

MacUser

AUGUST 1997

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Best Mac



TIPS

101 Ways to Do Everything Better

FIRST LOOK

Mac OS 8

Hands-On Preview of Your
New Operating System

New Pentium II: Still no threat to Mac

Buyers Guide: 21-inch monitors



We're first to ship the For those with th

Jorg Brown of Connectix wants you to have the fastest system.

No one gets more speed out of a Mac™ OS system than Jorg Brown, Lead Development Engineer for Connectix. He's taken the lead in speed by co-authoring some of the fastest utilities you've ever known. From Now Utilities™, to RAM Doubler™, to Speed Doubler™. Now he's smashing the emulation speed barrier by fine tuning Connectix's upcoming Virtual PC™. Jorg feeds his need for speed by compiling code on a PowerTower™ Pro System from Power Computing.



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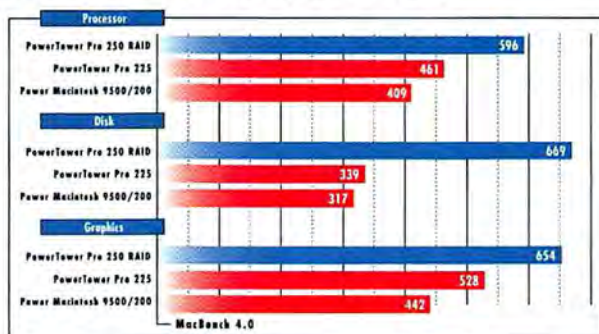
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Rocketman²

The Internet

Netscape Navigator 3.0

Find again.	F3
Open your list of bookmarks.	COMMAND-B

Microsoft Internet Explorer 3.0 and Netscape Navigator 3.0

Select all the text on a page.	COMMAND-A
Add a URL to your list of favorites or bookmarks.	COMMAND-D
Do a find on your current page.	COMMAND-F
Stop loading the current page.	COMMAND-. (PERIOD)
Load images on current page.	COMMAND-I
Reload a current page.	COMMAND-L

Eudora Pro 3.0

Open your out box.	COMMAND-0 (ZERO)
Open your in box.	COMMAND-I
Check spelling.	COMMAND-6
Open the Find dialog box.	COMMAND-F
Attach a document to a message.	COMMAND-H
Filter messages.	COMMAND-J
Open the address book.	COMMAND-L
Expand nicknames to full address.	COMMAND-OPTION-, (COMMA)

Claris Emailer 2.0

Paste in part of a previous message.	COMMAND-' (APOSTROPHE)
Delete a message and move to the next one.	COMMAND-OPTION-]
Delete a message and move to the previous one.	COMMAND-OPTION-[
Send or receive mail.	COMMAND-K
Repeat the last connection and skip the dialog box.	COMMAND-OPTION-K



CyberStudio 1.0.1

Jump to a linked destination.	CONTROL-CLICK ON THE LINK
Move an item pixel by pixel across the layout grid.	OPTION-ARROW KEYS
Generate a list item without a bullet or number.	OPTION-RETURN
Generate a list item with extrawide spacing.	COMMAND-RETURN

NetObjects Fusion 2.0

Open a page in Site view.	DOUBLE-CLICK ON THE PAGE ICON, COMMAND-2
Edit a page name in Site view.	ENTER
Add a page in Site view.	INSERT (HELP KEY)
Delete a page in Site view.	DELETE
Create parent in Page view.	OPTION-UP ARROW
Create first child in Page view.	OPTION-DOWN ARROW
Constrain a line in Page view.	SHIFT-DRAG
Select multiple objects in Page view.	DRAG BOUNDING BOX, SHIFT-CLICK

WebSTAR 2.0

Refuse new connections.	COMMAND-R
Suspend logging.	COMMAND-L
Hide a window by putting it into the background.	COMMAND-H

Desktop Publishing

QuarkXPress 3.32

Jump to the first field in the Measurements palette.	COMMAND-OPTION-M
Open the Documents Layout palette.	F10
Activate the Style Sheets palette.	F11
Activate the Color palette.	F12

PageMaker 6.5

Turn the cursor into the hand tool (paw).	OPTION
Toggle between fit-in-window and viewing at 100%.	COMMAND-OPTION
Toggle between viewing at 100% and 200%.	COMMAND-OPTION-SHIFT
Turn cursor into magnifier.	COMMAND-SPACE BAR

