay on. Still, I have to credit the D-300L for delivering a decent frame rate.

The best LCD screens belong to the QuickTake 200 and Sony DSC-F1. Both are easy to use, both deliver frame rates of 30 fps or better, and both are intended to be used as full-time framing devices. The QuickTake 200 includes a snap-on viewfinder (not supplied with its earlier twin, the Fuji DS-7) for those times when the light is too bright to make the LCD practical. The DSC-F1 omits the viewfinder altogether, but Sony provides a rechargeable battery with an AC adapter—you can restore the DSC-F1's juice simply by plugging the camera into the wall. Shame on the other vendors for not following suit—disposable cells are not only wasteful, but expensive. It's not unusual to have to replace batteries every third or fourth time you walk out the door.

Storage and Picture Quality

Three of these five cameras offer expandable storage, and they all go their own way. Surprisingly, not one of these cameras accepts a standard PC card. Like its predecessor, the PhotoPC 500 lets you snap in a memory board, but where the older-model PhotoPC locked you into the first upgrade you installed, the 500 lets you switch out a low-capacity card for a higher one. Still, as removable storage goes, Epson's solution is a pain in the neck—it took me five minutes of tugging to remove the memory-board cover.

Apple and Kodak provide more acceptable solutions. Devoid of internal memory, the QuickTake 200 relies on wafer-thin SmartMedia cards. A 2MB card is included—enough to hold 22 maximum-resolution images—and it's a breeze to switch in and out. The DC25 accepts a so-called Picture Card, a little thicker than the SmartMedia but otherwise similarly small (about 2 by 2 inches). An adapter permits you to use the Picture Card with standard PC Card readers.

Although removable media is great, the Sony and Olympus models fare nicely without it. The DSC-F1 always shoots 640-by-480-pixel images, but you can select from three compression settings. Equipped with a hefty 4MB of internal RAM—twice as much as the Epson and Kodak models—the Sony holds a whopping 58 pictures at medium compression and 30 at low compression (maximum quality). The latter setting provides sharper image detail than any of the cameras except the Olympus. Alas, this modest boost in quality has its price: the DSC-F1 costs $250 more than the comparably equipped QuickTake 200.

All five of these cameras let you preview and delete specific images without your computer, a feature that was still cutting-edge during our last roundup.

If you're looking for great picture quality, the Olympus D-300L is the camera to buy. Not only does it provide 2.5 times as many pixels as the other cameras, but those pixels emerge in better shape (compare the images in "Still Life with Bananas"). Equipped with 6MB of internal memory, it holds 30 images, making it the best value of any digital camera on the market. In fact, only one camera under $5000 delivers better pictures—the Polaroid PDC-2000—but it costs about four times as much. The D-300L's only downside: I encountered a small amount

continues

Still Life with Bananas

Shot in natural light, these pictures appear exactly as they were photographed, with slight gamma adjustments to account for printing and CMYK conversion. The Apple QuickTake 200, Epson PhotoPC 500, and Sony DSC-F1 images each measure 640 by 480 pixels. The DSC-F1 provides the sharpest detail of the three, while the QuickTake 200 provides the brightest colors. The color and detail of the Kodak DC25 image are quite good (given the camera's 493-by-373-pixel resolution), but its poor LCD preview makes framing difficult, as the off-center image illustrates. The best picture quality comes from the Olympus D-300L, making the most of its 1024-by-768-pixel image size.

Apple QuickTake 200

Epson PhotoPC 500

Kodak DC25

Olympus D-300L

Sony DSC-F1

Snap Facts: Low-Cost Digital Camera Features Compared

Company	Apple Computer	Eastman Kodak	Epson America	Olympus America	Sony Electronics
Product	QuickTake 200	DC25	PhotoPC 500	D-300L	DSC-F1
Star Rating [A]	★★★★/7.3	★★/4.9	★★★/6.1	★★★★/7.4	★★★★/7.1
Price	$599	$499	$499 [B]	$899	$849
Phone number	408/996-1010	716/724-4000	310/782-0770	516/844-5000	408/432-0190
Web address	*www.apple.com*	*www.kodak.com*	*www.epson.com*	*www.olympus.com*	*www.sony.com/image*
Camera dimensions (w × h × d, in inches)	5.1 × 3.0 × 1.9	5.1 × 2.8 × 1.6	5.5 × 3.2 × 2.1 (8.5 wide with LCD)	5.7 × 2.8 × 1.8	4.1 × 3.1 × 1.6
Weight (with batteries, in ounces)	11	10	14 (19 with LCD)	14	11
Maximum image size (in pixels)	640 × 480	493 × 373	640 × 480	1024 × 768	640 × 480
On-board memory	none	2MB	2MB	6MB	4MB
Expandable storage	yes	yes	yes	no	no
Storage capacity [C]	22 [D]	14	30	30	58
Closest focal distance (in inches)	3.5	24	24 (8 with LCD)	8	3
Built-in flash	no	yes	yes	yes	yes
LCD preview and playback	yes	yes	optional	yes	yes
Optical viewfinder	snap-on	yes	yes	yes	no
Automatically saves Photoshop-compatible image previews	yes	yes	no	yes	no
Date-stamps photos	yes	no	yes	yes	yes
Photoshop acquire module	yes	yes	no	yes	yes
Time to retrieve one image to disk in standard format	19 seconds (47K/second)	38 seconds (14K/second)	9 seconds (100K/second)	26 seconds (87K/second)	22 seconds (41K/second)
Rechargeable battery supplied	no	no	no	no	yes
Price includes carrying case	no	yes [E]	yes	no	yes
Bundled third-party software	PhotoDeluxe, PageMill (Adobe), NetCard (PictureWorks)	PhotoEnhancer (Picture Works), Kai's Power Goo (MetaTools)	Home Page [F] (Claris), Postcards from the Net (Network Sound & Light)	PhotoDeluxe (Adobe)	PhotoStudio (ArcSoft)

[A] *Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.)* [B] *Additional $199 for LCD.* [C] *Images at maximum size, medium quality.* [D] *With 2MB RAM (included)* [E] *After you register camera.* [F] *Trial version only.*

of clipping—where pixels change to random colors—just as I did with the D-200L; Olympus really needs to fix this glitch.

Wacky Extras

Of the five cameras, the Sony is the most fun to use. It's small enough to fit in the palm of your hand, and you can pivot the lens and take pictures of yourself. Sony also offers a Continuous Recording function that shoots four to six pictures in succession—one every 0.2 second, great for capturing moving targets. It's also the only camera that lets you transfer images via an infrared beam (with an optional infrared receiver).

The QuickTake 200 is the first digital camera to include support for Apple's new QuickTime IC (Image Capture) technology, although for now its benefits are few. After loading the thumbnail images from the camera, you can drag a thumbnail and drop it into a compliant application such as Adobe PageMill (bundled with the QuickTake) or Photoshop. On my Umax SuperMac S900/200DP, the image moved directly from the camera to the application RAM in 16 seconds.

One thing I miss about the QuickTake 200: you can't mount the camera on your computer's desktop, as you could with the QuickTake 100 and 150. As a result, it takes longer to transfer images from the camera, about seven minutes for a full "roll" of images compared with less than one minute in the past.

Macworld's Buying Advice

For all the details, be sure to consult the table above and compare the features that matter most to you. The table conforms to the same basic organization we used in the March roundup, so you can compare the new batch of cameras with older (but hardly obsolete) models such as Kodak's DC50 and Polaroid's PDC-2000/40. (The new table does not document zooming, because none of the new cameras offer that capability. If zooming is important to you, your best bet is still the DC50.)

If you're in the market for an inexpensive digital camera with medium picture quality—good enough for newsletters and Web pages—choose the QuickTake 200. Though it lacks a flash, it takes pictures in low light and shoots as close as 3.5 inches. The Sony DSC-F1 is a close second—with a flash, a rechargeable battery, and compact design—but the Sony's higher price and lack of removable storage make the QuickTake a better deal.

If color, focus, and resolution are your foremost concerns, the Olympus D-300L is the clear winner in the sub-$1000 range. It offers the best pixel-to-price ratio of any camera currently on the market. Priced just $50 more than the Sony, this is the camera I'd be most likely to buy myself.—DEKE McCLELLAND

Microtek ScanMaker® E6. Higher Resolution 30-bit Scanning.

ScanMaker E6 shown with optional Transparent Media Adapter (sold separately)

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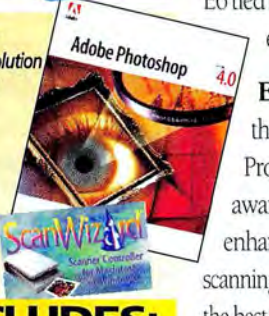
- *TextBridge Pro OCR software for scanning and converting pages of text*



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Claris Emailer 2.0

E-MAIL INNOVATOR GETS A FACE-LIFT AND SPEED BOOST

CLARIS EMAILER WAS THE FIRST program to let you retrieve *all* your e-mail—whether from America Online, CompuServe, RadioMail, or the Internet—from a single in-box. Two years later, it's still the only e-mail program that lets you do that; its closest competitor, Qualcomm's Eudora Pro (see *Reviews*, November 1996), handles only Internet mail. Emailer 2.0 also edges out the competition with a much-easier-to-use interface, an Easy Setup wizard for new users, and the fact that multiple users can share a single copy of the program.

It's Been Claris-ized

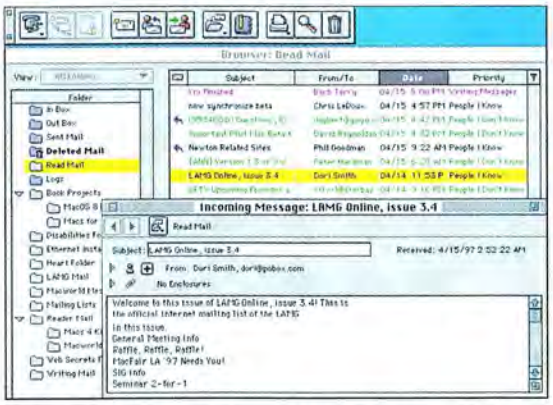
If you're familiar with Emailer, you can't help but notice version 2.0's new look. Replacing the four-tabbed window of yore is a single two-paned window (see "You've Got Mail!"). Mail folders are listed on the left; when you click on a folder, its contents (the mail messages) are displayed on the right. You can still sort messages by subject, from/to, date, priority, and account, but the real action is in the folder pane: folders can now contain subfolders, which you list by clicking on triangles similar to the Finder's.

Version 2.0 also puts the most-used functions on a tool bar strongly resembling the one in Claris Organizer. But while Organizer lets you drag text onto almost any tool-bar button to make something happen, Emailer doesn't; for example, you can't drag an e-mail address to a button to add it to the address book. Still, drag and drop is one of Emailer's highlights. You can add enclosures by dragging files from the Finder to the message form, and easily move text within or between windows (or even applications).

Emailer 2.0 also adds extensive AppleScript support, along with a menu to which your scripts are added. Claris and third-party developers are hard at work making useful scripts available as freeware and shareware.

Taking Action

Another big improvement in version 2.0 is Emailer's mail actions, which filter your messages according to the rules you specify. A single mail action can now trigger several effects, such as setting a message's priority, filing it in a mail folder, adding the sender to the address book, and even running an AppleScript. (Version 1.0 allowed only one effect per mail action.) And you can now perform as many tests on a message as you like—for example, to filter junk e-mail (spam). My spam filter checks each message's sender against a list of known offenders. If it finds a match, the filter changes the message's priority to "Spam!" and deposits it directly in my Deleted Mail folder.



You've Got Mail! Emailer's new interface makes it easy to choose from any of your personal mail folders. Mail is color-coded by priority, and the new tool bar simplifies mail handling.

I do have two complaints about the revamped mail actions, though. The interface for multiple tests is a bit geeky for my taste; trying to predict what will happen to a message can seem a bit like a logic puzzle or an IQ test. Because you have to reason out the logical effect of each test, combining many tests into one mail action can get confusing. And although a mail action can trigger an AppleScript, an AppleScript can't create or modify a mail action. That's unfortunate; to use the mail-filter example, you should be able to write a script that adds new spammers to your filter rather than opening the Mail Actions window and adding them manually.

One of Emailer's best new features is that it stores all mail in an internal database rather than as separate files. The result is that messages take up less disk space, the program feels more responsive, and finding a message is much faster. Version 2.0 also fixes a big problem in the original Emailer: it can control FreePPP and Open Transport/PPP, so modem users can both connect to and disconnect from the Internet automatically (in version 1.1 users have to close the connection manually). Other minor but welcome additions are the standard Claris spelling checker and help features, support for multiple signatures, and the ability to handle an unlimited number of accounts per online service or ISP (previous versions limited you to five each).

The Emailer team still has quite a bit of work to do. Address groups haven't improved since the last version (group records aren't linked to the address-book record, so you have to make address changes in both sets of records); the program still can't access CE Software QuickMail and SoftArc FirstClass mail servers; and some features that have been in Eudora Pro forever—such as Redirect, which forwards a message without adding forwarding information to the message—are still lacking in Emailer. Finally, while Eudora Pro has been cross-platform for about a year, Claris isn't expected to offer Windows 95 and NT versions of Emailer until later this year.

Macworld's Buying Advice

If you have multiple Internet accounts—particularly if you have an America Online or CompuServe account in addition to your Internet service—Emailer is your best choice. Even if all your e-mail comes through a single Internet account, Emailer's straightforward approach tips the scales against the powerful Eudora Pro. For my money, Emailer is the best e-mail client currently available for the Macintosh.—TOM NEGRINO

RATING: ★★★★/8.2 **PROS:** Improved interface; excellent mail actions; scriptable; faster. **CONS:** Address book still needs work; new tool bar could be more convenient; no Windows versions. **COMPANY:** Claris (408/727-8227, *http://www.claris.com*). **LIST PRICE:** $49.

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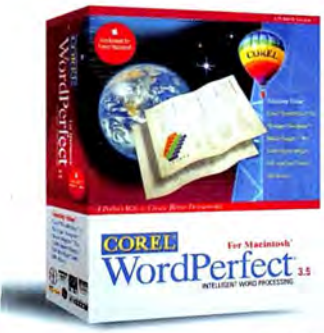

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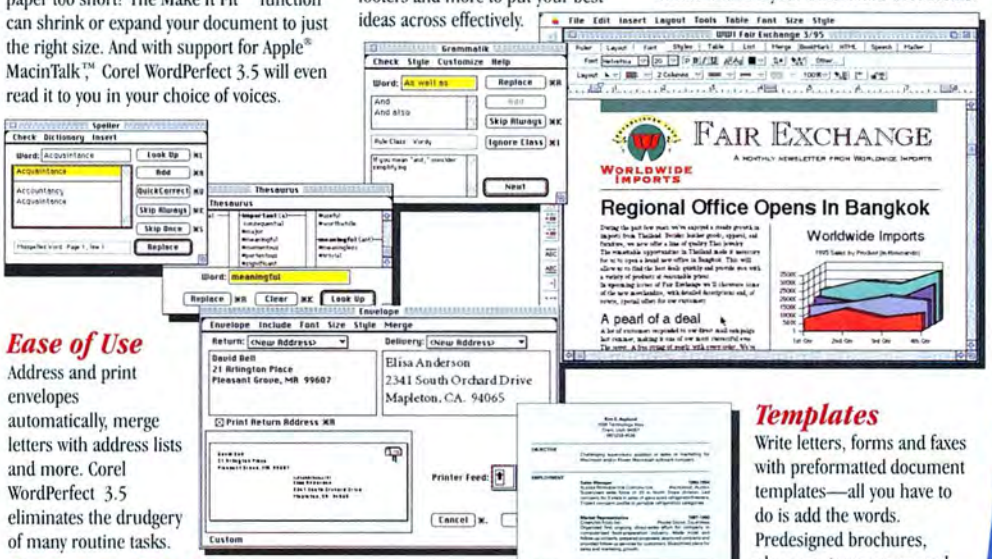

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Windows 95 Compatibility Solutions

SOFTWINDOWS 95 IS FASTER, BUT STILL NO MATCH FOR THE ORANGEPC CARD

SHORT OF BUYING A PC, MAC owners who want to run Windows 95 have two options: install a PC-compatibility card, such as Orange Micro's OrangePC 540, or get Insignia Solutions' SoftWindows 95 4.0. The OrangePC offers Pentium speed but is as expensive as a Windows machine, while SoftWindows 4.0's software-emulation approach doesn't even come close to the PCI card's performance.

If speed is what you're looking for, the OrangePC—which comes equipped with a 200MHz Pentium MMX chip—is the obvious choice. In Macworld Lab tests, the card ran several Windows 95 programs as fast as (and sometimes faster than) a fully equipped 200MHz MMX machine, the Sony PCV-120. Overall, the card delivered about 85 percent of the Sony's performance.

But while the OrangePC executed most tasks with impressive speed, it couldn't keep up with the PC when the operations involved frequent hard-drive accesses. For example, the card took about 27 seconds to open a 2MB Adobe Photoshop file that the Sony popped open in less than 8 seconds. The OrangePC was also almost four times slower than the Sony on a mode change in Photoshop, though in other Photoshop operations—such as applying Blur and Sharpen filters—it performed nearly as fast as the PC. The card was also disappointing in tests involving Netscape Navigator, taking almost twice as long to open a file.

The OrangePC card installs easily and provides a video port along with game, serial, parallel, and sound-in and -out connection ports. Unfortunately, its drivers don't work with some CD-ROMs, and the workaround is clumsy.

The follow-on to both the Windows 3.1–only SoftWindows 3.0 and SoftWindows 95 (see *Reviews*, September 1996), version 4.0 includes a set of 32-bit drivers, better SCSI and CD-ROM support, complete support for the Pentium instruction set, and preinstalled copies of Microsoft Internet Explorer 3.0 and Windows 95. But although Macworld Lab's tests bore out Insignia Solutions' claim that version 4.0 is faster than version 1.0, the speed difference is minor. The new version opened Photoshop files more than 13 percent faster, for example, but performed only about 5 percent faster in Navigator. In other applications, the improvements were negligible; performance was particularly weak in operations that required number crunching. Even on a 9600/200 with 48MB of RAM, SoftWindows took more than 36 seconds to open a file that opened in less than 8 seconds on the PC.

Though it can run on any Power Mac, SoftWindows really requires a higher-end 604- or 604e-based machine. Performance improved dramatically when the program was tested on a 9600/200 versus a 7500/100; overall, SoftWindows 95 performed two to three times as fast on the 9600 as on the 7500.

Macworld's Buying Advice

Despite the OrangePC 540's strong performance, its slow disk access and CD-ROM problems may make you wish you'd bought a similarly priced Pentium-based PC. SoftWindows 95 is a less-expensive route to cross-platform compatibility—just forget about games, multimedia, and any other operations in which speed counts. If you must run Windows programs and a PCI card isn't an option, consider waiting for Connectix's soon-to-be-released Pentium PC emulator, Virtual PC.—JOSEPH SCHORR

OrangePC 540

RATING: ★★★/6.9 **PROS:** Performance comparable to a same-megahertz Pentium PC's; cable for serial-, parallel-, and game-port support. **CONS:** Costs as much as a PC; problems reading some CD-ROMs; slower performance with read/write-intensive programs. **COMPANY:** Orange Micro (714/779-2772, *http://www.orangemicro.com*). **LIST PRICE:** $2456.

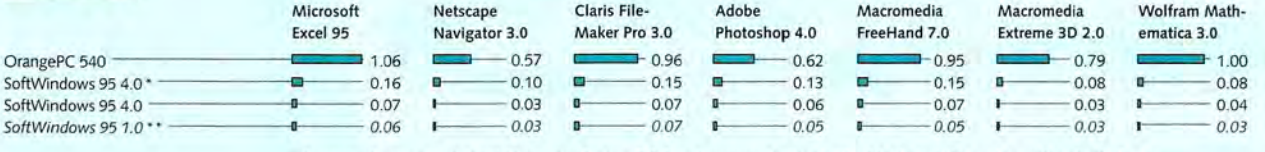
SoftWindows 95 4.0

RATING: ★★/4.7 **PROS:** Supports full Pentium command set; relatively inexpensive. **CONS:** Unacceptably slow for most applications. **COMPANY:** Insignia Solutions (408/327-6000, *http://www.insignia.com*). **COMPANY'S ESTIMATED PRICE:** $349 to $379.

Macworld LAB TEST

SoftWindows Still Dramatically Slower Than Hardware Solutions

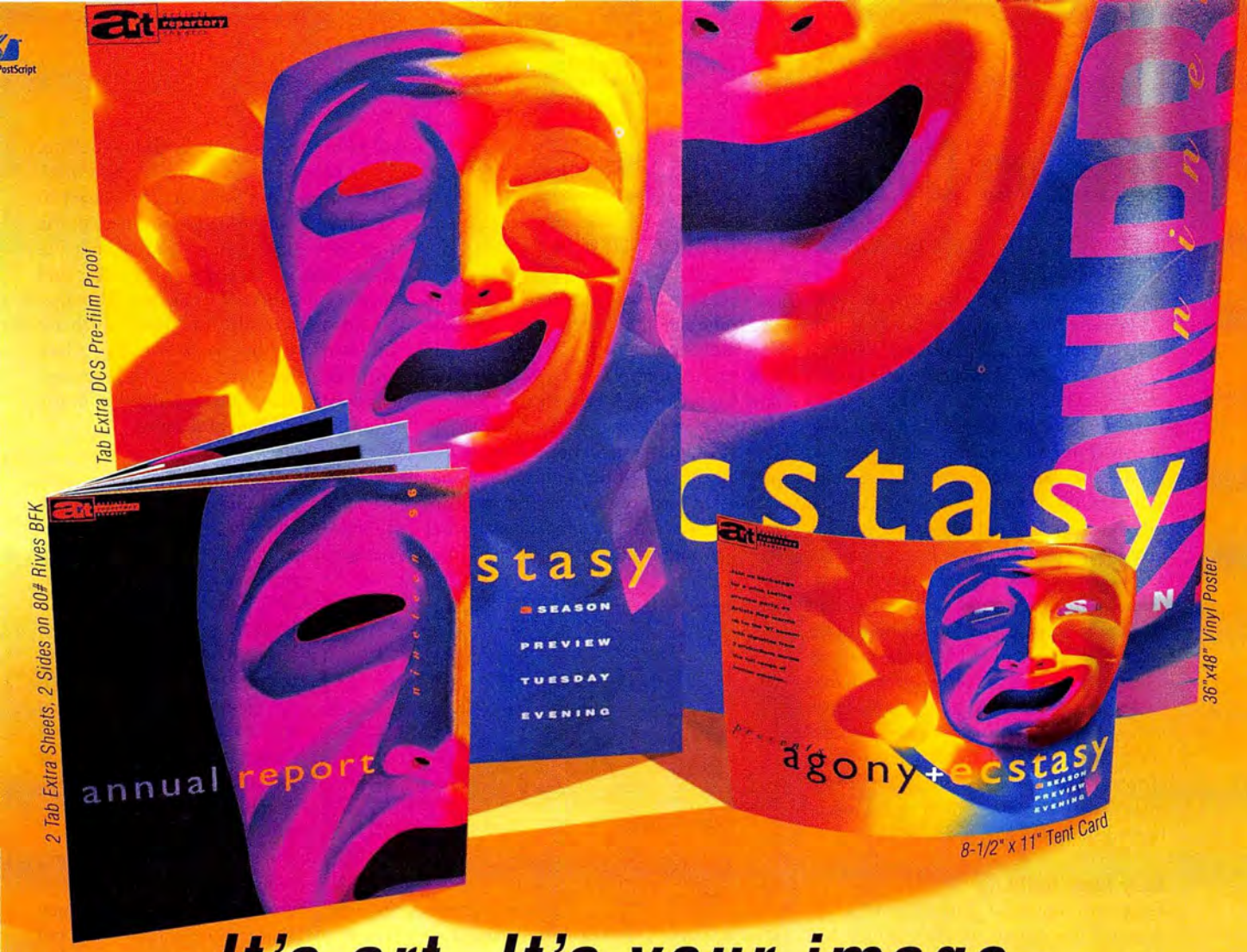
Longer bars are better. Times are in seconds. Results are times as fast as a Sony PCV-120 200MHz Pentium MMX PC (Pentium 200 = 1.00).



*Run on a Power Mac 9600/200 running System 7.5.5 and equipped with 48MB of RAM, a 512K cache, and 4MB of VRAM.
**Previous version of product tested for comparison.

Behind Our Tests

We tested all products on a Power Mac 7500/100 running System 7.6, unless noted. All system configurations were equipped with a 256K cache, 2MB of VRAM, and sufficient RAM to provide 32MB to Windows 95 (48MB for SoftWindows and 32MB of RAM for the OrangePC and Pentium systems). SoftWindows was configured with 2MB of delta cache for Windows 95. Virtual memory was disabled for the Mac OS, but enabled for Windows 95.—**Macworld Lab testing supervised by Chris Uiterwijk**



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GoLive CyberStudio

WEB-SITE BUILDER MAKES AN IMPRESSIVE DEBUT

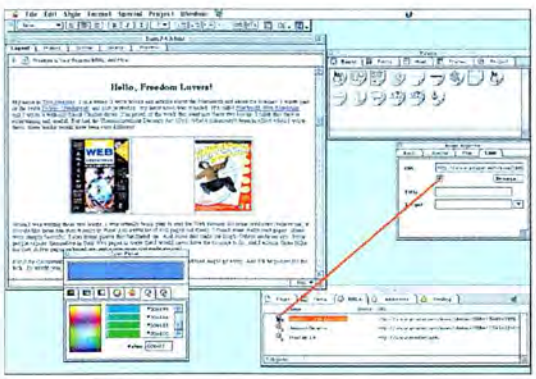
THE NEXT GENERATION OF WEB-site tools is upon us. Starting with NetObjects Fusion (see *Reviews*, May 1997), and now with GoLive CyberStudio 1.0, Web professionals have capabilities they could only dream about a few months ago—precise page layout, advanced site management, and easy uploading via FTP. But these high-end programs take different approaches to site building: Fusion keeps a site's elements in a proprietary format, rendering pages into HTML only when the site is complete, while CyberStudio keeps Web pages in HTML that you can edit at any stage of the process. Given that these days teams commonly build large sites—designers lay out the pages, writers add the content, and programmers add the scripts and CGIs—CyberStudio's approach makes sense because it allows team members to share HTML pages easily.

Easy Page Building

You'll spend most of your time in CyberStudio's Document window, which has tabs for toggling among the layout, preview, frames, HTML source, and outline views. In layout mode, CyberStudio can be either a typical WYSIWYG Web-page editor like Adobe PageMill, or—if you add a layout grid—a pixel-precise program like NetObjects Fusion that lets you drag and place objects anywhere on a page. You can even mix the two approaches on the same page. The preview mode shows you what your page will look like in a browser (though it doesn't preview frames—a glaring oversight), and the frame mode makes it easy to add a frame set; you simply drag frame templates from the tool palette.

All the expected features are here, including tables, forms (up to two per page), image maps (both client-side and server-side), and the ability to insert and view QuickTime, Shockwave, and Java applets without leaving the program. CyberStudio also boasts editors and syntax checkers for HTML and (a first on the Mac) for JavaScript; both color-code the operators to make editing easier. The JavaScript editor lets you add code by dragging from a scrollable list, but its syntax checking could be better; it failed to flag some simple scripting errors. You can edit the database of HTML tags to add new tags, or simply download a new database from GoLive's Web site.

One of the many nice touches in CyberStudio is a small pop-up menu displaying the size of the window in pixels. Because it has preset values for standard monitor sizes, it's a snap to size your pages. Another clever tool is the Color Picker, with tabs for RGB, CMYK, gray scale, indexed colors, the Apple 8-bit color table, and 2 palettes displaying the 216 Web-safe (nondithering) colors. One of those palettes lists the RGB hexadecimal value for each color; the other shows each color's name and hex value.



Shooting a Link CyberStudio makes linking objects exceptionally easy. Here, I'm linking a graphic to a URL. Note the Color Picker, which displays hex values for the Web-safe colors.

Discipline Your Sites

CyberStudio's site-management features are superb. You organize your site's elements in the Project window, which has tabs for Web pages, media (such as GIFs, JPEGs, and QuickTime movies), URLs, and e-mail addresses. CyberStudio gives you the option of creating a project from scratch—by building pages and adding them to the project—or importing all or part of an existing site. You can add files by selecting them from a dialog box, or by dragging them from the Finder into the Project window. When you rename an element (a file or URL) in the Project window, CyberStudio changes the element's name in the Finder and updates all references to it throughout the site.

The site view displays your site's structure in the form of a flowchart to which you can add pages or links. In the link view, lines going to or from a file show how it's linked to other files and make errant links obvious (see "Shooting a Link"). To resolve bad links, which are indicated by a bug icon, you drag a link from the offending element's Inspector window to the correct destination in the Project or Document window.

Almost Perfect

CyberStudio is unusually polished for a 1.0 release, but it has a bug or two. I experienced occasional freezes when trying to preview a media object. GoLive's technical support acknowledged the bug and said it would be resolved in a forthcoming maintenance release.

Along with lots of screen space, CyberStudio requires a Power Mac, System 7.5.5 or later, at least 8MB of application RAM, QuickTime, AppleScript, and a scripting extension. In return, it supports such Apple-specific technologies as drag and drop, Apple Guide, QuickTime 3D, and Hot Sauce MCF (for creating 3-D maps of your Web site).

Macworld's Buying Advice

Because GoLive CyberStudio maintains Web pages in HTML, a site's programmers and writers can add their contributions more easily than in NetObjects Fusion, which keeps the site in a proprietary format until it's published. CyberStudio is also a better value than Fusion, costing hundreds of dollars less. Although it lacks Fusion's ability to change the look of a site merely by changing a template, CyberStudio is destined to become the preferred site builder for Web professionals.—TOM NEGRINO

RATING: ★★★★/8.1 **PROS:** Excellent layout control without sacrificing access to HTML; great site-management tools; lots of cool touches. **CONS:** JavaScript syntax checker doesn't catch all mistakes; you can't preview frames within the program; some bugs. **COMPANY:** GoLive Systems (415/463-1580, *http://www.golive.com*). **LIST PRICE:** $349.

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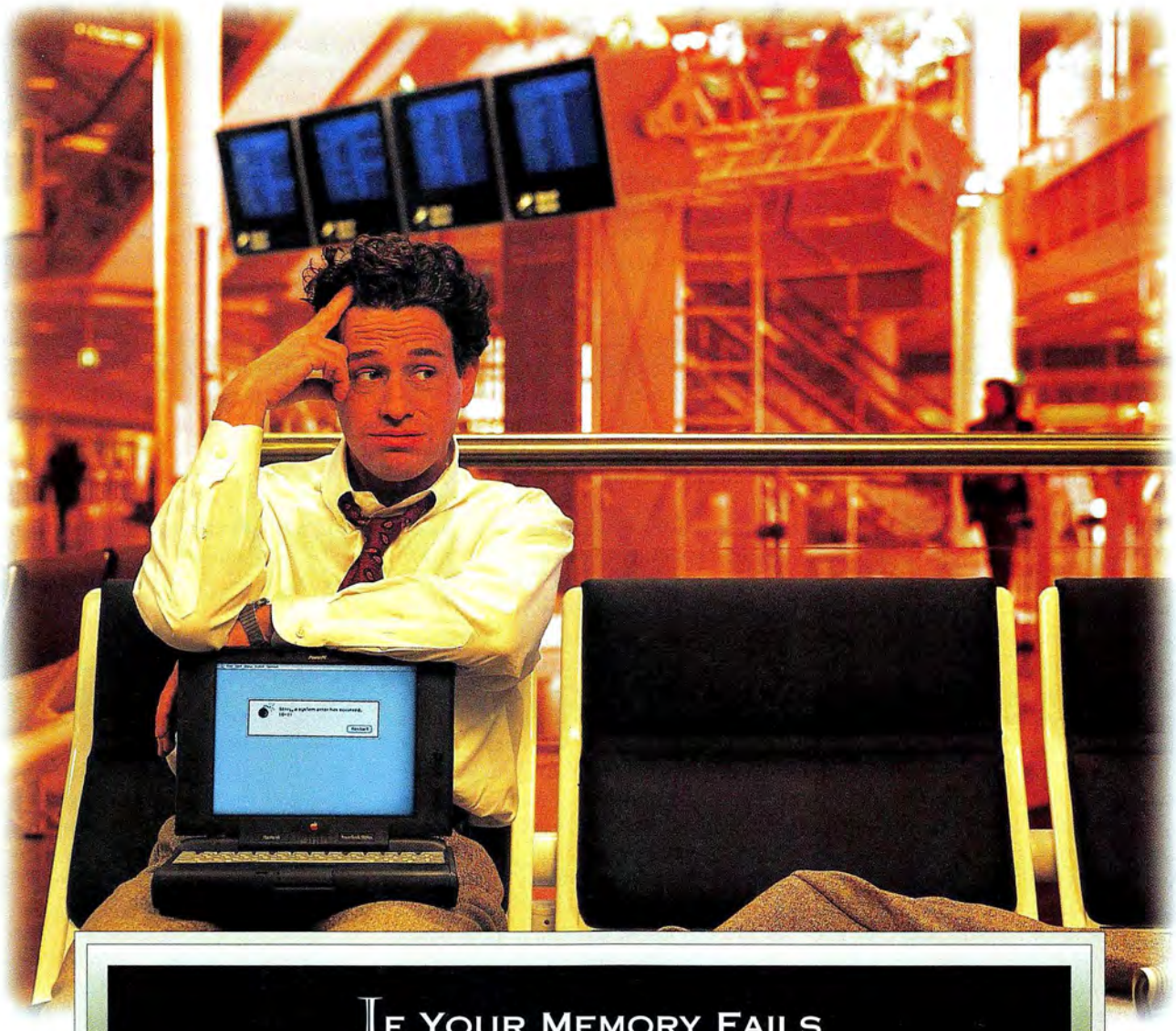

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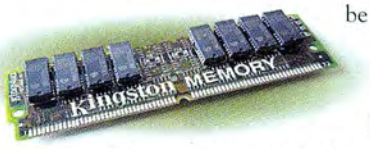

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CD Accelerators

CD SPEEDSTER, D-TIME OFFER LITTLE BENEFIT

SYNCRONYS SOFTCORP'S CD Speedster and Acceleration Software's d-Time claim to offer significant increases in CD-ROM performance through the use of optimized caching algorithms. In the past, we've reported that CD-ROM accelerators provide little actual speed enhancement (see *Reviews*, June 1996). Unfortunately, d-Time and CD Speedster are no exceptions. In particular, d-Time is far more trouble than its modest speed increases are worth.

Because both of these software packages use data precaching—storing the CD's content in the program's memory for quick retrieval—valuable performance gains are limited to CDs that repeatedly access the same information. With the exception of games, most CDs are used for data storage and distribution, and for software installation. For these uses, performance gains are minimal, and—because of the algorithms' additional overhead—access times can even be noticeably *increased* in some cases (see "CD Accelerators Offer Little Improvement").

CD Speedster scanned and accelerated CDs without incident, and even produced a noticeable speed increase (15 to 20 percent) for a few tasks in informal spot tests using a 2× CD-ROM drive. For the most part, though, overall performance gains were minimal. Using d-Time, on the other hand, has some major drawbacks, ranging in severity from system crashes to decreased speeds. The d-Time user manual admits that "some applications hardly ever use the same data twice . . . [so] using d-Time may not help much"—we found that acceleration was rare, no matter what type of data was stored on the CD.

Both products include analysis software that checks unaccelerated transfer rates and access times, then measures hard-drive speed to calculate potential performance increases. d-Time automatically performs this analysis at installation, producing benchmarks and charts of the resulting values. CD Speedster requires that you launch its BenchPress utility, which consistently produced Type 4 errors on both a Power Computing PowerCenter 150 and a Power Mac 6100/66—we never actually saw what our theoretical speed gain would be with CD Speedster enabled. To test potential acceleration gains for specific titles, d-Time includes the d-Time Mac Status utility. CD Speedster's version is called Speedster Stats, and it generates a series of statistical readouts that are based on real-time performance monitoring.

CD Speedster sports a comprehensive control panel featuring tabbed panes for its various settings and features, and a desk accessory called Speedster Audio. A replacement for AppleCD Audio Player—which CD Speedster overwrites if you don't manually drag Player out of your System Folder prior to installation—Speedster Audio looks and acts even more like a CD deck than the Apple version.

Both packages offer solid documentation and simple installation, although CD Speedster requires that you manually move extensions from the System Folder to prevent them from being replaced. CD Speedster's convenient online help and explanations for most of its components are dramatically more Mac-friendly than d-Time's documentation.

Macworld's Buying Advice

At this point, CD-ROM accelerators still aren't ready for prime time. Of these two products, CD Speedster provides more bang for the buck—especially considering that it's half the cost of d-Time. If you're using a 2× (or slower) CD-ROM drive, CD Speedster can provide modest acceleration in some limited cases; most users, though, will notice little benefit. By comparison, d-Time is a disappointment across the board, with minimal performance gains and unpredictable, unstable design.—FRED DELISIO AND AMY STONE

CD Speedster

RATING: ★★/3.7 **PROS:** Easy-to-use, attractive interface; modest performance gains on older CD-ROM drives for some tasks. **CONS:** Minimal acceleration on newer drives; requires manual removal of some extensions for installation; buggy benchmarking utility. **COMPANY:** Syncronys Softcorp (213/340-4100, *http://www.syncronys.com*). **LIST PRICE:** $29.95.

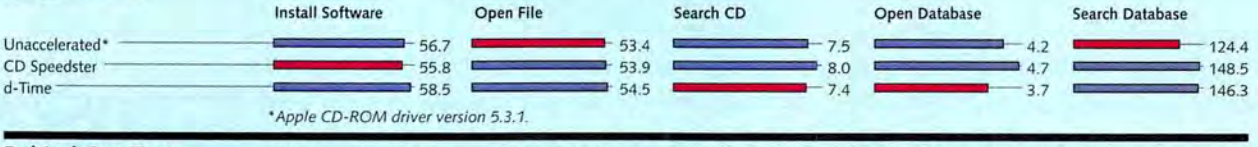
d-Time

RATING: ★/1.5 **PROS:** Easy to install and uninstall. **CONS:** Minimal performance gains; unpredictable results; frequent crashes. **COMPANY:** Acceleration Software (206/224-3727, *http://www.accelerationsw.com*). **LIST PRICE:** $59.95.

Macworld LAB TEST

CD Accelerators Offer Little Improvement

Best result in test. Shorter bars are better. Times are in seconds.



*Apple CD-ROM driver version 5.3.1.

Behind Our Tests

All tests used a standard internal 4X CD-ROM drive on a Power Mac 7500/100 with 32MB of RAM running System 7.6. Disk cache was set to 1024K, and AppleTalk was disabled. For the software-installation test, we performed a custom install of Adobe Photoshop and plug-ins from the Photoshop Deluxe CD-ROM. For the Open File test, we launched Photoshop 3.0 from the internal hard drive and opened a 20MB JPEG file from a CD-R archive. The Search CD test used Grolier's 1996 Multimedia Encyclopedia, and performed a compound search on two terms resulting in 103 results. For database tests, we used Claris FileMaker Pro 3.0v4, launching the application from the internal hard drive and the database from a CD-R archive. With the database open, we searched for a single term.—**Macworld Lab testing supervised by Matt Clark**

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PostScript Utilities

IMAGE ALCHEMY PS 2.1 AND TAILOR 2.0: EXPENSIVE SOLUTIONS TO SERVICE-BUREAU CRISES

NOTHING CAN BRING A SERVICE bureau to a grinding halt like a string of bad PostScript or a client's file that uses an unsupported format. Two useful utilities offer relief from such emergencies: Image Alchemy PS 2.1.4 lets you open and convert graphics files, while Tailor 2.0's full-blown editing tools let you clean up PostScript files. Unfortunately, both programs are hampered by weak interface design and erratic performance.

Different Approaches

Though some of their functions overlap, these programs focus on very different tasks. Image Alchemy is a kind of skeleton key, opening and converting files in more than 70 formats—PostScript, EPS, PDF, and common graphics formats such as JPEG, GIF, and TIFF. The choice of formats is puzzling, though. Alchemy supports Scodl (used by some slide recorders), for example, but not the vastly more common Windows metafile format.

Tailor Made Tailor looks more like an illustration program than a PostScript utility.

Along with straight conversion, Alchemy includes a very basic set of commands for tweaking and resizing images. You can blur or sharpen images; change image size, bit depth, and resolution; and adjust brightness and contrast. You can't balance colors, however, or set levels on a channel-by-channel basis.

If you use Alchemy to reduce the number of colors in an image, you'll appreciate the strong palette controls. The program lets you apply a custom palette to your current image and choose from seven dithering formulas. When you reduce a file's colors or convert a color image to gray scale, you can pick the dithering method that works best with that particular image.

Because Alchemy supports AppleScript and is recordable, you can automate certain functions. And because it supports batch processing, you can convert an entire folderful of files at once without having to open and display each image.

Tailor, on the other hand, is primarily a drawing program that lets you edit the contents of PostScript and EPS files. You can change line characteristics, delete objects, change fonts, and edit text, just as if you were working in an illustration program. The fact that you can create a PostScript file from virtually any program that has a Print command makes Tailor a powerful tool for editing the output from those programs.

But while Tailor lets you edit PostScript files and convert them into other formats, it doesn't support OPI, AppleScript, or spot colors; for those features, you need the $869 Workflow version. A $99 Preview+ version lets you open and view—but not edit—PostScript files.

In my tests, Alchemy had no problem opening files in a variety of formats, but I got less reliable results with PostScript and EPS files. In one case, Alchemy mangled PostScript data that had printed fine (and that opened perfectly in Tailor), cutting off a portion of the image.

Although Tailor did a more consistent job of rendering PostScript, trying to save Tailor files as TIFF images resulted in memory errors until I boosted the program's allocation by several megabytes. And when I printed from within Tailor, anything other than very small, simple files generated PostScript errors.

Tool Problems

Alchemy's range of file-conversion options is impressive, but its unintuitive interface feels slapped together. When you change an image's magnification, for example, an on-screen message tells you the image is being converted when all you're really doing is zooming in or out. If you try to cancel a zoom in progress, the window goes blank; you have to reactivate the Show Image command from the Display menu to restore the image, at which point you again see the "converting image" message. Another serious limitation is that Alchemy can open only one page of a PostScript file or PDF file at a time; you have to reopen the document to look at a different page.

Tailor's richer tool set features five palettes for editing objects, colors, and text (though, as in Alchemy, some of the tools behave in nonstandard ways). Tailor's text-handling commands are particularly powerful: you can split multiple-word objects into words or characters, for example. You can even export all the text in a PostScript file as ASCII or RTF text in one step.

Macworld's Buying Advice

At $495, Image Alchemy PS is no bargain; an image-editing program could handle many of the program's key functions more effectively. Most of the file formats it supports are pretty obscure, and its timesaving batch-processing and scripting features are offset by a slipshod interface and unreliable performance.

Service bureaus and graphics professionals may find Tailor's ability to manipulate PostScript useful for troubleshooting, but they'll have to put up with a weak interface and unreliable performance. For previewing and converting PostScript files into other formats, neither program performs as well as TechPool Studios' Transverter Pro (see *Reviews*, November 1995).—JOSEPH SCHORR

Image Alchemy PS 2.1.4

RATING: ★★/3.9 **PROS:** Supports 70 file formats; batch processing; good AppleScript support. **CONS:** Poor interface; opens PostScript files a page at a time; inconsistent rendering. **COMPANY:** Handmade Software (510/252-0101, *http://www.handmadesw.com*). **LIST PRICE:** $495.

Tailor 2.0

RATING: ★★/4.0 **PROS:** Strong PostScript editing tools; can extract text from PostScript files. **CONS:** Erratic performance; odd interface. **COMPANY:** EnFocus Software (303/393-7282, *http://www.enfocus.com*). **LIST PRICE:** $369.

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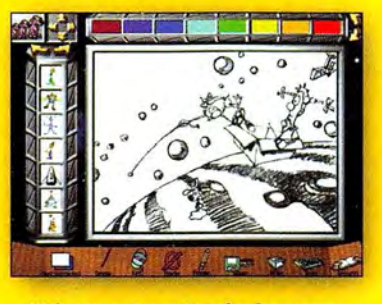

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Conflict Catcher 4

TOP START-UP MANAGER GETS BETTER

THE LAST VERSION OF CONFLICT Catcher was so elegantly designed, so utterly intuitive, and so powerful that it seemed impossible to improve upon it (see *Reviews*, September 1995). Amazingly, though, Casady & Greene has done just that. Conflict Catcher 4.01 is more than just another utility; it's a nearly indispensable tool for managing and maintaining the dozens of little system extensions that load every time you start your Mac.

New to version 4 is the ability to manage more than just system extensions. You can also use the program to activate and deactivate plug-ins and extensions associated with other applications, such as Netscape Navigator and QuarkXPress.

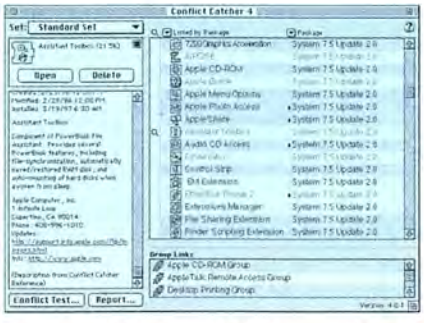
Many of Conflict Catcher 4's (CC4) new features involve built-in Internet links to reference information. A Web menu provides links to Apple; the major Mac publications; and a handful of other genuinely useful Mac troubleshooting Web sites, including Casady & Greene's own online reference library. If you're not sure what a particular extension does—or if you think you need a newer version—you can tap into Casady & Greene's database of Mac extensions, control panels, and plug-ins (more than 2000 entries are cataloged). The reference library contains direct links to other Web sites for the latest product information and updates.

At the heart of Conflict Catcher 4 is its conflict-testing system, which has become even more automated. CC4 offers to begin automatic conflict testing if your machine crashes at start-up, systematically turning extensions and control panels on and off with each restart until it zeros in on the problem components. When you're not hunting down problems, CC4 lets you organize start-up files, grouping them into sets so you can easily enable or disable system components at start-up and load only those you want or need.

One of the best new features is the Compare With Set command, which allows you to compare your current start-up set with any other set defined by Conflict Catcher (see "Compare and Contrast"). Unmatched files are displayed in gray, making it easy to see what distinguishes one configuration set from another—a tremendous troubleshooting tool.

All the program's file-management features have been improved, too. You can customize the font used to display lists of files in your system, and sort files by ten different criteria, including Package—a new option that organizes files logically according to the application or utility they're used with.

As in previous versions of Conflict Catcher, a Detail panel (accessible by clicking in the column to the left of each file listed in the main window) contains extensive information about each file, including its size, version number, RAM requirements, manufacturer, and in many cases a description of the file's function. In version 4, the details also include live links to each software vendor's e-mail address and Web site. The program's thorough documentation even includes a section on troubleshooting problems that *don't* involve system extensions.



Compare and Contrast CC4's Compare With Set command makes it easy to compare two different start-up sets, displaying in gray the files that differ.

Macworld's Buying Advice

Conflict Catcher is the best start-up manager you can buy. Other extension management utilities, such as Now Startup Manager and Apple's Extensions Manager control panel, don't provide as much control over your start-up files or as much insight into the contents of your System Folder. The improvements in version 4 simply make this an even more valuable addition to any troubleshooter's arsenal of tools.—JOSEPH SCHORR

RATING: ★★★★★/9.3 **PROS:** Compares different start-up sets; strong conflict-testing tools; Web links to software vendors; flexible file-sorting and display options. **CONS:** None. **COMPANY:** Casady & Greene (408/484-9228, *http://www.casadyg.com*). **LIST PRICE:** $99.95.

QuicKeys 3.5.2

UPDATE ADDS NATIVE POWERPC SPEED

FOR EFFICIENCY FANS EVERYwhere, the release of CE Software's QuicKeys 3.5.2 is welcome news. To the floating tool bars and revamped interface of QuicKeys 3.5 (see *Reviews*, December 1996), this update adds native PowerPC code, filling a gaping gap in the feature list. The increased speed varies by Mac model; overall, though, the acceleration is small but noticeable, in both executing and editing macros. Even if your Mac isn't PowerPC based, you'll appreciate the bug quashes, including compatibility fixes for Adobe Photoshop and Kensington trackballs. Best of all, this update is free; QuicKeys 3.5 owners can download the updater from CE's Web site.

Despite these improvements, however, this update doesn't advance QuicKeys' overall usefulness. First, version 3.5's weaker features haven't been revisited; you can still create tool bars, but the icons still all look alike, and you still can't give them permanent text labels. And although QuicKeys has always excelled at manipulating menus, dialog boxes, and buttons, exotic interface elements such as tabbed dialog boxes (as in Microsoft Word 6), floating palettes (in Claris products), contextual pop-up menus (in Navigator), and even title bar–sprouting menus (in Photoshop) often thwart QuicKeys. A tech-support rep told me that CE doesn't recommend using QuicKeys to handle even standard pop-up menus.