Illustrator 6.0

Constrain movement to 45-degree increments.	SHIFT-DRAG
Switch from cursor to magnifier.	COMMAND-SPACE BAR
Switch from cursor to demagnifier.	OPTION-COMMAND-SPACE BAR
Turn the cursor into the hand tool (paw).	SPACE BAR
Draw an object from the center.	OPTION-DRAG
Left-justify text.	COMMAND-SHIFT-L
Right-justify text.	COMMAND-SHIFT-R
Center text.	COMMAND-SHIFT-C




Productivity

Mac Repairs

When a program crashes, do a force quit.	COMMAND-OPTION-ESC
For system crashes, do a soft reset.	COMMAND-CONTROL-POWER KEY
When a soft reset doesn't work, do a hard reset.	HOLD IN POWER KEY ON MAC (NOT ON KEYBOARD)
Troubleshoot conflicts by restarting the Mac with extensions off.	HOLD SHIFT KEY DURING REBOOT
Zap the PRAM for many problems, such as recurring error messages.	COMMAND-OPTION-P-R DURING REBOOT
Start up from an alternate startup disk.	SHIFT-OPTION-COMMAND-DELETE

Desktop Tips

 Reveal the path of a folder.	COMMAND-CLICK ON A FOLDER'S WINDOW BAR
Alphabetize all items in a selected folder.	OPTION-CLEAN UP BY NAME (ON SPECIAL MENU)
Eject a floppy without leaving a ghosted icon.	COMMAND-Y
Disable messages that tell you to reinsert a floppy.	COMMAND-. (PERIOD)
Cycle through icons in a window in alphabetical order.	TAB
Cycle through icons in a window in reverse alphabetical order.	SHIFT-TAB
Select an icon next to the currently selected icon.	RIGHT, LEFT, UP, OR DOWN ARROW
Go to the last file (alphabetically speaking) in a folder.	~ (TILDE)
Open a folder while closing the one that contains it.	OPTION-DOUBLE-CLICK ON A FOLDER
Expand the selected folder by one level.	COMMAND-UP ARROW
Go back to the original selected folder (of previous shortcut).	COMMAND-DOWN ARROW
Expand the selected folder by one level and close the original selected folder.	COMMAND-OPTION-UP ARROW
Go back to the original selected folder and close the expanded folder (of previous shortcut).	COMMAND-OPTION-DOWN ARROW
Close all windows on the screen.	COMMAND-OPTION-W
Rename a selected file.	RETURN (THEN TYPE NEW NAME)
Go to the beginning or end of a selected filename.	ARROW KEYS
Toggle among fields in the Chooser.	TAB
Hide the active application.	OPTION-CLICK OUTSIDE THE ACTIVE APPLICATION

Business Applications

Microsoft Word 6

Activate the Save As option.	F12
Repeat previous action.	COMMAND-Y
Merge a document.	COMMAND-OPTION-SHIFT-N
Insert a merge document.	COMMAND-OPTION-SHIFT-F
Select the character to the left of your cursor.	F8
Expand the size of a selection.	F8 (MORE THAN ONCE)
Reduce the size of a selection.	SHIFT-F8

ClarisWorks 4.0

Toggle between showing and hiding invisibles.	COMMAND-; (SEMICOLON)
Get help.	COMMAND-/
Right-justify text.	COMMAND-]
Left-justify text.	COMMAND-[
Center text.	COMMAND-\
Record a macro.	SHIFT-COMMAND-J
Toggle between showing and hiding Shortcuts palette.	SHIFT-COMMAND-X
Toggle between showing and hiding style sheets.	COMMAND-SHIFT-W

Microsoft Excel 5

Delete cells, rows, or columns.	COMMAND-K
Find a cell, row, or column.	COMMAND-F
Replace a cell, row, or column.	COMMAND-H
Insert a cell, row, or column.	COMMAND-I

Claris FileMaker Pro 3.0

Go to a specific record automatically.	ESC, RECORD NUMBER, RETURN
Move through fields in reverse order.	SHIFT-TAB
Align objects, using the current settings.	COMMAND-K
Lock an object.	COMMAND-H
Group objects.	COMMAND-G
Reset the default format based on an object.	COMMAND-CLICK



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Andy Ihnatko travels with Newton. Never mind Lassie and Toto — man's new best friend is fast and faithful and won't embarrass your neighbors with overfriendly greetings.