Macworld's Buying Advice

QuicKeys has more rivals than ever: Westcode's OneClick, Affinity's Tempo II, and Binary's KeyQuencer each outdoes QuicKeys in certain areas. But QuicKeys is still the most direct route to giving your control key and F-keys a purpose. For tasks such as typing your return address, launching programs, or processing Photoshop files, QuicKeys is still a winning, and now faster, software servant.—DAVID POGUE

RATING: ★★★★/8.2 **PROS:** Native PowerPC code at last; bug-fixes; free update. **CONS:** No new features; can't handle some interface elements. **COMPANY:** CE Software (515/224-1995, *http://www.cesoft.com*). **LIST PRICE:** $119.

Unbelievable Ease of use

Don't be concerned about the resolution, size, horizontality and color correction and mode. Just import images in the Quark image box from a Photo CD disk or from a raw scan. Position them however you want using QuarkXPress's tools. For each, send orders with the processing options to the IPM.

I import my pictures in my QuarkXPress document's image boxes

TIFF, EPS JPEG or Photo CD ImagePac; RGB, YCC, grayscale or CMYK. This image was scanned from a 35 mm original in RGB raw mode at 100% size on a PowerLook 2000 flatbed scanner at its optical resolution of 1000 dpi.

I position them using the XPress tools and I select processing options using the binuscan Xtension

The client XTension writes the "order list" then sends it to the IPM for processing. It includes the values entered in the QuarkXPress "measurement bar" plus the processing and output options set in the XTension's user interface.

Phenomenal Productivity

A catalog with hundreds of images that may require several people a week's worth of work can be processed and ready to output in just a few hours. Processing can take place overnight, even on a low-end desktop computer, with little RAM.

After processing, the new recalculated images are re-imported in the desired color mode with the right amount of pixels... automatically

From a single RGB file, those CMYK, grayscale or CMYK-BW processed images will output at a blazing speed, due to their optimization.

Astonishing Quality

Each processing algorythm uses state-of-the-art technology. Even when the IPM is used only to resize images previously color corrected and separated, the screen preview is recalculated with colors and a sharpness that are truly impressive. No more surprises on the color proof!

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THE SERVER APPLICATION

"binuscan IPM℠" (Image Processing Machine) works in the background, using the processor only when it's free. It recalculates a new image based on the original and a list of orders generated by a client application. This "order list" contains all the user's output preferences, including (but not limited to) CMYK separation specs, automatic color correction instructions, and sharpening levels, as well as any other modifications made to the image (crop, flip, rotate, resize, etc.) by the client application. binuscan achieves an impressive high and consistent quality every time because the IPM bases its processing algorithms on an individual histogram analysis of every image.

THE CLIENT APPLICATION

Many client applications can be used to generate "order list" text files and save them into the IPM's "TO DO" folder for processing. binuscan's open architecture allows third party developers to write custom client applications. The binuscan ColorPro® package includes the binuscan IPM® plus client applications to acquire images from scanners or Photo CDs and binuscan JobManager® (a Quark XTension) which works as described to the left.

THE PERSONAL TOUCH

binuscan ColorCorrect is a utility included with the IPM which allows you to create ghost effects or "sepia effects" and harmonize the images on your page. This utility will perform color adjustments to processed images by writing PostScript functions to the image file. Modifications are written then updated in your page layout in seconds, no matter how large the files are. Every modification can be reverted with the same ease and in the same manner.

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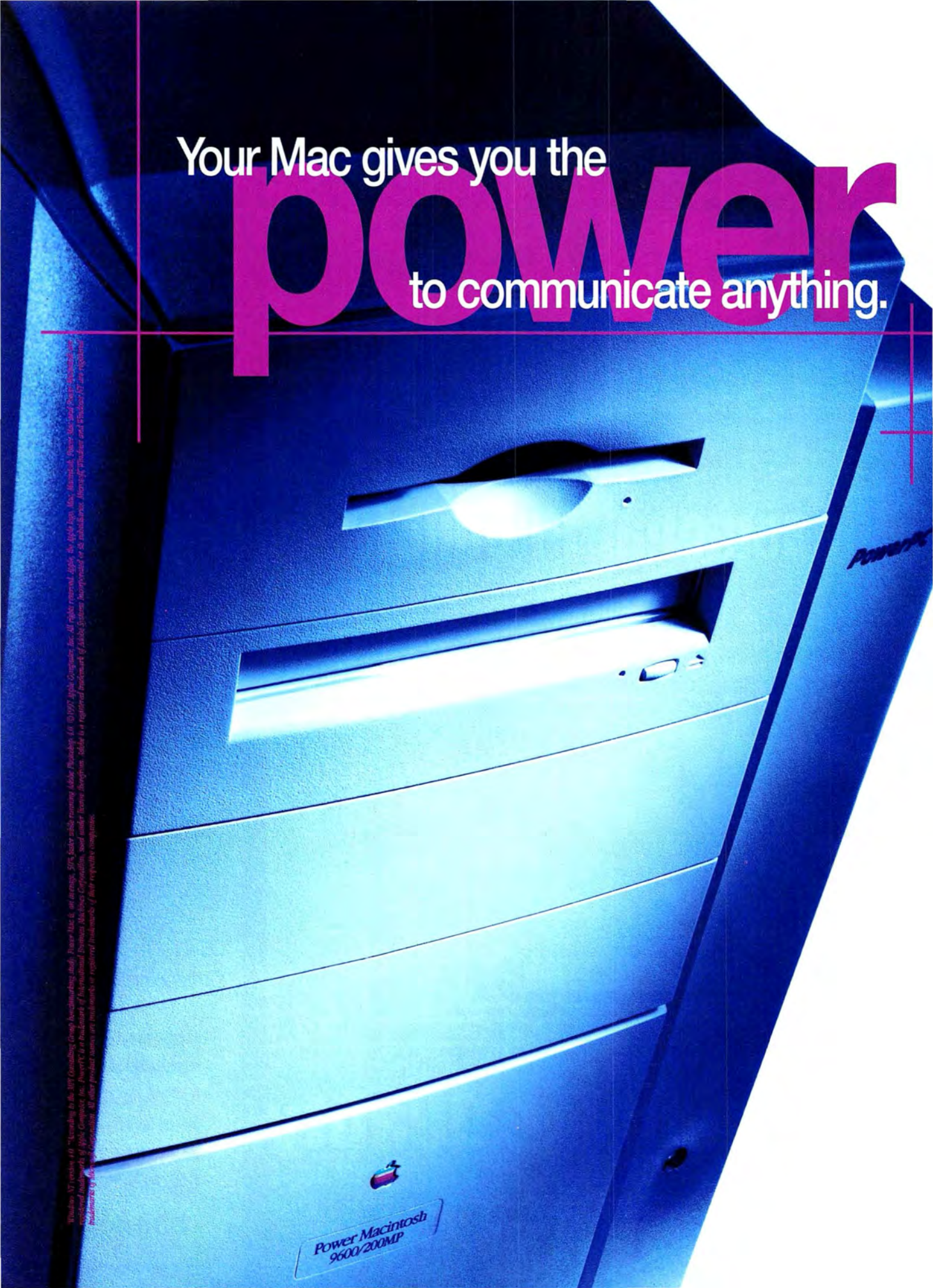
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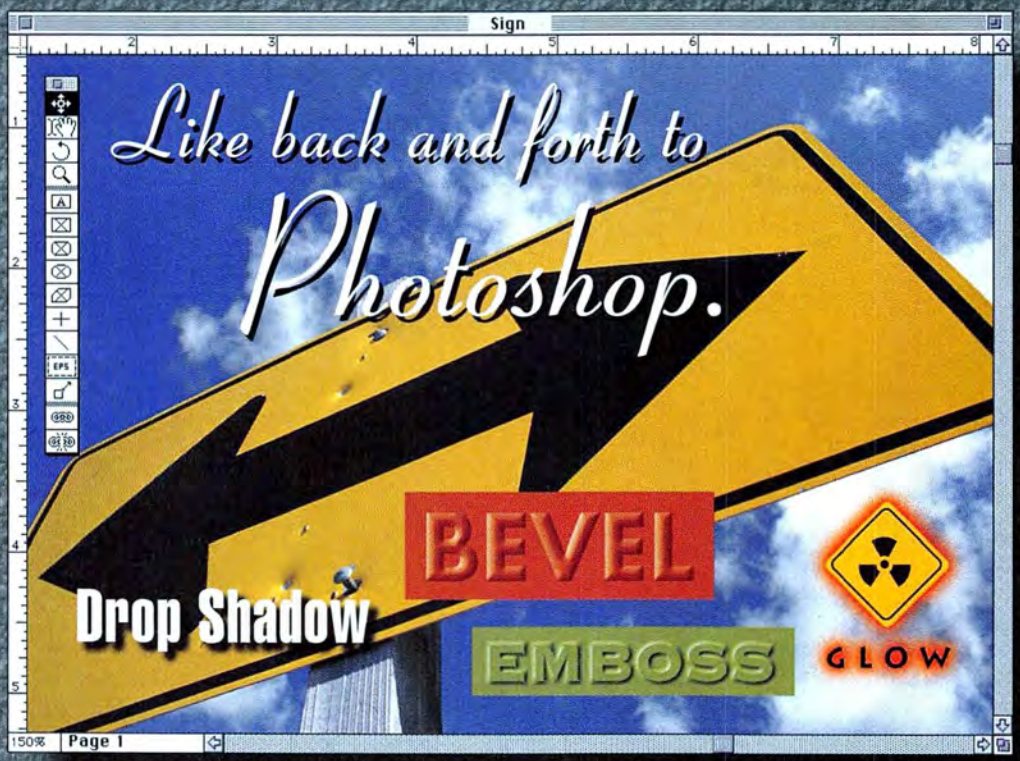

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Courier V.Everything 56 K

FAST NEW MODEM IS JUST SLIGHTLY AHEAD OF ITS TIME

WHILE X2 AND K56FLEX TECHnology duke it out over which will reign over the Internet lines, U.S. Robotics' Courier V.Everything 56 K modem is making its way into people's homes. With screamingly fast Internet connections, 56-Kbps modems promise quick downloads at reasonable prices. But look again—this fast new technology may still have some roadblocks ahead.

The key to making x2 connections is finding an Internet service provider (ISP) that supports U.S. Robotics' technology. At press time, only 191 ISPs offer x2 speed in 530 cities. Unfortunately, your current ISP might not be one of them, forcing you to pay long-distance or surplus charges, or find a new service provider.

America Online, for example, makes x2 users jump through two hoops. First, you must download a special x2 ccl script file that plugs into the AOL interface. Then, if you don't reside in one of the five metropolitan areas offering AOL local access, you must dial the nationwide number, for which you're charged a $6-per-hour connect fee.

However, once you make an x2 connection, you'll find noticeable speed improvements over existing 28.8-Kbps or 33.6-Kbps modems. I connected regularly at 44 Kbps, substantially better than 28.8 Kbps. U.S.R.'s tech support claims that line quality and distance from the phone company's central hub may hamper connecting at 56 Kbps. Nonetheless, I downloaded several files and Web pages about 40 percent faster than at 28.8 speeds. Keep in mind that x2 only downloads at faster speeds; for uploads you will still be sending at 33.6 Kbps.

In addition to its speed advantages, the Courier also offers caller ID; remote configuration and diagnostics; call-back dialing security; flash ROM upgradability; and Adaptive Speed Leveling (ASL), which optimizes the modem's speed for the best possible transmissions. AOL and CompuServe disks, as well as Smith Micro Software's popular MacComCenter fax and data software, are also bundled. MacComCenter easily transmits documents by way of the Drag N' Fax icon. However, the disappointing address-book features can't compete with those of more sophisticated packages such as Global Village's GlobalFax software.

It's a little too early to tell where 56-Kbps modem technology will fall. Currently there is no 56-Kbps standard, though the International Telecommunications Union (ITU) will likely standardize requirements by the summer of 1998. Until then, modem manufacturers must decide whether to base their products on U.S. Robotics' x2 or Rockwell and Lucent's k56flex technology. At press time, Global Village planned to ship its x2-based 56-Kbps modem in May. However, a variety of vendors, such

ARNOLD TKSEJO

as Boca Research and Zoom Telephonics, are basing products on the Rockwell k56flex chip set. Moreover, once the new standard arrives, it's conceivable that all 56-Kbps modems already on the market may require some type of upgrade. This may be as simple as a free downloadable flash ROM upgrade, or it might mean a new chip set.

Macworld's Buying Advice

If you're an Internet guru who longs to surf the Web at fast speeds, the Courier V.Everything 56-Kbps modem may be right for you. But first check the Connect Now section of U.S.R.'s Web site for information on ISPs with x2 service in your local area. On the other hand, if you're not ready for setup troubles or the hassle of finding an ISP with x2 access in your city, wait to see in which direction this technology will go.—DEAN ANDREWS

RATING: ★★★/6.8 **PROS:** Fast Internet access; flash ROM upgradable; caller ID; call-back dialing security. **CONS:** Installation can be difficult depending on ISP; hidden costs of dialing ISP outside your local area. **COMPANY:** U.S. Robotics (847/982-5010, *http://www.usr.com*). **LIST PRICE:** $395.

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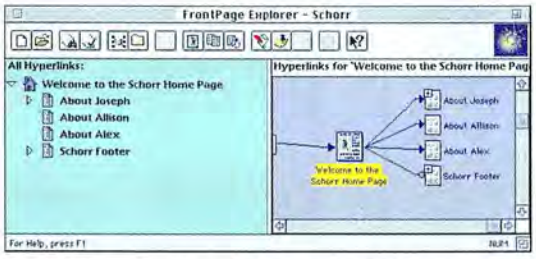
FrontPage

BEHEMOTH IS LONG ON WEB-SITE MANAGEMENT, SHORT ON AUTHORING

MICROSOFT'S LONG-AWAITED Web authoring suite is a colossal disappointment. Despite admirable site-management tools and strong support for the latest Web technologies, FrontPage 1.0 is bloated, cumbersome, and poorly integrated with other programs.

It's too bad FrontPage's editing tools aren't more streamlined, because its site-based approach to Web authoring is otherwise outstanding. Unlike simpler Web authoring programs such as Adobe PageMill, FrontPage treats your site as a single entity. FrontPage Explorer—one of the program's two main components—gives you an overview of your site, displaying pages and the links between them hierarchically. Explorer lets you search and replace across your site and maintain a list of pages to be completed, then publish your site via FTP.



Go Exploring FrontPage thinks in terms of Web sites, not just Web pages. The Explorer window, for example, shows you how your pages are hyperlinked.

The suite's other main component, FrontPage Editor, is a WYSIWYG page-editing environment that borrows heavily from Microsoft Word's overblown interface—and it's here that FrontPage falls down on the job. Although Microsoft touts FrontPage as closely integrated with Microsoft Office, Editor's integration with those programs is appalling. For example, FrontPage doesn't recognize Word documents when you use the Open command; you have to change the file type in the dialog box to All Files, then step through another confusing dialog box. In contrast, PageMill opens Word files cleanly, no questions asked.

The program's drag-and-drop support is also weak. You can't drag images or text into or out of FrontPage, nor can you drop file icons onto a page to create links to other documents as you can in PageMill. And setting up frames in FrontPage is needlessly complex, despite a wizard that steps you through the process.

FrontPage Editor's basic formatting tools, on the other hand, are simple and word processor–like, as are its table-formatting controls. When you enter a string of text that FrontPage recognizes as a URL or e-mail address, the program automatically turns it into an active link. It converts images to GIFs and JPEGs automatically and includes simple tools for creating image maps. Tool bars make it easy to add sounds, movies, ActiveX controls, JavaScript, and Java. Other buttons give you access to FrontPage's WebBots—dynamic objects that add tables of contents, sitewide text searching, forms handling, and other features to your site (though the more powerful WebBots require a Windows NT or Unix Web server running FrontPage extensions).

FrontPage lets you view and edit the HTML code behind your pages, but the tools for doing so are minimal. You can't drag and drop text in the HTML window, for example, and you have no control over the fonts and colors used to display the code. You can't even copy selected text within the window.

Requiring 30MB of hard-disk space and at least 13MB of free RAM, FrontPage is huge and sluggish. For acceptable performance, you need a Power Mac running at 100MHz or higher.

Macworld's Buying Advice

FrontPage introduces some good site-level authoring tools that outshine the competition's, but that doesn't make up for its complex dialog boxes and unwieldy interface. PageMill may still need refinement, but it's a far more elegant way to create Web pages.—JOSEPH SCHORR

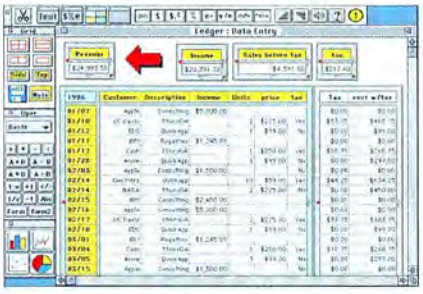
RATING: ★★/4.8 **PROS:** Good site-management and formatting tools; automatically activates embedded URLs. **CONS:** Slow, bloated interface; poor integration with other programs; weak drag-and-drop support; unintuitive frames setup. **COMPANY:** Microsoft (206/882-8080, *http://www.microsoft.com*). **LIST PRICE:** $149.

Spreadsheet 2000

LKISS SUCCESSOR READY FOR BUSINESS

SPREADSHEET 2000 2.01'S PREDECESOR—the awkwardly named Let's Keep It Simple Spreadsheet (LKISS)—offered a unique visual interface with a drag-and-drop method for assembling calculations from grid elements and palettes of operators, and a useful but limited assortment of templates (see *Reviews*, September 1996).

Early LKISS users were attracted by the program's ease of use, especially in contrast to the daunting bulk and feature set of Microsoft Excel 5. However, those users had a stronger business focus than the original product delivered, and they wanted more canned programming done up front. Spreadsheet 2000's serious name hints at its new direction, complete with business-oriented functions and templates (see "Taking Care of Business").



Taking Care of Business Along with some tool enhancements, Spreadsheet 2000 includes popular business templates, such as this basic ledger.

The new, larger spreadsheet (which now requires 8MB of RAM) sports remodeled main icon bars and palette sets, with several new quick number-formatting buttons—including date and time, and a calculation-status traffic light—and additional basic operations for time calculations and database operations. The database functions are an important improvement; Spreadsheet 2000 is now the easiest available method for creating the flat-file databases that are well suited to spreadsheets.

Spreadsheet 2000's new business templates include a budget, a business plan, additional expense reports and invoices, time cards, and planning documents. (For nonoffice users, Spreadsheet 2000 offers new home and educational templates, too.) What makes the expanded set of templates most useful is that you can

modify them with a few basic mouse actions. Spreadsheet grids for data entry can simply be dragged to larger sizes—there's none of the tedious insert, rename, and delete activities associated with modifying a traditional spreadsheet.

Once you're accustomed to Spreadsheet 2000's unique style—an expanded tutorial makes this easier—you'll find that modifying a home mortgage spreadsheet into an auto-loan calculator (or even a credit card–payment planner or an annuity forecaster) is a matter of a few minutes' worth of dragging and dropping. Spreadsheet 2000 takes a few seconds longer to start up than LKISS did, but recalculations on modest-size spreadsheets are still virtually instantaneous—quite an achievement in such an elaborate interface.

Unfortunately, Spreadsheet 2000 is at a distinct disadvantage in a market almost totally dominated by Excel. For those accustomed to a traditional way of working, Spreadsheet 2000 requires a change of mind-set to understand its advantages. A more concrete dilemma is that Spreadsheet 2000 can export only tables of inputs and results—rather than detailed calculations—to other spreadsheets. Another Spreadsheet 2000 drawback is common to all visual programming systems: complex problems can lead to nearly unreadable "connection diagrams" mapping the calculations.

Spreadsheet 2000's near-$100 price is attractive enough, but Casady & Greene will sweeten the deal for users of Excel, ClarisWorks, or Microsoft Works with a $49.95 competitive upgrade price; and for users of LKISS with a $39.95 price.

Macworld's Buying Advice

Spreadsheet 2000 makes it simple to set up spreadsheets for common business situations, but it also makes some of that work unnecessary by providing a starter kit of templates sufficient for the basics of most small-business operations. Its unique interface makes this LKISS successor a true Mac original, and a program well worth trying.—CHARLES SEITER

RATING: ★★★★/7.8 **PROS:** Friendly interface; great set of basic tools and templates. **CONS:** Visual programming not as effective on complex programs; can't export detailed calculations. **COMPANY:** Casady & Greene (408/484-9228, *http://www.casadyg.com*). **LIST PRICE:** $110.

MessagePad 2000

A THOUSAND DOLLARS? ARE YOU NUTS?

As the world was falling in love with svelte, limited-function PDAs (embodied in U.S. Robotics' palm-size Pilot), Apple was in the back room feeding the Newton MessagePad steroids. The MessagePad 2000, as a result, is bigger, faster, and expensive. Apple's latest Newton solves many of the problems of its predecessors, but this may be the first PDA you have to take out a bank loan to buy.

The first thing you notice about the MessagePad 2000 is that it's slightly longer and wider than the MessagePad 130, in order to accommodate its new

KEVIN CANDLAND

backlit 480-by-320-pixel screen. Those pixels are also smaller and smarter at 100 per inch (compared with the MP 130's 72 ppi), each supporting 16 levels of gray. The finer resolution and larger screen area translate to a dramatic improvement in usable screen real estate. You can see more text and have more windows open. But even I couldn't comfortably wrap my fairly long fingers around the larger-size MP 2000.

The larger case houses other changes—some good, some bad. Telecommuters weary of swapping modem and memory cards will like the MP 2000's dual PC Card slots. And while bigger doesn't usually mean faster, the MP 2000 comes with a 160MHz StrongARM chip. For the first time, you can actually characterize MessagePad system performance as responsive. Finally, in the "Tiny but Nifty" category, a small stylus holder pops out of the top of the MP 2000's case the way a drink holder slides out of a car's dashboard. However, Apple has ditched the standard serial-port connector in favor of the new Newton InterConnect port, which requires you to use an adapter plug (about the size of a pair of Monopoly dice) when you use the Newton keyboard or connect to your desktop machine. The last thing I need is another tiny bit of plastic to keep track of.

Beyond the familiar Notes, Dates, and People software built into the Newton OS, the MessagePad 2000 comes bundled with three new applications: an e-mail client (EnRoute), a Web browser (NetHopper), and a word processor–and-spreadsheet application (QuickFigure Works). All three are solid, useful applications. EnRoute is tightly integrated with the Newton OS, from which it draws the information it needs to send and retrieve your Internet mail. EnRoute also relies on the Newton's People application for e-mail addressing. EnRoute feels less like an application than like an extension of the operating system. Completing the Internet connection, NetHopper brings the World Wide Web to the MessagePad 2000 amazingly well, especially considering the graphics-and-design-happy approach of so many Web sites. QuickFigure Works makes (at last!) a well-appointed spreadsheet a basic part of the MessagePad's repertoire, and the spelling checker built into the word processor part of the application is an added bonus for many users; QuickFigure Works adds $50 to the price of a basic MessagePad 2000.

Macworld's Buying Advice

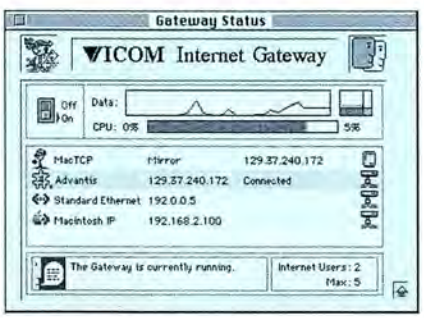
For $1099, you get a MessagePad 2000, a keyboard, a carrying case, and assorted cables and software. The Newton OS is cool, but for exactly the same price you can buy a Pentium laptop running Windows with a color screen, 8MB of RAM, and a 700MB hard drive. If you just want handheld names and addresses, get the U.S. Robotics Pilot for under $400. Apple has finally made the MessagePad a useful device, but the company's also priced it out of the realm of sanity.—CAMERON CROTTY

RATING: ★★★/5.0 **PROS:** High-speed CPU; high-quality display; robust software. **CONS:** Unbelievably expensive. **COMPANY:** Apple Computer (408/996-1010, *http://www.newton.apple.com*). **LIST PRICE:** $949; with QuickFigure Works $999; with Works, keyboard, and case $1099.

Internet Gateway 3.7

NETWORK ROUTER SOFTWARE OFFERS SPEEDY INTERNET CONNECTIONS

CONNECTING ONE COMPUTER to the Internet can be difficult enough; connecting an entire local area network is another matter entirely. Vicom's Internet Gateway 3.7.3 simplifies this onerous process, letting network administrators connect computers on a LAN to the Internet using a single PPP or SLIP account, a modem, and a phone line. This idea isn't new—you could also buy a dedicated hardware gateway, and most Unix machines offer similar software routing—but Internet Gateway is the first product that turns a Macintosh into an inexpensive gateway and packet router.



Tracking the Packets Internet Gateway's status window displays a graph of TCP/IP activity and CPU usage, along with a list of currently connected users.

Setup is simple. Internet Gateway comes configured for three, five, or ten concurrent users; the program's Setup Wizard scans your system and recommends the optimal configuration. The user interface is equally uncomplicated, though I did encounter one bug: whenever I made changes in the PPP Setup dialog box, I double-checked it and often found the previous values still there.

Once Internet Gateway is configured, setting up the other computers on your network is a snap as long as they're running MacTCP or Open Transport on either Ethernet or LocalTalk. You can assign IP addresses to each computer or let the program's Dynamic Host Configuration Protocol server configure each client automatically when the user starts TCP/IP operations on the network. When Internet Gateway detects network activity, it dials out to your Internet service provider and connects to it. You can configure it to connect to the Internet only when needed and to hang up after a specified period of inactivity.

My small office tested the five-user gateway using a variety of software titles on two older Macs, two Power Macs, a PC, and a NextStation (Internet Gateway is based on the platform-agnostic TCP/IP) and encountered no problems other than that the older Macs were unable to run other software in the background. Two or three users can connect over the same 28.8-Kbps connection without any noticeable slowdown; it's only when someone engages in an intensive task, such as a long FTP download, that the connection begins to bog down.

While Internet Gateway gives you access to the Internet, it can also give outsiders access to your LAN—but only if you let them. The program is preconfigured to block outside TCP/IP packets, but you can also specify the packets you'll allow and to which client machines they can be routed. These controls let you filter packets based on IP address (to block access to a particular machine) or port (to block access to an entire protocol, such as HTTP). That's a powerful feature, particularly for schools that want to block access to certain Web sites.

Macworld's Buying Advice

Internet Gateway is currently the easiest way to connect a LAN to the Internet. It offers excellent performance and unparalleled ease of use compared with a Unix-based software router, but at about $80 per user it's not cheap—a dedicated hardware router such as Whistle's InterJet (see *Reviews*, June 1997) might be a better alternative to the ten-user license. And if you can get by with a two-user license, consider Vicom's SurfDoubler; it offers the same performance and security features for only $149.—ROB TERRELL

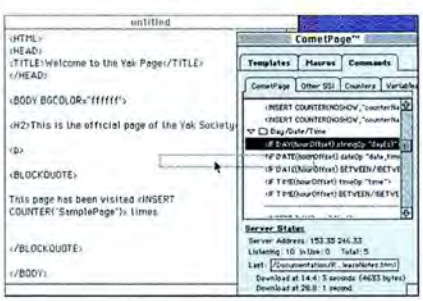
RATING: ★★★★/7.5 **PROS:** Simple to configure; good performance; excellent security features. **CONS:** Lower-end computers can't run anything else in the background; can cost nearly as much as a hardware router. **COMPANY:** Vicom Technology (415/691-9520, *http://www.vicomtech.com*). **LIST PRICE:** Three-user pack $249; five-user pack $399; ten-user pack $750.

CometPage

TEMPLATES AND MACROS FOR CREATING DYNAMIC WEB SITES

BUILDING DYNAMIC WEB PAGES—those whose content changes depending on the day of the week, or that redirect visitors to different URLs depending on the time of day—ordinarily takes some heavy-duty programming. CometPage 1.0.5 lets you add dynamic elements simply by dropping ready-to-use HTML tags onto your Web pages. But the manual's caution that an "intimate knowledge" of HTML is required isn't an overstatement: if you're squeamish about editing HTML code, you won't like CometPage.

Unlike stand-alone Web editors, CometPage works in conjunction with drag-and-drop–aware authoring programs such as Bare Bones' BBEdit and Adobe PageMill. To add predefined HTML commands, macros, and templates to your pages, you simply drag them from the CometPage window into your Web editing program. Dragging and dropping pages back onto the CometPage window loads them into your browser so you can preview the results immediately (see "Drop Everything").



Drop Everything You can add templates, macros, and dynamic HTML commands to your Web pages by dragging and dropping them from the CometPage window into your Web editor.

In CometPage, templates are simply chunks of frequently used HTML text that you save and store in the program's folder. More powerful are the macros, which can contain text, HTML tags, Java code, and any other elements you plan to use throughout your site. When you drag a macro onto a Web page, CometPage simply inserts a reference to the original macro (rather than its contents); to update the material, you just edit the contents of

continues

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the original macro, and CometPage updates the references to it automatically.

But it's CometPage's commands that make your Web pages dynamic. These 75 custom HTML tags, which can be dragged onto a page just as templates and macros can, let you insert elements that are automatically updated every time that page is accessed. For example, you can use commands to embed the current date or time into a page, request a password, or generate a random number on the fly.

Although CometPage's commands are powerful, learning how to use them can be tricky. After you drop the basic command strings into your pages, you have to customize them by manipulating the code—hence the need to be comfortable using HTML—being careful to follow the syntax of CometPage's command language. You can turn to the balloon help for guidance, but the electronic-only documentation is oddly incomplete, with sketchy explanations and ambiguous examples.

The interface is somewhat quirky and un-Mac-like, and the program's lack of refinement is evident in the way it handles preferences—they're set in a separate text file, which you have to edit line by line. (Digital Comet says a future version of CometPage will correct the problem.)

CometPage's commands and macros require CometSite, a separate ($149) CGI that runs on a Web server. CometSite's job is to interpret CometPage's macros and commands and generate the HTML as each page is served. Although you *can* get around that requirement, none of the CometPage commands that require on-the-fly processing will function on the published site, defeating much of CometPage's usefulness.

Macworld's Buying Advice

If you're comfortable hacking your way through raw HTML, CometPage—despite its interface flaws—does indeed simplify the process of adding dynamic content to a Web site. Paired with CometSite, it's a powerful tool for dynamic Web-site management.—JOSEPH SCHORR

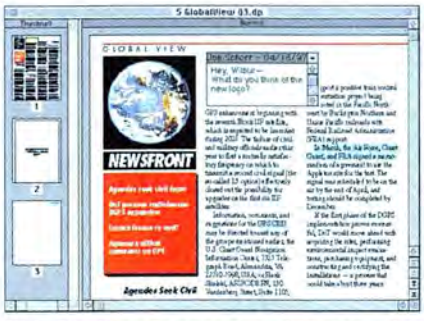
RATING: ★★★/5.1 **PROS:** Good library of dynamic HTML tags; works with any Web editor; good balloon help. **CONS:** Quirky interface; no printed documentation. **COMPANY:** Digital Comet (415/331-5551, *http://www.digitalcomet.com*). **LIST PRICE:** $149.

Common Ground 3.0

PORTABLE-DOCUMENT PROGRAM CAN'T MATCH ADOBE ACROBAT

THE PROGRAM THAT PIONEERED cross-platform portable-document creation four years ago has unquestionably fallen behind its chief competitor, Adobe Acrobat. In spite of some powerful new Web publishing features, Common Ground 3.0.1 not only lacks Acrobat 3.0's forms-handling and interactivity features (see *Reviews*, April 1997), it's also riddled with bugs and interface problems.

Like Acrobat, Common Ground lets you turn virtually any file into a portable document—one that can be opened and read on any Mac or Windows PC, regardless of the applications and fonts installed. Reading the portable documents—called DigitalPaper (DP) files—requires either the full-featured CG ProViewer included in the Common Ground package or the scaled-down CG MiniViewer (the Common Ground equivalent of Acrobat Reader), which can be distributed freely or embedded in DP documents.



Sticky Situation Common Ground's ProViewer lets you annotate portable documents by adding highlights and sticky notes, but the tools are clumsy.

To turn a document into a DP file, you just select the Common Ground printer driver in the Chooser and "print" the file as you normally would. In the ProViewer, you can open, search, and annotate the DP file; this is where you build a table of contents, add bookmarks, insert sticky notes, highlight text, set security options, and embed URLs that link directly to Web sites or to other DP documents.

Unfortunately, some of the ProViewer's tools don't work properly. The Highlighter tool tends to black out lines rather than highlighting them and refuses to recognize multiple columns of text; it's impossible to highlight a paragraph of text in one column without selecting text in an adjacent column along with it.

Even bigger problems emerge when you use the no-frills MiniViewer. Due to an acknowledged bug, the MiniViewer can't display the sticky notes or highlights added in the ProViewer, making such annotations useless. Even worse, it lacks a Find command—a serious oversight. Without basic text-search capabilities, the MiniViewer is a much less useful tool than the Acrobat Reader.

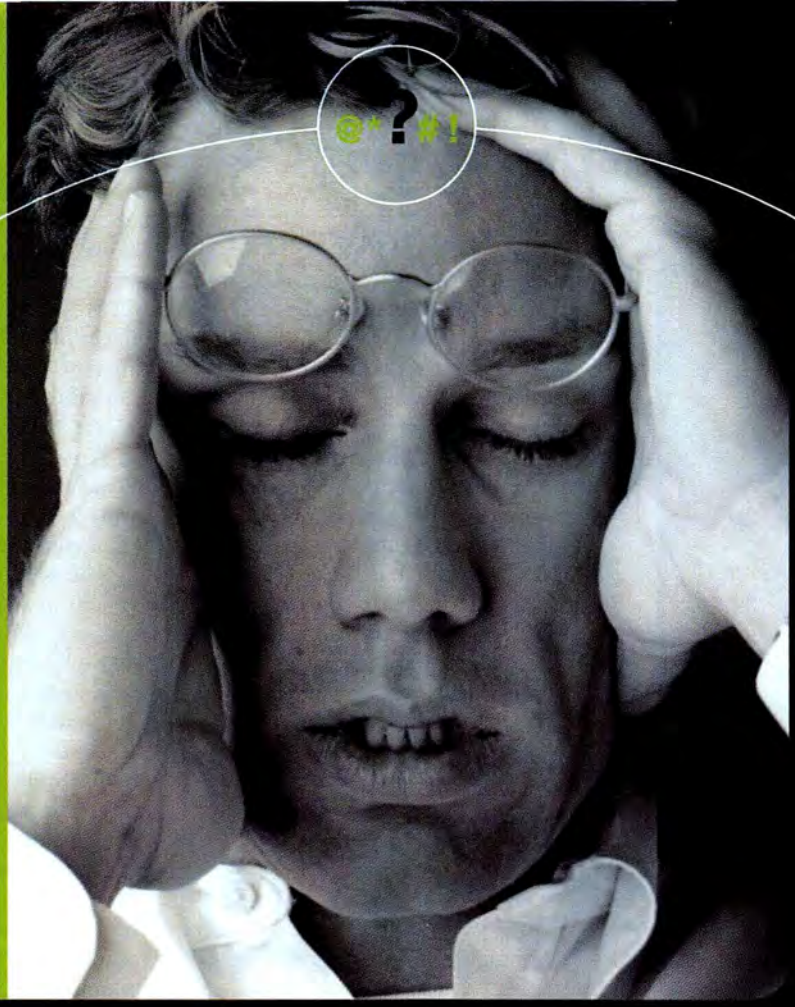
Common Ground does offer text-search capabilities, but only in the ProViewer; for more robust searches, you can use CG Search (another application in the Common Ground package). Although this is a useful tool for creating searchable archives, and the search operators are powerful, the query language required to use it is convoluted and unintuitive.

On the positive side, the new Internet-related features are welcome additions. Being able to embed URLs directly into DP documents makes it easier to integrate those documents into a Web site. And the MiniViewer now can be configured as a helper application in your Web browser, so opening and viewing DP documents over the Web is easier. Unfortunately, some of the more powerful features—such as the ability to create links in Web pages that open directly to specific pages in DP documents—require the $1495 Common Ground Web Publishing System.

Macworld's Buying Advice

Common Ground's cross-platform support is appealing, but the anemic MiniViewer and general bugginess of the software—along with an unacceptably slow 680X0 version—are too problematic to ignore. Acrobat may not be perfect, but it's unquestionably a better tool for creating and distributing portable documents over the Internet.—JOSEPH SCHORR

RATING: ★★/3.8 **PROS:** Good cross-platform support; strong document-security features; supports embedded URLs for Web publishing. **CONS:** Woefully buggy; no Find command in MiniViewer; poor handling of multicolumn text; very slow 680X0 performance. **COMPANY:** Hummingbird Communications (415/917-7300, *http://www.hummingbird.com*). **LIST PRICE:** $195.



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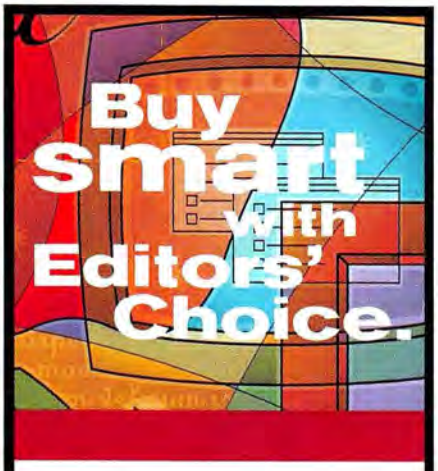

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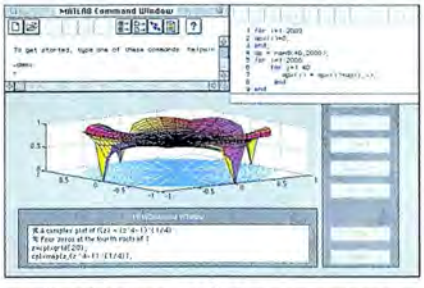
MATLAB 5

ENGINEERING CHAMP BRANCHES OUT

THREE PROGRAMS HAVE LONG dominated math on the Mac: The MathWorks' MATLAB, Wolfram Research's Mathematica, and Waterloo Maple's Maple. Although all three have evolved over the last decade to include science and engineering as well as mathematics, differing origins and customer bases make each a more natural environment for certain topics.

MATLAB, for example, excels at electrical engineering, matrix problems, and systems simulation. It also features the richest toolboxes for statistics and dynamics (though it leaves symbolic computation to an add-on toolbox licensed from Waterloo Maple). The latest version not only updates the program's language features to make it a true multiplatform application-creation environment, but also brings its graphic output up to the high standard set by Mathematica. Mathematica retains its edge in "applied symbolics"—topics ranging from theoretical physics to econometrics—and Maple is still the choice for solving very large-scale symbolic or applied problems on limited hardware. But MATLAB 5, although it's big, executes most calculations quickly and is still the easiest to use.



Words and Pictures MATLAB's new graphics constructs let you draw complex visualizations by using a few brief commands.

One of MATLAB's strengths is its two-level approach to application development: it offers both an internal compiler for fast execution of MATLAB's native M-files, and tools for exporting MATLAB programs into compilable C code. The programming language is seriously improved and modernized—in other words, made to resemble C/C++. It offers new data types, new character-handling methods, a case/switch statement (at last), a nifty editor upgrade that color-codes command keywords, and improved debugging and profiling.

As a result, MATLAB's compiler software can translate programs developed in MATLAB 5 into code for current C compilers without errors or extra fixes. Unfortunately, the language tightening that made this easy translation possible also means that version 5 won't accept many of the sloppy constructions—such as introducing an array variable for the first time inside a loop—that MATLAB 4's interpreter could handle without a glitch.

The new graphics details include 3-D versions of standard constructs; meshes; contours; zoom, shading, lighting, and rotation capabilities; and special print commands for accurate output. Along with version 5's language enhancements, these new features make MATLAB a good substitute for C for everyday math and engineering programming—the run-debug-modify-retest cycle is an order of magnitude faster than in a traditional language. And once everything is debugged and running as a MATLAB M-file, you can export it to C code for Macintosh Programmer's Workshop or Metrowerks' CodeWarrior use with a single command and no additional tinkering.

The MathWorks has updated several task-specific toolboxes to take advantage of the new features of version 5: Simulink (for mechanical and electrical engineering systems simulation), Image Processing, Control System, Signal Processing, and Optimization have all been upgraded to version 2.0. They're not cheap, but neither are they mandatory; older toolbox versions still work with MATLAB 5.

Macworld's Buying Advice

MATLAB has evolved into the program of choice for a wide range of mainly numerical tasks in science and engineering. Its new programming and graphics features make MATLAB 5 competitive with Mathematica in fancy graphics options, and it's still the fastest route to solutions in industrial math.—CHARLES SEITER

RATING: ★★★★/8.1 **PROS:** Definitive tool for electrical and mechanical engineers. **CONS:** M-files created in version 4 may need to be cleaned up. **COMPANY:** The MathWorks (508/647-7000, *http://www.mathworks.com*). **LIST PRICE:** $1795.

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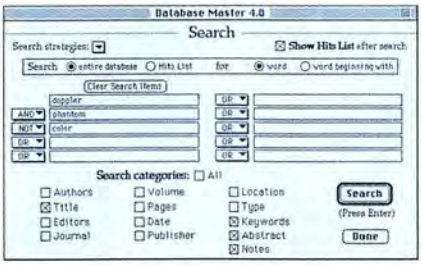
Bookends Plus 4.0

REFERENCE MANAGER ADDS POWERFUL WEB FUNCTIONS

BOOKENDS PLUS 4.0 COMBINES two reference-management tools from Westing Software: Bookends Pro and Bookends Web (see *Reviews*, March 1995 and December 1996, respectively). With Bookends Plus, you can compile a library of citations that can be copied into a word processing document or published on the Internet.

Each Bookends database record contains 13 specialized fields for storing citations. You can enter references manually, or import them using one of several predefined formats. (You can even customize your own import templates.) The size of the database is limited only by disk space, although you may find it more convenient to store unrelated citations in separate files.

Bookends Plus provides two different search functions—simple and Boolean—that let you cull references from a database. Citations that meet your search criteria appear in a scrolling window called the Hits List. To insert references in a manuscript, you select one or more citations from the list and click on a button, bringing your word processor to the foreground. (If you're running a scriptable application such as Microsoft Word 6, the selected references are copied automatically; otherwise you have to paste them manually.)



Search Mode A search function lets you find references that meet several criteria, and you can save searches for later use.

When you're done, Bookends Plus scans the document for embedded citations and reformats them to conform to a specified publication style. Unfortunately, Bookends Plus reads only native WordPerfect files; with any other word processor, you have to save your document in RTF (interchange) format first. And Bookends Plus makes you save the finished bibliography in a separate file, instead of appending it to your document automatically.

Bookends Plus sports an eclectic interface that makes navigating windows and dialog boxes more cumbersome than it ought to be. To get the most out of Bookends Plus, you may need to keep the electronic manual open on your desktop, especially while you're learning to use the program.

On the positive side, Bookends Plus offers unique capabilities for publishing bibliographies on the Internet. If you want to include a formatted list of references on a Web page, Bookends Plus does all the HTML coding for you. There's even an option that lets others search or add references to your database over the Web if you're running a Mac-based Web server.

Macworld's Buying Advice If you want to create written documents with embedded citations, Niles & Associates' EndNote Plus 2.0 (*Reviews*, April 1995) offers seamless integration with more word processors than Bookends Plus, albeit at a higher cost. But if you need to publish interactive bibliographies on the Web, Bookends Plus 4.0 is an excellent value.—FRANKLIN TESSLER

RATING: ★★★/5.8 **PROS:** Inexpensive; Web publishing tools. **CONS:** Doesn't read most native word processor files; stores bibliographies separately. **COMPANY:** Westing Software (415/945-3870, *http://www.westinginc.com*). **LIST PRICE:** $129.

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Phantom 2.0

WEB CRAWLER LETS YOU BUILD YOUR OWN SEARCH PAGES

HOW DO SEARCH SITES SUCH AS AltaVista keep track of all the pages on the World Wide Web? No, not by employing Web-addicted elves to surf 24 hours a day. Search sites use *crawlers* (also called *robots* and *spiders*), automated programs that traverse the Web and compile a database along the way. But Web crawling isn't limited to systems like AltaVista's, which is built around a bank of workstations containing about a dozen 64-bit RISC processors, 10GB of RAM, and 250GB of hard-drive storage. With Maxum Development's Phantom 2.0, you can run a Web crawler on a Macintosh.

Phantom isn't a Web surfer's utility for offline browsing; rather, it's a Webmaster's tool for creating searchable indexes of Web sites. You can build a search page for your intranet, for your personal use, or to draw visitors to your site. Phantom also lets you perform maintenance chores, such as backing up a site or creating a site map. It runs on almost any Mac with at least 6MB of free RAM, but if you plan to index tens of thousands of pages, you'll want a dedicated (and well-endowed) Mac. A built-in Web server dishes out Phantom's pages, but it also works with separate servers.

My Agent Will Be in Touch Phantom 2.0 lets visitors create search agents. When the agent finds new or changed pages, Phantom sends them a message.

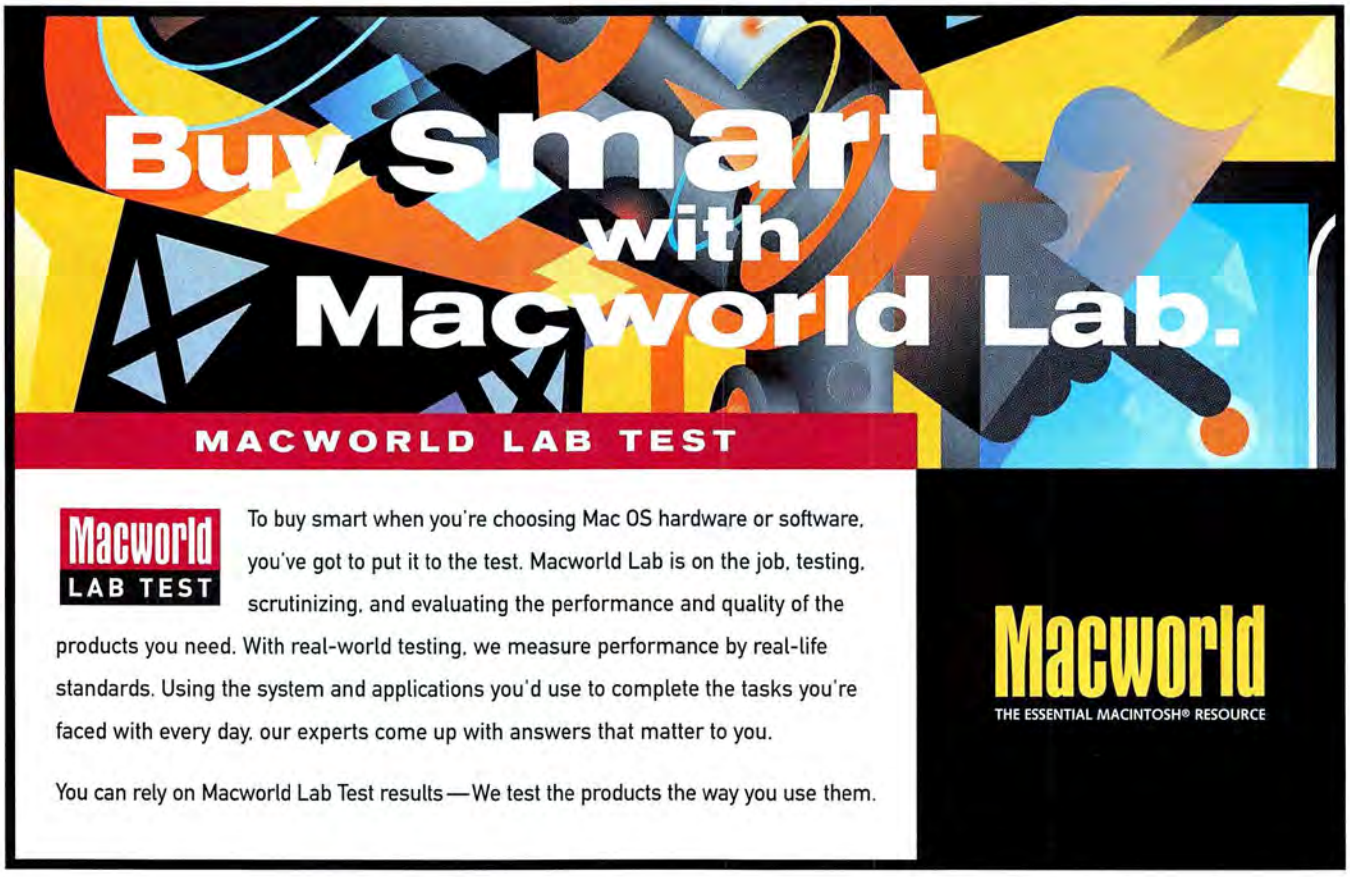
Phantom 2.0 builds on its predecessor with several enhancements (see "Send In the Robot," January 1997). You now control all aspects of Phantom's operation—including the lists of sites to index, the appearance of the search and results pages, and how often a site's index is updated—using a Web browser, so you can control Phantom and customize your search page from anywhere on the Web. Other new features let you display rotating ad banners and track hits, and Phantom now returns search results in the order it thinks is the most relevant. Even the manual is improved.

One of Phantom's coolest new tricks is that it lets visitors to your site create search agents that repeat a search session at specified intervals. When Phantom indexes new or changed pages that meet certain criteria, it informs those visitors by e-mail (see "My Agent Will Be in Touch").

In my tests, Phantom crashed periodically on a 680X0 Mac running System 7.6. Another bug, present on 680X0 and Power Macs alike, prevents you from using relative font sizes (for example, the **<font size=+1>** HTML tag) in Phantom's pages. Maxum promises a free fix for these bugs.

Macworld's Buying Advice Phantom 2.0.1 should be available by the time you read this; when it arrives, Phantom will be a must-have tool for building sophisticated search engines. Just don't forget to feed the elves.—JIM HEID

RATING: ★★★/6.9 **PROS:** Powerful feature set; excellent customizing features. **CONS:** Some bugs. **COMPANY:** Maxum Development (630/830-1113, *http://www.maxum.com*). **LIST PRICE:** $395.



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QuickStream Pro

WEB CONTROL WOVEN INTO REMOTE-ACCESS SERVER

TELECOMMUTING ON THE MACintosh used to be spelled A-R-A, but Apple Remote Access is difficult or impossible to use with multiple dial-in users and protocols such as IP and IPX. A more complete cross-platform telecommuting solution is Sonic Systems' QuickStream Pro. This remote-access server builds on the IP and AppleTalk capabilities of the earlier QuickStream/3 (see *Reviews*, April 1996) by adding IPX protocol support along with Web-based administration at the same low cost per port. It also improves on its predecessor's performance: in tests using three Motorola BitSurfr Pro ISDN terminal adapters (TAs), three simultaneous connections each carried a full 115 Kbps of traffic without bogging down.

You attach the QuickStream Pro directly to a 10BaseT LAN; three RS-232 serial ports let you attach asynchronous communications devices—modems or ISDN TAs—running at up to 115.2 Kbps. Web-based configuration eliminates the need for serial-port access: you simply set the IP address on a Macintosh to the QuickStream Pro's default IP network and point any Web browser at the QuickStream's default IP address. After setting the unit's actual IP values, you continue configuring the unit using your LAN's normal IP addressing scheme.

Web Administration The QuickStream Pro's built-in administrative Web server lets you use any Web browser for configuration and monitoring.

The remaining setup consists of configuring modems, enabling protocols, and registering users and passwords. The built-in Web server displays the status of each port, maintains the user database, and allows point-and-click configuration; a built-in error log simplifies troubleshooting.

LAN users can access the QuickStream Pro as a dial-out modem server using Stalker Software's PortShare extension. Dial-in users can install the supplied PPP (Point to Point Protocol) client software on remote Macs, or use Apple's Open Transport PPP or a third-party PPP dialer. Windows users can use the Microsoft Remote Access Server PPP dialer such as FreePPP. Because Sonic's bundled PPP dialer supports IP, IPX, and AppleTalk simultaneously, it may be all you need. Although the QuickStream Pro supports only one user per dial-up connection, you can run routing software at a remote site to use the QuickStream as a LAN-to-LAN router.

Macworld's Buying Advice Nothing is as versatile and easy to use as the QuickStream Pro for giving small groups telecommuting access. Its Web interface makes administration a snap from anywhere in the world; its dial-out capabilities let it double as a shared modem pool; and its IPX support means it can serve Windows and Novell NetWare users.—MEL BECKMAN

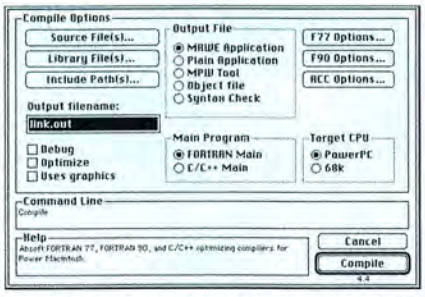
RATING: ★★★★/8.4 **PROS:** Low price per port; Web administration; supports IP, IPX, and AppleTalk protocols; dial-out capabilities; improved diagnostics and performance. **CONS:** Dial-out software not included. **COMPANY:** Sonic Systems (408/736-1900, *http://www.sonicsys.com*). **LIST PRICE:** $999.

Pro FORTRAN 5.0

A FAST LANGUAGE FOR BIG SCIENCE

JAVA MAY BE THE HOT COMPUTER language of the nineties, but you wouldn't know it to look at business and government sites; in the real world, older languages like COBOL and FORTRAN are still doing much of the day-to-day work at banks, government labs, and NASA. In big-project scientific and numeric calculation, for example, the ancient FORTRAN language in one of its newer forms—FORTRAN 77 or FORTRAN 90—is still grinding away on optimized legacy code.

Source code originally written for Cray and Fujitsu supercomputers can now run without serious modification on a Mac using Absoft's latest Pro FORTRAN package. This formidable suite includes compilers for FORTRAN 77, the more modern FORTRAN 90, and the thoroughly modern C/C++ (optimized for use in the MPW Shell); IMSL's FORTRAN numerics and statistics libraries, the best available for any language, are available as an option. All this magnificence takes a little more programming background to put into action than the new CodeWarrior-adapted LS FORTRAN from Fortner Research (see *Reviews*, February 1996), but compiled code runs two to three times faster with Absoft—and for most FORTRAN users, speed of executables is the number one consideration.



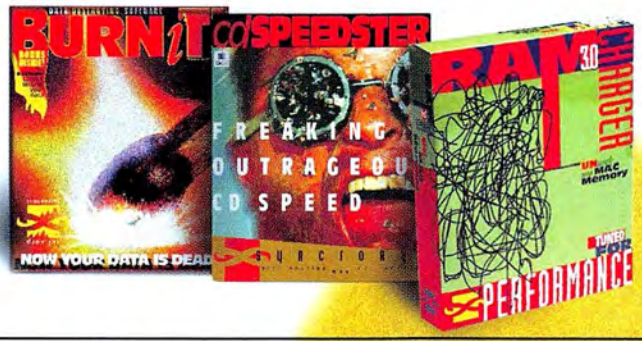
Boxed In A simple dialog box in Pro FORTRAN controls all sorts of powerful options, including specific compilation optimization for the 604e.

The program makes itself practically invisible: you simply install it, set a few options, and watch the Pro FORTRAN compiler devour your source code (see "Boxed In"). On four benchmarks—two of my own and two industry-standard SPECmark routines—the compiled code running on a 604e-based Mac executed roughly twice as fast as the same programs compiled in LS FORTRAN. The Absoft product also breezed through a grueling test pastiche of combined C and FORTRAN code.

As a language that started life when RAM was measured in 4KB chunks, FORTRAN has a huge bag of optimization tricks and is the topic of many reference books—and the new FORTRAN-based teaching language F suggests that FORTRAN will have some big-computer tasks all to itself for at least another decade.

Macworld's Buying Advice Mac loyalists in the science community will find plenty to like in the latest Pro FORTRAN. LS FORTRAN's more modern, color-coded editor (Absoft's language is still tied to Apple's MPW Shell) and slightly faster compilation give it an edge for new users, but Pro FORTRAN produces faster compiled programs and has a better debugger for FORTRAN-specific optimization methods. If you're porting workstation or supercomputer FORTRAN code to a Mac, in most cases Absoft Pro FORTRAN 5.0 will be the better choice for execution speed. And for FORTRAN 90 code on the Mac, it's your *only* choice.—CHARLES SEITER

RATING: ★★★★/7.4 **PROS:** Superior performance of compiled code; few Mac porting modifications. **CONS:** Some popular editor features missing. **COMPANY:** Absoft (810/853-0050, *http://www.absoft.com*). **LIST PRICE:** $899.



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Star Ratings

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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

★★★★/8.9 **Analytica,** Decisioneering, 303/534-1515, $795. Financial-modeling tool helps you assess business decisions. *Mar 97, p. 72*

★★/4.2 **Ascend 4.0,** Franklin Quest, 801/975-1176, $99.95. Information manager isn't competitive with other PIMs. *Apr 97, p. 72*

★★★★/7.9 **Big Business 2.0,** Big Software, 408/725-7200, $199 to $999. All-in-one business application integrates sales, marketing, ordering, and accounting. *Jan 97, p. 64*

★★★★/8.1 **Claris Organizer 2.0,** Claris, 408/727-8227, $69. Solid upgrade is worth the wait. *Jan 97, p. 62*

★★★/5.4 **Day-Timer Organizer 2.1,** Day-Timer Technologies, 415/572-6260, $79.95. All-in-one PIM improved, but not perfect. *Mar 97, p. 72*

★★/3.8 **ePaper 1.5,** Second Glance Software, 360/692-3694, $169. Offers some markup tools, but if you're serious about OCR, invest in a dedicated package. *Jun 97, p. 64*

★★★/6.9 **Mariner Write 1.3,** Mariner Software, 502/222-6695, $69.95. Word processor stresses speed and elegance. *Mar 97, p. 63*

★★★★/8.5 **MYOB Accounting 7,** BestWare, 201/586-2200, $89.95 to $139.95. Entry-level accounting package combines ease of use and power. *May 97, p. 69*

★★★★/8.6 **Now Contact and Up-to-Date 3.6.5,** Now Software, 503/274-2800, $99.95. Personal info-management duo gets connected to the Net. *Jun 97, p. 70*

★★★★/8.9 **Personal RecordKeeper 4.0,** Nolo Press, 510/549-1976, $49.95. Database helps you keep tabs on personal information. *Mar 97, p. 83*

★★★★/7.6 **PowerBuilder 5.0,** PowerSoft, 508/287-1500, $2995. Key cross-platform database tool puts Mac's SQL skills on par with Unix and NT. *Apr 97, p. 70*

★★★/6.9 **Quicken Business Law Partner 2.0,** Parsons Technology, 319/395-9626, $49. Suffices if you want to get the job done with a minimum of fuss. *Feb 97, p. 84*

★★★★/8.7 **Quicken Deluxe 7.0,** Intuit, 520/295-3220, $59.95. Indispensable financial manager. *Feb 97, p. 64*

★★★★/7.4 **Scripter 2.0,** Main Event Software, 202/298-9595, $199. Easy way to make CGIs work on a Mac-based Web site. *Apr 97, p. 74*

★★★★/7.6 **Small Business Legal Pro Deluxe 2.0,** Nolo Press, 510/549-1976, $59.95. A great value if you want to be fully informed. *Feb 97, p. 84*

★★★/5.1 **TakeNote 1.0,** Academix Software, 415/493-3003, $79.95. Reference tool goes halfway to replacing the familiar index card. *Jan 97, p. 88*

★★★★/7.1 **Timeslips 4.0,** Timeslips, 214/248-9232, $299.95. Time-tracking and -billing package is unnecessarily complex. *Jan 97, p. 86*

★★★/5.0 **ViewOffice PowerSuite,** NewSoft, 510/445-8600, $79. Inexpensive scanning with solid image-editing tools but unimpressive OCR features. *Jun 97, p. 64*

GRAPHICS

★★/4.8 **3D WalkAround 1.0,** Abracadata, 541/342-3030, $99.99. Unsuitable for architectural projects, but fine for simple interior space planning. *Jun 97, p. 81*

★★★★/7.1 **Adobe Illustrator 6.0.1,** Adobe Systems, 415/961-4400, $595. Efficient, well-organized drawing program doesn't surpass FreeHand 5.5. *Jan 97, p. 112*

★★★/5.7 **Canvas 5.0,** Deneba, 305/596-5644, $599.95. Midrange graphics program has professional price. *Jan 97, p. 112*

★★/4.8 **Chromatica,** Chroma Graphics, 415/375-1100, $149.95. Handy but limited Photoshop plug-in. *Feb 97, p. 80*

★★★★/7.0 **ColorWeb 1.0,** Pantone, 201/935-5500, $29.95. Simple, inexpensive color picker and swatch book move to the Web. *May 97, p. 84*

★★/4.6 **CorelDraw 6 Suite,** Corel, 613/728-8200, $595. Graphics suite lacks solid image-editing and drawing programs. *Jan 97, p. 112*

★★★/6.3 **DesignWorkshop 1.5,** Artifice, 541/345-7421, $595. Low-end modeler offers excellent modeling tools. *Apr 97, p. 74*

★★★★/8.9 **Detailer,** Fractal Design, 408/430-4000, $449. Wonderful imaging tool lets you paint directly on 3-D models. *Feb 97, p. 72*

★★★★/8.6 **Expression 1.0,** Fractal Design, 408/688-5300, $449. Object-oriented natural-media drawing arrives—at last. *Mar 97, p. 50*

★★★★/8.1 **Extreme 3D 2.0,** Macromedia, 415/252-2000, $399. Great 3-D design program for print, animation, Web, and multimedia. *Apr 97, p. 70*

★★★★/8.7 **FreeHand 7,** Macromedia, 415/252-2000, $399. Near-perfect draw program. *Feb 97, p. 56*

★★★★/7.9 **FreeHand Graphics Studio 7,** Macromedia, 415/252-2000, $449. Suite provides professional-level power at an affordable price. *Feb 97, p. 56*

★★★★/8.3 **Full Pixel Search 2.0,** Avian Systems, 201/568-9494, $295. Image-analysis program finds a pixel in a haystack. *Mar 97, p. 84*

★★★★/7.9 **Infini-D 3.5,** Specular, 413/253-3100, $649. Approachable, practical mix of 3-D design

continues

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Star Ratings

ingredients. *Jan 97, p. 70*

★★★★/8.3 **Kai's Power Goo,** MetaTools, 805/566-6200, $49.95. Family image-editing software that pros will use. *Jan 97, p. 84*

★★★★/8.1 **Macromedia FreeHand 5.5,** Macromedia, 415/252-2000, $595. Draw program outperforms all competitors. *Jan 97, p. 112.* Editors' Choice for best illustration software.

★★★★/8.3 **Photoshop 4.0,** Adobe Systems, 415/961-4400, $895. New version cements image editor's position as the top product. *Feb 97, p. 132*

★★★/5.7 **PhotoTools 1.0,** Extensis, 503/274-2020, $99.95. Useful Photoshop plug-in. *Feb 97, p. 80*

★★★★/8.1 **Poser 2.0,** Fractal Design, 408/430-4100, $249. Human models in 3-D (clothing optional). *Mar 97, p. 76*

★★/4.4 **Power/Pac 1,** Auto F/X, 603/875-4400, $249. Macros for Photoshop are useful but restrictive. *Feb 97, p. 80*

★★★★/8.2 **PowerCADD 3.0,** Engineered Software, 910/299-4843, $795. Fast, pro-level drafting program gets some refinements. *Jan 97, p. 74*

★★★★/8.9 **ScanPrepPro 3.1,** ImageXpress, 770/564-9924, $695. Photoshop plug-in puts image processing on autopilot. *Mar 97, p. 80*

★★★/6.5 **Stencil It 1.0,** Kaetron Software, 713/298-1500, $99. Low-cost program is good for charts, but not for art. *Jan 97, p. 72*

★★★★/7.4 **TurboCAD 2D/3D 3.0,** IMSI, 415/257-3000, $149. Nearly high-end CAD program with educational-software price. *Dec 96, p. 61*

★★★★/7.5 **WalkThrough Pro 2.6,** Virtus, 919/467-9700, $495. Best choice to quickly and elegantly create an architectural walk-through. *Jun 97, p. 81*

★★★★/8.7 **xRes 3,** Macromedia, 415/252-2000, $399. Ho-hum image editor. *Feb 97, p. 56*

INTERNET/NETWORKING

★★★/6.5 **3-D Website Builder,** Virtus, 919/467-9700, $159. VRML authoring program is straightforward but limited. *Feb 97, p. 82*

★★★/6.6 **ActionLine 1.1,** Interactive Media, 415/948-0745, $99. Beginners can add pizzazz to Web pages without Java programming. *Apr 97, p. 76*

★★★★/7.7 **Adobe PageMill 2.0,** Adobe Systems, 408/536-6000, $149. WYSIWYG approach to Web design is appealing and efficient. *Feb 97, p. 58*

★★★★/7.0 **Bolero,** EveryWare Development, 905/819-1173, $995 to $4995. Best tool for gathering demographics from your Web site; expensive. *Apr 97, p. 68*

★★★★/7.0 **Claris Home Page 2.0,** Claris, 408/727-8227, $99. Web authoring tool is great for building small to medium-size sites. *May 97, p. 56*

★★★★/8.1 **CommuniGate 2.8,** Stalker Software, 415/383-7164, free (5 users) up to $600 (200 users). Fast, reliable multimedia messaging suite adds new features. *Jun 97, p. 86*

★★★★/7.8 **CyberFinder 2.0,** Aladdin Systems, 408/761-6200, $30. Unobtrusive, small, and incredibly stable URL manager. *Mar 97, p. 58*

★★★★/7.0 **CyberPress 1.0,** Extensis, 503/274-2020, $149. QuarkXPress-to-HTML conversion on a budget. *Mar 97, p. 78*

★★★★/7.3 **Dave 1.0,** Thursby Software Systems, 817/478-5070, $179. Painless Mac file sharing on Windows networks. *May 97, p. 72*

★★★★/7.0 **DragNet 1.1.4,** OnBase Technology, 714/830-5682, $39.95. While good for managing huge URL lists, software is a RAM hog. *Mar 97, p. 58*

★★★/5.3 **FileMaker Pro CGI,** Claris, 408/987-7000, free. Slow and inflexible FileMaker Pro Web publishing tool. *Apr 97, p. 114*

★★★★/7.6 **FirstClass 3.5,** SoftArc, 905/415-7000, $495. To create a complete e-mail community, this package is the way to go. *Mar 97, p. 48*

★★/4.1 **Globetrotter 1.1,** Akimbo Systems, 617/776-5500, $99. Web tool avoids HTML but has stability problems. *Apr 97, p. 66*

★★/4.2 **HoTMetaL Pro 3.0,** SoftQuad, 416/544-9000, $159. Dramatically improved Web editor is powerful but still quirky. *Feb 97, p. 58*

★★★/6.8 **HTML Grinder 3.04,** Matterform Media, 505/983-4189, $149. Tools automate site-management chores. *Mar 97, p. 76*

★★/4.9 **Insta.html 1.0,** Trailer Parc Technologies, 415/248-1350, $179. Overpriced plug-in has trouble with FreeHand-to-Web conversion. *May 97, p. 82*

★★★★/7.3 **Internet Phone 3.0.1,** VocalTec, 201/768-9400, $49.95. Lets you make low-cost calls over the Internet. *Jan 97, p. 68*

★★★★/7.2 **Lasso 1.1,** Blue World Communications, 206/313-1051, $299. Lasso successfully ties FileMaker Pro databases to the Web. *Apr 97, p. 114.* Editors' Choice for best Web Database.

★★★/6.5 **Lasso Lite 1.0.6,** Blue World Communications, 206/313-1051, free. FileMaker Pro Web publishing tool is fast and free. *Apr 97, p. 114*

★★★/6.7 **Marionet 1.1.1,** Allegiant Technologies, 619/587-0500, $149. Flexible scripting and search tool for authoring environments, but it requires significant programming knowledge. *Jan 97, p. 152*

★★★★/7.1 **NetObjects Fusion 1.0,** NetObjects, 415/482-3200, $695. Delivers precise positioning of Web page elements; no spelling checker. *May 97, p. 60*

★★★/6.9 **PageSpinner 1.2.2,** Optima System, *http://www.algonet.se/~optima/pagespinner.htm,* $25. Great tool for creating Web pages—especially for novice users. *Mar 97, p. 54*

★★★/6.0 **Quarterdeck Mail 4.0,** StarNine Technologies, 510/649-4949, $395 server; $245, 5-user pack. Cost-effective, all-in-one e-mail solution. *Mar 97, p. 48*

★★★/6.6 **QuickMail Pro 1.0,** CE Software, 515/221-1801, $69.95 to $3449.95. E-mail system has a good basic feature set. *Mar 97, p. 48*

★★/3.6 **QuickSite 1.0,** DeltaPoint, 408/648-4000, $99.95. Clunky interface hobbles potential Web-design powerhouse. *Mar 97, p. 68*

★★★/6.5 **ROFM 4.1,** Russell Owen, *http://rowen.astro.washington.edu,* free. Web publishing freeware with more features, but needs modification. *Apr 97, p. 114*

★★★★/7.5 **RunShare 2.1,** RUN, 201/529-4600, $399 (2 users) up to $2499 (25 users). AppleTalk network tool revs up file transfers by 250 to 400 percent. *Jun 97, p. 86*

★★★★/8.0 **Surfboard 1.0,** Abbott Systems, 914/747-3116, $39. Intuitive URL manager looks like a TV's remote control. *Mar 97, p. 58*

★★★★/7.3 **Tango for FileMaker Pro 2.1.1,** EveryWare Development, 905/819-1173, $349. No faster way to Web-enable a FileMaker Pro database. *Apr 97, p. 114.* Editors' Choice for best Web Database.

★★★★/7.2 **Visual Cafe 1.0,** Symantec, 541/334-6054, $199.95. Faster, easier Java coding, great for creating applets from scratch. *May 97, p. 67*

★★★★/7.2 **Visual Page 1.0,** Symantec, 541/334-6054, $99.95. Web authoring tool has polished features and is easy to use. *May 97, p. 56*

★★★★/8.2 **Web Quick 1.2.1,** Europa Software, 503/417-2900, $49.95. Convenient URL manager follows your trail as you browse. *Mar 97, p. 58*

★★★/6.7 **Web Squirrel 1.06,** Eastgate Systems, 617/924-9044, $49. RAM-hungry URL manager is a powerful organizer. *Mar 97, p. 58*

★★★★/7.0 **Web-FM 3.0,** Web Broadcasting, 415/329-9676, $245. FileMaker Pro Web integration tool is strong and fast but hard to learn. *Apr 97, p. 114*

★★★★/7.7 **WebStar 2.0,** StarNine Technologies, 510/649-4949, $795. Web server is better, stronger, faster. *Apr 97, p. 62*

★★★/6.8 **World Wide Web Weaver 2.0.2,** Miracle Software, 315/265-0930, $89. Web-authoring tool is particularly good at editing existing pages. *Mar 97, p. 54*

MEDIA

★★★/6.2 **Acrobat 3.0,** Adobe Systems, 408/536-6000, $295 to $1595. New features still limit use of this portable document program. *Apr 97, p. 52*

★★★★/7.1 **Adobe Persuasion 4.0,** Adobe Systems, 408/536-6000, $395. Presentation application makes the leap to the Web. *Mar 97, p. 52*

★★★★/8.5 **Aurorix 2.0,** DigiEffects, 415/841-9901, $289. From aged film to earthquakes, Aurorix's 26 usable effects are creatively designed. *May 97, p. 118.* Editors' Choice for best After Effects plug-ins.

★★★★/8.1 **Berserk 1.3,** DigiEffects, 415/841-9901, $289. This After Effects plug-in has great fog, blizzard, laser, and star-field effects. *May 97, p. 118.* Editors' Choice for best After Effects plug-ins.

★★★★/7.7 **Boris Effects 2.1 MP,** Artel Software, 617/451-9900, $350 to $695. Best Adobe Premiere and Media 100 plug-in; adds motion graphics, keying, and transition effects. *May 97, p. 118.* Editors' Choice for best Premiere and Media 100 plug-ins.

★★★/6.8 **ClickWorks 1.0.2,** Pitango, 617/280-7163, $985. Presentation program is a solid choice. *Feb 97, p. 74*

★★★★/7.5 **Cyclonist 1.0,** DigiEffects, 415/841-9901, $495. This particle-generation specialist is a complex After Effects plug-in. *May 97, p. 118*

★★★/6.7 **Digital Chisel://HTML 2.1.3,** Pierian Spring Software, 503/222-2044, $109 to $995. Multimedia authoring doesn't make it on the Web. *Jan 97, p. 78*

★★★/6.4 **Dynamic Effects 1.0,** Gryphon Software, 619/536-8815, $119. A solid but uninspiring filter plug-in collection for Adobe Premiere. *May 97, p. 118*

★★★★/8.3 **Final Effects AP 1.0,** MetaTools, 805/566-6200, $199. Ideal for Adobe Premiere-based particle generation and distortion. *May 97, p. 118*

★★★★/8.2 **HoloDozo 1.0,** M.M.M. Software, *holodozo@mmmsoft.com,* $149. Novel Adobe Premiere plug-in has a clever interface, uses QuickDraw 3D. *May 97, p. 118*

★★★★/8.9 **KPT Final Effects 3.0.1,** MetaTools, 805/566-6200, $695. This superb effects collection works with Adobe After Effects. *May 97, p. 118*

★★★★/8.9 **Lens Flare Pack 1.5,** Knoll Software, 415/453-2471, $129. This After Effects plug-in generates unmatched lens flare effects. *May 97, p. 118.* Editors' Choice for best After Effects plug-ins.

★★★/6.7 **LightWave 3D 5.0,** NewTek, 303/448-9700, $1495. Pro-level animation program lacks interface elegance. *May 97, p. 74*

★★★★/7.4 **Movie Cleaner Pro 1.2.1,** Terran Interactive, 408/278-9025, $189.95. First-rate movie compression utility is a must-have. *Jan 97, p. 81*

★★★★/7.2 **MovieFlo' 2.0.2,** The Valis Group, 415/435-5404, $699. Image-distortion software for pros. *Jan 97, p. 92*

★★★/5.5 **MovieStar 1.5,** Intelligence at Large, 215/387-6002, $149.95. Easy QuickTime moviemaking and animation for the Internet. *Feb 97, p. 92*

★★★/5.4 **MovieTools 1.5,** McQ Productions, 415/348-1344, $195. Simple, precise QuickTime movie

processing. *Apr 97, p. 72*

★★★★/7.3 **mTropolis 1.1,** mFactory, 415/548-0600, $1195. Sophisticated authoring environment is a terrific tool for game developers. *Feb 97, p. 74*

★★★/6.6 **Nisus Writer 5.0,** Nisus Software, 619/481-1477, $249. Renegade word processor is long on innovation, short on basics. *Apr 97, p. 56*

★★★/6.8 **PageMaker 6.5,** Adobe Systems, 408/536-6000, $895 (estimated). Even with a wealth of new features, still can't beat QuarkXPress. *May 97, p. 48*

★★★★/7.8 **QX-Tools 2.0,** Extensis, 503/274-2020, $99.95. Winning collection of XTensions gets even better. *Mar 97, p. 65*

★★★★/8.4 **Studio Effects 1.0,** MetaTools, 805/566-6200, $695. Adobe After Effects plug-ins include 3-D particle generator and great spotlight effects. *May 97, p. 118*

★★★★/7.0 **SuperCard 3.0,** Allegiant Technologies, 619/587-0500, $329 (estimated). Veteran authoring tool gets a cool Web plug-in; a few Web-related bugs. *May 97, p. 58*

★★★/6.4 **TransFX 1.0,** DigiEffects, 415/841-9901, $45. Inexpensive and fun transition collection for Adobe Premiere. *May 97, p. 118*

★★★★/7.5 **TypeCaster 2.0,** Xaos Tools, 415/538-7000, $199. 3-D text plug-in renders beautiful text that you can animate. *May 97, p. 118*

★★★/6.8 **Ultimatte for Macintosh 2.0,** Ultimatte, 818/993-8007, $1495. Complex, costly plug-in does an unmatched job of keying. *May 97, p. 118*

★★★/6.3 **UniQorn 1.2,** SoftPress Systems, 415/331-4820, $895. Easily turns print into Java-powered Web pages; features still a bit sluggish. *Apr 97, p. 58*

★★★★/8.8 **Video SpiceRack 1.0,** Pixélan Software, 360/647-0112, $179. Novel plug-in collection has more than 300 transition and effect gradients. *May 97, p. 118*

UTILITIES

★★★★/7.5 **Adobe Type Manager Deluxe 4.0,** Adobe Systems, 408/536-6000, $99.95. The new ATM has font substitution and antialiasing. *Jun 97, p. 58*

★★★/6.8 **Adobe Type Reunion Deluxe 2.0,** Adobe Systems, 408/536-6000, $60. This font-menu manager has cool features but isn't as good as TypeTamer. *Jun 97, p. 58*

★★★/6.7 **After Dark 4.0,** Berkeley Systems, 510/540-5535, $30 to $40. Glitzier, but not necessarily better, than previous versions. *Feb 97, p. 76*

★★★★/7.5 **Audiotracer 1.0,** Optical Media, 408/376-3511, $99. CD-R mastering program designed for creating audio CDs. *Apr 97, p. 76*

★★★/6.0 **Burn It 1.0,** Syncronys Softcorp, 213/340-4100, $29.95. Inexpensive but flawed security suite. *Apr 97, p. 69*

★★★★/7.6 **CanOpener 3.5,** Abbott Systems, 914/747-4171, $65. Reliably recovers text and graphics from damaged files. *Feb 97, p. 88*

★★★★/8.3 **CodeWarrior 10 Gold,** Metrowerks, 512/873-4700, $399. Programming environment has an impressive collection of new touches. *Feb 97, p. 76*

★★★★/7.6 **Cumulus Desktop 3.0,** Canto Software, 415/905-0300, $99.95. Affordable multimedia database offers power and a superior interface. *Jun 97, p. 68*

★/1.8 **Executor 2.0,** Abacus Research & Development, 505/766-9115, $249. Mac emulator for PCs falls far, far short. *Feb 97, p. 78*

★★★/6.8 **Fetch 1.5,** Extensis, 503/274-2020, $99.95. Multimedia database has cool features but lacks flexibility and ease of use. *Jun 97, p. 68*

★★/3.0 **Front Office 1.6 LE,** STF Technologies, 816/220-0100, $59. A bad temp wouldn't garble your phone messages this badly. *Jun 97, p. 66*

★★★/5.7 **InfoGenie 2.0,** Casady & Greene, 408/484-9228, $79.95. Updated information manager adds links to Web browsers. *Jun 97, p. 84*

★★/3.8 **Internet Voice Mail 3.0,** VocalTec, 201/768-9400, $29.95. Internet Voice Mail has limited functionality and is full of bugs. *May 97, p. 80*

★★★★/8.8 **LetterRip 1.0.2,** Fog City Software, 408/454-1405, $295. Mailing-list server is simpler and cheaper than ListStar. *Jun 97, p. 77*

★★★★/8.3 **ListStar 1.1,** StarNine Technologies, 510/649-4949, $499. Serious mailing-list management with industrial-strength tools. *Jun 97, p. 77*

★★★★/7.2 **MAE 3.0,** Apple Computer, 408/996-1010, $459. Mac-in-the-box for Unix workstations. *Jun 97, p. 73*

★★★/6.4 **Now Utilities 6.5,** Now Software, 503/274-2810, $89.95. Incremental feature upgrades are no substitute for stability. *Mar 97, p. 74*

★★★★/7.2 **OmniPage Pro 7.0,** Caere, 408/395-7000, $499. OCR package has improved interface but not accuracy. *Jun 97, p. 83*

★★★/6.6 **Online Army Knife 1.2,** JEM Software, 303/422-4766, $69.95. Add-on spelling checker is fast and Internet-savvy but has some rough edges. *Jun 97, p. 62*

★★★★/8.1 **QUED/M 3.0.1,** Nisus Software, 619/481-1477, $119. Power editor for programmers. *Jan 97, p. 94*

★★★/6.4 **SAM 4.5,** Symantec, 408/253-9600, $69.95. Industrial-strength virus protection. *Feb 97, p. 86*

★/2.6 **SpeechPrompter,** Orator Company, 619/420-9150, $89.95. Prompter software's jerky scrolling makes index cards look good. *Jun 97, p. 88*

★★★★/7.2 **Speed Doubler 2.0.1,** Connectix, 415/571-5100, $99. Upgrade boosts network transfer times, same speed as prior versions. *May 97, p. 52*

★★/4.8 **Spellswell Plus 2.1.1,** Working Software, 408/423-5696, $14.95. Add-on spelling checker doesn't live up to its name. *Jun 97, p. 62*

★★★/6.0 **SpellTools 1.2.1,** Newer Technology, 316/943-0222, $19.95. Add-on spelling checker has text-to-speech feature but no interactive checking. *Jun 97, p. 62*

★★/4.0 **Startup Manager 7.0,** Now Software, 503/274-2810, $55. Extension-management tool simply can't compare to the competition. *Mar 97, p. 61*

★/2.7 **StellarFax 1.1,** TechPool, 216/291-1922, $249. Sends inferior-quality faxes faster. *Feb 97, p. 90*

★★/4.6 **Turbo Toolkit 1.0,** FWB Software, 415/463-3500, $79. Disk utility offers minor speedup. *Mar 97, p. 74*

★★★★/8.8 **Virex 5.7,** Datawatch, 508/988-9700, $99. Great virus-detection features, checks downloaded Internet files for viruses. *May 97, p. 78*

★★★★/8.0 **Wingz 2.1.1,** Investment Intelligence Systems Group, 913/663-4472, $399. Powerful programming tool disguised as a spreadsheet. *May 97, p. 71*

★★★/6.5 **Working Papers,** Dominion Software, 617/332-1144, $199.95. Manage your documents with OCR program and document organizer. *Feb 97, p. 94*

Hardware

DIGITAL CAMERAS

★★/3.9 **Casio QV-100,** Casio, 201/361-5400, $599. Camera produces poor-quality images with blown highlights. *Mar 97, p. 112*

★★★/5.8 **Casio QV-10A,** Casio, 201/361-5400, $399. Blown highlights and color cast problems mar images from camera. *Mar 97, p. 112*

★★★/6.6 **D-200L,** Olympus Image Systems, 516/844-5000, $599. Digital camera offers good image quality and a built-in flash. *Mar 97, p. 112*

★★/4.6 **DC20,** Kodak, 716/724-4000, $350. Pint-size camera contains no extras whatsoever. *Mar 97, p. 112*

★★★/6.8 **DC50,** Kodak, 716/724-4000, $979. Good color, expandability, and an excellent zoom lens set the DC50 apart. *Mar 97, p. 112.* Editors' Choice for best entry-level digital cameras.

★★★/6.0 **Epson PhotoPC,** Epson, 310/782-0770, $499. Digital camera's viewfinder doesn't show the whole image. *Mar 97, p. 112*

★★★★/7.1 **Fuji DS-7,** Fuji Photo Film, 914/789-8100, $699. Camera makes framing and reviewing photographs child's play. *Mar 97, p. 112.* Editors' Choice for best entry-level digital cameras.

★★★★/7.9 **PDC-2000-40,** Polaroid, 716/256-4436, $3695. Digital camera is difficult to use and not inexpensive, but produces extremely high-quality images. *Mar 97, p. 112.* Editors' Choice for best entry-level digital cameras.

★★★/6.2 **QuickTake 150,** Apple Computer, 408/996-1010, $739. Oversized camera quickly downloads images. *Mar 97, p. 112*

★★★/5.8 **RDC-2,** Ricoh, 702/352-1600, $999. Fair-to-middling image quality detracts from this camera's extras. *Mar 97, p. 112*

INPUT DEVICES

★★★★/8.9 **3M Precise Mousing Surface,** 3M, 612/733-1110, $15. Throw out your neoprene pad and treat your mouse to a deluxe surface. *Jan 97, p. 56*

★★★★/8.5 **AlphaSmart Pro 2.1,** Intelligent Peripheral Devices, 408/252-9400, $269. Intelligent keyboard works as stand-alone input device. *Mar 97, p. 82*

★★★/5.2 **GlidePoint Keyboard,** Alps Electric, 408/432-6000, $139.95. Keyboard offers full set of keys with intuitive touchpad. *Apr 97, p. 60*

★★★/6.6 **NoHands Mouse,** Hunter Digital, 310/471-5852, $199.95. Foot-operated mouse offers a hands-free alternative. *Jun 97, p. 83*

★★★/5.5 **Stingray 4.0,** CoStar, 203/661-9700, $55. Trackball offers flexible design but limited programmability. *Feb 97, p. 70*

★★★/5.9 **TrackBoard and NumPad,** Datadesk, 206/842-5480, $99.95 to $139.95. Keyboard has a separate numeric keypad but only a small trackball. *Apr 97, p. 60*

★★★/5.2 **TrackMan Marble,** Logitech, 510/795-8500, $99. Restrictive design and unimpressive software. *Feb 97, p. 70*

★★★★/8.5 **Turbo Mouse 5.0,** Kensington, 415/572-2700, $110. MouseWorks software makes programmable trackball a standout. *Feb 97, p. 70*

MISCELLANEOUS HARDWARE

★★★★/7.0 **Apex,** Pinnacle Micro, 714/789-3000, $1995. King-size magneto-optical drive offers respectable speeds. *Apr 97, p. 54*

★★★★/7.5 **DynaTek CDM 4001,** DynaTek Automation Systems, 902/832-3000, $2889. Hard drive/CD-R combo unit simplifies CD-ROM mastering. *Mar 97, p. 78*

★★★/5.1 **FM Radio 1.1,** La Cie, 503/520-9000, $49.95. If you want to listen to the radio, you're better off buying a boom box. *Jun 97, p. 90*

★★★★/7.8 **Pilot,** Palm Computing, 415/237-6000, $249 to $299. Pocket PDA is small, swift, and sweet. *Apr 97, p. 48*

★★/4.7 **Pippin @World,** Bandai Digital Entertainment, 310/404-1600, $499.99; $69.99 for keyboard. Costly Internet-connection and games device has poor image quality. *May 97, p. 64*

★★★★/7.8 **Sagem Planet ISDN GeoPort Adapter,**

continues

Star Ratings

Sagem, 408/446-8693, $395. ISDN terminal adapter breaks serial port speed barrier. *Mar 97, p. 66*

★★★/6.4 **WebRamp,** Trancell Systems, 408/988-5353, $899. ISDN router is easy to use, but missing some features. *Mar 97, p. 70*

★★★/6.8 **WebTV Internet Terminal,** Sony, 888/772-7669, $349.95; $79.95 for keyboard. Expensive, easy-to-use Internet-connection device has nice interface. *May 97, p. 64*

MODEMS/NETWORKS

★★★★/8.8 **4-Sight Fax 4.0,** 4-Sight Technologies, 515/221-3000, $795 for ten users. Flexible, reliable faxing on your network. *Apr 97, p. 57*

★★★/6.5 **DataShuttle 256,** RNS, 805/968-4262, $1395. Card allows superfast, two-line ISDN file transfers. *Jun 97, p. 75*

★★★★/8.6 **InterJet,** Whistle Communications, 415/577-7000, $1995 to $2395. All-in-one hardware-and-software combo gets your office on the Internet. *Jun 97, p. 60*

★★/4.8 **MultiModemZDXV,** Multi-Tech Systems, 612/785-3500, $269. Expensive average-performing 33.6-Kbps modem, no Mac software. *Apr 97, p. 123*

★★★/5.3 **MV.34MA,** Boca Research, 561/997-6227, $236. Cheap 33.6-Kbps modem offers fast, easy internet hookup. *Apr 97, p. 123*

★★★★/8.3 **Network Server 700/200,** Apple Computer, 408/996-1010, $11,800. Server offers networking horsepower and high-speed I/O. *May 97, p. 54*

★★★/6.6 **Quicktel II-C 33X-ASP-C-M,** Logicode Technology, 805/383-2500, $319. Fast 33.6-Kbps modem with innovative design, but a bit expensive. *Apr 97, p. 123*

★★/4.5 **SmartLink 3334AV,** Archtek America, 818/912-9800, $209. Poorly performing, reasonably priced 33.6-Kbps modem. *Apr 97, p. 123*

★/2.7 **SmartOne 336FLXMac,** Best Data Products, 818/773-9600, $179. Inexpensive 33.6-Kbps modem is one of the slowest. *Apr 97, p. 123*

★★★★/7.1 **Sportster 28.8/33.6 Faxmodem,** U.S. Robotics, 847/676-7010, $179 (estimated price). Affordable 33.6-Kbps modem offers best performance. *Apr 97, p. 123.* Editors' Choice for best 33.6-Kbps fax modem.

★★★★/7.0 **Supra Simple Internet 33.6 1.0,** Diamond Multimedia, 360/604-1400, $159.95. Modem makes Internet access quick and easy. *Jan 97, p. 90*

★★★/6.7 **SupraSonic 336V+,** Diamond Multimedia Systems, 360/604-1400, $249 (estimated price). Full-featured 33.6-Kbps modem isn't cheap but is really fast. *Apr 97, p. 123*

★★★/6.5 **TelePort Internet Edition 33.6,** Global Village Communication, 408/523-1000, $169 (estimated price). Fast 33.6-Kbps modem includes flash ROM and CCL scripts. *Apr 97, p. 123*

★★★★/8.2 **Workgroup Server 8550/200,** Apple Computer, 408/996-1010, $4200. An affordable 200-MHz medium-duty Internet server that's easy to use. *May 97, p. 54*

★★/4.9 **Zoom V.34X Plus,** Zoom Telephonics, 617/423-1072, $199. Average-performing 33.6-Kbps modem with seven-year warranty. *Apr 97, p. 123*

PRINTERS

★★★/6.9 **Apple Color StyleWriter 1500,** Apple Computer, 408/996-1010, $249. Lackluster performance and image quality mark this color ink-jet. *Feb 97, p. 140*

★★★★/7.5 **Apple Color StyleWriter 2500,** Apple Computer, 408/996-1010, $349. Relatively fast color ink-jet has fair image quality. *Feb 97, p. 140*

★★★★/7.3 **BJC-4550,** Canon Computer Systems, 714/438-3000, $499. Ink-jet produces beautiful images with optional photo ink kit. *Feb 97, p. 140*

★★★/6.7 **Color LaserWriter 12/660 PS,** Apple Computer, 408/996-1010, $6100 (estimated). Lower price and more RAM than its predecessor, but still middle of the pack. *Jun 97, p. 56*

★★★/6.9 **DeskJet 1600CM,** Hewlett-Packard, 408/246-4300, $1999. Expensive ink-jet printer offers good speed and crisp text. *Feb 97, p. 140*

★★★★/7.8 **DeskJet 870Cse,** Hewlett-Packard, 408/246-4300, $599. Color ink-jet printer offers good speed and image quality. *Jun 97, p. 125*

★★★/5.9 **DeskWriter 600,** Hewlett-Packard, 408/246-4300, $199. Decent speed and average print quality at a nice price. *Feb 97, p. 140*

★★★★/7.2 **DeskWriter 680c,** Hewlett-Packard, 408/246-4300, $279. Color ink-jet offers above-average image quality. *Feb 97, p. 140*

★★★/6.9 **IBM Network Color Printer,** IBM, 404/238-1234, $8999. Its speed and output won't disappoint you, but it's not a good deal. *Jun 97, p. 56*

★★★/6.2 **LaserJet 5M,** Hewlett-Packard, 408/246-4300, $2229. Laser printer is easily upgraded and offers top-notch software. *Jun 97, p. 125*

★★★/6.0 **LaserJet 6MP,** Hewlett-Packard, 408/246-4300, $1149. Laser printer offers middling performance and excellent software. *Jun 97, p. 125*

★★★/6.0 **LaserWriter 12/640 PS,** Apple Computer, 408/996-1010, $1599. Laser printer has good speed and image quality for the price. *Jun 97, p. 125*

★★★/5.4 **MD-2010,** Alps Electric, 408/432-6000, $499. Low-end color printer is slow, with poor-quality output. *Feb 97, p. 140*

★★★/5.2 **Personal LaserWriter 4/600 PS,** Apple Computer, 408/996-1010, $899. This expensive laser printer is slow and has nonstandard memory. *Jun 97, p. 125*

★★★★/7.8 **Stylus Color 500,** Epson America, 310/782-0770, $279. Good price, output, and speed, but this color ink-jet is messy. *Feb 97, p. 140.* Editors' Choice for best home printer.

★★★★★/9.1 **Stylus Color 800,** Epson America, 310/782-0770, $449. Color ink-jet printer is fast with outstanding image quality. *Jun 97, p. 125.* Editors' Choice for best personal printer.

★★★/5.7 **TruPhoto,** Panasonic Interactive Media, 408/653-1888, $479.95. Digital photo printer offers instant snapshots, delayed gratification. *Apr 97, p. 64*

SCANNERS

★★★★/7.5 **Agfa StudioStar,** Agfa, 508/658-5600, $989. Graphics pros will treasure scanner's high-quality scans and powerful software. *Feb 97, p. 62*

★★/4.8 **Apple Color OneScanner 1200/30,** Apple Computer, 408/996-1010, $799. A big disappointment; offers little advantage over its lower-priced predecessor. *Feb 97, p. 62*

★★/3.3 **ArtiScan Z1-1200,** Tamarack Technologies, 714/744-3979, $699. Slow, unimpressive, noisy scanner can scan at 600 dpi and 30-bit. *Mar 97, p. 131*

★★/3.7 **ArtiScan Z1-600,** Tamarack Technologies, 714/744-3979, $499. Slow, unimpressive machine makes a rumbling noise while scanning. *Mar 97, p. 131*

★★★/5.1 **Color OneScanner 600/27,** Apple Computer, 408/996-1010, $549 (estimated). Sleek and compact, but can't compete with less-expensive models. *Mar 97, p. 131*

★★★★/8.4 **Epson Expression 636,** Epson America, 800/922-8911, $899 as tested. Low-cost color scanner gets the nod for all-around use. *Feb 97, p. 62*

★★/4.9 **HP ScanJet 5p,** Hewlett-Packard, 800/722-6538, $530. Attractive scanner marred by mediocre image quality and software. *Apr 97, p. 50*

★★/ 3.8 **ImageReader Elite,** Info, 408/538-2500, $399. Small, inexpensive scanner delivers mediocre performance. *Mar 97, p. 131*

★★/3.8 **ImageReader FB,** Info, 408/538-2500, $549. Painfully slow scanner with anemic software and awkward case design. *Mar 97, p. 131*

★★★★/7.1 **MCA S600C,** Mitsubishi Chemical America, 408/954-8484, $299. Document scanning gets colorized. *Jun 97, p. 78*

★★/3.8 **ScanAce II,** PacificImage Electronics, 310/214-5281, $899. Bulky scanner performed well in color, gray-scale, and resolution tests. *Mar 97, p. 131*

★★/4.9 **ScanJet 4P,** Hewlett-Packard, 208/323/2551, $615. Outstanding color fidelity, but large, heavy scanner has weak software. *Mar 97, p. 131*

★★/3.8 **ScanMaker E3,** Microtek Lab, 310/297-5000, $329 (estimated). Inexpensive, but disappointing speed, color, and gray-scale test results. *Mar 97, p. 131*

★★/3.7 **ScanMaker E6,** Microtek Lab, 310/297-5000, $599. 30-bit color, but otherwise no better than the ScanMaker E3. *Mar 97, p. 131*

★★★/5.9 **ScanTouch 110,** Nikon Electronic Imaging, 516/547-4355, $299 (estimated). A relatively fast scanner, with good color fidelity and an attractive price. *Mar 97, p. 131*

★★★/5.3 **ScanTouch 210,** Nikon Electronic Imaging, 516/547-4355, $699 (estimated). Slower and more expensive than the ScanTouch 110, but 600 dpi. *Mar 97, p. 131*

★★★★/7.1 **SilverScanner Pro,** La Cie, 503/520-9000, $499. Great low-cost scanner with compact design and good software. *Mar 97, p. 131.* Editors' Choice for best low-end scanners.

★★★/6.9 **SnapScan,** Agfa, 508/658-5600, $389 (estimated). Quiet, fast scanner has good scanning software. *Mar 97, p. 131*

★★★/6.6 **Vista-S12E,** Umax Technologies, 510/651-4000, $649. Fast, with minimal image noise, but the Vista S-6E is a better choice. *Mar 97, p. 131*

★★★★/8.4 **Vista-S6E,** Umax Technologies, 510/651-4000, $345 (estimated). Inexpensive scanner did well on most of our tests, has good software. *Mar 97, p. 131.* Editors' Choice for best low-end scanners.

STORAGE

★★★/5.7 **APS Q3200,** APS Technologies, 816/483-1600, $400 to $480. At 5400 rpm, this 3GB hard drive is not fast, but it is nicely priced. *May 97, p. 127*

★★★/6.4 **Barracuda 4LP,** Club Mac, 714/768-8130, $789 to $849. An ordinary-looking case masks a 7200-rpm, 2GB drive that screams. *May 97, p. 127*

★★★/5.7 **D2,** La Cie, 503/520-9000, $399. 2GB hard drive with some thoughtful touches is average speed. *May 97, p. 127*

★★★/6.5 **DCS 2150,** Direct Connections, 612/937-6283, $825. 2GB drive is a speed demon, whether connected internally or externally. *May 97, p. 127*

★★★/5.7 **DisKovery,** Optima Technology, 714/476-0515, $560. 2GB hard drive is an easy all-in-one solution. *May 97, p. 127*

★★★/5.4 **Fireball TM 21,** Quantum, 408/894-4000, $320. 2GB, 5400-rpm hard drive with clear installation instructions. *May 97, p. 127*

★★★/5.7 **Fireball TM 32,** Quantum, 408/894-4000, $433. 3GB, 5400-rpm internal hard drive with clear installation instructions. *May 97, p. 127*

★★★/6.1 **Hammer 2050iS Ultra,** StreamLogic, 818/701-8400, $919. Great performance, but pricey for a 2GB internal drive. *May 97, p. 127*

★★★/6.0 **PDI 2100WAV,** ProDirect, 612/941-1805, $699. 2GB drive is fast with a SCSI card, but average on the external bus. *May 97, p. 127*

★★★★/7.5 **PDI 3800,** ProDirect, 612/941-1805, $899. Big, fast, nicely priced 3.8GB hard drive. *May 97, p. 127.* Editors' Choice for best 2GB to 3GB hard drives.