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Inexpensive, powerful multimedia-authoring tool graduates to the Web.

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Spreadsheets for fun and profit. Leave the row-and-column paradigm behind.

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This 24-inch desktop jumbo has size and resolution going for it.

Number Nine Imagine 128 Series 2 for Power Macintosh · 38

Buckle up. This accelerated-graphics card puts the pedal to the metal for full-motion video and 3-D.

Microtek Color PageWiz and Mitsubishi S600C · 40

For OCR, these color sheetfed scanners are A-OK. For images, no way, José.



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Buyers Guide: 21-Inch Monitors · 50

Form meets function, as monster monitors achieve impressive image quality. We test a dozen of these behemoths.





For one-click access to all Web sites mentioned in this issue, go to www.macuser.com/bookmarks

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Perfect Patterns • 88

Wallpaper your desktop or your Web page with a seamless, tiled photograph.

NetUser

Web Sites, Frontier-Style • 91

This complex site-management tool may be more intimidating than a Western sheriff, but it's powerful, flexible, and free.



Not Your Father's HTML • 95

Bring on the Rosetta stone. The more powerful the HTML cipher becomes, the more cryptic it gets.

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Help Folder • 97

Bob and Chris answer all your questions.

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Learn about all creatures great and small with this Macintosh menagerie.

The Game Room • 152

The progeny of Marathon 2 bring forth a whole new generation of mayhem. Duck and cover.

101 Expert Tips

A baker's centum of tips to help you be a smarter, faster, and happier Mac user.

Fifteen industry insiders — with expertise in general Mac productivity, the Internet, desktop publishing, and multimedia — share their hard-learned lessons and impart their wisdom. For Mac users, this collection of short, information-packed tips is life's little instruction book.

Compiled by Nancy Peterson • 52



Ready-Made RAID



If you're a multimedia-content creator not content with how you currently store and access large graphics, sound, and video files, then a RAID may keep the blues away. We tested eight all-in-one RAID 0 packages and found that they offer a nice blend of speed, reliability, and affordability.

By Kristina De Nike • 66

Pentium II: The Empire Strikes Out



Intel's most advanced microprocessors are fast — almost as fast as a vintage 200-MHz PowerPC. In a battery of Photoshop tests, a 266-MHz Pentium II and a 200-MHz MMX Pentium eat PowerPC dust. And with 250-MHz PowerPC chips coming out, the Pentiums will be watching the taillights fade.

By Jeffy Milstead • 61



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CIRCLE 71 ON READER SERVICE CARD

Heaven Can't Wait

Andrew Gore's article "The Gateway to Heaven" (June '97, page 17) was right on the mark. I sometimes wonder why I didn't buy a Pentium-based system instead of a Mac. I had been using a Wintel system before and had loads of software, so it would have made great economic sense to stay with Wintel. I answer my own query every time I use my Mac — it's simply a better system for me at home.

I'll probably go through the same reasoning process when it's time to buy again, and if Apple is still around, I'll probably buy another Mac.

George Hammon
gemmett@gcl.greenville.lib.sc.us

Sweet Release

I understand Henry Bortman's frustration ("PPPlease Release Me," June '97, page 21). Apple should subsume all these proliferating OT control panels (AppleTalk, Modem, TCP/IP, PPP, etc.) in one control panel, preferably called "Internet." This should be something along the lines of Monitors and Sound and should be extensible but with a nice interface and with all options in one place.

Lukas Hauser, Lukas@brown.edu

I'm surprised at the nasty tone of Henry Bortman's column about OT/PPP. He derisively describes his experience by saying he has to make five changes. Five! As though that's tantamount to having to disassemble his machine and rewire the internal SCSI ribbon cable.

No doubt he wrote a long screed to the manufacturer of his microwave because he has to push five buttons in order to get the oven to cook something for a few minutes.

Max Pruden, maxp@synopsys.com

PowerBook users have a one-click solution to the PPP setup problems Henry Bortman mentioned. It's called Location Manager, and I use it for precisely the same reasons you listed (switching from Ethernet LAN to PPP modem to ISDN router).

Please check it out and then use your influence to get Apple to make it available for desktop systems.

Brad Hurte, via the Internet

Stupid Is As Stupid Did

Concerning the elimination or cessation of some of Apple's technologies ("Reorg



'97: Surgery, Not Butchery," June '97, page 22), the company has some unique strengths that have allowed it to achieve significant success in the face of what are commonly acknowledged as industry standards. Focusing its energies on those strengths is Apple's best course of action. I'm reminded of a quote that seems appropriate here: The definition of *stupidity* is doing the same thing you've always done and expecting different results.

Apple is playing it smart.

Matthew Hardy, via the Internet

PageMaker 6.5: Quirk Express

Your review of Adobe PageMaker 6.5 (June '97, page 32) missed the boat when it discussed PageMaker's new frames. With PageMaker, you can't properly template with frames, because you can't add content to empty frames placed on master pages. To template, you have to add empty frames to actual document pages, because PageMaker does not let you select or edit any content placed on a master page, as does QuarkXPress. Also, PageMaker's frames do not support multiple columns. The program's implementation of frames is awful and redundant.

Michael Berger, mberger@tiac.net

I agree that PageMaker's frames are not as useful or as versatile as those in QuarkXPress, and the inability to add content to frames created on master pages certainly supports this notion. Nonetheless, frames added to document pages can ease work flow in some situations. But it's my guess that most PageMaker users will avoid frames and continue to use familiar techniques. — PP

Open Folder

WE HERE AT MACUSER dream the simple dream of better loving through technology. So it was with great concern that we received the pleas of Dennis Fullerton and Thomas Streubel, both of whom want to pitch woo with their far-flung girlfriends by using an Internet-based voice-communication program. Although the feelings these two men have for their girlfriends manage to transcend time zones, state and national boundaries, and even computer platforms, this unreliable, nascent technology is no more a romantic aid than is a cold shower or an ill-timed phone call from Mom. And the thought of their digital declarations d'amour going unheard is enough to get us right behind the ol' pocket protector. Both men wondered if it was a hardware or software problem. But we thought maybe it's because — as Rich Hasher might say — YOU'RE A COUPLE OF STINKIN', LOVELESS REDS!

Let's be frank, boys. You're not using AOL, are you? You're probably using local ISPs, and as Rich would tell you if he could lure your moony eyes from the dead glow of your monitors, "AOL compared to ISPs is like the USA compared to the old Soviet Union. ISPs are for Bolsheviks and the oppressed." So, trying to make time over an ISP is like trying to get nice with Olga while standing in line for toilet paper. Using AOL, on the other hand, is presumably like hitting the jackpot in Vegas and getting comped the honeymoon suite, complete with room service and mirrored ceilings. Think about it. It's your call.

Feedback

PageMaker 6.5's keyboard command equivalents (such as Shift-Command-[, which replaces version 6's gloriously simple Command-B for Send to Back, and Command-semicolon, which replaces Command-J for toggling guides on and off) are extremely awkward if not completely impossible for right-handed users, who use the mouse with their right hand and handle keyboard commands with their left. The overwhelming majority of us are right-handed. That's a lot of PageMaker users who are now disadvantaged.

So often it's the simple basics that get overlooked.

Carmel Glover, tafecms@thehub.com.au

What's Your Type?

You can't seriously have given such high ratings to Adobe Type Manager Deluxe 4.0 and Adobe Type Reunion Deluxe 2.0 (Reviews, June '97, pages 44 and 45). Not only is the suite painfully slow but it also clashes with QuarkXPress 3.32 and Microsoft Word 6.0.1 — so it's unusable.

I'm a big Adobe fan but, but I'd stick with Symantec's Suitcase 2.x or higher and ATM 3.x and ATR 1.x.