★★★/6.1 **Seagate ST32171W,** Seagate, 408/438-6550, NP. An OEM drive tested for comparison, this 7200 rpm drive is fast. *May 97, p. 127*

★★★★/7.6 **SyJet,** SyQuest, 510/226-4000, $399 to $499 . Removable media drive that's faster than Jaz; easy setup. *May 97, p. 51*

★★★/5.2 **Tempest 3.2,** Club Mac, 714/768-8130, $399 to $459. 5400-rpm, 3GB drive that pales next to the competition. *May 97, p. 127*

★★★/5.9 **Tsunami,** La Cie, 503/520-9000, $499. Snazzy case, but 3GB hard drive's not that fast. *May 97, p. 127*

VIDEO/DISPLAY

★★★/6.3 **Diamond Pro 91TXM,** Mitsubishi Electronics America, 714/220-2500, $1699. Pricey for an average product, with below-average image quality. *Jan 97, p. 125*

★★★/6.1 **G200,** IBM, 914/766-1900, $1469. Easy to use, but below-average image quality. *Jan 97, p. 125*

★★★★/7.6 **G810,** ViewSonic, 909/869-7976, $1595. A great price for a top pick in both usability and image quality. *Jan 97, p. 125.* Editors' Choice for best two-page monitors.

★★★/6.7 **Multigraph 445Xi,** Nokia Display Products, 415/331-4244, $1899. A little pricey for a monitor that offers only medium image quality. *Jan 97, p. 125*

★★★/6.7 **Multiple Scan 20,** Apple Computer, 408/996-1010, $2149. Good overall image quality, but pricey for its category. *Jan 97, p. 125*

★★★/6.6 **MX21F-M,** Mag InnoVision, 714/751-2008, $1699. Average price for average usability and image-quality scores. *Jan 97, p. 125*

★★/4.7 **P201,** IBM, 914/766-1900, $2635. Poor image quality and hard to use. *Jan 97, p. 125*

★★★/6.2 **PanaSync S21,** Panasonic, 201/348-7000, $1899. Good controls, but a little expensive for below-average image quality. *Jan 97, p. 125*

★★★/5.8 **PrecisionView 21,** Radius, 408/541-6100, $2749. Overpriced for only average test scores and a one-year warranty. *Jan 97, p. 125*

★★★/6.9 **Pro P810,** ViewSonic, 909/869-7976, $1745. Superb image quality, but costlier than its sibling, the G810. *Jan 97, p. 125*

★★★★/7.4 **RasterOps SuperScan Mc20,** Hitachi NSA, 617/461-8300, $1599. Good bargain for an overall good performer. *Jan 97, p. 125*

★★★/6.6 **RasterOps SuperScan Mc801HR,** Hitachi NSA, 617/461-8300, $2199. A bit costly for only above-average image quality, mediocre controls. *Jan 97, p. 125*

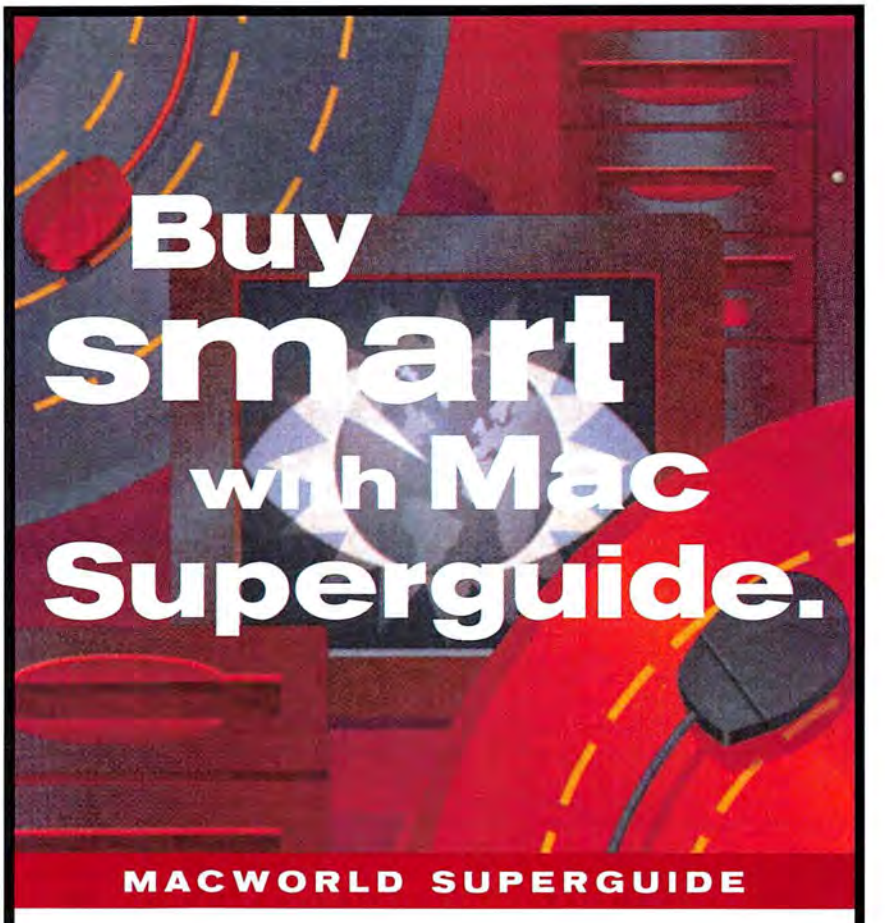
★★★★/8.9 **Sony GDM-W900,** Sony Electronics, 408/955-5142, $4999. A wide-screen monitor for the color connoisseur. *Jun 97, p. 84*

★★★/6.4 **SyncMaster 21 GLs,** Samsung Electronic America, 201/971-0400, $1959. Expensive unit for overall average performance. *Jan 97, p. 125*

★★★/5.6 **Ultra 20-M,** Princeton Graphic Systems, 714/751-8405, $1249. Inexpensive, but you get what you pay for—not high quality. *Jan 97, p. 125*

★★★/6.4 **VisionMaster 21,** Iiyama North America, 215/957-6543, $1945. Overall, a good unit, but not good enough to justify the price. *Jan 97, p. 125*

★★★★/8.3 **VisionMaster Pro 21,** Iiyama North America, 215/957-6543, $1995. Top overall image quality with clear on-screen controls. *Jan 97, p. 125.* Editors' Choice for best two-page monitors. m



To buy smart when you're choosing a Mac OS computer, your best bet is to let Macworld be your guide. Check out the Mac Superguide in this issue — and every issue — for the latest and greatest in Mac systems. It's a comprehensive guide to every system on the market, meticulously reviewed and Star Rated, with our favorites highlighted with an Editors' Choice symbol.

With all the systems out there, you could easily get lost if you try to navigate them on your own. Don't risk it; trust the Superguide.

Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

Mac Superguide

MACWORLD SELECTS THE BEST MAC OS SYSTEMS

Edited by Allyson Bates

Looking for a new Macintosh? Confused about what new model to buy? Look no further. Each month, the *Mac Superguide* provides *Macworld*'s picks for the best Mac OS systems. Typically we recommend an Editors' Choice winner and two runners-up. Current recommendations, however, may have changed from last month's based on the present lineup and price changes.

You'll also find *Macworld* Star Ratings and Macworld Lab performance benchmarks for all Mac OS systems shipping as we went to press in late April 1997. You may read about other Mac models in *Macworld* and elsewhere, but those are prototypes not yet available—the only systems rated here are those you can actually buy.

For previously reviewed Mac systems, the summaries reference the issue date and page number of the article. In some cases, such as faster versions of existing Macs, there is no full review and thus no cross-reference. New systems are indicated in the benchmark by the ▶ icon.

Prices from Apple, Motorola, DayStar, and Umax are company-estimated street prices. APS, Power Computing, and PowerTools sell direct. Unless otherwise noted, all pricing includes a keyboard and mouse, but not a monitor or modem.

For price comparisons, estimate spending about $800 for a 17-inch monitor, $175 for a modem, $100 for an extended keyboard, $50 for a mouse, $400 for a 2GB hard drive, $175 for 2MB of VRAM, and $100 for 16MB of RAM.

OFFICE SYSTEM

EDITORS' CHOICE

★★★★/7.3 **Power Macintosh 7300/180** Apple's new desktop finally does it right: strong performance, competitive price, easy expansion, and no unneeded extras. It's nice to see Apple has learned the value lessons that the clone competition has been trying to teach—a great buy if you want the most bang for your buck. Apple Computer (408/996-1010): $2399, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 12× CD, 1 free drive bay, 3 PCI slots. *May 97, p. 100*

★★★★/7.1 **SuperMac J700/180** Similar to Apple's Power Mac 7300/180, the J700/180 distinguishes itself by offering one more PCI slot and one more free drive bay, plus it has more cache than the 7300. But it costs more than the 7300. Umax Computer (510/226-6886): $2499, 16MB RAM, 512K cache, 2MB VRAM (4MB maximum), 2.1GB hard drive, 8× CD, 2 free drive bays, 4 PCI slots. *May 97, p. 100*

★★★★/7.0 **PowerCenter 150** This soon-to-be-discontinued tower is competitively priced, plus it is more expandable than Apple's Power Mac 7300/180. Power Computing's PowerCenter 150 tower is an ideal general-purpose office Mac for people on a budget. Power Computing (512/388-6868): $1495, 16MB RAM, 512K cache, 2MB VRAM (4MB maximum), 1.0GB hard drive, 12× CD, 3 free drive bays, 3 PCI slots. A desktop version with no free drive bays costs $1695. *May 97, p. 100*

Umax's SuperMac J700/180 is a fast office Mac with room for upgrades.

PORTABLE SYSTEM

EDITORS' CHOICE

★★★★/7.6 **PowerBook 3400c/200** The new 3400c/200 is almost twice as fast as a top-of-the-line Pentium portable yet costs just $500 more. A built-in modem and Ethernet port eliminates an expensive PC Card modem/Ethernet combo. However, the 3400c isn't perfect: it doesn't support multiple monitors, and its CPU isn't upgradable. And the high price puts it out of reach for many people. Apple Computer (408/996-1010): $5495, 16MB RAM, 2.0GB hard drive, 6× CD, 12.1-inch active matrix LCD, 1 drive bay, 2 PC Card slots. *May 97, p. 50*

★★★/6.4 **PowerBook 1400cs/117** Apple's midrange notebook accommodates an optional CD-ROM drive. Recent price cuts make this a great buy and a better system than the old 5300 series. The large LCD panel is nice, even though it's passive matrix. Apple Computer (408/996-1010): $2000, 12MB RAM, 750MB hard drive, optional 6× CD, 11.3-inch passive matrix LCD, 1 drive bay, 2 PC Card slots ($3500 model 1400c/117 has active matrix LCD and 1.0GB hard drive). *Jan 97, p. 58*

SMALL-OFFICE/HOME-OFFICE SYSTEM

EDITORS' CHOICE

★★★★/7.4 **PowerBase 200** Pro-level performance that costs less than Apple's Performa 6400/200, plus a strong selection of features and greater expansion capability, make this tower system a great buy for consultants and small businesses. Power Computing (512/388-6868): $1495, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 1.2GB hard drive, 8× CD, 3 free drive bays, 3 PCI slots. *May 97, p. 100*

★★★★/7.1 **Performa 6400/200** An affordable, good performer with limited internal expansion. It has a unique TV tuner slot. Apple Computer (408/996-1010): $1799, 16MB RAM, 256K cache, 1MB VRAM (1MB maximum), 2.4GB drive, 8× CD, 1 free drive bay, two 7-inch PCI slots, TV/FM tuner slot, 28.8-Kbps modem. *May 97, p. 100*

Apple's recent price drops make the midrange PowerBook 1400cs/117 an even better portable option.

EDUCATION SYSTEM

EDITORS' CHOICE

★★★★/7.4 **PowerBase 180** It's fast, cheap, and expandable, with 3-D video acceleration. This tower is a great buy for cash-strapped schools and students. Power Computing (512/388-6868): $1295, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 1.2GB hard drive, 8× CD, 3 free drive bays, 3 PCI slots. *May 97, p. 100*

EDITORS' CHOICE

★★★★/7.1 **Power Macintosh 5400/180** This all-in-one Mac—available only to schools—eliminates the need for cables. Rich in features—including a good monitor—and moderate in speed, the 5400 is a good classroom Mac. Apple Computer (408/996-1010): $1999, 16MB RAM, 1MB VRAM (1MB maximum), 1.6GB hard drive, 8× CD, no free drive bays, 7-inch PCI slot, TV/FM tuner slot, Ethernet card, internal stereo speakers, monitor included. *May 97, p. 100*

REAL PRODUCTS REAL RATINGS Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy. Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

PHOTOGRAPHS BY KEVIN CAHILL AND SHERRY LEVINE

IMAGE-EDITING AND 3-D GRAPHICS SYSTEM

EDITORS' CHOICE

★★★★/8.2 **PowerTower Pro 225** This expandable tower is ideal for all-around image editing and 3-D graphics. Although a multiprocessor-based Mac is faster for certain key operations, the PowerTower Pro 225 is faster and cheaper. Power Computing (512/388-6868): $3695, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 16× CD, 6 free drive bays, 6 PCI slots. *Jun 97, p. 108*

EDITORS' CHOICE

★★★★/7.5 **Genesis LT 400+** The new, affordable LT 400+ is swift in multiprocessor (MP)-enabled programs, Photoshop users who use MP-accelerated filters all day will love it. DayStar Digital (770/967-2077): $4999, 32MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 2 free drive bays, 6 PCI slots. *Jan 97, p. 108*

★★★★/7.5 **Genesis MP 800+** The ultimate Mac system speeds through multiprocessor (MP)–enabled programs such as Adobe Photoshop and Strata Studio Pro Blitz. And the tower leaves room for everything you might need. DayStar Digital (770/967-2077): $10,818, 32MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 7 free drive bays, 6 PCI slots. *Jun 97, p. 108*

PUBLISHING AND DESIGN SYSTEM

EDITORS' CHOICE

★★★★/8.2 **PowerTower Pro 225** The fastest single-CPU Mac is the best for publishing pros—at a low price. Power Computing (512/388-6868): $3695, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 16× CD, 6 free drive bays, 6 PCI slots. *Jun 97, p. 108*

EDITORS' CHOICE

★★★★/8.0 **SuperMac S900/225** Nearly as fast as the PowerTower Pro 225, but with fewer free drive bays. The S900/225 is a solid second choice. Umax Computer (510/226-6886): $3699, 32MB RAM, 512K cache, 8MB VRAM (8MB maximum), 2.1GB hard drive, 8× CD, 4 free drive bays, 6 PCI slots. *Jun 97, p. 108*

★★★★/7.9 **PowerTower Pro 200** Publishing pros will love this computer from Power Computing. And for $500 less than a similar PowerTower Pro 225, it's a much better price/performance deal.

Power Computing's PowerTower Pro 225 is an affordable Mac that offers top-notch performance.

Power Computing (512/388-6868): $3195, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 16× CD, 6 free drive bays, 6 PCI slots. *Jun 97, p. 108*

MULTIMEDIA AND VIDEO CREATION SYSTEM

EDITORS' CHOICE

★★★★/7.5 **Genesis MP 800+** The ultimate Mac speeds through multiprocessor (MP)–enabled programs such as Adobe Premiere. Its expandable tower case holds many drives. DayStar Digital (770/967-2077): $10,818, 32MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 7 free drive bays, 6 PCI slots. *Jun 97, p. 108*

WEB AND INTRANET SERVER SYSTEM

EDITORS' CHOICE

★★★★/7.9 **PowerTower Pro 200** The second-fastest single-CPU Macintosh is great for Web serving at an attractive price. Power Computing (512/388-6868): $3195, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 16× CD, 6 free drive bays, 6 PCI slots. *Jun 97, p. 108*

EDITORS' CHOICE

★★★★/7.8 **SuperMac S900/200** This speedy machine has plenty of expansion opportunities. The combination of fast performance and free drive bays make this computer a great choice for someone shopping around for a departmental or Web server. Umax Computer (510/226-6886): $3299, 32MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.1GB hard drive, 8× CD, 4 free drive bays, 6 PCI slots. *Jun 97, p. 108* m

Macworld LAB TEST

Every Shipping Mac Tested and Rated

► **New this issue. Editors' Choice winners in red. Longer bars are better. Core results are times as fast as a Centris 650 (Centris 650 = 1.0). Multiprocessor results are times as fast as a Power Mac 9500/150 (9500 = 1.0). Only shipping systems are tested and rated.**

	Core Mac Performance	Star Rating*
Apple Computer		
Performa 6360	4.0	★★★/5.3
Performa 6400/180	4.0	★★★/6.8
Performa 6400/200	5.6	★★★★/7.1
PowerBook 1400c/117**	2.7	★★★/6.4
PowerBook 1400cs/117**	2.8	★★★/6.4
PowerBook 1400c/133	3.5	★★★/6.6
► PowerBook 3400c/180	5.0	★★★★/7.4
PowerBook 3400c/200	5.5	★★★★/7.6
Power Macintosh 4400/200	5.5	★★★/6.5
Power Macintosh 5260/120***	2.6	★★★/5.5
Power Macintosh 5400/180***	4.3	★★★★/7.1
Power Macintosh 6400/200***	4.5	★★★/6.4
Power Macintosh 7300/180	7.2	★★★★/7.3
Power Macintosh 7300/200	7.7	★★★★/7.6
Power Macintosh 9600/200	8.1	★★★★/8.0
APS Technologies		
MPower 603e180	4.5	★★★/6.4
MPower 603e200	5.7	★★★/6.7
MPower 603e240	6.6	★★★/6.9
MPower 604e200	7.3	★★★/6.7
DayStar Digital		
Genesis LT 400+	7.7	★★★★/7.5
Genesis MP 400+	7.7	★★★★/7.5
Genesis MP 720+	7.3	★★★★/7.4
Genesis MP 800+	7.8	★★★★/7.5
Motorola Computer Group		
StarMax 3000 DT603e-180	5.4	★★★/6.2
StarMax 3000 MT603e-180	5.4	★★★/6.2
StarMax 3000 DT603e-200	5.8	★★★/6.5
StarMax 3000 MT603e-200	5.8	★★★/6.5
StarMax 3000 MT603e-240	6.8	★★★/6.8
StarMax 4000 DT604e-160	6.6	★★★/6.7
StarMax 4000 MT604e-160	6.9	★★★/6.7
StarMax 4000 DT604e-200	7.7	★★★/6.7
StarMax 4000 MT604e-200	7.7	★★★/6.7
Power Computing		
PowerBase 180	5.4	★★★★/7.4
PowerBase 200	5.8	★★★★/7.4
PowerBase 240	6.4	★★★★/7.7
PowerCenter 150	5.6	★★★★/7.0
PowerTower Pro 200	8.5	★★★★/7.9
PowerTower Pro 225	9.2	★★★★/8.2
PowerTools		
Infiniti 4200 Pro	8.2	★★★/6.9
Umax Computer		
SuperMac C500/180	5.2	★★★/5.9
SuperMac C600/200	5.8	★★★/6.2
SuperMac C600/240	6.3	★★★/6.5
SuperMac J700/180	7.3	★★★★/7.1
SuperMac S900/180DP	6.7	★★★★/7.1
SuperMac S900/200	8.3	★★★★/7.8
SuperMac S900/200DP	7.3	★★★★/7.3
SuperMac S900/225	8.8	★★★★/8.0

	Multiprocessor Performance	Star Rating*
DayStar Genesis LT 400+	2.1	★★★★/7.5
DayStar Genesis MP 400+	2.1	★★★★/7.5
DayStar Genesis MP 720+	2.6	★★★★/7.4
DayStar Genesis MP 800+	2.8	★★★★/7.5
SuperMac S900/180DP	1.8	★★★★/7.1
SuperMac S900/200DP	2.0	★★★★/7.3

**Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) **Had less than 32MB of RAM, so some tests were conducted with virtual memory, which slows performance. ***Available only to educational institutions.*

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Macworld TEST CENTRE

MacUser Best Buy

multiple choices

Powerful multimedia applications and faster processors can put the squeeze on yesterdays' storage and display products. Don't let your computer hold you back.

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Move over, Intel—the fastest Macs now outrun the fastest PCs

The Mac Wins The Race

Macworld LAB TEST

by Lon Poole and Howard Baldwin

SONNY BONO WINS A SEAT IN CONGRESS. CHER WINS AN Oscar. Macs win a performance test against PCs. All unthinkable at one time, perhaps, but true today. For years, Macintosh users have had to shrug off the PC's proficiency in speed by insisting they had the better interface. No more. Based on Macworld Lab tests of state-of-the-art representatives from both platforms, the Mac finally comes out ahead. Let loose the balloons.

Macintosh users have been waiting for this for a long time, and we really have Intel to thank. If it hadn't developed its new MMX technology to boost graphics speed, and launched a snappy ad campaign to make you think it was going to sweep the Mac off your desktop and into the dump, we might not have thought to pit the two platforms against each other this way. We're here to say: Not so fast, Intel. And they say advertising doesn't get results.

Macworld Lab tested 11 applications common to both platforms, and the results show that in a duel of graphics, the Mac still draws blood. In video tests, the Mac still draws pixels faster. Unfortunately, it's not all good news—sometimes system and application software cripple the Mac so severely it might as well be drawing Social Security. Nor do we yet have parity in price. Nobody's perfect.

Anyone who's worked with Macs for any length of time knows about their strengths and weaknesses. Based on these test results, though, the Mac has nothing to fear and nothing to hide. Best of all, this is just the beginning. The technologies that are boosting the Macs' performance are only going to ratchet to higher and higher speeds in the coming months. If you show this to the sneering folks who dwell in the PC universe, they're going to have to draw some new conclusions.

Common Programs, Uncommon Results

First, take a look at the state-of-the-art hardware we tested. On the PC side were a PCV-120 from Sony (*http://www.sony.com*) running Windows 95 on a 200MHz MMX-enabled Pentium, and a QP6/200 SM-4 from Quantex (*http://www.quantex.com*) running Windows NT 4.0 on a 200MHz Pentium Pro (we also tested, but didn't other-

Mac On Top

When we tested state-of-the-art Macs against state-of-the-art PCs, the Macs streaked ahead.

wise evaluate, a prototype CLR Infinity PTK-5A system from CompuLink (954/450-7061, *http://www.clrusa.com)* running Windows NT on a prerelease 233MHz MMX-enabled Pentium Pro).

On the Mac side, we tested our Editors' Choice for image editing and publishing, a PowerTower Pro 225 from Power Computing (*http://www.powercc.com*); a four-processor, top-of-the-line Genesis MP 800+ from DayStar Digital (*http://www.daystar.com*); and one of the fastest Macs that's come through the door of Macworld Lab, a prototype of the SuperMac S900/250 from Umax Computer (408/327-8700, *http://www.supermac.com*), all running Mac OS 7.6 and using PowerPC 604e CPUs (for

PCS ARE STILL CHEAPER

The top-of-the-line multiprocessor 200MHz DayStar Digital Genesis MP 800+ (left) will cost $10,580, not including the applications specifically optimized to take advantage of its power. We tested a prototype Umax SuperMac S900/250 (not shown), and its cost was $5279. A similarly configured system from Quantex Microsystems (right), the 200MHz Pentium Pro–based QP6/200 SM-4, cost only $2929.

ROBERT CARDIN

prices and specifications of the shipping computers, see the table, "Contenders: The Top Macs and PCs Compared").

State-of-the-art Mac hardware is not limited to the desktop—Apple's latest laptop, the 240MHz PowerBook 3400, is no slouch, either (see the sidebar "Portables Are Back with a Vengeance").

Because MMX shines a spotlight on graphics and multimedia, we chose to test software that emphasizes image editing, 3-D animation, and desktop video—all purported MMX strengths. These packages included Adobe Photoshop 4.0, Premiere 4.2, and PageMaker 6.5; Fractal De-sign Painter 4.0 and Ray Dream Designer 4.0; Macromedia FreeHand 7 and Extreme 3-D 2.0; and Specular Infini-D 3.5. We rounded out the tests with Wolfram Research Mathematica 3.0, and with the business software Microsoft Excel 5.0 and Claris FileMaker Pro 3.0.

We installed 64MB of RAM in all the test computers. On the PCs, Windows dynamically allocates RAM as needed to the running application. Since the Mac OS allocates a fixed amount of memory to each application (a technique we abhor), we leveled the field by setting the memory size of every tested Mac application to 42MB (50MB for Photoshop to give it as much memory as possible), leaving the rest of the 64MB for system software.

Even though we started out comparing CPU with CPU, it's not just the PowerPC CPU that makes the Mac fast. Cache, RAM, hard drive, and video capability all play a part. Depending on the applications you use, you probably stress different parts of your Mac, so there's something positive here for almost everyone. We'll look at various applications—graphics, publishing, multimedia, and business—to see where you're most likely to see a performance boost, and where you won't (for test results, see the benchmark, "The Proof: Fast Macs Outperform Fast PCs").

Gargantuan in Graphics

If you're working with the top graphics applications, whether image editing or 3-D animation, you'll see spectacular performance on the Mac, thanks to the floating-point strengths of its RISC-based CPU running at 250MHz (the fastest PCs run at only 200MHz). The 604e achieves its best performance when it's executing a steady stream of both floating-point and integer instructions. The amount of cache built into the Macs helps, too.

When we tested FreeHand and Painter, the SuperMac S900/250 came out ahead in almost every single operation. In Photoshop tests it was second only to the four-processor Genesis MP 800+, which was running an optimized version of Photoshop (more about programs optimized for multiprocessing or MMX later). The Genesis benchmark score is hampered by the other two applications in the test.

The Cache Advantage When it comes to cache, which contains a copy of the most recently used RAM contents, more is always better, whether it's internal to the CPU (look for *L1* on your system's spec sheets) or external to the CPU (look for *L2* on your spec sheets). Each of the systems we tested has two internal caches (a data cache and an instruction cache) in its CPU, but they were 32K each in the PowerPC 604e-based Macs, while they were 16K each in the Pentium MMX–based Sony PCV-120 and 8K each in the Pentium Pro–based Quantex QP6/200 SM-4.

High-performance Macs and PCs include beefed-up external cache as well. The external cache is slower than the internal cache, but it is still a lot faster than RAM. External cache makes a big difference when you do a lot of image editing or other work that uses big chunks of data. Take what happened in the tests with Painter: the PowerTower Pro 225 kept up with the SuperMac S900/250, even though the latter has a faster CPU, because the PowerTower Pro 225 has 1MB of external cache, compared with 512K on the SuperMac S900/250. The Genesis MP 800+ and Quantex QP6/200 SM-4 also have a 512K external cache, while the Sony PCV-120 has 256K.

Bus Potential This brings up an interesting anomaly about the Macintosh in relation to the PC. In general, Macs use slower system buses than PCs do: most Macintosh buses are between 40MHz and 50MHz, while most PC buses are 66MHz.

Both Macs and Pentium PCs access the external cache (and their RAM, for that matter) through the system bus at speeds that are a fraction of the CPU's megahertz rating—about one-third on the tested PCs and one-fifth on the tested Macs. For example, the 250MHz SuperMac S900/250 has a 50MHz bus and the 225MHz PowerTower Pro 225 has a 45MHz bus, while the 200MHz PCV-120 has a 66MHz bus.

Pentium Pro–based PCs are different. The Pentium Pro includes the external cache in the same chip module that holds the CPU, and data travels to and from the self-contained external cache at the Pentium Pro CPU's full speed of 200MHz.

How the Mac Wins A CPU operating at several times the bus speed could spend a lot of time waiting to read or write data rather than processing it. Such an unbalanced system would be inefficient, and you wouldn't get the performance boost you expect from a really fast CPU. Given this architecture, the Mac should be generally *slower* than the PC, but it's not. Another factor is that the Mac OS is generally less efficient than the Windows OS, since much of the Mac OS is still 680X0 code that runs in emulation on a Power Mac. So why isn't the Macintosh generally slower than the PC?

The reason is that the PowerPC 604e CPU is so powerful, compared with Intel's Pentium and Pentium Pro, that it overcomes the Mac's bus and OS limits. Macworld Lab found that the 604 achieved rough parity with the Pentium but the 604e blasted past it, in two areas: the 604e runs at faster raw speeds (up to 250MHz, compared with the 200MHz maximum in current Pentiums), and it is more efficient (so it can outdo even a same-speed Pentium in most calculations). Intel is coming out with faster Pentiums and Pentium Pros, of course, but IBM and Motorola are upping the ante with even faster PowerPC 604e's and a new PowerPC code-named the G3. (For more information on the G3, see "First CHRP System Is Stingingly Fast," *News*, *Macworld*, June 1997.)

Later this year, look for new Macs to get faster buses, which will unleash even more of the PowerPC's raw power. (For more details, see the sidebar "How New Macs Will Widen the Performance Gap.")

Is My Program Optimized?

Another factor that will affect your Mac's performance is whether your software has been optimized for the platform you use. For instance, the four-processor Genesis MP 800+ sparkled when it came to testing Photoshop because we used a version of the software optimized for multiprocessing. On other applications, the Genesis MP 800+ didn't do as well.

The trouble is, multiprocessing under Mac OS 7.6 is effective only in operations that have been enhanced specifically for multiprocessing. All other operations use one CPU, and the overhead of the current Mac OS multiprocessing software slows single-CPU performance by about 10 percent. In effect, the MP 800+ performed like a Mac with one 180MHz 604e—rather than the 200MHz 604e it actually has to do the work—in all our tests except those involving Photoshop.

Apple's forthcoming Rhapsody operating system, the final version of which is due in mid-1998, is supposed to eliminate the overhead with symmetrical multiprocessing, but only for programs running under its OpenStep component—Mac OS programs will continue to

Portables Are Back with a Vengeance

At the same time as the Mac is racing past PCs on the desktop, Apple is staging a resurgence in the laptop market.

For a long time, if you wanted the fastest laptop, you had to buy an Intel-based system. (Heck, after the 5300 fiasco, if you wanted any laptop, you had to go with Intel; even Steve Jobs reputedly bought an IBM ThinkPad for his daughter Lisa when she went off to college.)

Now if you want to buy the fastest laptop on the market, there won't be an Intel CPU inside. It'll be the 240MHz PowerPC 603e in the PowerBook 3400 (see "PowerBook with a Punch," April 1997, and *Reviews*, May 1997). Even now, several months later, there are no faster Intel-based portable PCs on the market. (Unfortunately, Apple is still experiencing some quality problems with the 3400's internal memory coming loose.)

ROBERT CARDIN

PowerBook Power The new PowerBook 3400 is giving Intel-based laptops a run for their money in terms of performance.

For benchmark comparisons, we pitted the 3400 against a 150MHz Compaq LTE 5400, the fastest shipping laptop we could find. As might be expected, the PowerBook clobbered the competition in every arena except disk-intensive operations. There it was hampered by the Mac OS's inefficient I/O subsystem.

Although Apple continues to insist it will not license PowerBook clones, we'd love to see that happen. With the same kind of competitive spirit that's spurring the desktop Mac market applied to laptops, we'd be seeing some snappy, snazzy portables before long.—HOWARD BALDWIN

have the multiprocessing-overhead slowdown.

On the PC side, optimization is also an issue. Are MMX's much touted multimedia extensions just hype? Yes and no. Previous Macworld Lab tests have shown that an MMX-enabled PC is much faster at certain operations than a traditional Pentium PC (see "Is the MMX Pentium a Threat?" *News*, February 1997). MMX boosts primarily graphics and video functions, but only in applications that have been revised for it.

In our Photoshop tests for this story, the PCV-120 was faster than the other tested computers in several operations that were enhanced for MMX, but across all image-editing tests, the SuperMac S900/250 and the CompuLink Infinity were faster.

Mac Is Top Star in Video

Multimedia and video are other strongholds for the Macintosh, even though some users are turning to PCs running Windows NT for its industrial strength. If you're one of those users, you'd better look again at the Macintosh. Even though there were instances of the PCs' doing better in these tests, for the most part the Macs were the big winners. Here again, thanks are due to the Mac's PowerPC 604e CPU, as well as to its SCSI hard drives.

As with graphics, the PowerPC 604e chomped at floating-point and integer instructions like hors d'oeuvres. In tests in which Infini-D uses floating-point math extensively to render an image, the SuperMac S900/250 and the PowerTower Pro 225 were 50 percent or more faster than the QP6/200 SM-4. Even the Genesis MP 800+ was 50 percent faster at this task, which was not optimized for multiprocessing.

The 3-D Win We also compared the speed of Microsoft's Direct3D 3-D drivers on the PCs compared with Apple's QuickDraw 3D drivers on the Macs, using Macromedia's Extreme 3D. We created several 3-D models of varying complexity and timed how quickly each platform's rendering engine created a screen image. The SuperMac S900/250 rendered the three 3-D models faster than any other shipping computer. The prototypes surpassed it, though. (We couldn't test Direct3D on the Windows NT machine because it wasn't available at the time we tested.)

Hard-Drive Advantages The hard drive also plays a big role in multimedia applications. When a computer can't get the data it needs from external cache or RAM, it turns to the hard drive. This affects performance because even the fastest hard drive is much slower than RAM.

However, the EIDE (enhanced integrated drive electronics) peripheral bus used for PC hard drives also performs slower than the Macs' SCSI bus. Plus, drive makers tend to use faster mechanisms in SCSI drives than in EIDE

Contenders: The Top Macs and PCs Compared

	Genesis MP 800+	PowerTower Pro 225	PCV-120	QP6/200 SM-4
Company, contact	DayStar Digital* (770/967-2077)	Power Computing (512/388-6868)	Sony Electronics (800/476-6972)	Quantex Microsystems (800/896-4898)
Processor	4 200MHz PowerPC 604e's	225MHz PowerPC 604e	200MHz Pentium with MMX	200MHz Pentium Pro
RAM (base/as tested/maximum)	64MB/64MB/1GB	32MB/64MB/1GB	32MB/64MB/128MB	64MB/64MB/128MB
External cache	512K	1MB	256K	512K
System bus	50MHz	45MHz	66MHz	66MHz
Hard drive	2MB Fast SCSI-2 Quantum Atlas (7200 rpm)	2GB Fast SCSI-2 Seagate Barracuda (7200 rpm)	3.8GB EIDE Quantum Fireball (4500 rpm)	3.2GB EIDE IBM DeskStar 3 (5400 rpm)
CD-ROM drive	8x	8x	16x	12x
Video card	Imagine 128-bit, 4MB of VRAM	IMS 128-bit, 8MB of VRAM	ATI 3-D acceleration, 2MB of VRAM	MGA Matrox Millennium 64-bit, 4MB of VRAM
Sound out	16-bit stereo	16-bit stereo	16-bit 3-D SRS stereo	16-bit stereo
Networking or modem	10BaseT	10BaseT	33.6-Kbps modem with fax, voice mail, and speakerphone	33.6-Kbps modem with fax and voice mail
Ports	2 serial, standard SCSI	2 serial, standard SCSI	2 serial, 2 USB, MIDI/game	2 serial, 1 parallel
Other peripherals	16-bit stereo in	16-bit stereo in	composite and S-Video out	17-inch monitor, keyboard, speakers with subwoofer
List price	$10,400	$3695	$2199	$2799
Upgrades				
32K more RAM	included	+$200	+$200	+$200
2GB SCSI HD (7200 rpm)	included	included	+$500	+$500
Ethernet	included	included	+$80	+$80
Extras				
Monitor	NA	NA	NA	-$700 (included)
Modem	+$180	+$180	NA	NA
Speakers	NA	NA	NA	–$150 (included)
SCSI	NA	NA	+$200	+$200
Net cost	$10,580	$4075	$3179	$2929

*NA = Not applicable. *DayStar sells computers only through value-added resellers who configure RAM, hard drive, and video card to order. The price for this configuration is from Coast Peripherals (619/457-4056).*

drives, even on the high-end PCs we tested. You can add SCSI to your PC, but it's an optional upgrade that will cost you around $700 for a SCSI-2 card and a 2GB drive.

Hard-drive performance benefited the Mac when we created an animated GIF image with Extreme 3D. In that test, the slowest Mac finished 19 minutes before the fastest PC; the fastest Mac finished 51 minutes ahead of the slowest PC. Yes, *minutes.*

Program Variance Your results can vary depending on your program, though. When we used Ray Dream Designer to render a large TIFF image for one of the 3-D animation tests, the 200MHz QP6/200 SM-4 finished slightly faster than the 250MHz SuperMac S900/250. Why? While Ray Dream Studio taxes the CPU heavily, it doesn't use any floating-point math. This effectively ignores a significant chunk of the Mac's CPU. It's like shutting down the express elevator in a high-rise building—crowds move along, but not as fast.

The Video Taste-Test To judge video quality from a subjective standpoint, we asked a variety of *Macworld* and *PC World* staffers to judge four of the systems, which were disguised to hide their identities (prototype systems weren't included in our subjective testing).

Many variables affect video quality, so to equalize the playing field, we used an Apple 1710AV multisynchronous monitor set to millions of colors and the best resolution for each platform (800 by 600 pixels at a 72Hz refresh rate for the PCs, and 832 by 624 pixels at 75Hz for the Macs). We also used virtually identical video cards, the Xclaim 3D video card for Macs and the Pro Turbo PC2TV for PCs from ATI Technologies (905/882-2600, *http://www.atitech.com*). According to ATI, the only difference between them is low-level software that communicates with the Mac OS or Windows.

We asked the judges to scrutinize MPEG video clips for fluid motion; frame dropouts; and banding, streaking, or pixelated pictures; as well as sound synchronization and clarity. The judges preferred the MP 800+ and PowerTower Pro 225 to the PCs by at least a full point (on a scale of 1 to 5). And in our subjective test of 3-D animation using QuickDraw 3D on the Mac and Direct3D on the PCV-120, the judges preferred the Macs.

Make no mistake: PC multimedia performance will improve as Intel injects MMX into Pentium Pro and more software developers expend the considerable effort to update for MMX. As a result, Apple can't sit on its laurels. Moreover, if Apple hopes to make QuickDraw 3D a cross-platform standard, the Windows version had better be optimized for MMX.

Now the Bad News

Macworld can't be accused of favoritism in what we tested. We also devised a test, incorporating the venerable PageMaker, that stressed the operating systems' multitasking capabilities. Since both Windows 95 and Windows NT feature true multitasking, while the Mac does not, it wasn't surprising that the Macs turned in such poor results.

We set up a PageMaker file to export a publication to Adobe Acrobat Distiller. Working in the background, Acrobat Distiller then turned the publication into a PDF file. The fastest Mac took almost twice as long as the QP6/200 SM-4 and 27 percent longer than the PCV-120. Ouch. This proves that the Mac OS desperately needs preemptive multitasking. A background program may get less time to work under the Mac OS with its cooperative multitasking scheme than under an OS with preemptive multitasking such as Windows 95 and NT. Apple's Rhapsody OS will fix the multitasking problem for programs running under its OpenStep component. But unfortunately it'll be a year or more before we see applications taking advantage of Rhapsody's capabilities.

This highlights another drawback for the dedicated Macintosh user. Not only must we all too often wait longer to get a new version of an application (it's been years for Excel), but we must sometimes settle for less. The latest version of Excel for Windows, Excel 97, is two years and two generations newer than Excel 5.0 for Mac, and both new Windows generations have focused on performance enhancements still lacking in the latest Mac versions.

And even though Microsoft is planning a new, faster version of Excel for the Mac to appear this fall, the Mac development chief at Microsoft doubts it will be as fast as the Windows version. (The reason is simple: much of Excel 97 for Windows is written in handcrafted Intel assembly language, while the same parts of Excel 5.0 for Mac were not written in the PowerPC's assembly language, ostensibly because Microsoft couldn't spend the resources to also write the 680X0 assembly code needed for older Macs. It's a weak excuse.)

ROBERT CARDIN

COSTS: THE $941 DIFFERENCE

For a net cost of $4075, the Power Computing PowerTower Pro 225 (left) includes a faster processor than the PCs, a faster (but not bigger) hard drive, more VRAM, and more external cache. For a net cost of $3179, the Sony PCV-120 (right) includes a faster system bus than the Mac's, a bigger hard drive, and a faster CD-ROM drive. The difference between the two machines similarly configured is $941.

How New Macs Will Widen the Performance Gap

Macs with 250MHz PowerPC 604e CPUs are scheduled to hit the store shelves sometime this month or next. And a new batch of CPUs with increased performance are waiting in the wings. To go with the faster CPUs, Mac makers are working on other performance-enhancing technologies.

The Next PowerPCs Can you imagine an entry-level Macintosh running at 300MHz? Go ahead. Motorola plans to increase the 604e's clock speed to 300MHz by year's end (the 603e has just hit 300MHz).

In addition, IBM and Motorola have outlined plans for the G3 CPU, which is the first PowerPC specifically tuned to maximize the performance of Macintosh programs. The G3's designers expect the CPU to accelerate Mac performance 90 percent more than the 603e and 40 percent more than the 604e at the same clock speed. The G3's speeds will start at 250MHz and go up, and some models will feature a private bus for the external cache (similar to what the Pentium Pro has), which the G3's designers say increases performance by 50 percent over versions of the G3 without such a bus. In addition, the G3 will draw only as much power as a 603e, giving Apple a chance to capitalize on its resurgence in portable computers that began with the release of the PowerBook 3400. Motorola and IBM plan to ship the G3 in the second half of this year.

Exponential X704 Of the many ways to achieve high performance, Exponential has focused on ultrahigh clock rates for its X704 PowerPC-compatible processor. While it has a comparatively simple architecture, the X704 can run at 450MHz, 500MHz, or 533MHz. Prototypes of the X704 installed in a Power Mac 9600 rocket past other desktop computers available today.

KEVIN CANDLAND

Hot New Processors Some versions of IBM and Motorola's G3 CPUs will feature a private bus to enable their external cache to boost system performance. Availability is scheduled for later this year.

One beta tester reports that Fractal Design Detailer and Poser both feel twice as fast with this setup as with a 9500/200, and that Painter feels smoother, with no lags even on large images with lots of color variability. Macworld Lab has verified those impressions with its test of a prototype X704 running at 440MHz—a speed constrained by the 50MHz bus of today's Macs (see "X704 Strains against Mac Limits," *News*, in this issue). Forthcoming 66MHz and faster Mac buses will let the X704 run at the higher speeds promised.

The X704 has two levels of internal cache—two tiny (2K) primary caches and a unified 32K secondary cache—and this arrangement may not fare well in some Mac applications without faster bus speeds for accessing an external cache and ordinary RAM. Exponential plans to ship the 500MHz X704 in the second quarter of this year. Considering its high power demands (75 watts, about 15 times the amount used by the PowerPC G3), the X704 is most likely to appear in high-end graphics and digital-video machines.

TriMedia Coprocessor How is Apple countering MMX? It plans to add a specialized coprocessor from Philips Semiconductor called the TriMedia chip. Think of it as a QuickTime accelerator. It's a digital signal processor (DSP) that can encode and decode various digital-audio and -video formats, including MPEG-1 and MPEG-2, Motion-JPEG, and CD-quality and Dolby AC-3 sound. If your Mac has a TriMedia chip, applications that use QuickTime video and audio automatically will benefit. Though Apple has not officially announced any TriMedia products, look for more news later this year.

Faster Bus Speeds To overcome the bottleneck created by the CPU's being slowed down by the bus, Mac clone makers are focusing on boosting system bus speed. For example, Power Computing's newest PowerCenter Pros increase the Mac's current limit of 50MHz to 60MHz by altering a current Apple design (see "PowerTower Pro Speed for Everyone," *News*, June 1997).

But when Mac makers design new models based on the Common Hardware Reference Platform (CHRP), they will be freed from using Apple's proprietary components that limit bus speed. The CHRP designs will be able to use industry-standard components to achieve bus speeds of 66MHz this fall, with 83MHz and maybe even 100MHz early next year (see "First CHRP System Is Stingingly Fast," *News*, June 1997).

Not only does a faster bus let existing CPUs run more efficiently and thus process data and instructions more quickly, but it also lets Mac makers use faster CPUs. For example, the fastest 604e that can run on a 50MHz bus is a 250MHz 604e, since it can run no more than five times the bus speed. In order to use a 300MHz 604e, a Mac maker needs a 60MHz or faster bus.

Faster External Cache Umax has its own approach to speeding access to the Mac's external cache. The company's new SmartCache card sits between the motherboard and the CPU card and doubles the clock rate at the CPU. The CPU can access the external cache on the SmartCache card at the faster rate, though the bus speed on the motherboard doesn't change. This means the SmartCache also lets Umax use faster CPUs than would otherwise be possible with existing motherboard designs. Sources indicate Apple is working on similar technology for boosting speeds between the CPU and its cache.—LON POOLE

Does the Mac Still Cost a Lot More? Now that all the testing is completed, and the Macs' performance comes out on top, you can confidently tell your PC-using friends that the Mac's advantage is not just its interface. But there's still one grenade your PC friends are likely to lob at you—the bombshell of price. Even with competition among clone makers and Apple, Macs still cost more.

It's hard to compare list prices because manufacturers configure their systems differently. For each system you're evaluating, you need to make a list of performance features included with the base configuration, increase the cost for parts you need to add, and decrease the cost for included extras you would otherwise buy separately.

For example, we added 32MB of RAM to three of the tested computers to bring them up to 64MB of RAM. The additional RAM might add about $200 to the cost. You wouldn't pay extra for a SCSI hard drive on a high-performance Mac, but for a PC without SCSI you might pay $700 to add a SCSI controller card and fast (7200-rpm) 2GB hard drive. If you're in an office and need to connect to an Ethernet network, you would add another $80 to the cost of a PC for a network interface card. Conversely, if you work in a small office and need a modem for one of the Macs, you would pay $180 for it.

Comparing the prices of the computers we tested, you still have to pay extra for performance. The Macs all cost more than the PCs, even after adjusting for a SCSI hard drive and Ethernet. How much more? More than $900 (between the Sony PCV-120 and the Power Computing PowerTower Pro 225). Naturally, we think it's worth it. However, as with any other technology purchase, it depends on your work. If you're a graphics professional, it's money well spent.

The Last Word

It's ironic in light of Apple's business difficulties that it and the Mac clone vendors are giving the Macintosh community the most powerful systems ever. Even more encouraging, the Mac is on the cusp of even more breakthroughs with both the operating system—if Rhapsody fulfills its promise—and new CPUs, thanks to the forthcoming PowerPC G3 CPU from Motorola and the X704 CPU from Exponential Technology. Furthermore, our initital CHRP testing reveals yet another source for optimism.

It may be too late for Apple to do anything more than thumb its nose at the majority player on the desktop, and certainly neither Intel nor Microsoft will sit still when it comes to incorporating new technology. But it's not too late for these breakthroughs to reward Macintosh users—that's you—who have loyally stuck with the platform. You're about to reap the benefits for your long-suffering patience. You've not only got the fastest machine, but all the plug-and-play and ease of use the Mac is known for.

Surprised? Don't be. Competition, whether against a looming foe or against upstarts in your own camp, is a worthy stimulant. So just smile proudly in response when your Mac boots up and smiles at you. And don't scoff if anyone offers you a "Cher for Senate" bumper sticker. **m**

Contributing editor LON POOLE has written about systems technology since the days of the Intel 8086. Features editor HOWARD BALDWIN's first PC had less RAM than today's Macs have cache.

Macworld LAB TEST

The Proof: Fast Macs Outperform Fast PCs

When Macworld Lab pitted top-of-the-line PCs against the best Macintosh systems available, the results were astonishing. The Macs soundly beat the PCs, something that hasn't happened in years. To be fair to the PCs, Macworld Lab included tests optimized for the new Intel MMX technology, but that still did not push them past the Macs. Even the new MMX-enabled Pentium Pro Infinity system from CompuLink Research (the Pentium II CPU is scheduled to be released on May 9) running at 233MHz could not outpace Umax's 250MHz PowerPC 604e (which should ship in May). And the prototype Viper system from Motorola using the Common Hardware Reference Platform (CHRP) architecture and a 266MHz PowerPC G3 should increase the distance another 15 percent, according to our spot tests. That's more than enough to beat the 233MHz Pentium II. (We did not have the Viper system in time for the full tests.) Note that the multiprocessor DayStar Genesis system did not fare well in our tests; that system is optimized for specific tasks in a handful of programs rather than for across-the-board speed.

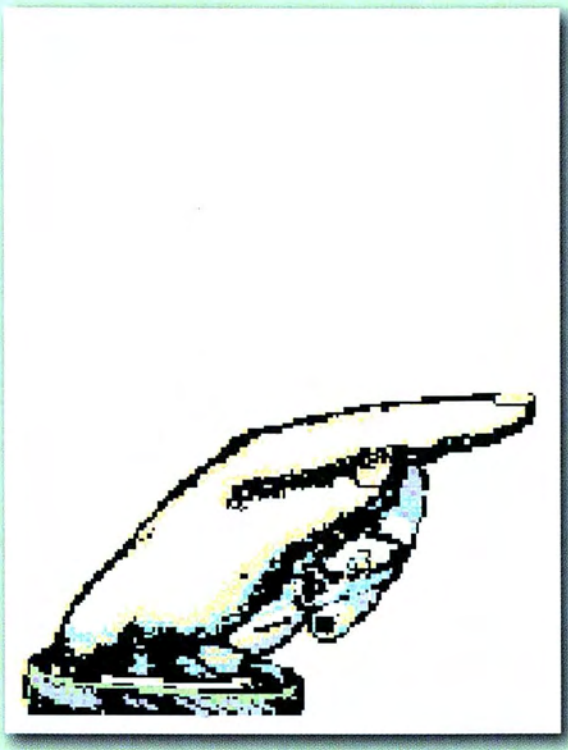
Best result in test. Longer bars are better. Results are times as fast as the Sony PCV-120 PC (PCV-120 = 1.0). Listed from fastest overall to slowest.

	Overall Score	Image Editing	3-D Animation	3-D Rendering*	Digital Video	Scientific	Business	Publishing
Shipping Systems								
PowerTower Pro 225	1.6	1.8	1.6	1.2	2.1	1.9	1.2	0.8
Genesis MP 800+	1.3	1.6	1.2	0.9	1.9	1.5	0.8	0.7
QP6/200 SM-4 (NT, Pentium Pro)	1.3	1.5	1.3	NA	1.0	1.5	1.1	1.4
PCV-120 (Windows 95, MMX Pentium)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Prototype Systems								
SuperMac S900/250	1.8	2.1	1.7	1.2	2.2	2.4	1.5	0.9
Infinity PTK-5A (NT, Pentium II)	1.6	2.0	1.8	NA	1.5	1.5	1.5	1.5

Compares the Mac's QuickDraw 3D rendering engine with the PC's Direct3D engine. Direct3D is not available for Windows NT.

Behind Our Tests

Macworld Lab tested several real-world functions in each of 11 key programs. The various tests gauge the performance of the CPU, system and memory buses, video circuitry, and hard drive. All systems had 64MB of RAM and 8MB of VRAM. We used the internal SCSI bus on the Macs and the internal EIDE bus on the PCs. We ran our tests with 17-inch monitors at a resolution of 800 by 600 pixels in 24-bit color. We used ATI Technologies' Xclaim 3D video card on the Macs and ATI's 3D Pro Turbo PC2TV cards on the Macs; the cards are identical except for their drivers. We ran Mac OS 7.6 on the Macs and either Windows 95 or Windows NT 4.0 on the PCs.—**Macworld Lab testing supervised by Chris Uiterwijk**



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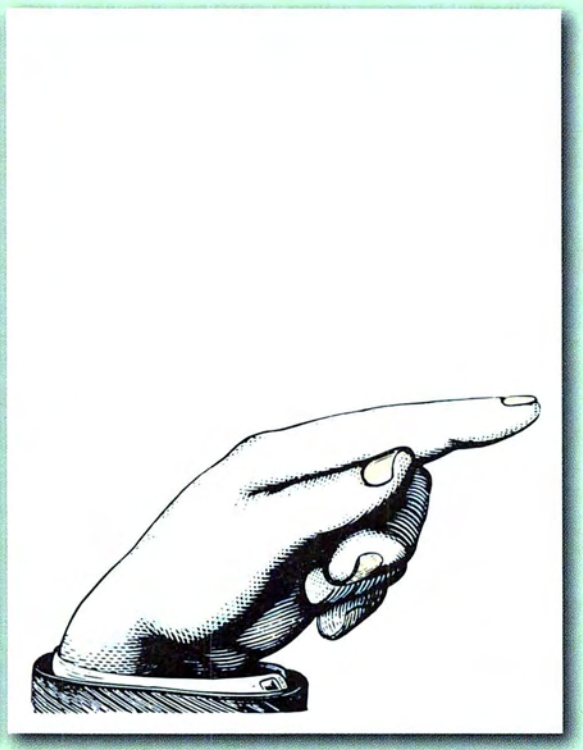
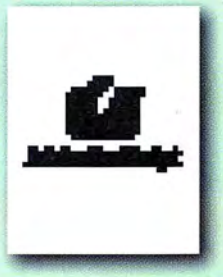


This EPS image was printed on an inkjet **with** StyleScript

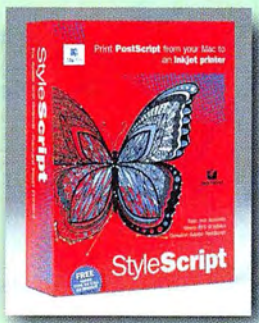
This Encapsulated PostScript (EPS) image was printed on a color inkjet printer **without** StyleScript



This Encapsulated PostScript (EPS) image was printed on a color inkjet printer **with** StyleScript

We'd like to point out what a startling difference StyleScript makes on an inkjet printer

StyleScript turns your inkjet into a genuine Adobe PostScript printer



If you've been using your inkjet to print EPS graphics, you've probably seen something called the "jaggies". Although your inkjet is a very good quality color printer and very affordably priced, it is not PostScript. This means it will print your photos beautifully but is unable to print EPS clip-art or logos. The printed results will be jagged and certainly not what you were expecting. You need PostScript printing but PostScript printers are very expensive. That's where the StyleScript solution comes in.

StyleScript is a software package that will upgrade your inkjet into a PostScript printer, at a fraction of the cost. With StyleScript installed, you can print *any* image on your inkjet with great results. That's because StyleScript is genuine Adobe Level 2 PostScript software. Your documents will print sharp everytime — no surprises and no "jaggies". The samples above and on the facing page show what a big difference StyleScript will make on your output. And the best part — StyleScript costs less than $100.

The Benefits of StyleScript

Once you have installed StyleScript, you'll see the improvements in your printed documents right away:

- EPS clip-art and logos will be crisp and clean
- PostScript fonts will be sharp at any size or angle
- color will be more accurate
- screens/dither patterns will be better looking

Who uses StyleScript?

StyleScript is perfect for anyone who owns an inkjet printer and needs to print sharp looking graphics. That includes:

- home or education users who want to use EPS clip art on everything from house party invitations to t-shirt graphics
- graphic designers who want an inexpensive and accurate personal proofing system
- business users making presentations on paper, transparencies, or film

Supported Printers

StyleScript supports a wide range of inkjet printers from Apple, Epson, and Hewlett-Packard.

Get StyleScript and see for yourself what our PostScript solution can do for your inkjet

Call us: 800.663.6112
Web: www.stylescript.com

StyleScript®

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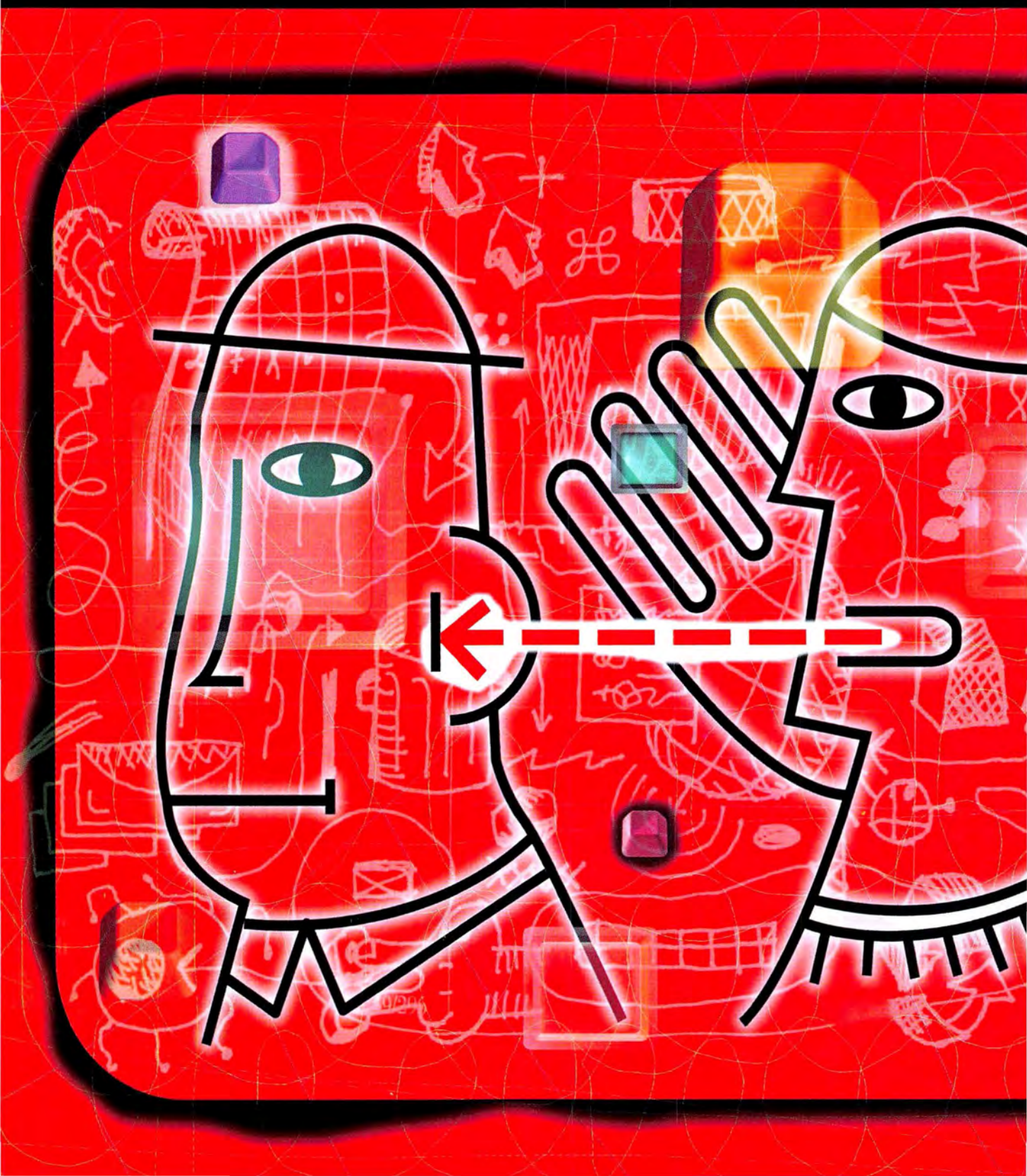
Circle 32 on reader service card

MACWORLD'S



TOP 101 TIPS

JOHN HERSEY

Save time, trouble, and disk space with our experts' favorite software and online tips

Duplicate Find File to Find Files Faster

1 To run simultaneous searches, copy your Find File application and rename it. Then you can start one search with the first Find File program and a second one with the renamed copy. Your Mac processes both searches simultaneously, and when they're complete, each copy will display the search results in a separate Items Found window.—JS

Hot Tip: Skip http://

2 You don't have to type a URL in its entirety, *http://* and all. For the URL *http://www.macworld.com*, for example, you can simply type **macworld** in your browser's location field.—EF

Keeping Project-Related E-mail with Other Project Files

3 It's nice to have a folder in which you keep all files associated with a particular project. You can also put e-mail associated with a particular project into that folder by doing the following: In Qualcomm's Eudora create a mailbox for a new project. Next, make an alias of the project mailbox (not the .toc file), which is stored in the Eudora folder, usually found in the System Folder. Place this alias in your project folder. You now have project files and e-mails all in one convenient place.—WHN

Easy Enclosures

4 Enclosures in CE Software's QuickMail became dialog box–heavy with version 3.5 (five steps to add just *one* attached file), so why not use System 7's drag-and-drop function instead? Select the files you want to attach and drag their icons onto a QuickMail form. QuickMail 3.5 automatically adds them as enclosures.—JFS AND SC

Make Mounts Count

5 When you mount a server volume across a network, do what you must and then press ⌘-Y to unmount it. Keeping servers mounted unnecessarily bogs down the network.—ED

Hit Cancel to Reset

6 To reset the choices inside many of Adobe Photoshop 4's dialog boxes, press the option key to change the Cancel button to Reset, then click on the Reset button to bring back the original values. Or press option-escape or ⌘-option-period.—DM

Make Browsing Easier

7 Hey, Webmasters, if your Web site uses special features, such as embedded Adobe Acrobat files, JavaScript, or Macromedia Shockwave animation, be cognizant of the first-time user. Make sure you've built hyperlinks to the appropriate Web pages or program files so that Internet rovers will be able to easily download what they need in order to enjoy those features of your page.—GG

Easily Adding Words into QuarkXPress

8 Adding new words or a long list of acronyms to an auxiliary dictionary in QuarkXPress can be a time-consuming task. Here's a way to automatically add all the words in a QuarkXPress document to the active auxiliary dictionary. First, open the auxiliary dictionary to which you want to add words and begin a spelling check. When the spelling check stops at the first unknown word, hold down the shift and option keys while you click on the Cancel button. Voilà! The open auxiliary dictionary now contains all the words in the document.—BA

Power Navigation through Excel

9 Don't bother tabbing through the empty cells in a Microsoft Excel spreadsheet. Hold down the ⌘ or control key when pressing the up, down, left, or right arrow keys to leapfrog over empty cells and move directly to the next nonadjacent *filled* cell in a row or column. Use these keystrokes *within* a block of data to jump to the edge of the current block.—JS

Keep Applying the Same Attributes

10 You can automatically apply the same field or object formatting to all subsequently created fields and objects in ClarisWorks 4. In Layout mode, select the pointer tool and click on an empty spot in the layout (making sure that nothing is selected). Then choose formatting options from the palettes and menus. Additional fields and objects that you create are automatically formatted with the attributes you've chosen.—SS

Thank You for PhotoText

11 PhotoTools' PhotoText filter eliminates most uses for Adobe Photoshop's native type tool and offers a few unexpected keyboard shortcuts: First, you can press the option key to access the arrow tool when the type tool is active. Better yet, you can press ⌘-tab to switch back and forth between the type and arrow tools.—DM

A Future Finder?

12 Drag a folder onto Netscape Navigator's browser window, and Navigator lists the folder's contents. Files and nested folders become clickable links; if Navigator supports the file format (HTML document, text file, JPEG graphic, and so on), Navigator displays the file's contents. You can also view kinds of files for which you have configured Navigator to use a plug-in or helper application. You can even save the catalog as a file. This is a perfect way to catalog and browse clip art.—NV

Sending Attached Files

13 Instead of using the Message, Attach Document, and Open File Dialog menu items in Qualcomm's Eudora to attach a file to an outgoing e-mail, you can simply drag and drop a file onto the Eudora icon (or an alias thereof), and it automatically attaches to the document you are composing.—WHN

Get to Your Favorite AOL Forum Fast

14 In America Online 3's Favorite Places feature, you add your favorite AOL forums by clicking on the heart icon at the right side of each forum's title bar. You can then drag each file from Favorite Places to your Mac's desktop, which creates clipping files. Take the clipping files and place them in a folder named, say, Top AOL Spots. When you double-click on one of your top spots, AOL 3 opens, begins the connection process, and once you're logged on, accesses the area you selected. If you're already on AOL, the area you choose is brought right to the screen.—GS

Customize Your Stickies

15 You can create customized Stickies for phone messages and to-do lists by setting up a new Stickies note in whatever style you like—you can even insert default text across the top. Then choose the Export Text command from the File menu and choose the Save As Stationery check box. Give the note a name, then click on Save. Instead of writing the note into the standard Stickies file inside the Preferences folder in the System Folder, create a New Notes folder in your Apple menu and keep all your customized Stickies stationery tucked there.—JS

Create Colors Quickly

16 To add a new color to Adobe PageMaker 6.5's Colors palette, don't bother with the hassle of the Define Colors dialog box. Just go into the Color Options dialog box directly by ⌘-clicking on any of the Black, Registration, or None colors in the Colors palette. Because you can't edit these colors, PageMaker lets you create a completely new color instead.—GG

Easy Transition from Word to PageMaker

17 Chances are you create Microsoft Word documents using the Normal style (it's the default, after all). By creating an Adobe PageMaker style called Normal, when you import Word text, PageMaker redefines it to its Normal style. This saves you from having to apply your basic body style—the style used for the bulk of your text—in PageMaker to all that body text you've imported.—GG

BONUS TIP

Embossing Text

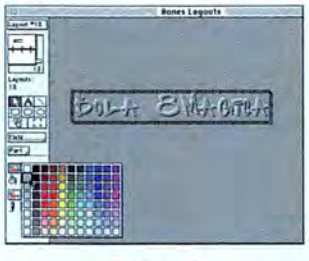
Give your Claris FileMaker Pro 3 layout some depth by creating embossed headers or labels. In Layout mode, select or type the text you want to emboss and make two copies. Set the text color of the original to the same color as your layout background (under the Format menu). Then follow these three steps.—JFS and SC

Step 1

Here are two copies of the original text, one set to a lighter shade and one to a darker shade. Select the original and choose Bring to Front, then Lock from the Arrange menu.

Step 2

Align the lighter block of text with the locked original text, then use the arrow keys on the keyboard to offset the lighter text one pixel up and one pixel to the left; then do the same thing with the darker text block, only this time offset the text one pixel down and one pixel to the right.



Step 3

Finally, set your FileMaker Pro layout's background color to match that of the original block of text.

Back in Browse mode, the text looks like this.

Do-It-Yourself Launcher

In Microsoft Internet Explorer 2.1 and later, you can launch another program, such as Claris Emailer, from a bookmark. Open the Favorites window and choose Import from the File menu. In the Open dialog box, navigate to the application you want to bookmark, select it, and click on the Open button. In the Favorites window, click on the program bookmark once to select it, and choose Get Info from the File menu. In the Get Info window's URL section, change the word *file* to *launch*. Now your bookmark opens the application.—RH

Getting Out of an Option Box Rut

If you press a key and Adobe Photoshop 4 doesn't seem to react—or worse, it beeps at you—it's probably because it's trying to apply the command to an active option box. To get out of the option box and return control to the image window, press the return key.—DM

Speed the Printer

Make printing more convenient by putting aliases of your Desktop Printing icons in all the folders you use the most—then you're never more than a quick drag away from a print job. Also, rename the desktop printer icons to make it easier to remember which printer has letterhead or is closest to the mailroom.—JS

Into the Database Faster

If you have a multiuser Claris FileMaker Pro database, you can get rid of that annoying password dialog box without getting rid of password protection. Set the database to use the lowest-level password you've created for that particular database (click on the Try Default Password check box in the Document section of Preferences, under the Edit menu). If you want to use a different password, just hold down the option key when you open the database.—SC

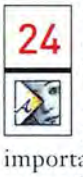
Handling Layers in Photoshop 4

Used to working with layers in Adobe Photoshop 3? Version 4's method of pasting a selection into a layer mask can be confusing. To do so without creating a new layer, option-click the layer mask thumbnail to view *only* the mask, and *then* paste your selection. Alternatively, use the Channels palette to select the mask channel and make it visible, then paste.—LP

Quick-Mask Quickies

Press the Q key to enter Quick Mask mode in Adobe Photoshop 4, where you can edit the selection outline as if it were a rubylith. Press the Q key again to exit the mode. Option-click on the Quick Mask icon in the toolbox to reverse the rubylith; that is, color the selected area with red and make the deselected area transparent. Double-click on the Quick Mask icon to change the color of the rubylith so it stands out more from the image.—DM

Getting To the Colors



Colors are now more convenient in Adobe Illustrator 7, but you have to know how to get to them. The four important key shortcuts to memorize are comma, period, slash (all in a row on the keyboard), and X. Press X to switch back and forth between the fill and stroke. Press the comma key to fill or stroke a selected object with a solid color and display the Color palette (if it's not already visible). Press the period key to fill a selection with a gradation and display the Gradient palette. Press the slash key to make the fill or stroke transparent.—DM

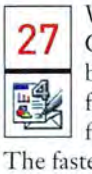
Hints on Tints

If you're one of the many Adobe Photoshop users who wonder why you can't shift-drag a slider handle to adjust all CMYK handles in unison (the way you can in Adobe Illustrator), it's because this technique doesn't work in Photoshop 4's Color palette. It doesn't need to because you can create a tint of any color simply by choosing HSB Sliders from the Color palette's pop-up menu and then adjusting the B (for brightness) slider. This maintains the slider settings for H (for hue) and S (for saturation), and modifies just the tint.—DM

Keyboard Shortcuts for Dialog Boxes

While the scrolling list of files and folders in an Open or Save dialog box is highlighted, typing in the first few letters of a file or folder name takes you there. You can also move up and down the folder hierarchy by holding down the ⌘ key and pressing the arrow keys. Pressing the up arrow takes you to the next level up in the hierarchy, while the down arrow drills down into whatever volume or folder is highlighted. Use the left and right arrows to switch volumes.—CC

Format Text Tout de Suite

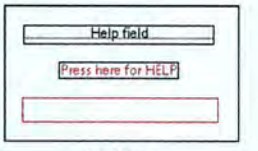


When designing a ClarisWorks 4 database, you can set text-formatting options for fields from the menus. The fastest way, however, is to double-click on the field. The Text Style dialog box that appears enables you to specify

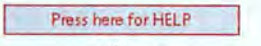
BONUS TIP

Make Sure Help Is Available

Want to create a Help button in your Claris FileMaker Pro database that can't be missed yet doesn't take up a lot of screen real estate? Select the Help field and choose Field Format. In the dialog box, select Pop-up List and then Define Value Lists. Create a new list, and type in your help information. Save the list and click on Done. Next, make the Help field transparent. Create a text block with something catchy, such as Press Here for Help. Set the text to an equally eye-catching color, and align it over the Help field. You might even want to place a box around the Help field to make it stand out a little more.—SC



Before



After

Step 1

These are the pieces in Layout mode (top) and how they look after alignment in Browse mode.

Step 2

Click on or tab to the Help field, and the help text (complete with scroll bar) pops up. Users can read the instructions and then continue with their work—the help text goes away when they tab out of the Help field.

BONUS TIP

Saving Categorized Mail

If you save your QuickMail in folders, you eventually end up with a lot of out-of-date folders that you still want to keep.—HB

Step 1

To move these messages offline, go into the folder and highlight all the messages. Then drag them to the desktop in one batch and delete the highlighted mail.

Step 2

They are collected into a giant text file named Dragged Mail, which you can rename something more descriptive. You have to go into the file to delete all the extraneous header information, but it's an easy way to clean up QuickMail folders.

the font, size, style, and text color all at once.—SS

In Doubt? Press Tilde

28

In Adobe Illustrator 6, you press the W key when drawing a star, spiral, or polygon to create a succession of motion trails. When scaling or rotating a shape filled with a tile pattern, you can manipulate the tile pattern and leave the shape unharmed by pressing the P key while dragging with the transformation tool. Those keys were somewhat random and difficult to remember, so Adobe switched them both to a tilde (~) in Illustrator 7. It's now the official hidden tricks key.—DM

More Delete-Key Tricks in Photoshop 4

29

Just when you thought you knew every delete-key shortcut, Adobe Photoshop 4 comes along and piles on a few more. First, you can press ⌘-delete to fill any selection with the background color, even if the selection is floating or on a layer. When working on a layer, you can press ⌘-shift-delete to fill only the opaque area of a selection with the background color. And press shift-option-delete to fill the opaque area with the foreground color.—DM

Improved Sanitation

30

The Layers, Channels, Paths, and Actions palettes in Adobe Photoshop 4 now include little trash icons in their lower right corner. In Photoshop 3, you had to drag an item onto the trash icon to delete it. Now you can just click on the trash icon to delete the selected item.—DM

Save the "Welcome" Mat

31

When you subscribe to an Internet mail list, you typically receive a "welcome" message, describing the purpose of the list and telling you how to unsubscribe. Save this message! Create a special mailbox to save all these "welcome" messages in. Otherwise, three months from now you won't be able to figure out how to send an unsubscribe message and, more important, *where* to send it. The address for sending subscribe and unsubscribe messages is different from the address you use to send postings to the list itself.—WHN

Keep Page Elements within Boundaries

32

When creating documents for the Web in Adobe PageMaker 6.5, make sure that graphics don't extend past the page boundary. Otherwise, they'll be removed when you export the page to HTML. Also, make sure that text blocks start within a page's margins—specifically, the upper left corner of the text block must be inside the page boundary. As long as that's done, it's OK for them to extend past the margins.—GG

A Safeguard against Overwrites

33

You don't want a single click on a master-page name to accidentally reformat the current page in Adobe PageMaker 6.5, so here's a safeguard: select the Prompt On Apply option from the Master Page palette's pop-up menu. When that's checked, each time you click on a master page's name from the palette, up pops a dialog box asking you to confirm whether you want a master page to be applied.—GG

Putting the Accent on the Right Syllable

34

Are you forever forgetting how to type accented letters? For a quick reference, open Apple's Key Caps under the Apple menu to display an on-screen version of your keyboard. Hold down the option key and you'll see the accent keys outlined in gray. Type one of those keys, then let up on the option key. The letters that will accept that accent are outlined in black. Press one of those keys to type an accented letter. (Press the shift key to see which shifted keys work with the accent.)—EF

See Layout Changes Now

35

As you experiment with different layouts and formatting in ClarisWorks 4, the usual procedure is to make changes in Layout mode, switch to Browse mode to see the effects of the changes, and then switch back to Layout mode for further adjustments. A smarter approach is to create a new window for the database by choosing New View from the View menu. Set one window for Layout mode and the other for Browse mode. Now, when you make changes, you instantly see their effects in the other window.—SS

Zooming in Photoshop 4

36

The latest version of Adobe Photoshop lets you zoom to 100 percent view size (that is, doubling the size of the view) from the keyboard by pressing ⌘-option-0 (zero). You can also press ⌘-0 to reduce or magnify the image so it exactly fits on screen.—DM

Adding Favorite Links

37

You can drag links to Adobe PageMill 2 from both Netscape Navigator 3 and Microsoft Internet Explorer 3. Just be sure to click and drag quickly to keep the link from activating. You can drop Navigator links right into your document, but you have to drag Internet Explorer links into PageMill's Link To field.—JSF

Be Sure the Fonts Go Too

38 If you want to print QuarkXPress pages as an EPS file and give it to a friend, but are worried that she'll get Courier substitution when she prints it because her computer doesn't have the right fonts, here's what you can do. Using LaserWriter driver version 8.X, open the document you will be saving as an EPS file. Choose Print from the File menu. In the Destination area of the Print dialog box, click on File, and then click on Save (the Save button will be where the Print button usually is). In the dialog box that appears, choose EPS Mac Standard Preview from the Format pop-up menu. Choose All from the Font inclusion pop-up menu. Name the EPS file and click on Save. The resulting file contains the fonts necessary to correctly print the text in the EPS file to a PostScript printer. Note: EPS files that are saved this way are ideal for use with QuarkImmedia's Print EPS action.—BA

An Empty In-Box Speeds Up Your Network

39 An easy way to be a good network neighbor is to clean out your CE Software QuickMail in-box regularly; file messages in folders (or better yet, act on them immediately) to keep them from bogging down the network.—ED

Highlight Bad Type

40 Few things are harder to read than small, 72-dpi type on a colorful, busy background. If you come across this on an abysmally designed Web page, selecting the text will usually help, as the highlighting wipes out the distracting background. (Then send e-mail to the Webmaster asking him or her to fix it.)—EF

Keep Snoops Away

41 The best way to deter snoops is to keep them from pawing around in the first place. Use ResEdit to create a threatening start-up message. Make a copy of System 7.5's WindowShade Preferences file (in the Preferences folder in the System Folder) and open the copy with ResEdit. Double-click on the STR icon and then open STR resource -16397 (it's the only one listed). In the field called The String is the error message normally generated by clicking on this file. Replace this text with your own scary message. When you're done, save the doctored file and place it in the Startup Items folder. If you're using System 7.5 or later, turn off Macintosh Easy Open. Anyone who starts up your Mac will be confronted with your intimidating message—and might be spooked enough to shut it down. You can dismiss the bogus warning when you start up, or avoid it completely by holding down the shift key as soon as the Mac desktop appears (this allows extensions to load normally but bypasses the Startup Items folder).—JS

Adding a Photo Album to the Tool Bar

42 If you have a folder of frequently used images, PhotoTools lets you append these images to Adobe Photoshop's tool bar as a pop-up menu. Click on the Customize Toolbars icon in the PhotoTools Commands palette. Then click on the button labeled New Button to display another dialog box, and select the Finder Item check box. You'll be asked if you'd like to select a file or folder. Click on the Folder button and locate the folder on disk. Then select an icon and press return. Finally, drag the icon up into the tool bar. From now on, your new icon serves as a pop-up menu of images in the selected folder. Just choose a file from the pop-up menu to open it in Photoshop.—DM

Make Better FileMaker Pro Searches

43 In Claris FileMaker Pro's Find mode, precede your keyword with an equal sign to find exact matches. For instance, **=Apple** will find instances of *Apple* but not *Applebaum*. To find specific pieces of text, bound your keyword or phrase by quotation marks. For instance, **"!"** finds records with exclamation points, while just **!** finds duplicate records.—SC

Tossing Locked Files

44 Normally, you must unlock files before you can throw them away. However, you can force the Trash to empty—regardless of what kinds of files it contains—by pressing the option key

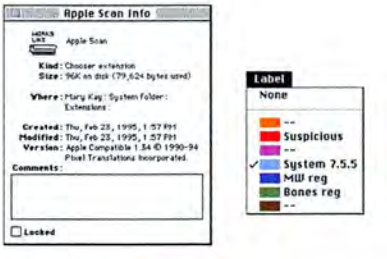
BONUS TIP

Keeping Tabs on System Clutter

The function of a control panel or extension is usually clear from its name—but not always. The two steps below will help you hunt down nonessential system components, see where they came from, and figure out what they do.—JS

Step 1

Perform a clean install of your system software and apply a color label to every item in the System Folder. Select all the files—in Name view use ⌘-option–right arrow to open all nested folders—then choose a color from the Finder's Label menu. You can also give the label an appropriate name. Later, this color coding lets you see which components were part of your original installation and which were dumped in by other programs (all the unlabeled files).



Step 2

If an extension's name or icon provides no clue as to what it is or does, select the icon in the Finder and use the Get Info command (⌘-I). The Version field almost invariably bears the name of the company that produced the software. You can quickly determine whether an extension is a piece of Apple software or a component added by third-party software, maybe software you no longer use. If the latter is true, you can safely trash it without fear.

when you choose the Empty Trash command. Presto—it's outta here.—SS

A Hidden Tip for Document Conversion

45 Adobe PageMill 2.0 includes a set of Mastersoft translation plug-ins that allow you to open many word processing formats from right within PageMill. The plug-ins automatically convert the file Record.—JSF

Changing Layers

46 Since the old layer-selection keystrokes are otherwise occupied in Adobe Photoshop 4, Adobe had to invent new keystrokes for switching layers. In the new version, you press option-[to select the next layer down and option-] to select the next layer up. You can also press shift-option-[or shift-option-] to switch to the bottom or top layer, respectively.—DM

Can't Remember the Name, Only the Initials

47 To find someone easily using Now Software's Now Contact's Find function, just type the initials with a space in between. For example, type **G A** to find the number for *Gil Amelio*.—CP

Fresh Fonts Folder

48 It's easier to start fresh with a new Fonts folder than to try to fix a damaged font suitcase. Drag the Fonts folder from the System Folder to the desktop. Then open the Fonts folder and drag the damaged suitcase to the Trash. Empty the Trash and put the Fonts folder back in your System Folder. If you can't drag the damaged suitcase to the Trash, create a new folder named Fonts inside the System Folder while your original Fonts folder is still sitting on the desktop. Drag everything except the damaged suitcase from the old Fonts folder to the new Fonts folder. Restart the computer and then drag the old Fonts folder, still containing the damaged suitcase, to the Trash.—LP

Speed Up Performance by Clearing Cache

49 Netscape Navigator 3's performance can become sluggish if a lot of pages are cached. To clear the cache, select Network Preferences from the Options menu, then click on the Clear Disk Cache Now button in the dialog box that appears.—EF

Bringing Up Nested Files

50 If you have a deeply nested file that you want to bring up the hierarchy in an outline view without dragging it to the desktop, simply highlight it and drag it up to the header of the window (anywhere above the double line will do). Then drop the file, and it will appear at the topmost level.—JS

Locking Your Toolbox

51 It's not unusual to use the same tool repeatedly when designing a database layout. Unfortunately, the ClarisWorks 4 database automatically switches back to the pointer after you use any other tool. To keep the same tool locked for repeated use, double-click when selecting the tool. To unlock a tool, simply click on another one.—SS

Yes, I'm Positive I Want to Delete This Message

52 CE Software's QuickMail always checks to make sure you want to delete a message. It's a nice feature, but somewhat aggravating. If you want to bypass this warning, press ⌘-option-D to delete; if you're using the mouse, hold down the option key when you click on the delete button.—ED

BONUS TIP

Slimmer, Trimmer Clipping Files

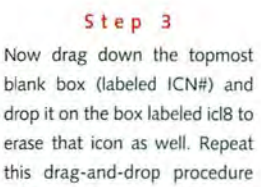
Once you discover the joy of using clipping files to capture and shuttle information from program to program, you may be tempted to drag and drop text like crazy—until you wind up with a desktop littered with clipping icons. For a less cluttered look, you can use ResEdit to create clipping files that appear on the desktop sans icons. To do this, first make a copy of the Clipping Extension file, located in the System Folder's Extensions folder, and open the copy with ResEdit.—JS

Step 1

Double-click on the ICN# resource icon to open the file's five ICN# resources (ICN stands for *icon*).

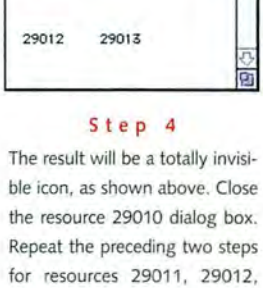
Step 2

Double-click on resource 29010 to open the icon editor, then erase the current icon so that the drawing field is completely blank (double-clicking on the eraser tool erases the whole icon automatically).



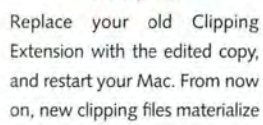
Step 3

Now drag down the topmost blank box (labeled ICN#) and drop it on the box labeled icl8 to erase that icon as well. Repeat this drag-and-drop procedure with all the other icons in the dialog box, including the two labeled Mask, so that they are all blank.



Step 4

The result will be a totally invisible icon, as shown above. Close the resource 29010 dialog box. Repeat the preceding two steps for resources 29011, 29012, and 29013 (don't worry about resource 128, which is the icon for the Clipping Extension file itself). Save your changes and quit ResEdit.



Step 5

Replace your old Clipping Extension with the edited copy, and restart your Mac. From now on, new clipping files materialize on your desktop with names but no icons, so you can arrange them more compactly. Double-clicking on the name opens the clipping file.

Launch Your PPP Connection Directly

53 Instead of allowing Qualcomm's Eudora, Netscape Navigator, or other Internet applications to indirectly launch your PPP connection, you should always launch FreePPP or MacPPP directly from their own menu prior to launching your Internet application. You will often experience difficulty reestablishing a PPP connection to your ISP, forcing you to reboot your Mac, if you do it the other way around.—WHN

Keep Browsing While Web Pages Load

54 Tired of staring at graphics-intensive Web pages while they're loading, chunk by chunk? You could be spending that time more productively, looking at other pages. While a slow page is loading, choose New Web Browser from Netscape Navigator 3's File menu. A new Navigator window appears, with the first page you opened when you started up Navigator. You can now browse other pages from the second window while the page in the first window is loading.—EF

Bounce Right Back after Search and Replace

55 After performing a documentwide operation such as a search and replace or a spelling check, Microsoft Word 6.0 usually places your cursor at the top of the document instead of where it was just prior to that operation. To get back to where you were, simply press shift-F5 (or 0), and your insertion point will jump back to where you left off editing. Use that keystroke again to go to the prior insertion point. (Hint: Word 6 stores the location of the last three insertion points.)—WHN

BONUS TIP

Dandify Your Database

Enliven your database by using graphics instead of Claris FileMaker Pro's drawing tools or Button tool. Not an artist? You can download many free or nearly free icon collections from Macworld Online (*http://www.macworld.com*) or *Macworld*'s forum on America Online (keyword *Macworld*). I mean, which would you rather use?—SC

A Tip for the Tab Key

56 When you have an Adobe PageMaker 6.5 document open with the arrow tool active, do yourself a favor and press the tab key. Presto! All open palettes are turned off, giving you a clear view of your document. Press tab again to reactivate the invisible palettes.—GG

Moving through the Palettes

57 Adobe Illustrator 7 makes navigating palettes a breeze with some nifty shortcuts. Press ⌘-tilde (~) to highlight the last value you edited in any visible palette. Then press tab to go from one option box to the next, or shift-tab to back up. After entering a new value, press return to apply the value and leave the palette; press shift-return to apply the value and keep it highlighted so you can change it again. If you remember these keys, you can race through palettes without ever touching the mouse.—DM

The Story Editor Adds Text

58 Want to create a new story in Adobe PageMaker 6.5's Story Editor? First, be sure your cursor is outside of all text blocks and press ⌘-E. After you type the text and close the Story Editor, a dialog box asks whether you want to place the text. Click on the Place button and place text as you normally would.—GG

Establish a Text Baseline

59 Fussy about how your text lines up on the page? Set up a baseline grid, a network of baseline guides that your type snaps to. Use QuarkXPress's global preferences to set up a grid to your liking by choosing the Edit menu's Preferences submenu, then Typographic. To view the grid once it's been established, choose Show Baseline Grid from the View menu.—BA

Be Wary with ResEdit

60 Whenever you alter a file with ResEdit, be sure to work on a copy of the original file. Why? ResEdit actually updates the file on disk. If you answer No when ResEdit prompts you if you want to save your changes when you close or quit the program, ResEdit reverses its changes. But if your Mac crashes or ResEdit quits unexpectedly before you can reverse your ResEdit changes, you'll find the changes in place when you restart your Mac.—EA

Rename without Pause

61 If you hate that pause between clicking on a Finder icon's name and being able to edit it, quickly move the mouse pointer just outside the name after you click on it. This maneuver instantly selects the text for editing. You can also click on the icon name and then move the insertion point by pressing an arrow key. Pressing the up-arrow key moves the insertion point to the beginning of the name; pressing the down-arrow key moves it to the end.—AS AND LP

Forget the Frame, but Keep the Text

62 If you've placed text in a frame in Adobe PageMaker 6.5, but then decide to get rid of the frame, use ⌘-F, or select Frame in the Element menu and then Separate Content. This splits the frame from its content, and you can delete the frame without losing the text.—GG

Finding Creator Codes

63 You don't have to use ResEdit to determine file type or creator codes for Find File searches—just drag a similar file onto the Find File window and the type or creator code fills in.—JS

Collapse Those Palettes

64 If a palette gets in the way of your viewing an image in Adobe Photoshop 4, you can hide it by clicking in the close box on the left side of the title bar, or collapse the palette by clicking in the collapse box on the right side of the title bar. To collapse the palette down to its smallest possible size—just the title bar and panel tabs—option-click in the collapse box or double-click on a panel tab.—DM

Put Off Long Print Jobs

65 Schedule long or complicated print jobs during off-hours with Desktop Printing 2's Timer option. Put the job on hold by clicking on the Hold button in the print queue window, then click on the Timer button. In the Set

Print Time dialog box, click on the At Time radio button, set the date and time when you want the job to print, and press return.—JS

One Emailer, Many Mailboxes

66 To avoid any confusion when two or more people are receiving e-mail with one copy of Claris Emailer 2, just create a separate folder for each person's mail. Then create a Mail Action that automatically places mail addressed to each person's account into the correct folder.—JSF

Adjust Your Cache When You Upgrade RAM

67 If you've added RAM to your Mac, be sure to go into the Memory control panel. Click on the Use Defaults button. Your system will check the amount of RAM it has, and the cache level changes accordingly.—MH

Extend a Selection

68 One of the most useful and universal Macintosh shortcuts is to extend a text selection by using shift-click. Say you've got a long text document and you want to select all but the last sentence. Instead of holding the mouse button down and slowly scrolling all the way through, you can instead select a short piece of text, use the scroll bar to jump the document down to the end of the next-to-last sentence, and then press shift at the same time you click the mouse there.—WHN

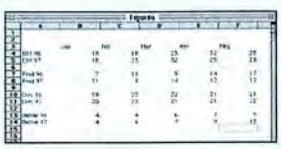
Delete Junk Mail Fast

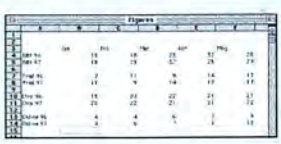
69 Most junk e-mail comes from the same few addresses. Each time I get junk e-mail from somebody new, I create a Mail Action in Claris Emailer that automatically files messages from that address as Deleted Mail.—JSF

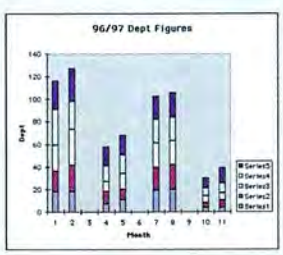
BONUS TIP

The Impossible Bar Chart

If you've ever wanted to make stacked bar charts with multiple groups in Microsoft Excel, you've probably thrown up your hands in frustration. It's not impossible, though—the trick is in laying out the data.—SD

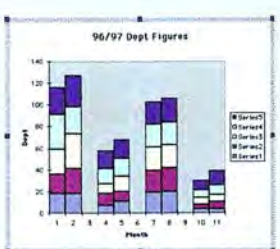






Step 1

Set up the data in rows and columns (left). Select the whole range of data, and create a new chart by choosing Chart from the Insert menu or clicking on the Chart Wizard button (center left). Double-click on the new chart to select it, then choose AutoFormat from the Format menu, and set the chart style to format number 3 in the Column gallery.



Step 2

With the bar chart still selected, choose Column Group from the Format menu, and in the dialog box that appears, click on the Options tab and set the Gap Width to zero (the default is 150). You'll end up with a chart like the example shown.

Illustrator Does Math

70 Adobe Illustrator 7 lets you add, subtract, multiply, or divide inside just about any dialog box. To enlarge a selected object to 200 percent of its current width, just append **2** to the W value in the Transform palette. To rotate an object 15 degrees farther than the previous rotation, add **+15** to the Angle value in the Rotate dialog box. Enter a slash to divide and a dash to subtract.—DM

Keeping Color Correction Consistent

71 The color-correction dialog boxes reset each time you bring them up on an Adobe Photoshop 4 screen to provide you with a fresh start. But there may be times when you want to take the corrections you applied to one image and duplicate them onto another image. To reinstate the last settings you applied, press the option key when choosing the appropriate command; or you can press option along with the keyboard shortcut, as in ⌘-option-L (for Levels).—DM

In Search of the Lost Bookmark

72 If you forget to add a site to your Bookmarks list in Netscape Navigator 3 and can't find it with a keyword search, open the System Folder, the Preferences folder, the Netscape folder, then the Cache folder. The Cache folder can hold hundreds of recently visited sites. Although the file names aren't very descriptive, you can open cached sites to find the one you are looking for.—EF

Cleanup on Aisle 7.5

73 Every Mac comes with driver software for a wide range of Apple printers. You need only the ones that work with the printers you actually use; ditch the rest. Look for driver files inside the Extensions folder. While you're there, pare down the Printer Descriptions folder, which is crammed with printer-specific files you'll never use. Similarly, your Extensions folder is probably full of CCLs—modem drivers used by the Apple Communications Toolbox. Each CCL file bears the name of a specific modem model. You need only the CCL file for your modem.—JS

Get AOL on the Road

74 Getting a local access number for America Online can be a problem when you're staying at a hotel that requires dialing 9 or 8 to get an outside line. You can't add that prefix to the toll-free number dialed for the "Get Local #" locality because AOL doesn't allow changing that locality's setup. Instead, choose the Home locality, click on the Setup button, and specify the outside-line prefix there. The prefix finds its way to the "Get Local #" locality. Problem solved.—HL

Batch Copy or Delete

75 Use Find File in the Apple menu (or Find in the Finder's File menu) to find a batch of files from multiple folders on one disk or on multiple disks. Then you can select all or any part of the found items and drag the batch from the Find File window to the Trash or to any disk or folder.—PR

Build a Free, Home-Grown URL Minder

76 Use Netscape Navigator's built-in Bookmarks feature to bookmark all the Web addresses you want to save, then open your list of bookmarks by choosing Bookmarks from the Windows menu. Now drag any of the bookmarks you created from the Bookmarks window to the desktop (or even more conveniently, drag the topmost bookmark *folder* in the hierarchy to grab *all* the bookmarks at once). Each bookmark appears as an individual Navigator file.—JS

Label Your Hyperlinks

77 Use descriptive names for your hyperlink sources and destination anchors in your Web authoring software's list of page links. After you've defined a few dozen links, you'll really appreciate having names that tell you what's being linked to what; there are very few things worse than having a list of items and you can't remember what they are.—GG

Launch a Slide Show

78 To flip through your Adobe PageMaker 6.5 document automatically, press the shift key while choosing Go To Page from the Layout menu. PageMaker displays a page (or spread), waits a few seconds, and then displays the next page or spread. You can cycle through until you click your mouse button.—GG

Quick Font Control

79 If you find yourself needing to change fonts in QuarkXPress often, here's a way to quickly access the font field in the Measurements palette. With the text box active and the text whose font you want changed selected with the Content tool, press shift-F9. Then type in the first few letters of the font you are changing to, press tab to move the cursor to the field for font size, type in the new point size, and press enter.—BA

Override Text Inset

80 The amount of text inset determines the distance that lies between the text and the boundary edges of the text box. For most documents, there really is no reason why you need any text inset at all—particularly for text that makes up the body of the document. But QuarkXPress defaults to an inset of 1 point. To permanently override this setting, choose Edit, then Preferences, then Tools to set the Text Box tool's inset to 0 (zero) points.—BA

Multiple Worksheet Magic in Excel

81 Everyone knows how to select multiple cell ranges in a Microsoft Excel document, but did you know you can select multiple worksheets by shift-clicking on the worksheet tabs at the bottom of the screen? By selecting multiple worksheets in this manner, you can delete a whole set of worksheets simultaneously, instead of one at a time. Or you can turn off gridlines in an entire workbook instead of on a sheet-by-sheet basis. And you can perform a search or spelling check on a whole workbook at once—normally, Excel restricts Find and Replace operations and spelling checks to the currently active worksheet only.—JS

Quick Text Boxes

82 One complaint about ClarisWorks 4's word processor is that there isn't a command to create boxes around text, as you might do to set off a title or emphasize a point. There are two simple tricks you can use to create this effect; each creates a boxed text object around which you can wrap the normal document text. First, you can create a new text object in a word processing document by choosing the text tool, pressing the option key, and then dragging. Enter your text in the blank box and then choose a line width for your border from the tool panel. Second, you can embed a one-cell spreadsheet in your document and then box it by choosing

BONUS TIP

Giving the Runaround

Although QuarkXPress's Runaround command won't work with an anchored picture box—a picture box pasted into a text box (also known as an in-line graphic)—you *can* dynamically adjust the space between the box and the text alongside it.—SAK

Step 1

Create an empty, frameless picture box by selecting Frame from the Item menu (⌘-B) and set the width to zero. Copy or cut the now-frameless picture box and paste it within the text box next to your anchored picture box (on the side of the text).

Step 2

Select each anchored picture box in turn and, from the Anchored Picture Box Specifications dialog box (choose Modify from the Item menu or press ⌘-M), set Align With Text to Ascent.

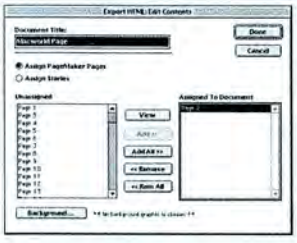
Step 3

Vary the amount the text is offset by widening or narrowing the empty picture box. The finished product looks much cleaner with text running around the photograph.

BONUS TIP

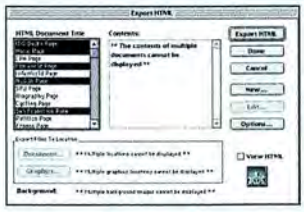
Exporting Multiple Linked Pages to HTML

When you export pages to HTML, Adobe PageMaker 6.5 merges all PageMaker pages specified into one HTML page. When you export PageMaker pages one at a time, links to other pages are lost in the resulting HTML pages. But there is an undocumented way to export multiple pages to HTML in a way that keeps them as separate HTML pages and retains any hyperlinks among them.—GG



Step 1

Create the HTML styles (using the New button in the Export HTML dialog box). You'll usually have one PageMaker page assigned to one HTML style, although if you want to merge several PageMaker pages into one HTML page, assign those pages to the HTML style. Do not assign multiple PageMaker pages to one HTML style if you want your pages to remain separate when exported to HTML.