Matt Wynne, mwynne@mca.source.co.uk

The speed of ATM and ATR can vary depending on system configurations and on the settings of the utilities. On our systems, with ATM's font cache set to 1 MB, we found the utilities' speed to be quite acceptable. In the course of testing ATM Deluxe 4.0 and ATR Deluxe 2.0, we used them with Word 6.0.1 and QuarkXPress 3.32 and experienced no conflicts. Adobe reports, however, that it is preparing a fix for a font-menu-building bug that can cause ATR Deluxe 2.0 to cease functioning when used with QuarkXPress or Adobe PageMaker. — KT and JSA

Epson Assault

Perhaps we are in a tiny minority, but from my company's experience, the Epson Stylus Color 800 (Reviews, June '97, page 36) is definitely not ready for prime time. Several of our engineers and I struggled with compatibility problems for days, and frequently, when the thing did work, it crashed our machines.

Epson's tech-support line was unreachable during the time we had the printer (it was constantly busy), and the updated software we downloaded from Epson's Web site provided only marginal success and continued to crash machines. Plus,

the printer failed to perform at speeds that were significantly faster than those of the Hewlett-Packard 550c we currently use. And the Epson printer's color was far warmer than that of either our originals, the image on our monitors, or the output we got from the HP 550c.

Lisa Dodaro, via the Internet

The Case for Apple

After reading your latest review of Mac OS systems (June '97, page 30), it is more obvious than ever that you simply do not intend to give Apple a fair shake, and it keeps showing in your bias toward clones.

Your approach to testing and price reporting is imbalanced, and you still ignore the benefit of the Apple Industrial Design. I've never seen you state that "the Power Computing xxx comes in a low-cost, mass-market, generic case design," when that's in fact what Power models come in.

Larry, via the Internet

Something I'd like to see is comment on the quality of Apple cases versus those of the clone makers. I saw a couple of UMAX clones at a retailer, and I wouldn't buy a UMAX model after seeing the cheesy, generic, PC-clone-like quality of the cases. A lot of the buying public would appreciate a rating of the physical quality of these machines, not just a comparison of prices.

Mark Mitchell, markm57@halcyon.com

Swingin' MessagePad

I really appreciated Jeff Pittelkau's "The Newton Weighs In" (June '97, page 68). It was nice to read a positive review of a real-time experience with this little gem.

I was recently given a Compaq PC Companion for an evaluation and was more than disappointed by the performance of the batteries. With a modem installed in the Compaq, the best I could get was about eight to ten minutes of use. On the other hand, the MessagePad 2000 has had one set of batteries replaced since I purchased it more than two months ago — and I use the backlight and modem extensively, both with land-line and cellular connections to my ISP. If the MessagePad had as major a flaw as this much ballyhooed Windows CE PDA technology, the media would be all over Apple.

Terry Cioni, tcioni@southam.ca

Frontier Justice

In "Site Unseen" (June '97, page 87), you neglected to mention one of the most

powerful tools for managing a Web site: UserLand's Frontier. It offers an extremely powerful and complex environment for creating sites. It can manage your links with glossaries, set up templates to give your pages a common look, and create macros that take care of repetitive tasks. It has a full-featured programming language built in, and it can automatically download your Web site to a server. Did I also mention that it's free?

Eric Dorland, dorland@lords.com

Although Frontier is a powerful tool, its difficult learning curve, strange interface, hard-to-find tool set, and weak documentation make it a tool only for the hardest of hard-core site developers and not for the majority of site managers who need a simple, powerful tool to manage their Web documents. Those who might be willing to take the Frontier plunge are encouraged to read "Web Sites, Frontier-Style," elsewhere in this issue. — JS

Chatter Matter

I showed "Macs? Not on My Network!" (June '97, page 83) to a colleague and called his attention to the section on "chatter." His immediate response was that your article was incorrect. His definition of *chatter* referred to the polling of the network by Macs, and he asserted that TCP/IP doesn't poll the network as AppleTalk does. Are we using separate definitions of *chatter*, or is someone wrong? Did AARP end AppleTalk's continuous polling of the network?

Steve Smith, steve.smith@chronicle.com

Chattiness means that excess packets are traversing the network. In the case of AppleTalk, this excess conversation occurred because each machine on the network polled all others on the network. AARP cut down considerably on Mac network polling and, thus, network chattiness caused by AppleTalk. — SB

Prevailing Wisdom

This year will be one of the most important in Apple history. Because of Mac OS 8, PPCP, faster and more powerful computers and processors, DVD, Java and the Internet in the Mac OS, and much more, Apple shall prevail. ☞

Jaana Saar, jaana@tp.estnet.ee

Corrections

In "The Desktop Publishers Toolkit" (June '97, page 62), Extensis QX-Tools 2.0 should have received 4.5 mice.