Step 2

In the Export HTML dialog box, select each HTML style you want to export (the styles are listed under HTML Document Title). Use shift-click to select a contiguous range of styles, and ⌘-click to select noncontiguous HTML styles, as shown in the screen shot. Click on Export HTML to export the multiple pages. That's it!

the Borders command from the Format menu. Remove the grid letters, numbers, and other normally visible spreadsheet features by choosing the Display command from the options menu.—SS

Change Printers without Using the Chooser

83

To switch between two printers without going to the Chooser, use Apple's Desktop PrintMonitor software (part of System 7.6). Create desktop icons for printers with the Chooser. To change printers, simply select a desktop printer icon and choose Set Default Printer from the Printing menu that Desktop PrintMonitor adds to the Finder. Double-clicking a printer's icon opens a window in which you can control the print jobs waiting for that one printer; this makes PrintMonitor obsolete.—LP

We'll Be Meeting Every Week until Expo

84

To create a repeating event in Now Software's Now Up-to-Date without opening the Event Info window, just hold down the option key and drag the event to the day on which you want the event to repeat.—CP

Change a Subject Line

85

Sometimes you want to assign a different subject line to an e-mail than the one it arrived with, something that gives a better idea what the message is about or why you're saving it. In CE Software's QuickMail and Qualcomm's Eudora, while reading an incoming e-mail, simply hit the tab key and the cursor jumps up to the subject line, where you can enter a new subject.—WHN

Rotating the Grid

86

Here's an easy one: Want to rotate the new grid in Adobe Illustrator 7? From the File menu choose Preference, then General (⌘-K), and enter a new value in the Constrain Angle option box. Press return, and Illustrator rotates the grid to the angle you specified. Rectangles, ellipses, and even text automatically rotate to fit your new world view.—DM

Easy URL Minder

87

To make it easier to keep your Netscape Navigator Web-launching menu up-to-date, leave an alias of the folder containing your bookmark files out on the desktop. When you bookmark a Web site, drag the bookmark to the alias, making it available via the Apple menu.—JS

Expanding PageMill Tables the Easy Way

88

Despite what the Adobe PageMill 2 manual says, you can easily insert a row at the top of a table. With the table selected, hold down the option key and move the pointer over the top border of the table. When the pointer turns into a down arrow, click the mouse. A new row appears at the top of the table.—JSF

Delete without Guilt

89

To delete records in Claris FileMaker Pro 3 without encountering those annoying confirmation dialog boxes, use ⌘-option-E.—SC

Create Multiple Forms within PageMill

90

Adobe PageMill 2 allows you to create only one form per page. If you ever find the need to include more than one form on a page—for example, if you want to include access to two different search engines—just create a separate frame that runs horizontally across the page for each form.—JSF

Merge Files Easily

91

Merging files can be a nightmare. Fortunately, they're easy going in Claris FileMaker Pro 3. In Layout mode, use the text tool to create a text block and start typing the contents of your merge document. To insert a merge field, use ⌘-M—up pops the Specify Field dialog box, which lists every field in your database and in related files. FileMaker Pro 3 inserts the field along with the angle brackets (<< >>). When you print or browse, the fields automatically close up any empty space in the text block.—SC

Best Way to Save Bitmaps

92

Save bitmap files—whether gray scale, color, or black and white—in the size that you intend to use for a QuarkXPress layout. Enlarging a bitmap more than 20 percent can result in blocky-looking images, because the pixels that make up the image are enlarged along with the image itself.—BA

First Crop, Then Import

93

Do you wait to crop images in Adobe PageMaker rather than crop in your image editor because it's so easy to do? When you crop in PageMaker, the blank space left behind isn't really

blank—it's a series of white dots that continue to take up space in your file. An additional advantage to cropping first is that whoever handles the layout later has only the part of the image you want them to have.—GG

Excel's Name Game

94 Don't waste time hopping from cell to cell with the scroll bars—use Microsoft Excel's Name function, which lets you apply a name to a range of cells, and then navigate to those cells simply by choosing the name from a pop-up menu. Select a range of cells that you want to name and then click once in the Name box—the field on the far left edge of the formula bar. Type in a name (up to 31 characters, no spaces) and press return. Now, any time you want to return to the selected cell range, choose the name from the menu to the right of the Name box.—JS

How to Rotate Boxes but Not Graphics

95 You might want to rotate a picture box but keep the graphic inside the box at its original orientation in QuarkXPress. To do so, rotate the picture box and then press ⌘-M to open the Picture Box Specifications dialog box. In the Picture Angle field, enter the reverse value of the picture box's rotation angle. For example, if the picture box is rotated 33 degrees, set the Picture Angle at -33 degrees.—BA

Universal Preferences

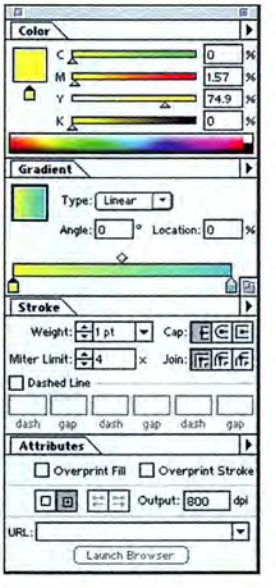
96 In Adobe PageMaker 6.5, if no document is open and you change settings in any of the preferences dialog boxes, or create or modify styles and colors, or adjust settings for the various tools, then your changes become the defaults for all future documents. To get quick access to the Preferences dialog box, double-click on the arrow-tool icon in the toolbox.—GG

New Text Settings for QuarkXPress

97 If you define text settings via the Style menu or Measurements palette in QuarkXPress and decide you want to create a style that contains these attributes, just position your text cursor anywhere on the text that has the desired settings. Then choose New in the Style Sheets dialog box (under the Edit menu). The new style you create automatically includes all settings. This is handy if you want to experiment with settings on dummy text before creating a style for future use.—BA

BONUS TIP

The Great Palette Collapse



In Adobe Illustrator 7, you can glue gobs of palettes to each other by dragging the tab from one palette onto the base of another. The result is a mega-palette like the gang of four above, which moves, collapses, and expands in one lump. To collapse the whole palette, click in the collapse box on the right side of the title bar. Expand individual palettes by double-clicking on their tabs.—DM

At Home on the Range

98 One-click navigation shortcuts are always better than endless scrolling or tabbing through a Microsoft Excel worksheet. Use the home key to scroll your spreadsheet to the top of your current column. ⌘-home teleports you to the first cell of the current worksheet, and ⌘-end zips you down to the last cell of the entire worksheet. If your work is spread across several worksheets, use option–left arrow and option–right arrow to move from worksheet to worksheet without clicking on the sheet tabs at the bottom of the screen.—JS

Change Columns Easily in PageMaker 6.5

99 Do you want to change the number of columns in an Adobe PageMaker 6.5 layout, but shy away from all the steps involved? Try this: instead of cutting an unwanted column, just select one of its windowshade handles. Then roll it up or down until it touches the other handle. That's it. If you select any other element and then try to reselect the original column, you'll find it's disappeared, and the text automatically reflows into the remaining columns. Then, just resize the text blocks to fit the new column layout. If you want to add a column, click on the + symbol at the bottom of any column's windowshade, then click the cursor where you want the new column to appear. The text flows from the windowshade with the + into the new column.—GG

How Can I Justify That?

100 Importing H&J (hyphenation and justification) sets in QuarkXPress is similar to importing styles: use the Append button in the H&Js dialog box (choose H&Js from the Edit menu). If you have no document open while importing H&J sets, you are copying all new H&J sets into your global defaults—those stored in your XPress Preferences file. This is a handy way to bring new H&J sets in without affecting existing H&J sets.—BA

Target Practice

101 To make sure you don't grab a column guide in Adobe PageMaker 6.5 while you are trying to select a neighboring graphic on the page with the arrow tool, press ⌘ as you select.—GG

The following members of the *Macworld* staff, contributing editors, and Macophiles contributed these tips. Staff: Howard Baldwin (HB), Suzanne Courteau (SC), Cameron Crotty (CC), Elizabeth Dougherty (ED), Galen Gruman (GG), Mark Hurlow (MH), Carol Person (CP), and Jeff Sacilotto (JFS). Contributing editors: Erfert Fenton (EF), Deke McClelland (DM), Lon Poole (LP), and Joseph Schorr (JS). Macophiles: Eyal Arie (EA), Barbara Assadi (BA), Shane Devenshire (SD), Richard Hayes (RH), Swami Arumugam Katir (SAK), Howard Levitsky (HL), Wade H. Nelson (WHN), Paul Rubin (PR), John San Filippo (JSF), Steven Schwartz (SS), Adam Slim (AS), Gene Steinberg (GS), Nitin Verma (NV), and Mike Wakerly (MW).

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IT PAYS TO

COMPARE

Compare APS M•POWER Mac OS-compatible computer systems to the competition and you'll choose an M•POWER system because feature for feature, value for value, the best deal available today in Mac OS compatible systems is only available from APS. Performance, configuration options, sheer computing power, whatever your criteria, you won't find more for less!

	M•POWER 604E200	POWERMAC 7300/200	POWERTOWER PRO 200 [CORE]
Processor	604e, 200MHz	604e, 200MHz	604e, 200MHz
Hard Drive	✔ 2.5GB	2GB	2GB
VRAM	✔ 2MB	✔ 2MB	✔ 2MB
Warranty	✔ 2 yr. limited	1 yr. limited	1 yr. limited
Price	✔ $1,899	$2,649	$2,695

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- 512K L2 Cache
- ADB Keyboard & Mouse
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- Optional 5-Year Service Contract

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- Five PCI Expansion Slots

MacUser LABS 365 282 — 604e200 603e200

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- 1MB of VRAM
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- 2-Year Limited Warranty
- Optional 5-Year Service Contract

Desktop Model
- Two 5.25" Internal Bays
- Two 3.5" Internal Bays
- Three PCI Expansion Slots

Mini-Tower Model
- Three 5.25" Internal Bays
- Four 3.5" One-inch High Int. Bays
- Five PCI Expansion Slots

M•POWER 603e180

$1199*

Part # 7006-STD

Includes:
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- 16MB of DRAM
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- Floppy Drive
- 1MB of VRAM
- ADB Keyboard & Mouse
- 2-Year Limited Warranty
- Optional 5-Year Service Contract

Desktop Model
- Two 5.25" internal bays
- Two 3.5" internal bays
- Three PCI Expansion Slots

Mini-Tower Model
- Three 5.25" Internal Bays
- Four 3.5" One-inch High Int. Bays
- Five PCI Expansion Slots

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Left to right, the Sony Multiscan 200sf, Portrait Displays Pivot 1700, and ViewSonic Optiquest V773.

17-inch

Macworld Lab Examines 31 Monitors Close-Up to Find the Best Buys

Screen Stars

LIKE ASPIRING HOLLYWOOD ACTORS, MOST MACINTOSH users yearn for a shot at the big screen—only, in Mac parlance, that means a big monitor. How big is "big," though? Desktop publishers and graphic designers may want every inch of a 21-inch monitor, but at an average price of $1500, one of those can devour your desk and your wallet faster than you can say *Waterworld*.

If that would be an epic disaster for your bank account, consider a 17-inch monitor. With about half the pixels for half the money, a 17-inch monitor still offers plenty of virtual desktop room for image editing or spreadsheet work, and more real desktop room for your coffee mug. Also, because limitations of tube technology make consistent color, brightness, and focus harder to achieve at larger sizes, 17-inch monitors actually tend to deliver better image quality than their colossal cousins do. That makes it easier to shop for features and price without compromising on the picture.

Still, not all 17-inch monitors are created equal. *Mac-*

Macworld LAB TEST

by Peter M Stoller

PHOTOGRAPHS BY PAUL FRANZ-MOORE

world's expert panel of graphic designers, editors, and lab analysts put 31 popular models on the casting bench to determine which pictures are easiest on the eyes and which controls are easiest on the brain (as well as fingers). Then we compared prices and rated all 31 monitors accordingly. We found seven excellent (four-star) choices for a street price of $800 or less, and even one acceptable alternative as low as $500.

Screen Test

In this business, looks count. A poor display causes discomfort and potentially hazardous eyestrain, so look for a screen image that's bright, vivid, and sharp. We were impressed with nearly all these monitors, but a few stood out at either extreme.

Most critical to image quality is focus. *Macworld*'s panel tested every monitor with a full-screen spreadsheet, checking for sharp lines and legible text across the entire display area. You want sharp, clear characters, as we saw on the VisionMaster Pro 17 from Iiyama (*http://www.iiyama.com*), the SyncMaster 17GLsi from Samsung (*http://www.sosimple.com*), and the EO75-M from Princeton Graphic Systems (*http://www.prgr.com*). Least sharp, though still very usable, were the Mazellan 17PX from Hansol Multitech (*http://www.hansol-us.com*) and the Multigraph 447Xi from Nokia (*http://www.nokia.com*).

Brightness is next on the list. A good monitor can shine through bright ambient lighting conditions from the morning sun to glaring office fluorescents. Studying a full-range gray-scale photo on each screen, our experts tagged the AlphaScan 760 from Sampo as the brightest of all, with Eizo Nanao's (*http://www.eizo.co.jp/welcome/*) FlexScan TX-C7S not far behind. On the dark side, the Crystal Lake 17 from Pacom Data (*http://www.pacomdata.com*) and the DX700T-M from Mag Innovision (*http://www.maginnovision.com*) couldn't hold a candle to the rest.

Equally important is contrast. You want to see deep blacks alongside those bright whites, and clear distinctions of all the gray levels in between. This gives images depth and definition, as we saw in our gray-scale photo on the FlexScan TX-C7S. Lower-contrast monitors such as the Crystal Lake 17 and DX700T-M present a relatively dull picture.

Colors should be rich, brilliant, and realistic. We evaluated color with an Adobe Photoshop image created by *Macworld* especially for displaying everything from saturated primary colors to subtle shades and flesh tones. Especially impressive were the vibrant AlphaScan 760, the EO75-M, and the WyseVision WY-782D from Wyse Technology (*http://www.wyse.com*). A strong blue cast made the Crystal Lake 17 the only monitor with unacceptable color. The Multiscan 17seII from Sony (*http://www.sony.com/technology/*) had a slight but noticeable magenta cast.

At least the Multiscan 17seII allows you to customize the color balance to correct for such anomalies or compensate for different lighting conditions; the Crystal Lake 17 is limited to two preset color temperatures. The Options button in the Monitors control panel gives you access to page-white and uncorrected gamma settings in addition to the default Mac standard, but these settings are far too coarse for precise color control. (For more about adjusting display characteristics, see the sidebar, "Taking Control—How Easy Is It to Get the Best from Your Monitor?")

17-Inch Monitors Compared

Company	Product	Star Rating*	List Price/ Company's Estimated Price**	Phone
Apple Computer	AppleVision 1710	★★★★/7.4	NP/$799	408/996-101C
	Multiple Scan 1705 Display	★★★/5.1	NP/$649	408/996-101C
Eizo Nanao Technologies	FlexScan FX-C5	★★★/6.5	$948/$853	562/431-5011
	FlexScan TX-C7S	★★★/6.7	$1299/$1125	562/431-5011
Hansol Multitech	Mazellan 17PX	★★★★/7.0	$899/$750	714/562-5151
Hitachi/NSA	RasterOps SuperScan Mc 600	★★★/5.3	$799/$599	617/461-8300
	RasterOps SuperScan Mc 611	★★★/5.1	$949/$749	617/461-8300
Iiyama North America	VisionMaster 17	★★★/6.8	$799/$710	215/957-6543
	VisionMaster Pro 17	★★★★/7.2	$899/$799	215/957-6543
KDS	Visual Sensations VS-9	★★★/5.4	$753/$699	714/379-5595
Mag Innovision	DJ702e-M	★★★/5.5	$659/$629	714/751-2008
	DX700T-M	★★★/5.5	$799/$699	714/751-2008
Mitsubishi Electronics America	Diamond Pro 87TXM	★★★★/7.2	$829/$799	714/220-2500
NEC Technologies	MultiSync P750	★★★★/7.3	NP/$899	630/775-7900
	MultiSync XV17+	★★★/6.9	NP/$749	630/775-7900
Nokia Display Products	Multigraph 447Xi	★★★/6.4	$925/NP	415/331-4244
Pacom Data	Crystal Lake 17	★★/3.9	$549/$499	408/764-0590
Panasonic Computer	PanaSync S17	★★★/6.7	$729/$629	201/392-4500
	PanaSync/Pro P17	★★★/6.4	$899/$799	201/392-4500
Portrait Displays	Pivot 1700	★★★/6.9	$1099/$900	510/227-2700
Princeton Graphic Systems	EO75-M	★★★/6.2	$799/$699	714/751-8405
	EO76-M	★★★/5.8	$799/$720	714/751-8405
Sampo Technology	AlphaScan 711	★★★/6.1	$599/$499	770/449-6220
	AlphaScan 760	★★★/6.0	$799/$699	770/449-6220
Samsung Electronics America	SyncMaster 17GLi	★★★★/7.1	$789/$715	201/229-4000
	SyncMaster 17GLsi	★★★★/7.0	$1019/$929	201/229-4000
Sony Computer	Multiscan 17seII	★★★/6.8	NP/$999	408/894-0555
	EDITORS' CHOICE			
	Multiscan 200sf	★★★★/7.5	NP/$799	408/894-0555
ViewSonic	Optiquest V773	★★★★/7.1	$599/$579	909/869-7976
	PT775	★★★/6.4	$999/$945	909/869-7976
Wyse Technology	WyseVision WY-782D	★★★/5.5	$949/$669	408/922-4300

NP = not provided. * *Based on features, implementation, innovation, performance, reliability, ease of use, and value.* (See Star Ratings

Viewable Area (w × h, in inches)	Warranty (in years) for Parts/CRT/Labor	Comments
NP	1/1/1	Affordable, but what really sets the 1710 apart are excellent software controls.
12.6 × 9.5	1/1/1	Good image quality tends to distort at high brightness; cheap buttons with no color controls and no on-screen display.
12.6 × 9.4	3/3/3	Hardware controls take some getting used to, and at this price the excellent software controls (a $25 option) should be included.
12.8 × 9.5	3/3/3	Excellent image quality and software interface, but is exorbitantly expensive.
12.6 × 9.5	3/2/3	Good image quality, elegant hardware controls, and a competitive price.
12.8 × 9.7	3/3/3	Slightly clunky control interface, but decent picture and low price make this a fair contender for the budget buyer.
12.8 × 9.7	3/3/3	Is too pricey for merely average image quality and hard-to-see controls.
12.6 × 9.4	3/3/3	Great image quality at a fine price; comprehensive but convoluted controls.
12.8 × 9.6	3/3/3	Beautiful, feature-rich, and well priced; comprehensive but convoluted controls.
12.8 × 9.5	3/1/2	Good-looking but saddled with inelegant controls and inflexible swivel stand.
13.0 × 9.6	3/2/1	Good image quality and low price, plus a cool Jag wheel control.
12.9 × 9.8	3/2/1	Sharp image, sensible controls, and good price, but too dim for the top tier.
12.8 × 9.5	3/3/3	Solid image quality, top-notch hardware and software controls, and a realistic price—a good contender.
12.4 × 9.3	3/3/3	A bit pricey but worth it for a brilliant picture, and excellent controls.
12.4 × 9.3	3/3/3	Rich colors and standard-setting on-screen controls at a good price.
12.6 × 9.3	3/2/3	Great color and great controls, but above-average price. Centrally located power button is too easy to hit accidentally while using the controls.
12.6 × 9.4	3/3/3	Sharp picture and rock-bottom price, yet no bargain, due to dim, blue picture; limited features; and hard-to-use controls.
12.8 × 9.6	3/3/3	Good picture quality, controls, price, and support—a solid, sensible selection.
12.8 × 9.6	3/3/3	Doesn't beat the less costly PanaSync S17 by enough to warrant a higher price.
12.7 × 9.4	3/3/3	Unique pivoting feature isn't cheap, but it's the only one around.
12.7 × 9.5	3/3/3	Good looks and price; too bad about its poor controls and cheesy stand.
12.9 × 9.6	3/3/3	Poor on-screen controls, but good picture and price make it a fair deal.
12.6 × 9.5	3/2/2	Limited color features and on-screen controls, but a great picture and price.
12.6 × 9.5	3/2/2	User-unfriendly controls make what could have been a great deal merely good.
12.6 × 9.5	3/3/3	Good-looking display and snazzy controls; the price tag's right on the money.
12.6 × 9.5	3/3/3	Bests the excellent 17GLi, adds custom color controls—and hikes the price.
12.9 × 9.5	3/2/3	Slight magenta cast and high price count against this exceptional unit.
12.9 × 9.5	3/2/3	Sony's lauded Trinitron quality, elegant interface, at a surprisingly low price.
12.7 × 9.5	3/3/1	The best combination of image quality and controls for under $600.
12.8 × 9.7	3/3/3	Very good image quality and controls, but they don't merit this price.
12.9 × 9.7	3/3/3	Picture and price are equally compelling, but has awkward controls.

section for full explanation.) ** *Actual prices could be higher or lower than the estimated street price provided by the company.*

Wading through Specs and Hype

Monitor vendors toss a lot of terminology around to hype their products. Don't let that sway you. Look at the screen, not at the spec sheet.

All cathode-ray tubes (CRTs) contain a thin metal mask that helps keep the electron beams trained on the correct phosphor elements in the tube to project a clear image on screen. Shadow-mask monitors contain phosphor dots; aperture-grille monitors (Trinitrons and DiamondTrons) have phosphor stripes. The new Croma-Clear CRT from NEC (*http://www.nec.com*) is essentially a hybrid of the other tube types, using elliptical phosphors. The three types look different, but none is inherently better. Also, all these tubes have equally effective antiglare and antistatic screen coatings.

Dot, *grille*, and *mask pitch* refer to the distance between the dots or stripes used to display the image. Smaller numbers mean a finer resolution of details, but as with CRT type, those numbers didn't correspond with our panel's preferences. Even the largest dot pitch yielded a crisp picture.

Some of these monitors can display as many as 1280 by 1024 pixels, but cramming two pages' worth of information onto a 17-inch screen is generally impractical. At such high resolutions, details are too small to see, and the number of pixels can exceed the number of dots or stripes available to display them.

Another figure *not* to worry about is refresh rate. Vendors boast fast maximum refresh rates for their monitors, but the actual rate is determined by the Mac's built-in or card-based video circuitry, not the monitor. Thus, all these monitors will refresh at the same rate on your Mac.

If you're concerned about energy conservation and low-frequency emissions, relax: every one of these monitors meets or exceeds both the Environmental Protection Agency's standards for energy efficiency and the Swedish government guidelines for low emissions.

Buying Tips

While our panel's responses are an excellent guidepost, you're the one who's going to be living and working with this monitor. What matters is how comfortable you are with the image quality, controls, and credit card bill. Shop for your needs and tastes, using the types of tests we describe above. Trust your eyes above all else. If you can't find the model you want to evaluate properly displayed at a local dealership, mail-order it from a dealer offering a minimum 30-day unconditional money-back guarantee and no restocking fee.

Don't succumb to feature-itis; more features don't make a better monitor. Concentrate on features you need—don't sweat the color controls if you do mostly word processing—and on how easy it is to use the features you'll access regularly, such as brightness and contrast.

Ask about service and support. Of the 19 vendors in our survey, 12 offer a standard three-year warranty for parts, labor, and the CRT, but the rest have shorter terms for the CRT or labor. Apple offers the skimpiest warranty: one year across the board. On the plus side, some companies—including Hansol, Iiyama, KDS, and, for corporate customers, Mitsubishi—will advance-ship replacement units within 48 hours, and Panasonic will replace monitors on site within the first year.

Finally, make sure the monitor includes

Taking Control — How Easy Is It to Get the Best from Your Monitor?

HARDWARE CONTROLS

On-screen menu controls are a hit with manufacturers; the only monitors without them are the Pivot 1700, from Portrait Display (*http://www.portrait.com*), because it's impractical to make the menu pivot with the monitor, and the Apple Multiple Scan 1705 Display. However, on-screen controls were less popular with our panel.

The on-screen display and the hardware used to operate it should be clear, intuitive, and well integrated. Our panel preferred controls that offer both graphic and numeric on-screen feedback, with dedicated physical buttons rather than multilevel menus for directly accessing display parameters. Sony's Multiscan 17sell and Multiscan 200sf both provide a perfect example of this, with large, well-organized, clearly labeled buttons (see A) that let you adjust practically everything within a single menu level. Also popular, Hansol's Mazellan 17PX makes you go to a second menu level to adjust parameters, but its menus and beautiful buttons are particularly intuitive (B).

Unfortunately, many vendors oversimplify the hardware while complicating the menus. Eizo Nanao's FlexScan monitors confused our panelists with a single, square button that has a dot in the center and an arrow on each side—essentially, five buttons in one (C). (Also, the button's right-hand placement is unfriendly to lefties.) The WyseVision WY-782D and Mag Innovision DJ702e-M's integrated wheel-and-button interfaces share the right-hand bias and all-in-one control concept of the FlexScans (D), as well as having menus that make it necessary for you to scroll past every feature to exit.

A Sensible Sony The controls on the Multiscan 17sell are clearly identified and organized, so you are neither overwhelmed with buttons nor put through a maze of menus.

C Not-So-Easy Eizo Nanao Sometimes less really is less. The single, five-way button that serves as the control on the FlexScan FX-C5 and FlexScan TX-C7S perplexed our panelists.

B Handsome Hansol The Mazellan 17PX's buttons are labeled and arranged for ease of use, and they look and feel luxurious.

D Wyse Technology The WyseVision WY-782D uses a decidedly unwise thumb-button and roller-control combo that's too awkward to be practical.

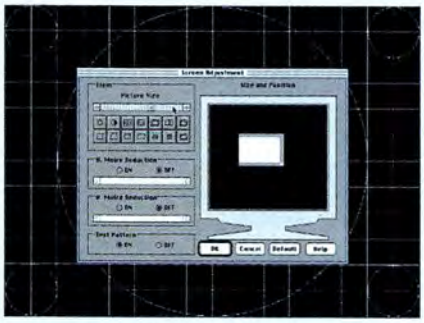
SOFTWARE CONTROLS

No matter how well implemented they are, on-screen controls for adjusting your display still aren't integrated with the rest of the computer system. Their interfaces are foreign (and generally inferior) to that of the Macintosh OS.

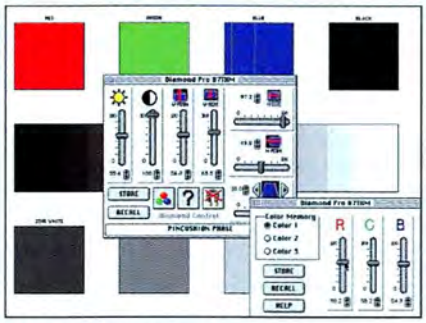
Eizo Nanao offers a vastly superior alternative in its Screen Manager Pro software (E). With a serial cable between the Macintosh and the monitor, you can use this application's Mac interface and your mouse to control your monitor. Mitsubishi has a comparable program called Diamond Control (F).

Apple (*http://www.apple.com*) has similar controls for its AppleVision 1710 Display (G). The AppleVision software, however, acts as a plug-in to Apple's Monitors & Sound control panel, which opens in place of an on-screen menu when you push the monitor's control buttons. The interface between the monitor and the Macintosh is an ADB cable, so you can use the monitor software all the time without having to tie up a serial port.

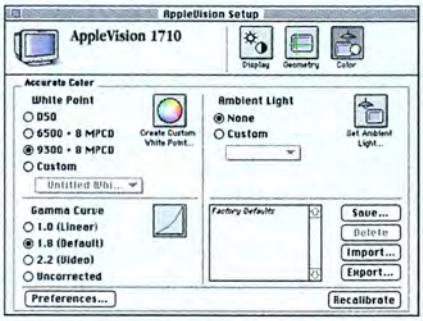
Six vendors—Eizo Nanao, Hitachi/NSA, Iiyama, Mitsubishi, Nokia, and Samsung—bundle Colorific color-calibration software from Sonnetech (*http://www.colorific.com*). Using this software, you match graduated gray and color squares on screen to one of two special vinyl overlays—one for fluorescent lighting and one for incandescent—setting the monitor's color temperature and gray-scale midpoint. Colorific works with Apple's ColorSync to match on-screen colors to printed output.



E Nanao Geometry The test patterns in Nanao's Screen Manager Pro help make adjusting display characteristics a snap.



F Diamond Control Mitsubishi's Diamond Control lets you quickly and easily slide or nudge any display parameter to a precise value.



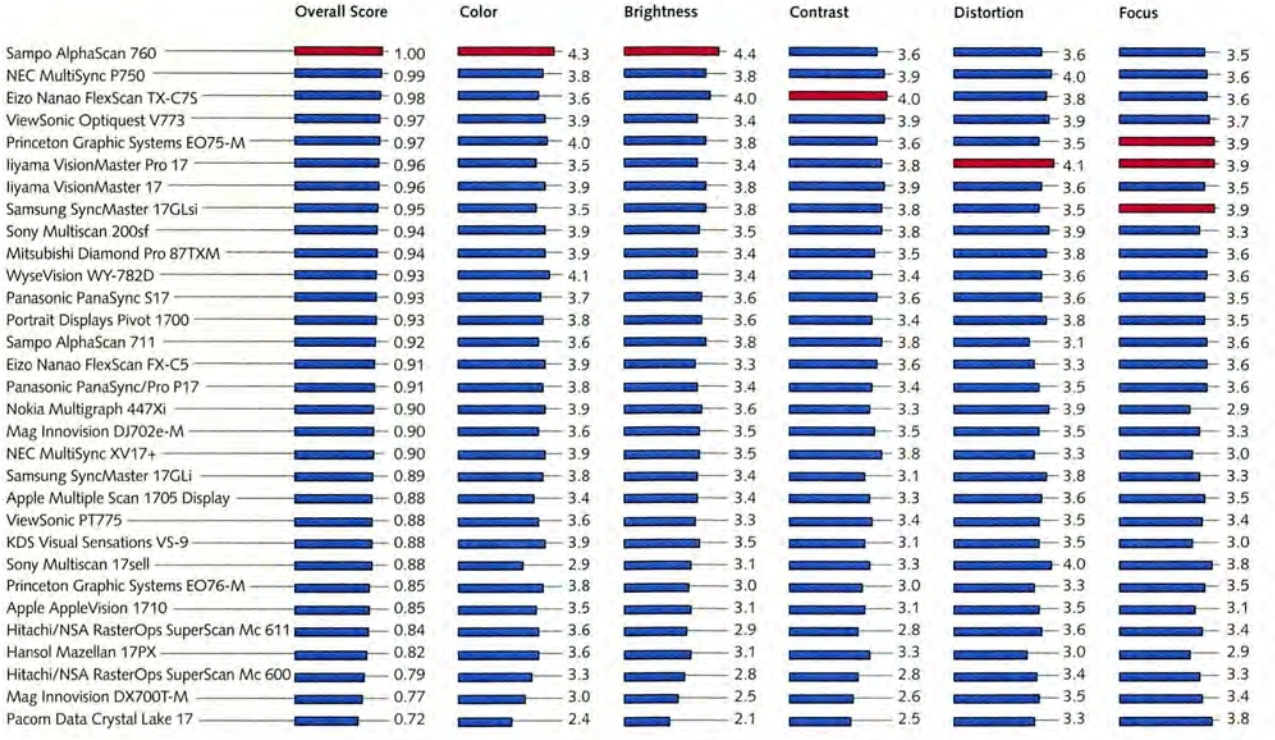
G AppleVision Apple's AppleVision software controls are well organized, comprehensive, and very easy to use.

Macworld LAB TEST

17-Inch Monitors: Image Quality

Past testing has demonstrated that objective measurements of monitor brightness, contrast, and distortion do not reliably indicate image quality, so Macworld Lab conducted only subjective testing. As the scores below indicate, the top-ranking monitor for image quality has lots of close competitors. Before you buy, compare individual scores for any factors that are especially critical to your work—color, brightness, and contrast for desktop publishing; distortion and focus for spreadsheets, CAD, and fine-line design.

Best result in test. Longer bars are better. Products are listed from best overall to worst overall.



Behind Our Tests

A panel of *Macworld* editors, designers, and art directors evaluated each product and gave it a subjective score from 1 to 5 (with 5 representing a perfect score) in the following critical areas: color quality and accuracy, contrast, brightness, and focus. To gauge color fidelity, the panel members compared each monitor's screen image of a 24-bit color Adobe Photoshop file; to gauge contrast and brightness, they looked at a 24-bit gray-scale Photoshop file; and to gauge focus and distortion, they examined the grid and varying-size text of a Microsoft Excel spreadsheet.—**Macworld Lab testing supervised by Matt Clark**

a Mac adapter or cable. Of the surveyed vendors, only Pacom and Wyse make no provision for Mac adapters, leaving you to drop $20 on a third-party adapter. (Adapters from companies such as Liberty and UniMac are available where monitors are sold.) Some monitor vendors arrange to have dealers provide adapters free on request, so don't forget to ask.

Macworld's Buying Advice

With so many fine monitors, it was no easy task picking an Editors' Choice. On balance, Sony's Multiscan 200sf emerged with solid to exceptional ratings in every performance and interface category, and with a very reasonable price.

For big-money performance under $600, you can't go wrong with the all-around highly rated Optiquest V773 from ViewSonic (*http://www.viewsonic.com*). Serious bargain hunters will probably forgive the Sampo AlphaScan 711 its somewhat clunky controls, because image quality this good at a street price under $500 is a steal.

Ultimately, though, all of our four-star monitors are good deals, with the star quality to be a big hit soon on a Macintosh desktop near you. **m**

PETER M STOLLER (*afcpeters@aol.com*) is a Macintosh consultant and possibly the only freelance writer in Hollywood not working on a screenplay.

EDITORS' CHOICE

★★★★/7.5 **Multiscan 200sf** Of 31 monitors, this elegant, thoughtfully designed product had the best balance of image quality, control, interface, and value. **Company:** Sony Computer (408/894-0555, *http://www.sony.com/technology/*). **Company's estimated price:** $799.

REAL PRODUCTS REAL RATINGS

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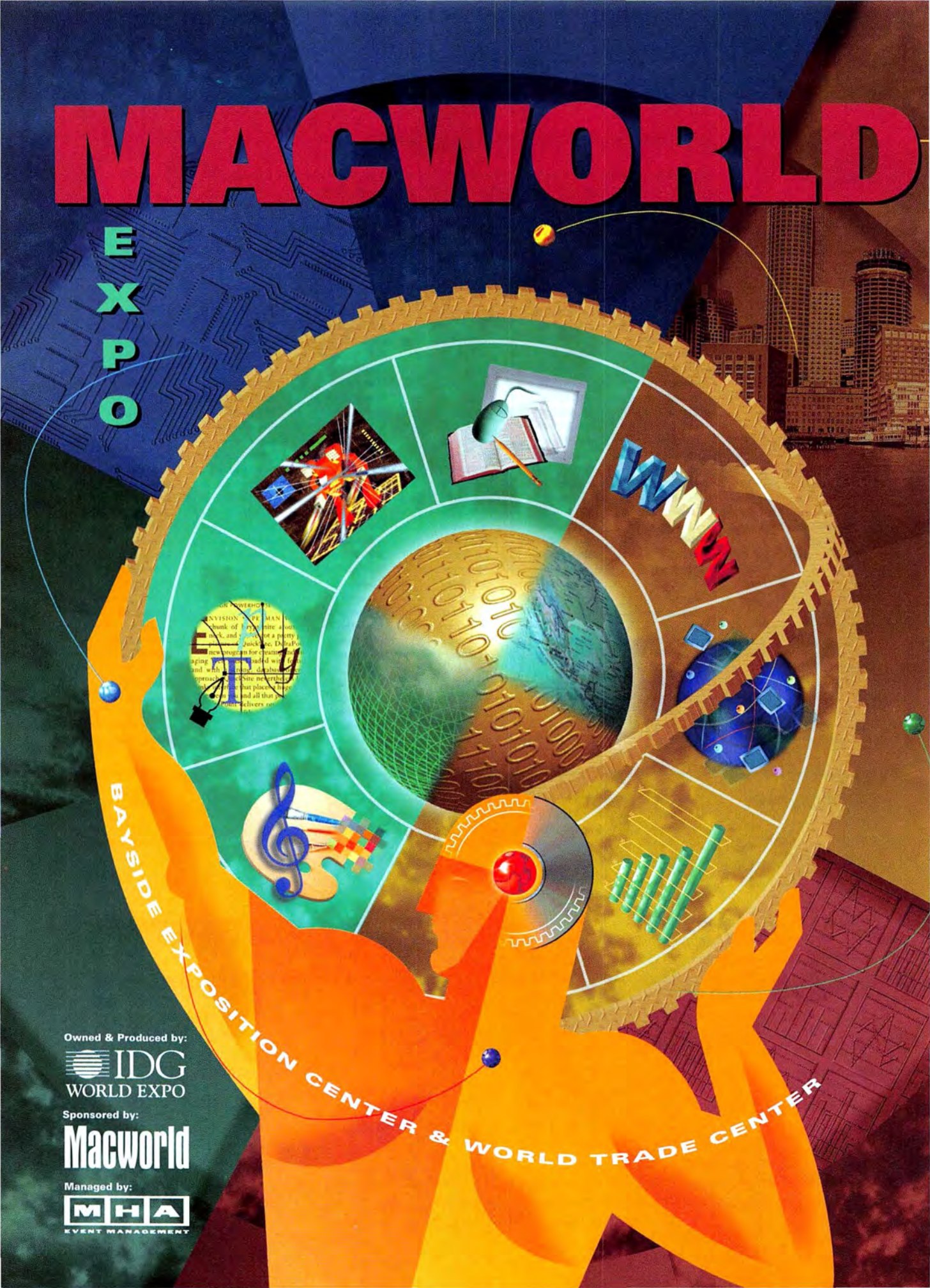
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Macworld EXPO

Conference:
AUGUST 5-8, 1997
Exhibits:
AUGUST 6-8, 1997

BOSTON

THE CONFERENCE PROGRAM

Macworld EXPO

THE MACWORLD EXPO CONFERENCE MAXIMIZES YOUR MAC INVESTMENT

Multiply your profits and productivity! Solutions by the score and virtually unlimited possibilities are presented to you on August 5-8. MACWORLD Expo's conference sessions provide a powerhouse of tested tips, informed insights, and triumphant techniques for every imaginable use of the Macintosh: in offices large and small, in schools, at home, and on the road. Some of the most accomplished users and knowledgeable insiders in the world of Macintosh will answer your questions and show you even more ways to profit from your Mac.

HERE'S A PREVIEW OF THE 10 SEPARATE CONFERENCE TRACKS & INDIVIDUAL SESSIONS:

A. The *Macworld* Magazine Track

Macworld's editors, columnists, and featured guests present living pages of the magazine's hottest topics.

• The New-Generation Mac • Rhapsody in Blue: The NeXT Mac • *Macworld* Magazine's Best of Show • Illustrator/ Freehand/Canvas/CorelDraw Shootout! • Become Your Own Troubleshooting Guru • The Best of *Macworld's* MacSecrets

B. The Design/Art/Prepress Track

Top graphic arts industry professionals share their expertise and experience — plus their best tips to provide you with an insight into the future of break-through technologies. [See also Half-Day Tutorials for additional sessions on these topics.]

• Web Graphics Mentors • Bringing Concepts to Life through Imaging • Kai's Killer Tips and Tricks • Color Correction in Photoshop • Digital Photography • The Digital Ad Agency • Advanced Imaging for Professionals • From the Screen to the Printed Page • Vectors and/or Pixels

C. The Web Master/Web Creativity Track

The Macintosh is the premiere vehicle for the creation of content on the Web. Get a leg up on the Web (and your competition) with this full track of sessions designed to help you cruise, serve, and populate the 'net. Give your business the Macintosh/Web advantage! [See also Half-Day Tutorials for additional sessions on these topics.]

• Choosing a Web Server • Choosing/Using Tools for the Coolest Web Site • Web Databases • VRML: Get Your Avatar On-line! • The Power of PUSH: Webcasting/Web Broadcasting • Electronic Commerce on a Mac Web Site • Web Objects • Web Page Navigation and Content Structure • Building Interactivity into Your Web Site

D. NEW! The Creating Content Track

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• Developing Interactive Games • Video for the Web • The 3 Ts of 3D: Trends, Tools, Techniques • Interface by Design • Multimedia Authoring in a World of Hybrid Media • DTV Production Update • Designing Rich Content in a Low Bandwidth World

E. The Operating System/ Connectivity Track

The unique power of the Macintosh lives in its Operating System and Extensions. Learn how to harness that power, extend and protect it with third-party additions, manage your computer for better productivity, and build fast, easy-to-use networks for printing and sharing files and using the Internet.

• Essential Network Management Tools in a Cross-Platform World • Justifying Macs in a PC Environment • Virus Protection, Security, and Privacy • Network Operating Systems and the Mac • Apple Extensions Explained • Supporting High-Speed and High-Utilization Networks • TCP/IP Report

F. The Small Office/Home Office (SOHO) Track

Never before has it been easier – or more fun! – to launch and operate a small company, a home-based business, or a home office for telecommuting. Hear experts share their insights on how YOU can increase productivity and slash costs!

• Using the Latest and Greatest to Run Your Small Business • The Internet for Small Business • Small Business Success Secrets • Marketing Your Small Business with Your Mac

G. The Tools Workshops

Intensive training sessions on some of the most popular Macintosh tools, presented in a totally non-biased format by the award-winning staff of MacAcademy.

• Mastering the Macintosh: Intermediate to Advanced • Claris Works • Adobe PageMill • Adobe Photoshop • QuarkXPress • Macromedia Director

H. The Educators Track

An excellent opportunity for educators, administrators, and students to show and be shown new and classic examples of how the Macintosh positively shines as a teaching tool – in these sessions presented for educators, by educators.

• Maximizing the Mac in Education • Maintaining Sanity and Productivity Within your Computer Lab • Solving Your Classroom Computer Nightmares • Building a Curriculum-Based Intranet • Cool Computer Curriculum Projects! • The Internet for Educators

I. The Special Interest Group Track

Sessions for "birds of a feather" looking to compare Mac notes with others in a similar setting – to solve special problems, to see how colleagues across the continent are getting more mileage out of the Mac, and to develop an invaluable "user network."

• Macs in the Law Office • Macs in Science and Technology • MACWORLD Expo User Group Extravaganza (MUSE)

J. The You-Asked-For-It Track

A combination of perennial MACWORLD Expo favorites, plus brand-new topics in response to your special requests, with up-to-the-minute market developments. For starters:

• On-line Survival Guide • Mobile Computing on Macs: Tips for Road Warriors! • Beginner Java • Beyond Beginner Java • Getting Started with HTML • Customizing Your Mac • Resolving System Conflicts • Audio, Sound, and Music Tools

New!

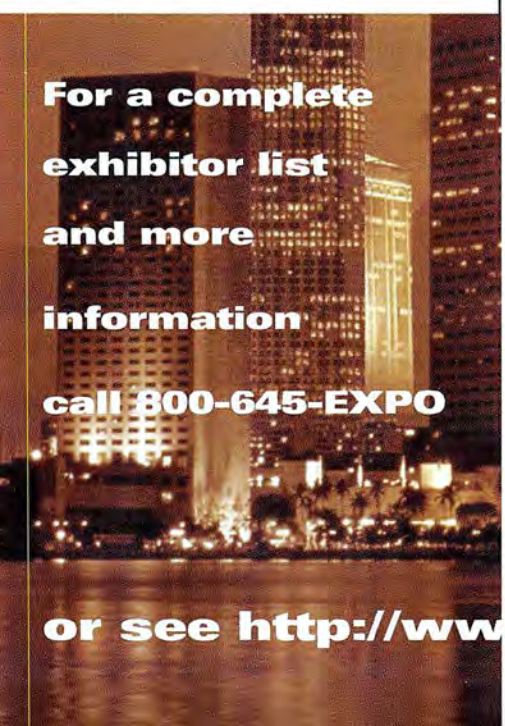
HALF-DAY TUTORIALS

Tuesday, August 5th

By popular demand! The opportunity for you to enjoy an in-depth learning experience on Macintosh topics of vital interest — presented by some of MACWORLD Expo's highest-rated speakers!

- **Designing Web Graphics**
- **How to Build Your Own Web Site**
- **Film School in a Box**
- **How to Integrate Macs and PCs in a Single Business Environment**
- **A Beginner's Guide to the Internet**
- **Enterprise Security**
- **Remote LAN Access: Strategies and Solutions**
- **Mega-Design Dynamos!**
- **Creative Layout Techniques**
- **Create Your Own Web Page**
- **Photoshop: Channels and Layers**
- **Building a Mac-Based Intranet**
- **Intermediate Internet: Searching the Web**
- **Zen and the Art of Integrating Your School's Mac Network**

Open to conference attendees only. Limited seating available. Two tutorials per person.



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DYNAMIC KEYNOTES

Maximize your learning experience at MACWORLD Expo/Boston with three outstanding keynote sessions on Wednesday, August 6:

Apple will share its latest updates and insights... Guy Kawasaki will showcase the hottest and (coolest) new products... and a panel of Macintosh insiders will dig and delve for everything you'll need to know about Macintosh clones!

Keynotes: Wednesday, August 6, 9:00 a.m – 12:30 p.m.
The Castle at the Boston Park Plaza Hotel, Columbus Ave., Boston

Keynotes are open to conference attendees only, have limited seating and are on a first-come, first-served basis.

SPECIAL FEATURES

- **The Net Zone...**
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- **Developer Greenhouse...**
  the hottest products from over 25 innovative developers.
- **Education Pavilion...**
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Special Interests

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or see http://www.mha.com/macworldexpo/

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Boston Marriott Long Wharf 296 State St., Boston, MA 02109	$251/272
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The Charles Hotel at Harvard Square One Bennett St., Cambridge, MA 02138	$275/275
Colonnade Hotel 120 Huntington Ave., Boston, MA 02116	$195/220
The Copley Plaza 138 St. James Ave., Boston, MA 02116	$206/227
Doubletree Guest Suites 400 Soldiers Field Road, Boston, MA 02134	$189/189
Four Seasons Hotel, Boston 200 Boylston St., Boston, MA 02116	$295/325
Harborside Hyatt Conference Ctr. & Hotel 101 Harborside Dr., Boston, MA 02128	$185/210
Holiday Inn Government Center 5 Blossom St., Boston, MA 02114	$169/189
Hyatt Regency Cambridge 575 Memorial Dr., Cambridge, MA 02139	$170/190
Le Meridien 250 Franklin St., Boston, MA 02110	$244/260
The Lenox Hotel 710 Boylston St., Boston, MA 02116	$173/193
Logan Airport Ramada 75 Service Rd., E. Boston, MA 02128	$139/159
Omni Parker House 60 School St., Boston, MA 02108	$170/190
Radisson Hotel Boston 200 Stuart St., Boston, MA 02116	$170/180
The Regal Bostonian Faneuil Hall Marketplace, Boston, MA 02109	$285/285
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Royal Sonesta Hotel 5 Cambridge Pkwy., Cambridge, MA 02142	$185/185
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For more information call 800-645-EXPO or access the Web at: http://www.mha.com/macworldexpo/

Macworld EXPO

MACWORLD Expo/Boston
World Trade Center & Bayside Expo Center

Conference Hours
August 5: 8:30 a.m. – 4:30 p.m. (Tutorials)
August 6: 9:00 a.m. – 5:15 p.m.
August 7: 11:30 a.m. – 5:15 p.m.
August 8: 11:30 a.m. – 2:15 p.m.

Keynotes (Conference attendees only)
The Castle at the Boston Park Plaza
Columbus Avenue, Boston
August 6: 9:00 a.m. – 12:30 p.m.

Exhibit Hours
August 6-7: 10:00 a.m. – 6:00 p.m.
August 8: 10:00 a.m. – 4:00 p.m.

On-site Registration Hours
August 5: 7:00 a.m. – 3:00 p.m.
August 6-7: 8:00 a.m. – 6:00 p.m.
August 8: 8:00 a.m. – 4:00 p.m.

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Hotel availability is limited and on a first-come, first-served basis. A credit card is required to make any hotel, air or car reservation. Additionally, a non-refundable hotel deposit of one night plus 9.7% Massachusetts state and local taxes will be billed to your credit card at time of booking. Air tickets are to be paid in full at time of booking.

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Badges will be mailed after July 21.

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International Badges (including Canada) will be held on-site at either of the Pre-Registered Attendee Counters: in the West Lobby of the Bayside Expo Center or in the Registration Area, upper level of the World Trade Center.

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We're committed to ensuring that our physically challenged attendees receive all the services they need to make their visit productive. Call us at 800-945-3313 for more details on the services we offer.

Half-Day Tutorial Codes: (Tuesday, August 5, limit two per person)

CODE 8:30 a.m. - 11:30 a.m.

T1. Designing Web Graphics
T2. How to Set Up Your Web Site
T3. Film School in a Box
T4. How to Integrate Macs and PCs in a Single Business Environment
T5. A Beginner's Guide to the Internet
T6. Enterprise Security
T7. Creative Layout Techniques

CODE 1:30 p.m. - 4:30 p.m.

T11. Mega-Design Dynamos!
T12. Create Your Own Web Page
T13. Photoshop: Channels & Layers
T14. Building a Mac-based Intranet
T15. Intermediate Internet: Searching the Web
T16. Zen and the Art of Integrating Your School's Mac Network
T17. Remote LAN Access: Strategies and Solutions

MACWORLD EXPO/BOSTON REGISTRATION FORM

MACWORLD Expo/Boston • August 5-8, 1997 • Bayside Expo Center & World Trade Center

1. REGISTRATION SELECTION AND FEES

Please choose your package and fill out the form completely. Incomplete forms will be returned. Please use one form per person; make photocopies for additional people.

❑ **Package One $170**

Half-day Tutorials, Conference Sessions, Exhibits and Keynote Sessions.
Pre-Register by July 7 ($195 at the door).
All Tutorial, Conference and Keynote sessions have limited seating and are on a space-available basis.

Please circle the half-day tutorials you plan to attend. One tutorial per time slot please. Refer to tutorial listing on adjacent page.

8:30-11:30: **T1 T2 T3 T4 T5 T6 T7**

1:30-4:30: **T11 T12 T13 T14 T15 T16 T17**

❑ **Package Two $25**

Admission to Exhibits only.
Pre-Register by July 7 ($40 cash only at the door).

PRE-REGISTER BY JULY 7 AND SAVE!

- **Confirmation** of your registration will be sent to you once registration is received. Pre-registration deadline is July 7, 1997.
- **U.S. Badges:** will be mailed after July 21.
- **International Badges:** (including Canada) will be held on-site at either of the Pre-Registered Attendee Counters: in the West Lobby of the Bayside Expo Center or in the Registration Area, upper level of the World Trade Center.
- **Registration Hours:** August 5, 7:00 a.m. - 3:00 p.m.; August 6-7, 8:00 a.m. - 6:00 p.m. and August 8, 8:00 a.m. - 4:00 p.m.

❑ Please check here if you are disabled and require special services. Simply attach a written description of your needs.

Conditions and Policies: Payment must accompany form for registration to be complete. Purchase orders not accepted. Registration forms received after July 7 will be returned unprocessed. After this date you must register on-site. This form cannot be used for on-site registration. All registration fees are non-refundable and credentials are non-transferable. A $20 fee will be charged for all returned checks.

2. CUSTOMER INFORMATION

First Name M.I. Last Name

Title

Company

MWA

Street Address (please include apt. #, suite, mail stop, etc.)

P.O. Box (if applicable)

City State/Province Zip Code/Postal Code

Country Telephone Extension

Fax Internet/Email Address

3. ATTENDEE PROFILE

MUST BE FILLED OUT TO PROCESS YOUR BADGE.

WHAT IS YOUR INDUSTRY? (Check One Only)
❑ 1. Accounting/Finance
❑ 2. Aerospace
❑ 3. Architecture/Construction/Process Industries
❑ 4. Art/Design/Creative Services
❑ 5. Arts & Entertainment
❑ 6. Computer Reseller/VAR/VAD/Service
❑ 7. Consulting
❑ 8. Education
❑ 9. Engineering/R&D
❑ 10. Government/Military
❑ 11. Health/Medical Services
❑ 12. Legal Services
❑ 13. Manufacturing (Computer Industry)
❑ 14. Manufacturing (Non-Computer Industry)
❑ 15. Marketing/Sales/PR/Communications
❑ 16. Printing/Publishing
❑ 17. Transportation
❑ 18. Utilities
❑ 19. Other_____

WHAT IS YOUR JOB FUNCTION? (Check One Only)
❑ 20. Art Director/Graphics
❑ 21. Consultant
❑ 22. Controller/Treasurer/Accounting/CFO
❑ 23. Corporate Executive
❑ 24. DP/IS Management/CIO
❑ 25. Editorial/Writing
❑ 26. Educator
❑ 27. Engineering/Scientific/R&D
❑ 28. Human Resources
❑ 29. Management/Department Head
❑ 30. Marketing/Sales
❑ 31. Network Management
❑ 32. Professional (Lawyer, Doctor, etc.)
❑ 33. Programming/Analysis
❑ 34. Purchasing
❑ 35. Software Developer
❑ 36. Training
❑ 37. Other_____

WHAT IS THE SIZE OF YOUR ORGANIZATION?
❑ 38. Under 50
❑ 39. 50-99
❑ 40. 100-499
❑ 41. 500-999
❑ 42. 1000 & Over

WHICH PERSONAL COMPUTERS DO YOU USE? (Check all that apply)
❑ 43. Macintosh Powerbook Series/Duo Series
❑ 44. Macintosh II Series
❑ 45. Macintosh Performa Series
❑ 46. Macintosh Centris Series
❑ 47. Macintosh Quadra Series
❑ 48. Macintosh Workgroup Series
❑ 49. PowerMac
❑ 50. Newton
❑ 51. Mac clone
❑ 52. IBM PC or compatible desktop
❑ 53. IBM Laptop/Notebook
❑ 54. Other_____

HOW MANY MACINTOSH COMPUTERS ARE USED IN YOUR ORGANIZATION?
❑ 55. 0
❑ 56. 1-10
❑ 57. 11-25
❑ 58. 26-50
❑ 59. 51-100
❑ 60. 101-500
❑ 61. 501+

ARE THE COMPUTERS AT YOUR ORGANIZATION NETWORKED?
❑ 62. Yes
❑ 63. No

WHICH APPLICATIONS DO YOU OR YOUR ORGANIZATION UTILIZE? (Check all that apply)
❑ 64. Accounting/Finance
❑ 65. Agenda Minder/Scheduler
❑ 66. CAD/CAM
❑ 67. CASE Tools
❑ 68. Database
❑ 69. Desktop Publishing
❑ 70. Digital Video
❑ 71. Education
❑ 72. Graphics
❑ 73. Multimedia
❑ 74. Project Management
❑ 75. Spreadsheet
❑ 76. Word Processing

WHICH (IF ANY) OF THESE SERVICES DOES YOUR ORGANIZATION UTILIZE? (Check all that apply)
❑ 77. America On-line
❑ 78. AT&T
❑ 79. CompuServe
❑ 80. Netscape
❑ 81. Prodigy
❑ 82. Other_____

4. PAYMENT METHOD

❑ Check enclosed (make payable to MACWORLD Expo). Enclose check and form in an envelope.

❑ Master Card ❑ Visa ❑ American Express Amount $_____

Account Number Expiration Date

If card holder is other than registrant, please print card holder's name below:

First Name M.I.

Last Name Card Holder Signature

Payment must accompany form for registration to be complete.

Important: Don't pay twice for this event! You will be charged for all registrations received, and not refunded for duplicate registrations. Please do not fax this form in more than once and if you fax, please do not mail in as well.

REGISTER NOW!

Use either ONE of the following methods to register with this form:

Mail to: MACWORLD Expo/Boston
P.O. Box 9103, Norwood, MA 02062-9103.

OR

Fax to: 617.440.0359.
Faxed registration forms must include credit card information.

Visit the MACWORLD Expo Web site at http://www.mha.com/macworldexpo/
For more information, call: 800.645.EXPO or 617.551.9800 outside of the U.S.

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Call for a free catalog or visit our website at www.wizworks.com

System Requirements: Any Macintosh with a 68040 or higher microprocessor, 8MB RAM, color monitor and CD-ROM drive. Also accelerated for Power Macintosh.

Circle 30 on reader service card

Secrets

System Software Snip and Clip

YOUR GUIDE TO A SLIMMER, TRIMMER SYSTEM FOLDER

by Joseph Schorr

JEFF NEUMANN

Twelve years ago, *Macworld* ran an article explaining how you could trim down your System Folder to save memory and disk space. "For the time being," we lamented, "making the Mac an efficient computing tool means eliminating portions of the system that add convenience and appeal."

If that was true back then (when a fully loaded System Folder weighed in at just 200K), it's even truer in today's world of 100MB operating systems that gobble up 8 or more megs of RAM the moment you start up. The Mac's latest multimedia and Internet features may be thrilling, but they exact an increasingly steep price in terms of memory, speed, and storage. And while many of the new Mac models come with 32MB of RAM and 1GB or 2GB hard drives, there are still plenty of us trying to survive with limited disk space and 16MB of RAM—or less.

Which brings us to a survival secret that bears repeating: turn off—or even throw away—the system extensions you don't need. And there are plenty of them. Not only will you end up reducing clutter and confusion in your System Folder, but you'll be freeing up as much additional RAM as possible and reducing the potential for extension conflicts.

The real trick, of course, is figuring out *which* system components are absolute essentials and which can be ditched without any problem. The Apple Token Ring NB extension, for example, *sounds* dispensable, but can you safely toss it out? (Yes, as long as you're not on a Token Ring network.) On the other hand, the Finder Scripting Extension sounds like something only a programmer might need, but without it your Mac's Find File command goes berserk.

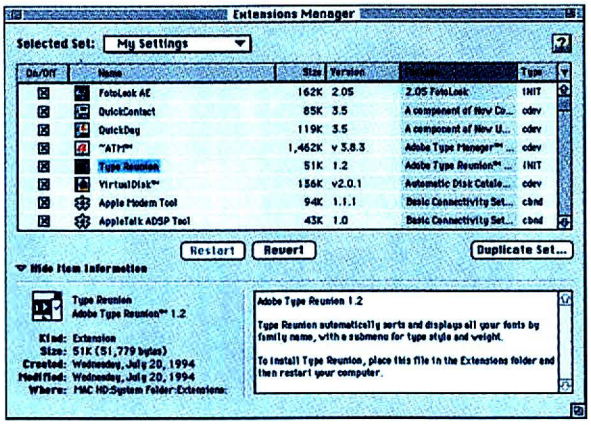
Here, then, is an updated guide to what you can get rid of and what you can't live without. Go sifting through your System Folder with this list in hand, and you'll find some unexpected ways to trim system fat.

To Trash or Not to Trash

Don't be fooled by important-sounding names; many extensions bear titles that make them sound essential, but they may be totally unnecessary on your particular system. Do you control your Mac by voice command, using Apple's PlainTalk technology? If the answer is no, then get rid of the InlineFilter extension; it's used only in connection with voice recognition. Ever connect your PowerBook to your Mac using an infrared link? If not, you don't need the IRTalk extension,

continues

Package Deal Apple's improved Extensions Manager (which shipped with Mac OS 7.6) lets you list control panels and extensions by package, showing the name of the particular software package that installed each file—a terrific aid when you're trying to track down the origins of a mysterious file.



which does nothing except handle infrared linking. Never use Apple Remote Access? Then you can get rid of all the files in the Extensions and Control Panels folders that start with the word *Remote*, as well as Apple Remote Access Client, Apple Remote Access Personal, and the Serial Port Arbitrator.

And then there are those extensions that system updates made obsolete but that somehow got left behind. The Apple Multimedia Tuner, for example, used to be essential but was rolled into QuickTime 2.1. If you've got QuickTime 2.1 or later, get the Apple Multimedia Tuner out of there for good.

But before you get too Trash-happy, beware: some file names can be deceiving. For example, it's obvious that you need the Audio CD Access extension to play audio CDs on your Mac—but did you know that Foreign File Access is also essential? Without it, your Mac won't even mount an audio CD. On the other hand, the Graphics Accelerator extension sounds like a vital component you should never turn off, yet it's useless unless your Mac is equipped with the Apple Accelerated Graphics Card—a card used exclusively in the Power Mac 9500. **m**

Contributing editor JOSEPH SCHORR is coauthor of *Macworld Mac Secrets*, fourth edition (IDG Books Worldwide, 1997), which covers all 11,846 control panels, extensions, and enablers found in the current Mac OS.

Sets and Sensibility

I'm certainly not suggesting that you trash *all* of the 50 or so files mentioned in this column; you're bound to need some of them. But once you've determined which extensions perform which tasks, you can build customized start-up sets using Apple's Extensions Manager 4.0 so that only the software you need gets loaded at start-up (see *Secrets*, September 1996). This may seem like a lot of trouble, but it's worth it when you're trying to coax every last bit of power out of an aging system. For example, when I edit QuickTime movies, I need all the RAM and CPU speed I can get, so I created a start-up set that temporarily eliminates Desktop Printing, Open Transport, most of the Mac's Speech features, and all nine extensions associated with Microsoft Office. The result: nearly 1.5MB of additional free RAM.

MS Office If you're not running any of the Microsoft Office applications—Word, Excel, or PowerPoint—you can safely turn off all nine extensions that Office shamelessly stuffs into the System Folder:

Microsoft Dialog Library
Microsoft Find File Library
Microsoft Mail Library
Microsoft OLE Automation
Microsoft OLE Library
Microsoft OLE Extension
Microsoft Tool Editor Library
Microsoft Office Manager
Visual Basic for Applications

Speech Having your Mac read dialog boxes to you aloud in the Zarvox voice is cute, but hardly essential. To disable those speech capabilities, you turn off no less than five extensions and control panels:

MacinTalk 2 or
MacinTalk 3
MacinTalk Pro
Speech Manager
Speech Recognition
Speech

Desktop Printing Desktop Printing adds four extensions and a Control Strip module to your System Folder. If you're willing to print the old-fashioned way, you can live without all of these:

Desktop Printer Extension
Desktop Printer Spooler
Desktop Printer Menu
Desktop PrintMonitor
Printer Selector

Networking Then there's networking. If you don't require Internet access during a work session and don't have your Mac connected to a network (or to a networked printer), you can say good-bye to all 16 Open Transport extensions and control panels:

AppleTalk
Open Tpt AppleTalk Library
Open Tpt ATalk 68K Library
Open Tpt Inet 68K Library
Open Tpt Internet Library
Open Transport 68K Library
Open Transport Library
OpenTptAppleTalkLib
OpenTptInternetLib
OpenTransportLib
OpenTpt Modem
OpenTpt Remote Access
OpenTpt Modem 68K
OpenTpt Remote Access 68K
OpenTpt Serial Port Arbitrator
TCP/IP

QuickDraw 3D OK, honestly, how often do you use QuickDraw 3D in a typical workday? You can turn off these five files until you need them:

Apple QD3D HW Plug-In
QuickDraw 3D
QuickDraw 3D IR
QuickDraw 3D RAVE
QuickDraw 3D Viewer

CD-ROMs Operating a CD-ROM drive on a Mac takes six different extensions. But if you don't have a drive or don't need CD access during a work session, you can turn them all off:

Apple CD-ROM
Apple Photo Access
Audio CD Access
Foreign File Access
High Sierra File Access
ISO 9660 File Access

Quick Tips

Tips, Tricks, and Shortcuts

by Lon Poole

America Online 3.0 users, is your Favorite Places window always hiding behind a few dozen others? Or maybe you just hate to open it up every session? Andy Rogers of Bay City, Michigan, has a simple way to make AOL navigation even more convenient. Save a Favorite Places site by clicking the heart in the upper-right corner of the AOL window. Next, open your Favorite Places window (choose Favorite Places from AOL's Go To menu), and look for the icon of the site you just added. Drag the icon to a Finder window, folder icon, or disk icon on the desktop to create a small file. If you double-click that file, you will go to the site just as if you had clicked it in AOL's Favorite Places window.

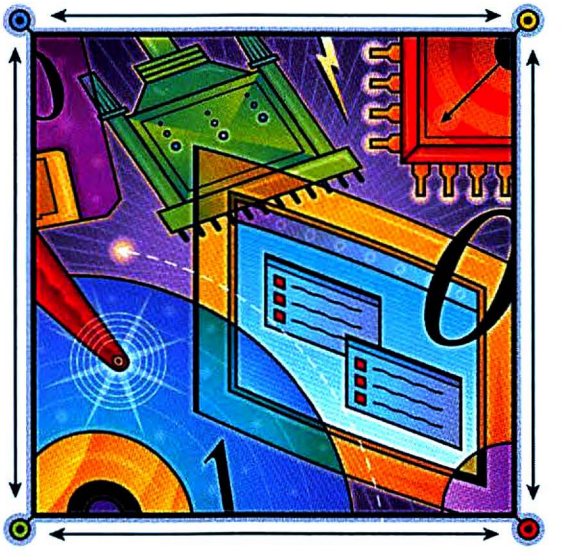
With a bunch of these files you can add a list of favorite places to your Apple menu, where it's always available. Make sure the Submenus option is turned on in the Apple Menu Options control panel, and create a folder named AOL Favorite Places in your Apple Menu Items folder. Put all your favorite-places files or aliases of them in that folder. You can create subcategories of favorite places by creating folders within your AOL Favorite Places folder; place each favorite-place file or its alias in the appropriate subfolder. Instantly you have a hierarchical list of favorite places available all the time.

Spotting Empty Folders

Q. When I organize stuff in the Finder, I distribute items among folders named by category (letters of the alphabet, for instance). Later, when I'm archiving those folders, I'd like to know which ones remained empty, but I don't want to open each folder individually. Is there an extension that makes empty folders a particular color or in some other way indicates empty folders? Alternatively, is there a single command that opens all folders in a window at once (in, say, Name view)?

MICHAEL COONEY
Friendship, Maine

A. You can use keyboard commands to see the contents of multiple folders in a window that's set to an outline view, such as by name. Select the folders (press ⌘-A to select all) and press ⌘–right arrow to expand the selected folders and see their contents. To also expand all folders contained in the selected folders, press ⌘-option–right arrow. Pressing ⌘–left arrow collapses all selected folders, and pressing ⌘-option–left arrow collapses all selected folders and all folders in them.



You can also force empty folders to the bottom of a window. Just turn on the Calculate Folder Sizes option in the Views control panel and view the window by size. Keep in mind that calculating folder sizes slows the Finder, especially if you keep windows open from file servers or shared folders.

Free MPEG

Q. How can I view an MPEG movie on my Performa 6200? I would like to do this with a free software solution as opposed to an expensive video card.

PETER WHEDBEE
Baltimore, Maryland

A. Apple's free QuickTime MPEG extension enables software-only playback of full-screen MPEG-1 and VideoCD files on Power Macs with QuickTime 2.5 installed. You can view MPEG movies with the included MoviePlayer application or another QuickTime-enabled application. You can also view MPEG movies in a Web browser with version 1.1 or later of Apple's QuickTime plug-in. All this software is available from Macworld Online (*http://www.macworld.com*) and America Online (keyword *Macworld*).

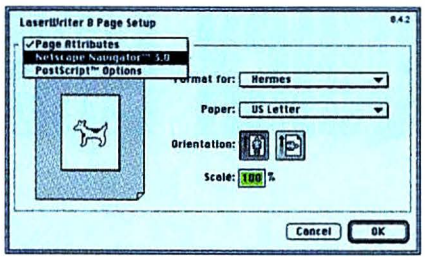
Easy Booklets

Q. Do you know of any shareware utility that converts a word processing document (ClarisWorks or Corel WordPerfect) to a staple-in-the-middle booklet form? I am trying to print a script for a local production, and the usual letter-size page would be rather unwieldy on stage.

SHANE LIESEGANG
Jacksonville, Florida

continues

JEFFREY PELO



Personal Defaults If the topmost pop-up menu for LaserWriter 8.4.X's Page Setup lists the current application, you can save the current Page Setup settings as the default settings for that application by option-clicking the OK button. If the pop-up doesn't list an application name, you can save the current settings as generic defaults by option-clicking OK.

A Use ClickBook from the ForeFront Group ($49.95; 713/961-1101, *http://www.clickbook.com*). After turning on ClickBook with the Page Setup command (or globally with the ClickBook control panel), you simply print as you usually would. ClickBook intercepts the page images on their way to the ink-jet or laser printer and reformats them to the layout of your choice. The product includes layouts for several types of folded booklets and cut-sheet booklets on letter or legal-size paper, double-sided pages in portrait or landscape orientation, address books, thumbnails, and trifold brochures, or make your own layouts. You can preview your document in any layout before printing, and you can combine multiple documents from the same application or different applications into one booklet. The company also sells a long-reach stapler for binding your folded booklets.

LaserWriter Page Setup Defaults

Q The LaserWriter 8.4.1 driver's default paper size is US Letter Small. I want the driver to default to US Letter instead, but I can't make the driver remember my change.

IZZY VASQUEZ
Albany, California

A After making your changes to the Page Setup settings for LaserWriter 8.4.X, press the option key while clicking OK. An alert asks you to confirm whether you want to save the current Page Setup settings as the default. You have to perform this exercise separately in each application that has its own Page Setup settings. To see if a particular application has its own Page Setup settings, look for the application's name in the pop-up menu at the top left of the Page Setup dialog box (see "Personal Defaults"). If that pop-up menu doesn't list the current application's name, the application uses the generic Page Setup default settings. Changing the generic Page Setup defaults in one application affects all applications that use them (but doesn't affect applications with their own Page Setup settings).

Rename Open Word Files

TIP *Macworld*'s review of Nisus Writer 5.0.1 (*Reviews*, April 1997) asks, "What other program lets you rename an open document without closing it . . . ?" Actually, you can easily rename an open document in Microsoft Word 6. Simply find the document's icon in the Finder, select its name, and make your changes. When you return to Word 6, the document has its new name displayed in the title bar.

STEPHEN TANNENBAUM
Thornhill, Ontario, Canada

Audio CD Autoplay

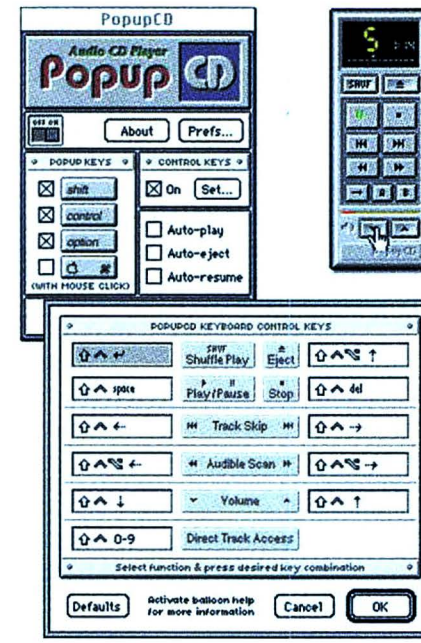
TIP I like to play audio CDs on my Mac. Putting an alias of Track 1 from any audio CD into the Startup Items folder has the Finder automatically launch AppleCD Audio Player during start-up and begin playing whatever CD is in the drive. The Track 1 alias works with any audio CD, not just the one used to make the alias. If there's no CD in the drive, the Mac requests one.

SCOTT WOOLEDGE
Brooklyn, New York

If you have QuickTime 2.5, you can have the Mac automatically play an audio CD not only during start-up but any time you insert one. Turn on the Enable Audio CD AutoPlay option in the AutoPlay section of the QuickTime Settings control panel. This feature starts playing the CD earlier during start-up than the Start-up Items method and doesn't require the AppleCD Audio Player application. You have to open that application or its equivalent if you want to control playback of an autoplaying CD while it's playing. For an alternative to the AppleCD Audio Player, see "Audio-CD Control."

To hear an audio CD on some Macs, particularly when playing from an external CD drive, you must click the Options button in the Sound In section of the Sound control panel, then select an input source and turn on the Play-through option. Your Mac may handle Play-through automatically; you'll have to experiment to see. On Macs that normally use the Monitors & Sound control panel, such as Macs with PCI slots, the Sound control panel is in the Apple Extras folder, not the Control Panels folder. You cannot set the Playthrough option with the Monitors & Sound control panel.

To hear audio from an external CD player through the Mac's low-fi internal speaker or through external powered speakers connected to the Mac's sound-out port, you must run a stereo patch cord from the external CD drive's sound-out jacks to the Mac's sound-in port (or to the audio-input jacks if your Mac has them). With some Mac models and versions of the Mac OS you must also move the External CD Sound file from the Apple Extras folder to the Extensions folder. The only Macs that Apple has said require that extension are the 630 series and the Power Mac and Performa 5200 and 6200 series. If your Apple Extras folder doesn't contain the External CD Sound extension, you probably don't need it. Apple doesn't distribute the extension through its online software updates library or on system software CDs.—L.P.



Audio-CD Control Want to control audio-CD playback with keystrokes or a pop-up remote control from any application? Paul Birdsong of Herman, Nebraska, recommends the $15 PopupCD shareware by John Brochu. It can also record audio clips directly from CD to hard drive. Shown here: the PopupCD control panel with its keystroke-configuration dialog box, and the pop-up remote control.

Pick Out TrueType Fonts

TIP Adobe Type Manager 4.0's antialiasing feature may seem purely cosmetic, but if you're in the prepress industry it can perform a valuable function. Because ATM 4.0 does not antialias TrueType fonts, they become incredibly easy to spot within open documents. If you need to avoid sending TrueType fonts to your output device, this unintended (in my opinion) feature proves quite useful.

CHRIS WOODFIELD
Baltimore, Maryland

PageMaker Zoom Toggle

TIP In *Macworld*'s April *Publishing Workshop*, Olav Martin Kvern wrote a fine article on tips and tricks with Adobe PageMaker 6.0 and 6.5—the sort of stuff that makes your publication invaluable to normal schmoes such as myself. The article explains how to change the accursed ⌘-0 (zero, for Fit In Window) to ⌘-W with ResEdit, but doesn't mention the zoom toggle. It gives you quick access to the three zoom levels you need most—Fit In Window, 100 percent, and 200 percent.

In Fit In Window view, ⌘-option-click with any tool, and boom, 100 percent! Do it again to go back to Fit In Window view. Include the shift key to toggle between 100 percent and 200 percent.

AARON VEGH
Hamilton, Ontario, Canada

Mounting Novell NetWare Volumes

TIP I use my Macintosh on a Novell NetWare 4.1 network. Because of Novell's security implementation with NetWare 4.X, you can no longer specify that NetWare volumes automatically mount at start-up. It is time-consuming to log in to Novell Directory Services and use the Chooser to mount volumes on multiple servers. To save time, I put aliases of all the NetWare volumes in my Startup Items folder. After I authenticate a connection to the first volume (by simply typing in my user name and password), all the other volumes are mounted even if they're on different servers.

SETH T. HILL
Columbus, Ohio

Bugs and Turkeys

Brian Landwehr of West Des Moines, Iowa, found that Adobe Photoshop 4.0 won't allow users to scale layers or sections properly using the Free Transform function. The results: pixelated, jagged-edged images. To avoid this problem temporarily, Adobe Systems (415/961-4400, *http://www.adobe.com*) recommends using the Image Size command to drag the desired layer to a new document, reduce the size, then drag it back to the original document. The company is currently working on a Free Transform fix and will post it on its Web site.—ALLYSON BATES

Macworld will send you a Bug Report or Turkey Shoot T-shirt if you are the first to inform us of a turkey or a serious, reproducible bug that we report in this column. See How to Contact Macworld.

Improved Browser Script

TIP Your AppleScript application that mounts a ShrinkWrap RAM disk containing a Web browser's cache just before opening the browser is a great idea (*Quick Tips*, April 1997). A problem occurs, however, if you quit the browser but forget to put away the RAM disk, and later you double-click the AppleScript application to use the browser again. If the RAM disk is already mounted when the script runs, an error message states that the file is already open, and the browser does not open. There are workarounds, but you don't want to confuse novices.

Adding an "if" statement to the script solves the problem:

```
tell application "Finder"
    if not (exists disk "Browser Cache") then
        tell application "ShrinkWrap™"
            activate
            set RAM Disk of preferences to true
            mount alias "Macintosh HD:Browser
                Cache image" with unlocked
            quit
        end tell
    end if
end tell
activate application "Netscape Navigator™ 3.0"
```

In this script, replace "Browser Cache" with the actual name of your RAM disk, and replace "Macintosh HD:Browser Cache image" with the path to your ShrinkWrap disk image file. Also, put the exact name of your browser in the last statement.

THOMAS L. AINSCOUGH
North Dartmouth, Massachusetts

The script requires Aladdin Systems' ShrinkWrap 2.0 or later. Earlier versions do not allow setting ShrinkWrap preferences with AppleScript commands.—L.P.

Quick Bits

• When using a crossover cable to connect two Macs equipped with 10BaseT (RJ-45) Ethernet jacks without a hub (as described in April's *Quick Tips*), you must start up both computers before changing the connection to Ethernet in the AppleTalk control panel. After you've successfully set the AppleTalk connection to Ethernet, a similar error occurs if you subsequently start up one computer while the other is off. An alert explains, "An error occurred while trying to start up your AppleTalk connection. The built-in LocalTalk port will be used instead." If that happens, you have to reset the AppleTalk connection to Ethernet after starting up the other computer.

• Following are updates to the list of DOS and Windows file-name extensions in April *Quick Tips*, from Jim Ambrose of Ripon, California; Stephen K. Suh of Ottawa, Ontario, Canada; and original contributor John Impallomeni of Albuquerque, New Mexico:

.AI is for Adobe Illustrator 4.1

.P65 is for Adobe PageMaker 6.5 publication files

.T65 is for Adobe PageMaker 6.5 template files

.qxd is for QuarkXPress documents m

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 7.6 Bible*, fourth edition (IDG Books Worldwide, 1997).

Shareware mentioned in *Quick Tips* is available from Macworld Online (*http://www.macworld.com*) or America Online (keyword *Macworld*).

We pay from $25 to $100 for tips on how to use Macs, peripherals, or software. Send questions or tips to *quicktips@macworld.com* or Macworld Quick Tips, 501 Second St., San Francisco, CA 94107. All published submissions become the sole property of *Macworld*. Due to the high volume of mail received, we can't provide personal responses.

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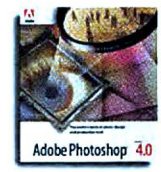

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Circle 253 on reader service card

Media

Working with Clip Media

CHOOSING, USING, AND CUSTOMIZING OFF-THE-RACK MEDIA

by Jim Heid

We'd all like to wear hand-tailored originals, but most of us have to buy off the rack. A similar reality exists with media. We'd all like to commission original graphics and music for our presentations, Web sites, videos, or CD-ROM titles, but the budget doesn't always allow it. (The schedule often has a say, too.)

The good news is that a veritable department store of canned media elements is available. Photographs, backgrounds, buttons, music—you could almost put together a project using nothing *but* clip media. But if you are a smart dresser you'll want to alter your clip media before you wear it. By editing images and tweaking buttons and backgrounds you can take the "clip" out of clip art (and you don't have to stop there; you can alter audio too).

This month, I shine the spotlight on some particularly impressive collections of visual media—photography, animations, background textures, and user-interface elements—and show several ways you might tailor them. Next month, I'll cover stock music and sound effects. For samples and more information, visit *http://www.heidsite.com*.

Pictures Perfect

Tens of thousands of photographs are available from companies such as PhotoDisc (206/441-9355, *http://www.photodisc.com*) and Adobe's Image Club Graphics division (403/262-8008, *http://www.imageclub.com*).

Each offers dozens of CD-ROMs containing images organized into categories: objects, people, nature, medical themes (ouch). PhotoDisc's CD-ROMs range in price from $149 to $299; Image Club Graphics' go for $79.99 to $249.99. PhotoDisc also sells individual images through its exquisite Web site ($29.95 to $49.95). Enter keywords (for example, *sunset* and *beach*) and the Web site shows thumbnail views. One click puts an image in your virtual shopping basket.

Apply Paint or Pen Effects Numerous Adobe Photoshop filter collections enable you to make a photograph look like a charcoal drawing, a pen-and-ink sketch, a Picasso—you name it. Adobe's three-volume Gallery Effects series (included with Photoshop 4.0; 415/961-4400, *http://www.adobe.com*) sports numerous paint and pen effects. Xaos Tools'

continues

JENNIFER JESSE

Paint Alchemy ($199; 415/538-7000, *http://www.xaostools.com*) is also a superb tool for adding paint-type effects (see "Top 20 Photoshop Plug-Ins," *Macworld*, September 1996).

Add Arty Edge Effects Auto F/X's three-volume Photo/Graphic Edges series ($179 each; 603/569-8800, *http://www.autofx.com*) does a beautiful job of adding creative effects such as film sprockets, paint stipples, and geometric patterns to the edges of images. You can also create your own custom edges in Photoshop 4.0's Quick Mask mode (see "Adding an Arty Edge").

A Cast of Characters

Sometimes you don't need a photograph but a line illustration—a little piece of spot art—to enliven a screen. One option is a pictorial font. Letraset (201/845-6100, *http://www.letraset.com*), International Typeface Corporation (212/949-8072, *http://www.esselte.com/itc/*), and Image Club Graphics are three sources for pictorial fonts that contain dozens of illustrations apiece. Numerous shareware pictorial fonts are also available; you can download some from my Web site. Because pictorial fonts are outline fonts, it's easy to get the right-size illustration: just choose the point size you need.

Create 3-D Art Many programs can render 3-D text; examples include Strata's Strata StudioPro and StrataType 3d (801/628-5218, *http://www.strata3d.com*), MetaTools' Infini-D (formerly from Specular; 805/566-6220, *http://www.metatools.com*), and Xaos Tools' TypeCaster Photoshop plug-in. Use them to turn a font dingbat into a glittering, multidimensional character or even an animation.

Art in Motion

It's a rare Web site that doesn't have an animated GIF image on it somewhere. Recognizing this, PhotoDisc has introduced its Animation Series collection, which currently consists of two CD-ROMs. In the Standard version ($149 each), each animation is provided in three sizes and in both GIF and Macromedia Shockwave formats. In the Pro version ($249 each), the original Macromedia Director project files are also included, and the frames are provided in both 8- and 24-bit color depths. Letraset's $159.95 Web.Stir Art Kit Portfolio Collection, a set of user-interface elements and backgrounds, also includes some animated GIFs.

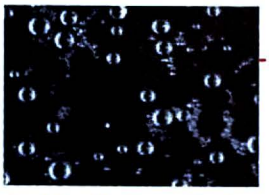
A vast selection of free animated GIFs is also available on the Web. Many of them are worth what they cost, but there are some clever collections, too.

Rather than using someone's animation as is, consider making some tweaks. A great tool for modifying animated GIFs is Totally Hip Software's WebPainter ($99.95; 604/685-6525, *http://www.totallyhip.com*). Unlike the legendary (and free) GifBuilder (*http://iawww.epfl.ch/Staff/Yves.Piguet/clip2gif-home/GifBuilder.html*), WebPainter provides a full array of painting tools. To modify the original Macromedia Director projects included with PhotoDisc's Pro series, you'll need Director.

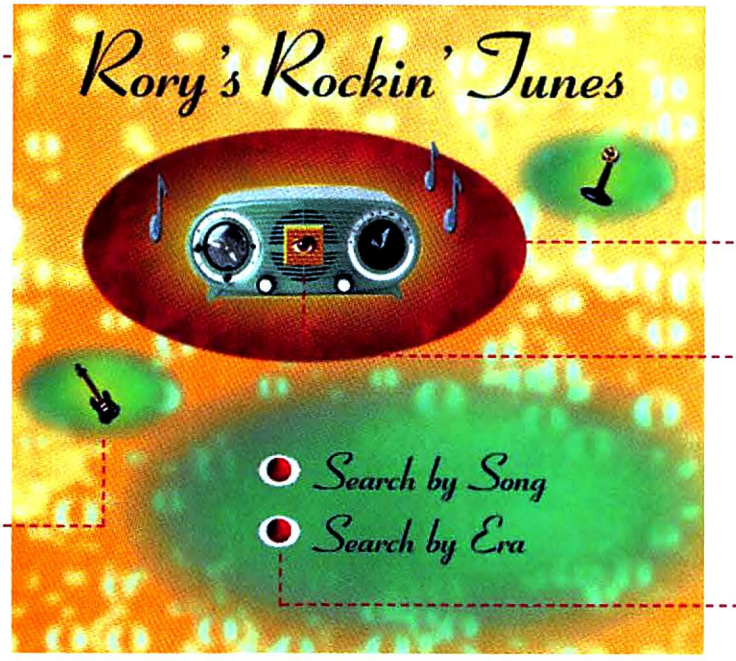
Change the Timing You might prefer that an animation play back faster or slower than its original pace. You can make timing adjustments in any GIF animator—just specify a new duration for the frame or frames you want to change.

From Good Stock

The elements may be canned, but the result is highly personal. *Macworld* senior design associate Belinda Chlouber used Adobe Photoshop to customize a variety of clip media and combine them into a screen for a hip, hypothetical music project.



Applying the Trace Contour filter to one channel of this image (PhotoDisc Backgrounds and Textures Volume 3) changed the look of the bubbles. The artist also gave the background a new color, adjusted Brightness/contrast, and applied Gaussian Blur.



The guitar image on this button (from Artbeats' WebTools) appealed to the artist. She cropped out the button's edges, then rotated, scaled, and distorted the guitar.

This project called for notes, and the artist found some on a button (from WebTools). She added highlights and cropped the button edges, then scaled, rotated, and distorted the notes.

This button (from WebTools) needed very little change. The artist adjusted its color, then scaled the button to fit the radio image (from PhotoDisc's Object Series).

As users interact with a live project, different button versions provide feedback. This button set (from WebTools) offers several variations.

Change the Soundtracks PhotoDisc's Shockwave animations have sound effects—in one, an animated clock radio plays tunes as you interact with it. You might change those sound effects to your own tunes or voice.

Add Your Own Characters Use an animation as a starting point, not an end result. Another PhotoDisc animation shows a hand pushing down. Try putting text or an image under the hand and distorting it so that it becomes crushed.

Interface Lifts

The common denominator in any interactive production is the window dressing: screen backgrounds, borders, navigation buttons, and other user-interface elements. Several CD-ROM collections offer an assortment of Web interface essentials, and each has unique assets.

Image Club's $99 WebMorsels includes numerous styles of common navigation buttons (What's New, About, Products, Home). Artbeats' (541/863-4429, *http://www.artbeats.com*) $69 WebTools includes buttons in a variety of states (such as up and down) as well as a collection of sound effects. Aridi Computer Graphics' (972/404-9171, *http://www.aridi.com*) $79 WebClips supplements its user-interface elements with a set of attractive ornaments. The company also sells CD-ROM collections containing meticulously drawn background patterns, ornaments, and initial capitals.

Mainstay's (805/484-9400, *http://www.mstay.com*) $139.95 PageCharmer, which should be shipping by the time you read this, lets you build Java applet–based Web user interfaces containing animated multistate buttons.

For CD-ROM, kiosk, or presentation work, there are interface element collections for Director that include canned Lingo scripts. statmedia's (714/280-0038, *http://www.statmedia.com*) $180 Instant Buttons & Controls 3.0 is the best of the bunch and the easiest to use: just drag and drop its animated, sound-effects–enhanced buttons into your Director project. Vicious Fishes Software's (714/280-0038, *http://www.viciousfishes.com*) $49.95 Multimedia Tackle Box is another excellent collection of interface elements.

Change the Images You like a button or texture, but it clashes with your project's color scheme. Use Photoshop's color-correction features to change the hue. Other alteration possibilities include resizing, inverting, and filtering.

Make Your Own Textures and backgrounds are easy to make. Try scanning a piece of linen or burlap, or a sheet of handmade paper that has an interesting grain pattern. Then tweak and modify it in Photoshop. Or use Three D Graphics' (310/553-3313, *http://www.threedgraphics.com*) $129.99 Texture Creator, a Power Mac–only 3-D rendering package that specializes in making textures and backgrounds. Formerly Adobe TextureMaker, Texture Creator 2.0 lets you test how a texture will tile in a Web browser. Another terrific tool for making textures and backgrounds is Xaos Tools' $199 Terrazzo 2. This Photoshop plug-in lets you create textures from scratch or base them on an existing image.

High-class clip media has a benefit that goes beyond the budget and schedule: browsing beautiful collections of photos and user-interface elements can fire up your creative juices. At least they have that effect on me. But then, I've been known to keep the photos that come with new wallets. m

Next month: Using stock audio

Contributing editor JIM HEID's latest book is *HTML & Web Publishing Secrets* (IDG Books Worldwide, 1997).

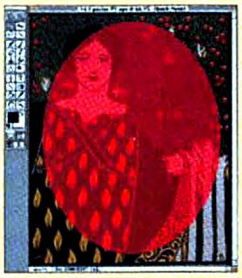
Adding an Arty Edge

Adobe Photoshop 4.0's Quick Mask mode and bundled effects make it easy to create attractive edge effects.

1. Activate Photoshop's Quick Mask mode by clicking on the tool palette's Quick Mask icon.

2.

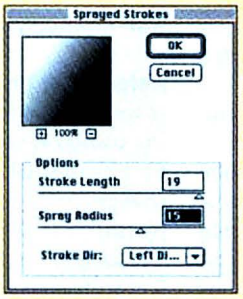
Select an area within the image; for the best results, leave a generous amount of image outside the selection.

3. 

Use the Edit menu's Fill command to fill the selection with black.

4. After you've filled the selection, it appears as a mask; red areas of the image are protected from alteration. Choose None from the Select menu.

5. Choose Gaussian Blur from the Filter menu's Blur submenu, and specify a radius of between 10 and 20 pixels.

6. 

Choose a brushstroke effect from the Filter menu's Brush Strokes menu. Sprayed Strokes works well. Fine-tune the filter's options to get an edge you like. (To see the edges, drag the image within the preview area.) To apply the filter, click on OK or press return.

7. Exit the Quick Mask mode by clicking on the Standard Mode icon.

8.

After you exit Quick Mask mode, choose Inverse from the Layers menu to select the unprotected (and now filtered) area of the image. Delete the selection by pressing the delete key.

9.

Now you see the selection you made with its artistic edge effect.

Publishing Workshop

Get the Most from Photoshop 4

by David Blatner

If you publish anything—a magazine, a Web page, even a newsletter—the chances are good that you use Adobe Photoshop. This program is so incredibly complex and rich that many people spend all day, every day, sitting hypnotized before their screens, trying to find the best way to do their work. Wouldn't it be great to eliminate the glassy-eyed stare and get just a little more efficient, especially now that you're using Photoshop 4?

Help is here: read on for a few of my favorite techniques. These tricks help me get my work done faster and with much less stress.

Relearning Photoshop

If you've updated recently to Photoshop 4, you've probably been frustrated by the subtle changes in its interface. Your period of adjustment to Photoshop's new look-and-feel will seem a lot shorter if you arm yourself with a few basic tools and shortcuts.

One of the hardest things to get used to is the way Photoshop 4 makes a new layer every time you create type or paste an image. It never seems to wind up where you want it, and you must use the move tool to reposition it. At first it's frustrating, but don't get mad; just hold down the ⌘ key. That gives you the move tool temporarily so you can move the whole layer to where you need it.

Then, if you don't want your type or pasted image on a separate layer, you can press ⌘-E to drop it down onto the layer below (a new shortcut in version 4). You'll find ⌘ and ⌘-E to be your friends in this new version.

Here's another type problem: I always forget to pick the color I want my text to be before I actually create it, so the text comes in the wrong color. Instead of selecting Undo, I just pick a new color and press option-shift-delete. That shortcut fills a layer with the foreground color as though the Preserve Transparency feature were turned on—it won't fill any transparent pixels. My text gets a new color, and the rest of the layer stays transparent.

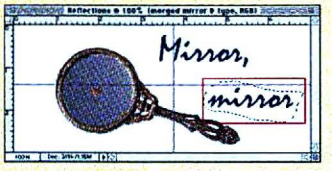
Context-Sensitive Controls

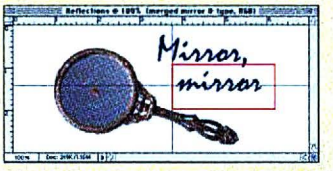
Another of my favorite Photoshop 4 tricks is to hold down the control key (not the ⌘ key) when clicking; up pops a context-sensitive menu. Which menu you get depends on what tool you have selected and where your cursor is when you click. If you've got a painting tool selected, you get a list of paint modes; control-clicking with a selection tool gives

Snapping to Guides

Photoshop 4 lets you drag guides out of the rulers onto your document, for placing elements precisely (⌘-R turns the rulers on or off). You can snap elements to those guides by dragging the edge of an element within a few pixels of a guide. You can snap the center of the element to a guide by dragging its centerpoint near the guide.

A Great Trick Photoshop's snap-to-guides feature lets you place a particular pixel at a particular point. When you option-drag a rectangular or oval selection marquee, the pixel you start on becomes the exact center of the selection. Now placing that pixel is a snap.





Snap a Selection When you move a selection (left), Photoshop surrounds it with an invisible box (represented here in red). When you release the mouse, Photoshop reduces your selection to the pixels on the layer (right). Here, the bounding box's left edge is snapping to the vertical guide and the center is snapping to the horizontal guide.

Snap a Layer If you move a layer around without making a selection, the bounding box encompasses everything on the layer. Here, the left and top edges of the layer's bounding box are snapping to the guides.

you a list of selection and layer features; and if you have the move tool selected, you see a menu of whatever layers you're currently over (if you don't have the move tool selected, you can get this menu by ⌘-control-clicking). Select one of the layers to switch to that layer.

New File, Same Size

Need a second document the same size as the first? Don't waste your time writing down pixel dimensions. Photoshop's Window menu remains available (it doesn't gray out) when you've got the New, Canvas Size, or Image Size dialog boxes open, and you can copy file settings (pixel dimensions, resolution, and so on) from any other file listed at the bottom of the Window menu.

Rebuild Type List

If you use a font-management utility such as Alsoft's MasterJuggler, Symantec's Suitcase, or Adobe's ATM Deluxe, you've probably noticed that Photoshop doesn't automatically update its list of fonts when you add or remove a font with the utility. You might assume that you have to quit and relaunch Photoshop. Fortunately, there's a better way.

In Photoshop 4, shift-clicking with the type tool forces the program to update its font list. In previous versions of the software, you have to hold down the option key and click the mouse button (with the type tool selected) at exactly the same time (if you click just a little too late, the option key gives you the eyedropper; if you click too soon, Photoshop just brings up the Type dialog box without resetting the font list).

Importing EPS Files

How can I get my Adobe PageMaker and QuarkXPress files into Photoshop? That's one of the questions I get asked most often in my seminars. In the past, you had to go through all kinds of machinations when you wanted to import anything other than an Adobe Illustrator EPS file; Photoshop 4 lets you open *any* EPS file and rasterize it (turn it into a bitmapped image). Surprisingly, Adobe has hardly advertised this incredibly great feature at all. Just select Open from the File menu and select the EPS graphic.

Replay Last Settings

Want to make the same Curves adjustment to a number of different images? Hold down the option key when you select Curves, and the dialog box automatically resets to the way it was when you last applied the effect. This also works for Levels, Hue/Saturation, and most of the other features in the Adjustment submenu in the Image menu. Even better, just add the option key to the feature's keyboard shortcut (⌘-option-M for Curves instead of ⌘-M, and so on).

Learn a Trick, Get a Bonus

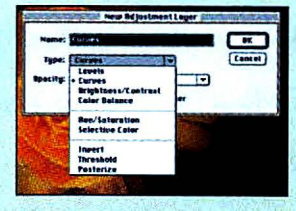
If you work by the hour, you probably don't mind sitting in front of the computer screen, slowly falling into a pixel trance. But if you've got to get your work done quickly, you've got to learn all the tricks you can. There are many hidden treasures buried deep within Photoshop—such as holding down the ⌘ key when selecting About Photoshop from the Apple menu (in 4.0, then ⌘-click on the nose you'll see). Taking the time to learn them now will pay off later with increased efficiency—who knows, maybe even a raise. **m**

DAVID BLATNER is coauthor of *Real World Photoshop 4* (Peachpit Press, 1997). You can write to him at *david@moo.com*.

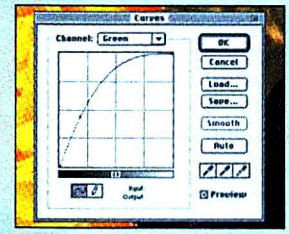
Adjustment Layers Help You Select Edges

Photoshop 4's New Adjustment Layer feature is great for tonal and color correction, but it can help you make selections, too. If you're having a hard time getting a good high-contrast edge with which to make a selection, add an adjustment layer (either Curves or Levels works well) and give the layer an extreme setting to bring out the edge as best you can. After you make your selection, throw the adjustment layer away. Your original image isn't harmed at all, and you save a lot of time. (Thanks to digital artist Greg Vander Houwen for this one.)

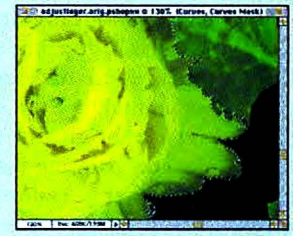
1 This image contains edges that are very difficult to discern (notice the dark edges of the petals), making it nearly impossible to select just the rose cleanly and quickly.



2 Add a new adjustment layer (⌘-click on the New Layer button or select New Adjustment Layer from the pop-out menu). To enhance edges, I like to adjust Curves.



3 Photoshop displays the settings dialog box for the adjustment layer you've chosen. An extreme adjustment to the green channel brings out the edges in this image.



4 Once you have an adjustment that makes the edges clear, you can use Photoshop's selection tools more easily. I was able to select the rose in just a few steps.

5 To edit the selected pixels, create a new adjustment layer (the selection automatically becomes a layer mask). Now throw away the Curves adjustment layer (it was useful only for making the selection).

6 Only the unmasked parts of the image (here, the rose) are affected by my new Hue/Saturation settings. When you like the changes, flatten the image's remaining layers, and prepare it for print.

Graphics Workshop

Painting through a Line-Art Mask in Photoshop

by Cathy Abes

ARTIST John Ritter produces digital and traditional illustration in his Aptos, California, studio for a variety of clients, including Time Warner, IBM, Adobe Systems, Mercury Records, and Dow Jones. He has lectured on illustration and design at American Institute of Graphic Arts in Charlotte, North Carolina.