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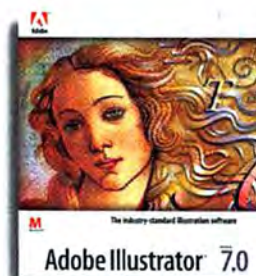
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CIRCLE 35 ON READER SERVICE CARD

Edit View



By Pamela Pfiffner

pam@macuser.com

Tools Time

To build a new operating system, you need to use the right tools.

THE ROAD TO A NEW OS is paved with good intentions — and littered with the bones of technologies and companies that attempted to develop for it. Given Apple's track record, you'd have every right to be skeptical about the Rhapsody operating system, the description of which sounds oddly like a Dr. Seuss book (*One-Box, Two-Box, Yellow-Box, Blue-Box*).

We've heard it all before: whizzy new technologies that will transform the way you work, regardless of whether they're features you really want or whether the tools exist for developers to build on them. Take Copland. Users and developers alike had been told for years how great Copland would be, and yet it took years for Apple to even articulate a tools strategy — and by then, well, you know.

So with all the nebulous talk about new operating systems, why is Apple's Rhapsody development effort different from OS undertakings of yore?

Metrowerks and multiplatform Yellow Box APIs. That's why.

In the Werks

Think back to the most successful technology transition Apple ever pulled off: the launch of the PowerPC platform in 1994. Apple's strategy was to develop the new PowerPC platform while continuing work on 680x0 Macs. This ensured a comfort zone for customers who craved reassurance that their current investments would remain vital even as they plotted their migration to the new platform.

Developers too were guaranteed a continuing revenue stream as they shifted resources to creating PowerPC-native applications. And what made PowerPC-native

development possible for scores of engineers? Metrowerks' CodeWarrior.

Compilers, which convert programming code into application instructions, are critical to software development. Apple had a PowerPC compiler, but it was really, really slow. And IBM's RS/6000-based compiler was really, really expensive. CodeWarrior to the rescue! This fast, inexpensive compiler was why so much PowerPC-native software was ready to go within months of the Power Mac's debut.

Now, faced with its most critical technology leap of faith to date, Apple has wisely decided to follow its own example: Develop parallel operating systems — the Mac OS we know and love and the OpenStep-based Rhapsody OS — and let Metrowerks provide development tools to ease the transition.

Metrowerks' CodeWarrior Latitude — dubbed the Green Box by OS wags — lets developers port Mac OS apps to the NeXTstep API. Already used by Adobe Systems to take Photoshop to Silicon Graphics workstations, Latitude provides developers with a seamless transition path, so applications reach users' hands much quicker.

Now, Apple could have created its own Latitude-like tool. In fact, it thought about such development, which would have nixed Metrowerks' plans. But Apple did the right thing: It let Metrowerks help.

At Apple's Worldwide Developers Conference in May, the relief was palpable. "This is the first time Apple is bringing tools to developers *before* talking technology," said Terry Kunysz, president of longtime Mac developer Casady & Greene. "Take OpenDoc, for instance:

Apple talked about all the cool stuff OpenDoc would do, but there wasn't an API, no way to do containers." Rhapsody is another story. Not only has Apple demonstrated OpenStep working on a Mac but the company has also slipped DR1 of the Pentium-based version of OpenStep into developers' backpacks while actively promoting Metrowerks' solution.

Apple Does Windows

Of course, letting Metrowerks help is just one part of an overall tools strategy that is, quite simply, the best that any OS developer has ever articulated. Even the much vaunted Microsoft tools group can't claim to have a true cross-platform strategy. With the Yellow Box APIs, Apple can.

With the same Yellow Box code capable of running on Rhapsody for PowerPC, Rhapsody for Pentium, Windows 95, Windows NT, and the Mac OS, all developers will need to do to support any or all of those OSs is recompile — and they'll still get most of the advantages of OpenStep's powerful object-based environment. Suddenly, the most closed environment in computerdom is becoming the most open — and developers are finding that developing for the Mac isn't something they do in addition to or in spite of developing for Windows. Rather, it's something they can



do to *facilitate* a Windows strategy. Take that, Microsoft!