HOW IT WAS DONE Ritter uses this painting technique to add dimension and painterly effects to line art—both clip art and his own pen-and-ink drawings. Using the line art as a mask, he paints through it and adds textures to the background image while maintaining the outline of the line art. He originally used this process with type, painting through the character forms; later he realized it would work just as nicely with images.

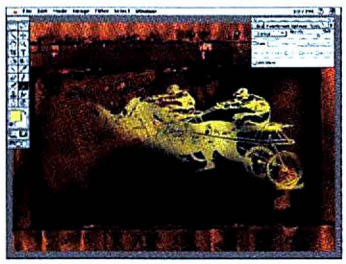
For this illustration, Ritter began by scanning a photograph he'd taken of the wall of an old warehouse in San Francisco, making it the background image. The line art came from a compilation of royalty-free historical illustrations and designs. The texture was a canvas he'd covered with layer after layer of paint and then scanned into Photoshop.

After painting through the mask, adding a drop shadow to the line art, and blending in the canvas texture, Ritter boosted the contrast to make the image more vibrant.

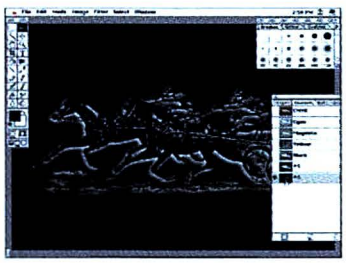
TOOLS **Hardware:** Power Macintosh 8500/120 with 150MB of RAM and a 2GB internal hard drive; two FWB 4GB external hard drives; a Radius 17-inch Precision Color Display; an Agfa Arcus II Scanner; and a Wacom ArtZ Graphics Tablet. **Software:** Adobe Photoshop 3.0.

1 The artist scanned a photograph that he'd taken of a warehouse wall in San Francisco to use as the background for the illustration.

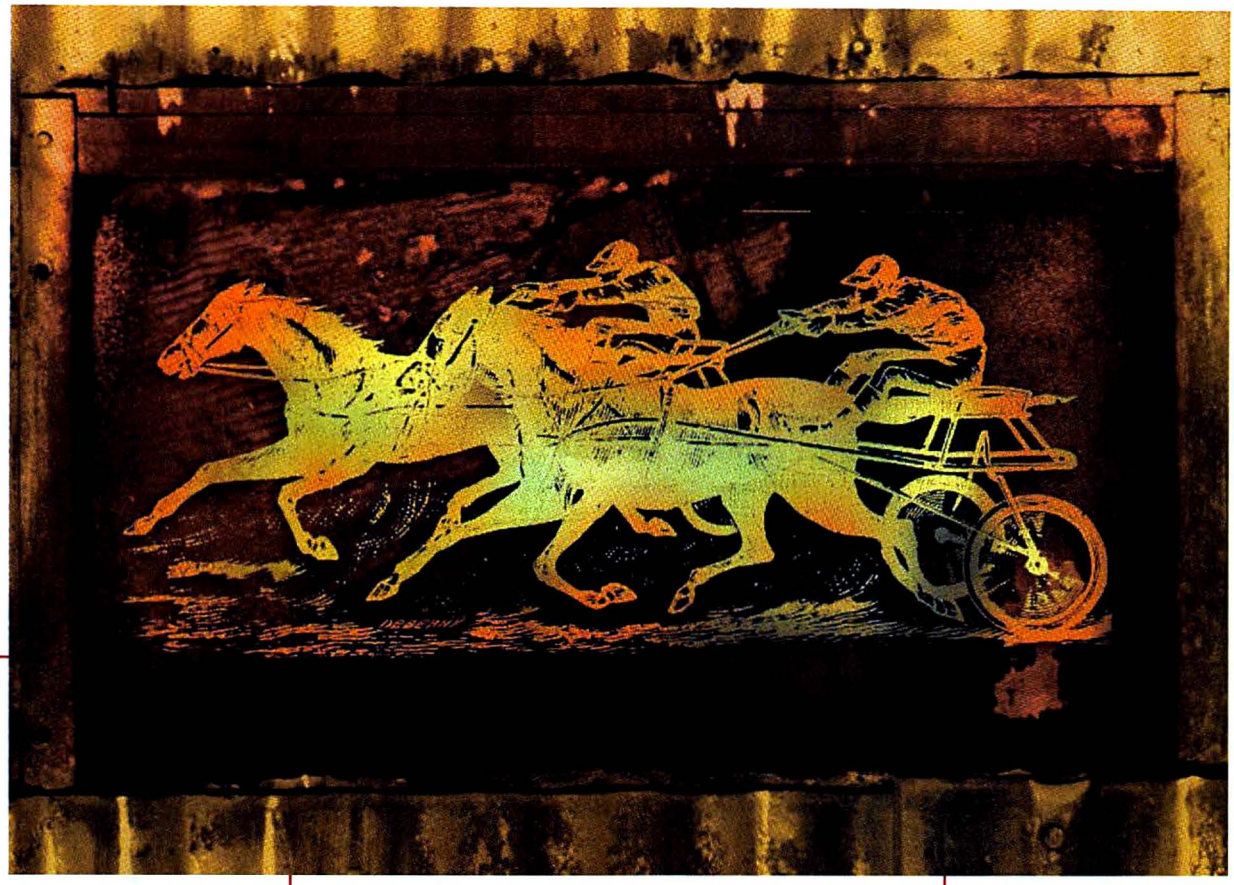
2 Ritter then scanned an old etching (from *The Clip Art Book, Studio Edition,* by Gerard Quinn; Crescent Books, 1994), pasted the scan into a new alpha channel in the wall image (channel 5), and inverted it. Next, he loaded that channel.

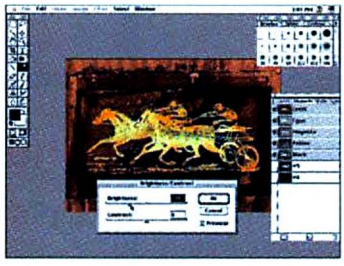


3 Creating a custom 200-pixel brush at 50 percent opacity, Ritter began painting through the line-art mask, varying the opacity between 50 and 80 percent and using several shades of green and orange.



4 To add a drop shadow, he feathered the selection with a 20-pixel radius and offset the selection, using ⌘-option-shift to drag it down and to the left while constraining it. He saved the selection to a new alpha channel (6). While viewing just channel 6, he loaded channel 5 and filled it with 100 percent black to protect the painted areas.





5 Back in the main image, Ritter loaded the feathered version of the scan (channel 6); in the Brightness/Contrast controls he reduced the brightness to -41 to darken only the shadows around the line art.

6 To add more texture to the image, he then scanned in a piece of canvas on which he'd built up numerous layers of paint.

7 After loading channel 5, Ritter pasted the painted canvas texture into that channel as a floating selection. Initially the texture came in at full opacity and obliterated the painting underneath.

8 Using controls in the Layers palette, Ritter tried compositing the floating selection with the background layer in Multiply mode at various opacities, finally settling on 80 percent to allow the painted areas to show through with only the darker parts of the texture still visible.

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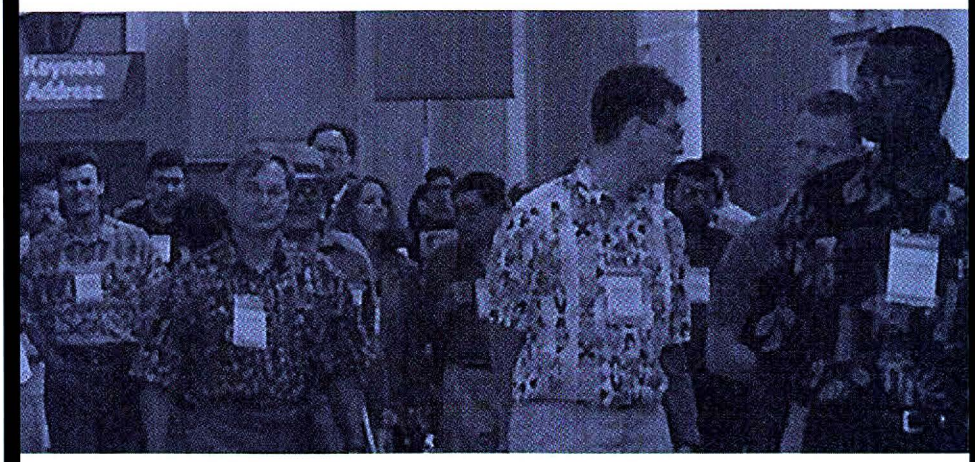

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57	Kingston Technology	201	800/435-0677
156	L.A.Trade	—	800/433-3726
90,91	LA CIE	52	800/999-1332
122-127	Macworld Boston Expo	—	—
148,149	Mac Bargains	71	800/619-9091
170,171	MacConnection	145	800/800-3333
158,159	MacMall/Creative Computers	131	800/222-2808
154,155	MacMarket	258	800/223-4622
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172,173	MacWarehouse	150	—
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22,23	Umax Computer	99	800/625-UMAX
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14,15	ViewSonic	59	800/888-8583
12	VST Technologies, Inc.	73	508/263-9700
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Page No.	Advertiser	Reader Srvc. No.
SOFTWARE		
BUSINESS		
26	AEC Software	203
53	Corel Corporation	78
CAD/CAM		
24	Diehl Graphsoft	46
18	Engineered Software	12
COMMUNICATION		
73	Dataviz	79
EDUCATIONAL		
61	Active Arts	50
ENTERTAINMENT		
61	Active Arts	50
128	MacSoft	30
GRAPHICS/DTP		
11	Adobe	252
134	Adobe	253
63	binuscan	6
53	Corel Corporation	78
21	Deneba Software	57
66	Extensis	13
41	Fractal Design	—
100	GDT Softworks	32
27	MetaTools, Inc.	5
75	PhotoDisc	114
OCR		
9	Caere Corporation	69
ONLINE		
59	EarthLink Network	8
UTILITIES		
10	Aladdin Systems	21
76	Alsoft	140
10	CE Software, Inc.	170
100	GDT Softworks	32
81	Syncronys Soft Corpo	55

Page No.	Advertiser	Reader Srvc. No.
HARDWARE		
BOARDS		
79	ATI Technologies Inc	256
8	Orange Micro	33
COMPUTER SYSTEMS		
114	Alliance Peripheral Systems	61
67	Apple Computer	—
164	Big Mac Computers	101
168	CRA Systems, Incorporated	20
165	DigiCore	—
162	Express Direct	81
4	Motorola Computer Group	207
IBC	Power Computing Corporation	161
IFC	Power Computing Corporation	151
22	Umax Computer	99
DIGITIZERS/SCANNERS		
51	Microtek Lab, inc.	—
13	Sony Corporation	—
35	Umax Technologies	45
DISPLAY		
168	CRA Systems, Incorporated	20
71	Hitachi NSA	74
90	LA CIE	52
12	Mag Innovision	25
7	Mitsubishi Electronics America	261
14	ViewSonic	59
EXPANSIONS/UPGRADES		
57	Kingston Technology	201
156	L.A.Trade	—

Page No.	Advertiser	Reader Srvc. No.
HARD DISKS/STORAGE		
166	Alliance Peripheral Systems	62
157	Bottom Line Distribution	63
160	ClubMac	96
82	Fujitsu	202
57	Kingston Technology	201
90	LA CIE	52
150	MegaHaus	245
176	PowerTools	63
147	ProDirect	135
INPUT DEVICES		
BC	Kensington Microware Ltd.	1
13	Sony Corporation	—
MICRO PROCESSOR		
IBC	Power Computing Corporation	161
IFC	Power Computing Corporation	151
MISCELLANEOUS		
45	American Power Conversion	72
19	Palm Computing	—
MULTIMEDIA		
4	Motorola Computer Group	207
POWERBOOK		
39	Apple Computer	—
12	VST Technologies, Inc.	73
PRINTERS		
16	ENCAD Incorporated	65
28	Epson America	—
42	Epson America	—
55	Tektronix	143
77	Xante Corporation	112

Page No.	Advertiser	Reader Srvc. No.
SECURITY		
45	American Power Conversion	72
SERVICES		
ON LINE		
59	EarthLink Network	8
TRADESHOWS/CONFERENCES		
177	Telecommuting and Home Office Expo	—
122-127	Macworld Boston Expo	—
ACCESSORIES		
FURNITURE		
6	Anthro	—
MAIL ORDER		
166	Alliance Peripheral Systems	62
164	Big Mac Computers	101
157	Bottom Line Distribution	63
160	ClubMac	96
151	Computer Discount Warehouse	2
165	DigiCore	—
162	Express Direct	81
175	J & R Computerworld	282
156	L.A.Trade	—
148	Mac Bargains	71
170	MacConnection	145
158	MacMall/Creative Computers	131
154	MacMarket	258
172	MacWarehouse	150
150	MegaHaus	245
176	PowerTools	63
147	ProDirect	135
174	The Mac Zone	70
DIRECTORY		209

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1	2	3	4	5	146	147	148	149	150	291	292	293	294	295	461	462	463	464	465	531	532	533	534	535							
6	7	8	9	10	151	152	153	154	155	296	297	298	299	300	466	467	468	469	470	536	537	538	539	540							
11	12	13	14	15	156	157	158	159	160	401	402	403	404	405	471	472	473	474	475	541	542	543	544	545							
16	17	18	19	20	161	162	163	164	165	406	407	408	409	410	476	477	478	479	480	546	547	548	549	550							
21	22	23	24	25	166	167	168	169	170	411	412	413	414	415	481	482	483	484	485	551	552	553	554	555							
26	27	28	29	30	171	172	173	174	175	416	417	418	419	420	486	487	488	489	490	556	557	558	559	560							
31	32	33	34	35	176	177	178	179	180	421	422	423	424	425	491	492	493	494	495	561	562	563	564	565							
36	37	38	39	40	181	182	183	184	185	426	427	428	429	430	496	497	498	499	500	566	567	568	569	570							
41	42	43	44	45	186	187	188	189	190	431	432	433	434	435	501	502	503	504	505	571	572	573	574	575							
46	47	48	49	50	191	192	193	194	195	436	437	438	439	440	506	507	508	509	510	576	577	578	579	580							
51	52	53	54	55	196	197	198	199	200	441	442	443	444	445	511	512	513	514	515	581	582	583	584	585							
56	57	58	59	60	201	202	203	204	205	446	447	448	449	450	516	517	518	519	520	586	587	588	589	590							
61	62	63	64	65	206	207	208	209	210	451	452	453	454	455	521	522	523	524	525	591	592	593	594	595							
66	67	68	69	70	211	212	213	214	215	456	457	458	459	460	526	527	528	529	530	596	597	598	599	600							
71	72	73	74	75	216	217	218	219	220																						
76	77	78	79	80	221	222	223	224	225																						
81	82	83	84	85	226	227	228	229	230																						
86	87	88	89	90	231	232	233	234	235																						
91	92	93	94	95	236	237	238	239	240																						
96	97	98	99	100	241	242	243	244	245																						
101	102	103	104	105	246	247	248	249	250																						
106	107	108	109	110	251	252	253	254	255																						
111	112	113	114	115	256	257	258	259	260																						
116	117	118	119	120	261	262	263	264	265																						
121	122	123	124	125	266	267	268	269	270																						
126	127	128	129	130	271	272	273	274	275																						
131	132	133	134	135	276	277	278	279	280																						
136	137	138	139	140	281	282	283	284	285																						
141	142	143	144	145	286	287	288	289	290																						

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1080MB	Atlas 7200 RPM	8ms	8.6MB/Sec.	F&W SCSI 2	269	329
2.0GB	Saturn	8.5ms	-	Fast SCSI 2	425	485
2.0GB	Atlas 7200 RPM	8ms	-	Fast SCSI 2	495	565
2.0GB	Atlas 7200 RPM	8ms	11.0 MB/Sec.	F&W SCSI 2	555	630
4.5GB	Atlas II 7200 RPM	7.9ms	-	Ultra SCSI 3	795	855
4.5GB	Atlas II 7200 RPM	7.9ms	12.5 MB/Sec.	F&W Ultra SCSI 3	885	960
9.1GB	Atlas II 7200 RPM	7.9ms	-	Ultra SCSI 3	1385	1445
9.1GB	Atlas II 7200 RPM	7.9ms	12.7 MB/Sec.	F&W Ultra SCSI 3	1495	1565

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535MB	Quantum	9ms	(5400RPM,512K Buffer)	Fast SCSI 2	N/A	229
1280MB	Fireball TM	10.ms	-	Ultra SCSI 3	225	285
2.1GB	Fireball TM	10.5ms	-	Ultra SCSI 3	295	355
3.2GB	Fireball TM	10.5ms	-	Ultra SCSI 3	345	395

All Value Drives are 4500 RPM, 128K Buffer with a 3 year manufacturers warranty.

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2.2GB	UltraStar ES (5400 RPM)	8.5ms	-	Ultra SCSI 3	425	485
4.3GB	UltraStar 2 ES 34300 (5400 RPM)	8.5ms	-	Ultra SCSI 3	575	635
4.3GB	UltraStar 2 ES 34300W	8.5ms	16.2 MB/Sec.	F&W Ultra SCSI 3	595	675
4.5GB	UltraStar 2 XP 34550 (7200 RPM)	8.5ms	-	Ultra SCSI 3	745	805
4.5GB	UltraStar 2 XP 34550W	8.5ms	16.2 MB/Sec.	F&W Ultra SCSI 3	795	865
9.1GB	UltraStar 2 XP 39100W	7.9ms	-	Ultra SCSI 3	1445	1505
9.1GB	UltraStar 2 XP Wide 39100W	7.9ms	15 MB/Sec.	F&W Ultra SCSI 3	1525	1595

All IBM UltraStar 2 drives listed are 7200 RPM,512K Buffer (unless noted otherwise)and are covered by a five year manufacturers warranty. Work station disk tab entry information available upon request.

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4.5GB	Micrp.Tomahawk 4345W	7.9ms	-	F&W Ultra SCSI 3	830	900
4.5GB	Micrp.Tomahawk 4345WAV	7.9ms	2MB CACHE -	F&W Ultra SCSI 3	955	1025
9.1GB	Micrp.Tomahawk 3391	7.9ms	-	Ultra SCSI 3	1395	1455
9.1GB	Micrp.Tomahawk 3391AV	7.9ms	2MB CACHE -	Ultra SCSI 3	1475	1535
9.1GB	Micrp. Tomahawk 3391W	7.9ms	-	F&W Ultra SCSI 3	1415	1485
9.1GB	Micrp. Tomahawk 3391WAV	7.9ms	2MB CACHE -	F&W Ultra SCSI 3	1495	1570

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Barracuda 2 Series Seagate

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2.5GB	Barracuda ST32171N	8ms	-	Ultra SCSI 3	575	635
2.5GB*	Barracuda ST32171W	8ms	17.6 MB/Sec.	F&W Ultra SCSI 3	635	695
4.5GB	Barracuda LP ST34371N	7.9ms	-	Ultra SCSI 3	885	945
4.5GB*	Barracuda LP ST34371W	7.9ms	17.6 MB/Sec.	F&W Ultra SCSI 3	945	1015
9.1GB	Barracuda 19171N ★★★★	7.9ms	-	Ultra SCSI 3	1675	1735
9.1GB*	Barracuda 19171W ★★★★	7.9ms	18 MB/Sec.	F&W Ultra SCSI 3	1745	1825

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4.5GB	Speed-Tuned for AV 512K Buffer	-		F&W Ultra SCSI 3	845	920
9 GB	F2959 Speed-Tuned for AV 8ms 512K Buffer		-	Ultra SCSI 3	1375	1435
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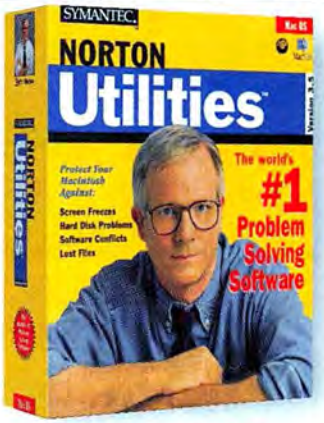

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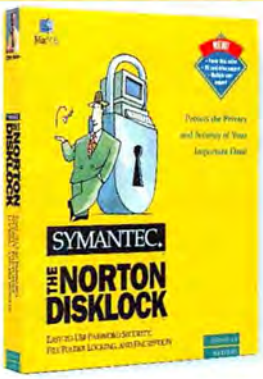

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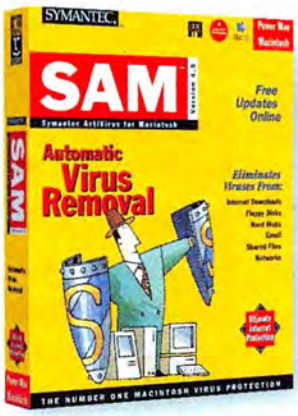

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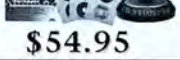

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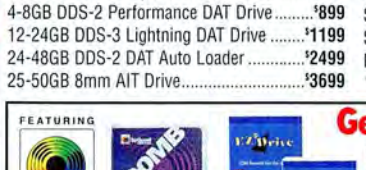

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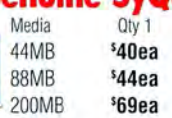

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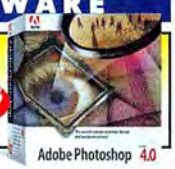

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- Two 3.5" Internal Bays
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Mini-Tower Model
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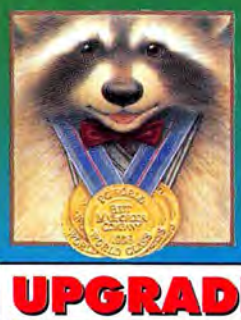

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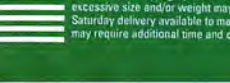

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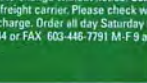

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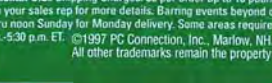

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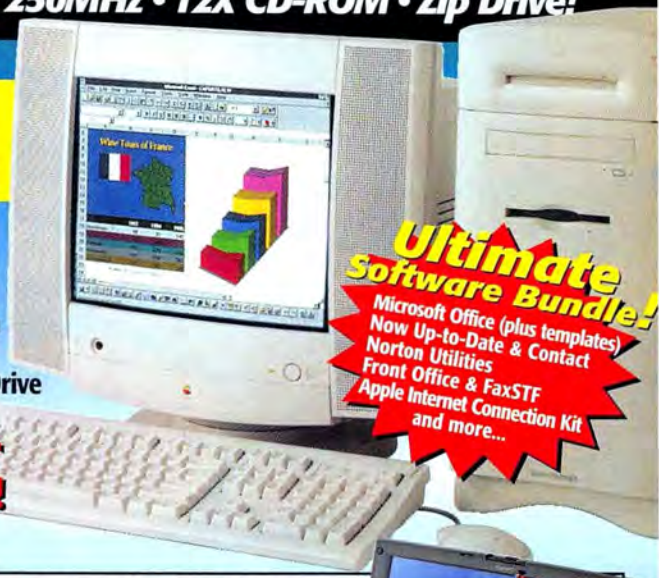

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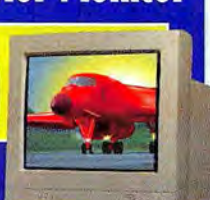

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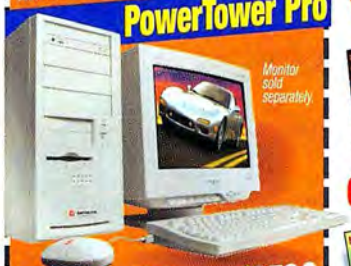

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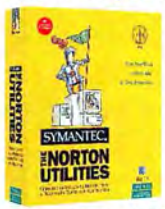

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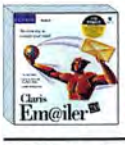

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Business Operations	178-179
Bar Code	
CD Production	
Inventory Management	
Print Utility	
Video/Display	
Communications/ Networking	183
Cross Platform	
Education/ Entertainment	180-182
Discount Software	
Games	
Music	
Graphics	182
Clip Art	
Digital Art	
Translation	
Memory & Upgrades	201-207
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Category	Page No.
Peripheral Products	183-185
Cables	
Cd Labeling	
Digital Media	
Input Devices	
Magnetic Media	
Mobile Computing	
Software Publishing	
Services	207-208
Color Printing	
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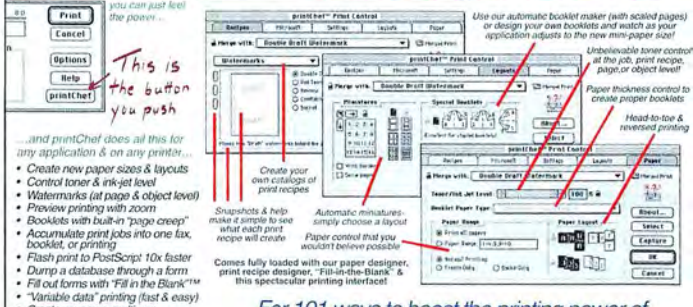

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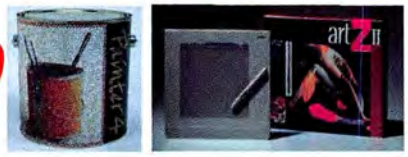

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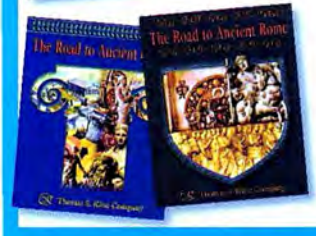

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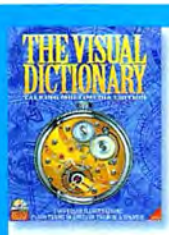

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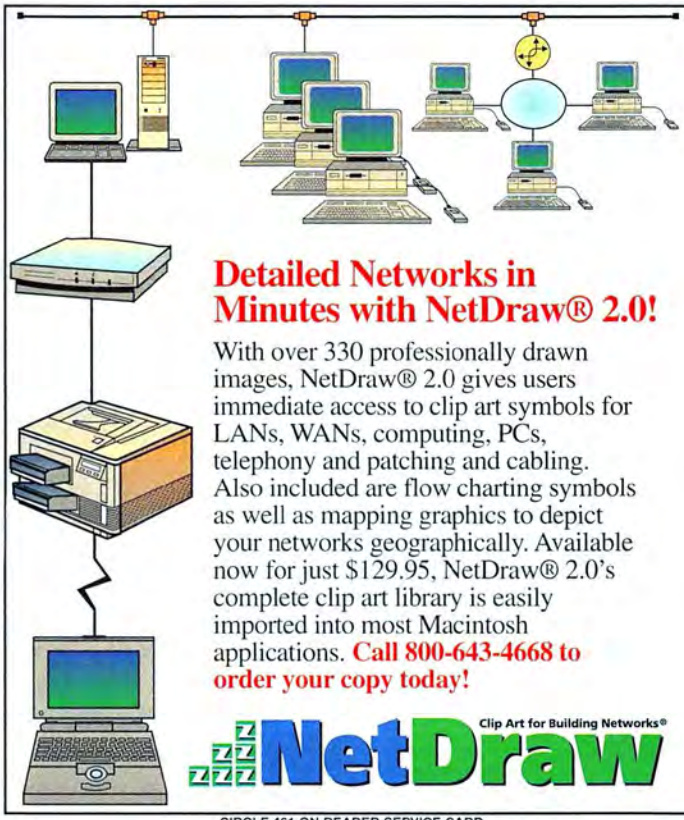

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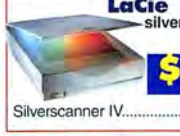

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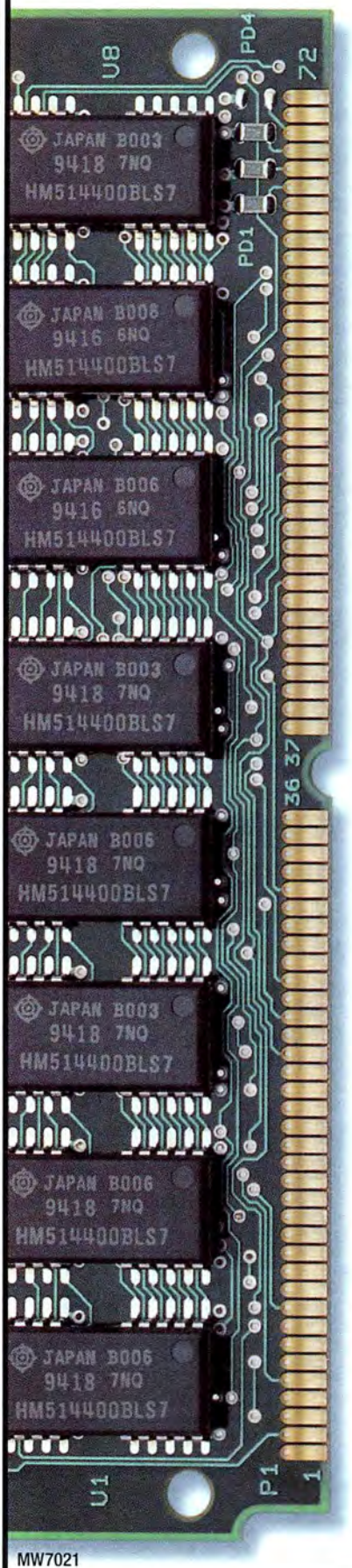

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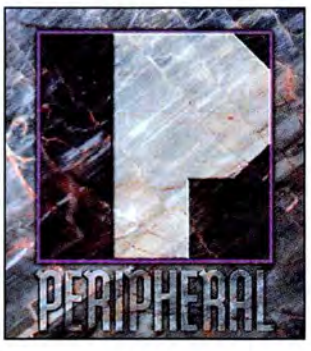

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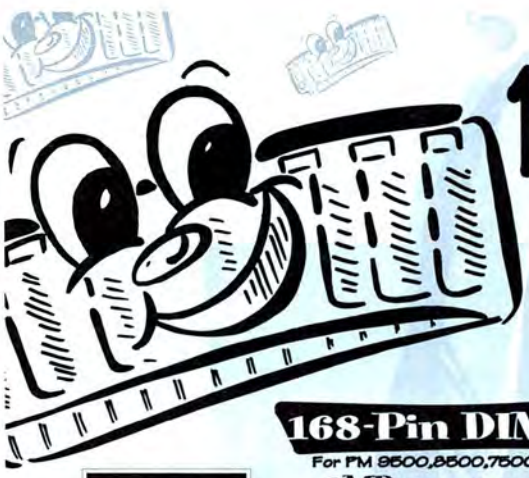

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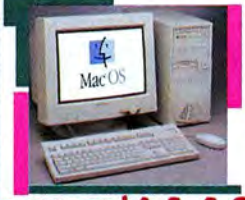

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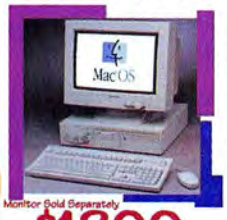

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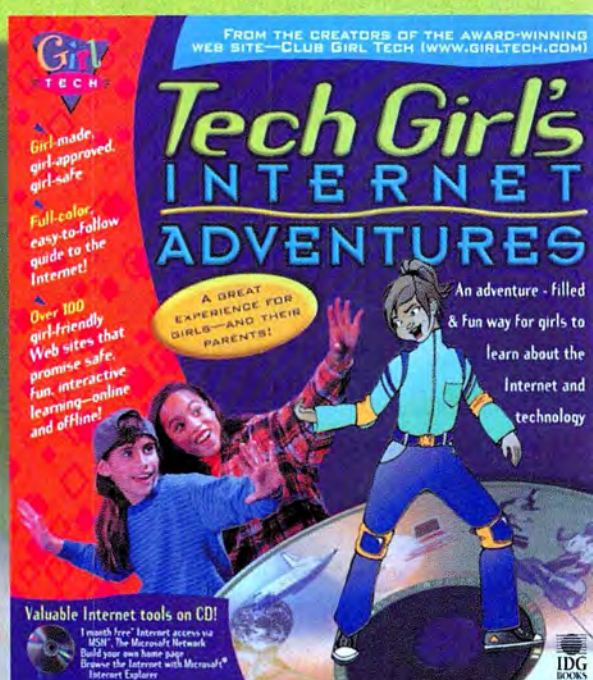

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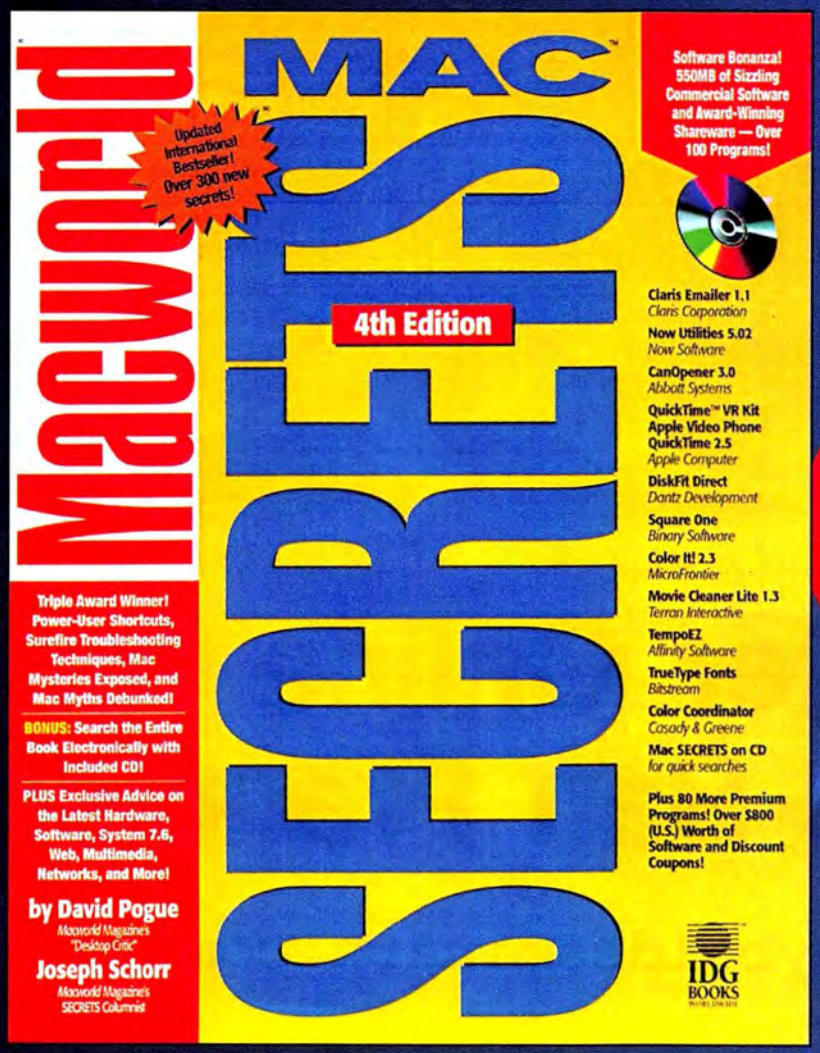

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continued from page 214

(number) percent pure, using *(adverb)* ground *(plant)* leaves, dried *(vegetable)* stems, and extract of *(animal)* *(body part)*. Try them yourself for *(number)* weeks. You, too, can EARN MORE MONEY; lose up to *(number)* pounds in *(period of time)*; stop *(a bad habit)*; have the vigor of a(n) *(animal)*; and look more like *(famous person)* with every passing week.

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If you'd like to be removed from this list, tough *(plural noun)*.

A BusinessWeek Article

With last week's news of Apple's *(number)*-million-dollar quarter profit, record-breaking sales of its PowerBook *(big number)* laptop, desktop Macs with *(big number)*-megahertz chips, and rebounding market share, a(n) *(adjective)* observer might think Silicon Valley's most *(adjective)* company is making a comeback.

But Apple's death, now that the company is in its *(number)* th consecutive year, is surer than ever. *(Person in the room)* is the latest employee to resign. "Apple was a dead-end job," said the former mailroom clerk in Apple's Advanced *(noun)* division, now a restroom attendant at *(fast-food chain)*. Meanwhile, Apple's new OS, code-named *(musical term)*, is still unfinished. "I'd rather put my *(body part)* in a(n) *(animal)*'s mouth than bank on Apple's future," said an analyst at a large software company in Redmond, Washington.

Apple's quality has suffered, too. "I just bought a used Mac," reported one user. "The *(computer part)* was *(adjective)*, the *(another computer part)* was covered with *(color)* *(a liquid)*, and the keyboard was filled with *(animal)* fur. If this is the way it sells computers, how can Apple survive?"

Apple's stock has risen *(number)* dollars per share in recent days, a sure sign it'll eventually go down again. "Buy low, sell high," says one investor. "That's what my *(relative)* *(woman's name)* always says."

Your Kid's Web Page

HI!! :) And welcome to the *(name of person in the room)* Home Page.

I'm in grade *(number)* at *(U.S. political figure)* Junior High School. I play *(musical instrument)* in the marching band, and like to do *(California sport)* with my best friends, *(a first name)* and *(another first name)*. My favorite rock groups are the *(adjective)* *(adjective)* *(adjective)* *(plural vegetable)* and the *(violent "ing" verb)* *(plural noun)*. Ooooh, that *(musical instrument)* player is sooooo cute!!!

Click here to see a picture of *(boy's name)*, my *(animal)*. He eats mainly *(plural insect)* and whole-grain *(a plant)*, but now and then he gets out of his cage and gets into the *(piece of furniture)* and freaks out my dad. Click here to hear Dad say, "Get that *(colorful curse word)* animal out of here RIGHT NOW, or it's *(name of entree)*!"

NEW FEATURE! See what I had for lunch today. Today it was *(lunch item)*.

You are visitor number *(number under 50)*. Send me e-mail! **m**

DAVID POGUE is the *(adjective)* coauthor of the *(adjective)* book, *The Weird Wide Web* (IDG Books, 1997). His Web page is at *http://www.concentric.net/~pogue*.

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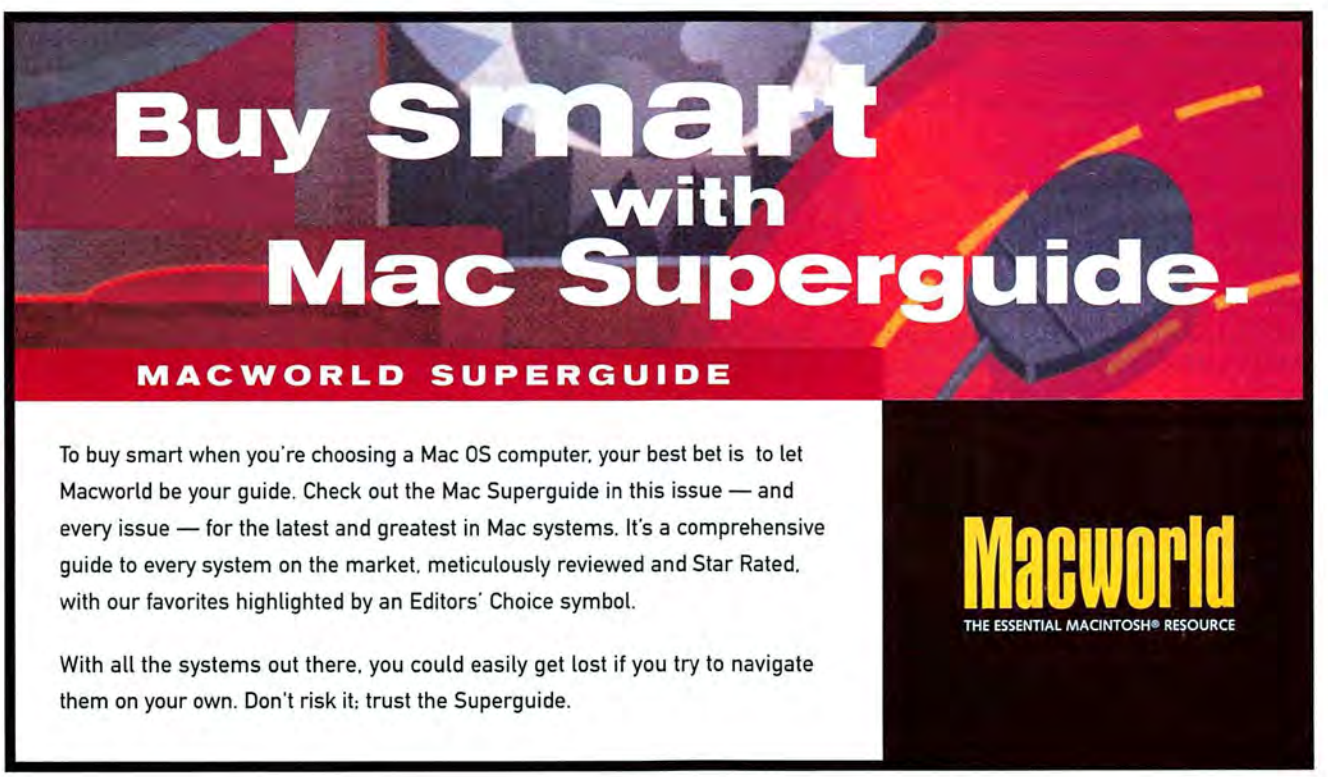

The Desktop Critic

by David Pogue

Mac Libs! It's Fun for the _____ Family

THE PARTY GAME FOR LANGUAGE-LOVING MAC FANS

DO YOU REMEMBER Mad Libs? They were little books of funny stories in which strategic words were replaced by blanks. Before revealing what the story was about, you'd ask your fellow game players to supply a word for each blank ("Gil, an adjective. Ellen, a bodily appendage"). Finally, you'd read the completed story to the group, holding your sides from laughing so hard.

What made the game funny was the element of the bizarre that your fellow players' non sequitur words added to familiar, everyday paragraphs. Well, maybe it's just me, but it sure seems as though the computer world, too, has become a parade of predictable pieces of prose. Everywhere you look, with every passing month, life's headlines, press releases, and e-mails seem more and more alike. About the only thing that differentiates one from the next is how they . . . fill in the blanks.

If you've got a gang together, grab a pencil and let the game begin. If you're operating solo, the clever souls at Macworld Online have created an interactive online version of this column for your enjoyment. Dial up *http://www.macworld.com*—but don't read this column first, or you'll spoil the surprise.

Microsoft to Acquire . . .

Redmond, Wash.—Microsoft Corporation today announced that it will be purchasing *(city in California)* Software, whose innovative *(verb)* -Meister Pro software promises to change the *(noun)* -design industry dramatically. Microsoft paid *(number)* billion dollars for the smaller company.

"This software is the *(adjective)* complement to our existing line," said *(name of a person in room)*, Microsoft's director of *(plural noun)*. "And besides, we haven't bought out anybody in *(period of time)*. Mr. Gates has been feeling *(adjective)* and unproductive."

"Look, I did this for the *(plural noun)*, not the money," said *(name of a person in room)*, CEO of the acquired company. "I'm confident that Microsoft will work *(adverb)* to market our technology. *(Expletive)*, they wouldn't just wipe us off the map and dump the technology. In fact, they've already got a new name picked out for the program: Microsoft *(boy's name)*."

Mr. Gates could not be reached for comment; a spokesperson for Mr. Gates said that the Microsoft CEO was busy redesigning the *(part of a house)* of his *(number)* -million-dollar mansion.

A Letter from Steve Case

Dear America Online subscriber: As you know, I make a(n) *(adjective)* effort to write an open letter to our members every *(period of time)*. It's our obligation to keep our *(number)* million subscribers up-to-date on developments here in *(European city)*, Virginia.

Many of you have complained *(adverb)* about busy signals when you dial in to AOL. Some of you can't get online even if you dial *(number)* times in a row, especially between *(time of day)* and *(another time of day)*. Unfortunately, things are going to get *(adjective)* before they get better. However, by *(year in the future)*, I think you'll see some real improvement.

For example, we're spending *(number)* dollars upgrading our network. Every week, we're installing more modems, more *(plural noun)*, and more *(plural noun)*. In addition, we're making it easier for you to get online by getting other people *off*; our computers now disconnect loiterers after only *(number)* seconds of inactivity. If you're still having trouble connecting, try dialing at off-peak times, such as *(a holiday)*, or try the access number of a different city, such as *(city outside the United States)*.

Finally, we hope you're feeling *(adjective)* about our new AOL 3.0 software. Not only is it even more *(adjective)* and *(adjective)* than ever, but it runs *(adverb)* on a Power Mac. As a bonus, it's *(number)* times slower, so you'll spend less time noticing that you can't dial in to AOL, the *(superlative adjective)* information service in the world.

A Junk E-Mail

Our research indicates that you might be interested in this *(adjective)* offer.

Are you feeling *(adjective)*? Is your *(body part)* looking *(color)* and *(adjective)*? Do you feel like you've been hit by a *(type of vehicle)*? At parties, do your friends mention that your *(body part)* looks like a(n) *(adjective)* *(noun)*? Perhaps what you need is ORGANIC HERB SUPPLEMENTS.

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continues on page 213

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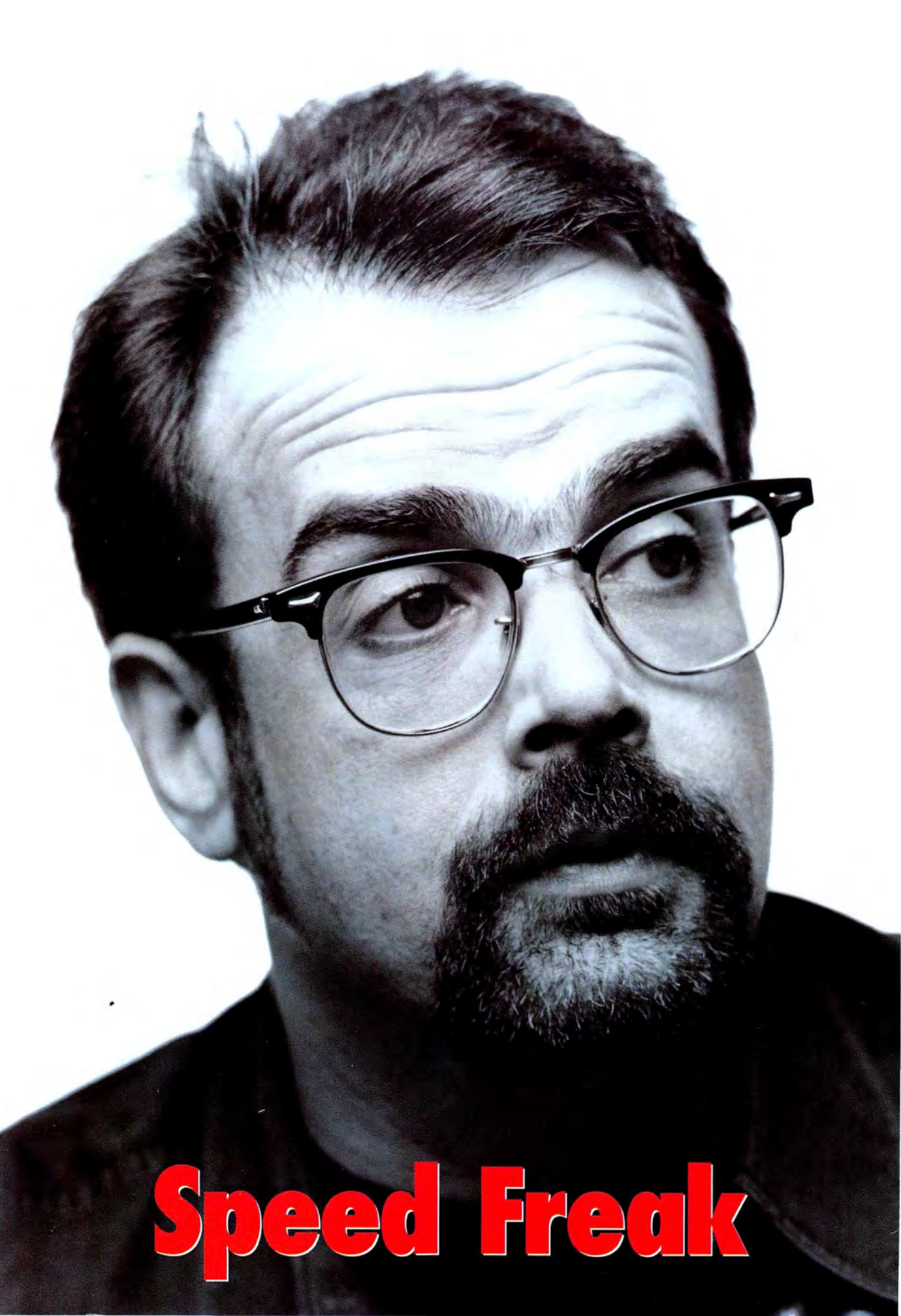

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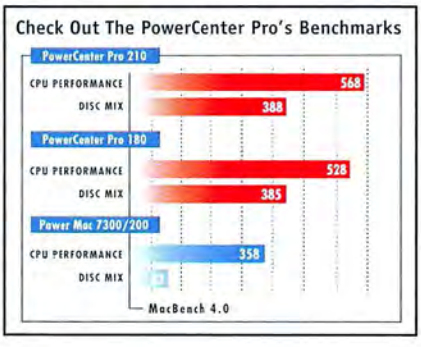

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