And for those Mac developers who want to enter the wider world that Yellow Box development represents, Metrowerks' Latitude will hold open the door and usher them through.

Who would have thought it — Apple making it easier to develop for Windows; Apple cooperating with a third party to make things easier for Mac software houses. This new tool-savvy strategy may be the first hard evidence that there really is a sea change at the New Apple. Bravo!

The Mac OS Report

Number two in a series—the facts about Mac OS 8

Mac OS 8 is coming. It will give you, and millions of other Macintosh users, a whole new way of working.

It will give your Apple Macintosh computer (or, for that matter, any other Mac OS computer of your choice) a dramatic new look and feel, along with all kinds of enhanced capabilities for accessing the Internet.

It will also set an entirely new standard of powerful, intuitive computing—a standard the competition can try to catch up to. (Again.)

A new way of working

The moment you start using Mac OS 8, you'll feel the difference: you'll find yourself accomplishing more in less time. A multi-threaded Finder lets you execute multiple tasks simultaneously, such as launching applications and copying files. Mac OS 8 includes new information-management tools, such as contextual pop-up menus and spring-loaded folders, that give you quicker and easier access to all your information. A scalable environment lets you either limit your menu and window options, or expand them—whichever works better for you. A new, dimensional look makes the interface more dynamic and engaging than ever. And Mac OS 8 also includes the latest versions of QuickTime with its MPEG support,



QuickTime VR and QuickDraw 3D.

How easy is it to get going with all these new technologies and features?

Very. Because our new installer and setup assistants take you through each step of configuring your new system

software. Once you're up and running, PowerPC-native code improves your performance. Mac OS 8 is also completely compatible with all PowerPC and 68040-based hardware and software.

A new way of accessing the Internet

Mac OS 8 includes TCP/IP and PPP for easy network or modem access direct from the Finder. You get Netscape Navigator and the PointCast Network. And a new Internet Setup Assistant makes it easier than ever to get on the Net, whether you're doing it from home with a modem or from work with a high-speed connection.

Personal web sharing is standard, so you can turn any Macintosh into an Internet web server. And Java support is built in, so you can run Java applications just as though they were any other desktop applications. (If you were wondering, Windows 95 can't do this.)



And more advancements are on the way

Mac OS 8 is one of the most significant advances in OS technology ever. And it's just the beginning—additional upgrades are planned. And our support for the Mac OS will continue for years.

At the same time, we're also working on an industrial-strength OS, code-named Rhapsody, that will offer features such as protected memory, preemptive multitasking and symmetric multiprocessing. Rhapsody will also provide backwards compatibility, so you can be sure that the vast majority of your Mac OS apps will run on Rhapsody, too.

In other words: Apple is still developing the most innovative, user-friendly and consistently superior products on the market. That's one part of our system that won't change. To learn more, visit www.macos.apple.com.



If you want to use Netscape Navigator to browse the Net, you'll like this: it's an integrated part of Mac OS 8.



It's the PointCast Network. It comes with Mac OS 8. And it grabs the news you want directly off the Net to create customized desktop news pages. Daily. Hourly. As often as you want.



When you get Mac OS 8, you also get built-in Java support, so you can run both local and network-based Java software just like other desktop applications.



Mac OS

Mac OS has always been the easiest and most intuitive of all operating systems. Now, Mac OS 8 brings this kind of computing to a whole new level.



Macs Populi



By Henry Bortman

henry@macuser.com

Character Assassination

E-mailian is killing the great glyphs of English.

I USED TO BE A TYPESETTER. I=B9ve still got = fond memories = of my old job running a Mergenthaler = VIP. Sometimes I=B9d = just stand there and stare, misty-eyed, at = the galleys that emerged = from the photographic processing unit, = lost in appreciation of the artistic = achievements = of the great type designers. =

I was usually roused from my reverie = in short order by my boss. = =B3Isn=B9t that job done yet?=B2 = he=B9d demand. =B3It=B9s due = at 2:00.=B2 The only typographic = character he had any appreciation for = was the dollar sign. =

But once you=B9ve developed a = proper appreciation for type, = you carry it with you for the rest of = your life. So you can = imagine my horror when Internet e-mail = hit the big time and I saw the = typographic gains of a decade evaporate = overnight. =

The above paragraphs are a perfect demonstration of the problem. They're in e-mailian, a language bearing a strong resemblance to English but butchered in ways that only a geek could appreciate.

E-mailian itself has several variants. Take, for example the following sentence: "Jos  can't fit 20-30 more people."

Standard e-mailian would encode this statement as follows:

=B3Jos=E9 can=B9t fit 20=AD30 more people.=B2

A rarer, more subtle form of the renegade script would present it thus:

"Jos* can't fit 20-30 more people."

And yet a third variant would render it this way:

&Jos  can,t fit 20)30 more people.8
I considered, briefly, approaching Berlitz about compiling a phrase book. But I opted instead to search out the villain responsible for these linguistic and typographic crimes. And, as the subject at hand involved electronic communication via the Internet, who better to approach for enlightenment than Jake. (If you haven't heard of Jake, you might want to refer to my June column.)

"Jake," I began. "Can you explain something?" That always hooks him.

"How come half the time my e-mail messages look fine and half the time they're all screwed up?"

"Well," Jake replied, "it all has to do with the way they're encoded."

"Encoded?"

"Yeah. E-mail on the Internet gets sent around by SMTP (Simple Mail Transfer Protocol) servers. SMTP uses 7-bit ASCII codes to transmit information."

"Explain, please."

"Well, in 7-bit ASCII encoding, each different combination of seven bits — seven 1s and 0s — represents a different character. With seven bits, you can create 128 different combinations — enough to represent all the capital and lowercase letters, numbers, and basic punctuation but not much more."

Jake checked to see if my eyes were glazing over and then continued. "The problem is, the Mac's character set uses 8-bit codes to define characters. That's enough for 256 different combinations. The extra 128 combinations is where all the accented characters, curly quotes, em dashes, and so on come from. But SMTP servers can't handle the 8-bit codes."

"So you're telling me that when you send an e-mail message from a Mac, you're trying to squeeze 8-bit characters into

7-bit holes and they don't fit."

"I guess you could say that," Jake has learned to suffer my attempts at analogy.

I pursued the matter. "So then what?"

"It depends on the e-mail program."

Some programs just chop off the extra bit, so all the special characters get "translated" into other characters. Like an apostrophe becomes a capital U."

"I've seen that," I replied, in the appropriate e-mailian dialect.

"Other programs," Jake reassured me, "do a bit more to try to solve the problem. They re-encode each nonstandard 8-bit character as a string of several standard 7-bit characters that can then be sent intact through the SMTP servers and decoded on the other end. The most common of these encodings is called quoted-printable. That's the encoding used by both Claris E-mailer and Eudora."

"But then how come if I get a message in Notes that someone=B9s sent me from Eudora, it=B9s a </italic>total</italic> mess?" I inquired, subtly shifting my



speech pattern to drive home the point.

"Notes must be using a different encoding method," Jake replied brusquely.

I sensed I was reaching the limit of either Jake's knowledge or his patience. But I had one more question I had to ask. "So whose fault is all this?"

His face sank a bit. "Well, I guess if you felt the need to assign blame, UNIX would be the culprit. SMTP was an outgrowth of UNIX; SMTP uses 7-bit ASCII encoding because UNIX uses 7-bit ASCII encoding."

I could tell I was touching a raw nerve. Jake doesn't like to diss UNIX. It makes him uncomfortable. He turned back toward his screen.

I wanted to ask him why all the e-mail application vendors didn't get together and agree on a unified 8-to-7-bit encoding that would make the whole problem disappear. But he had work to do. □



Anne and Pete use the
same program.

But they do not use the
same platform.

How? How can this be?

They have 100% Pure Java.[™]
It works with the platforms
they have.

Anne and Pete are happy.
They can work.
Work, work, work!

u·nique mul·ti·plat·form lan·guage

u·ti·li·zes cur·rent hard·ware

sim·pli·fies ap·pli·ca·tion de·ploy·ment



Pure and Simple.

*To see how leading banks, freight carriers and telecom firms use
100% Pure Java, visit <http://java.sun.com/100percent/benefits.html>
or simply call us at 1-800-JAVASOFT.*



CIRCLE 145 ON READER SERVICE CARD

Rhapsody Rocks Mac Developers

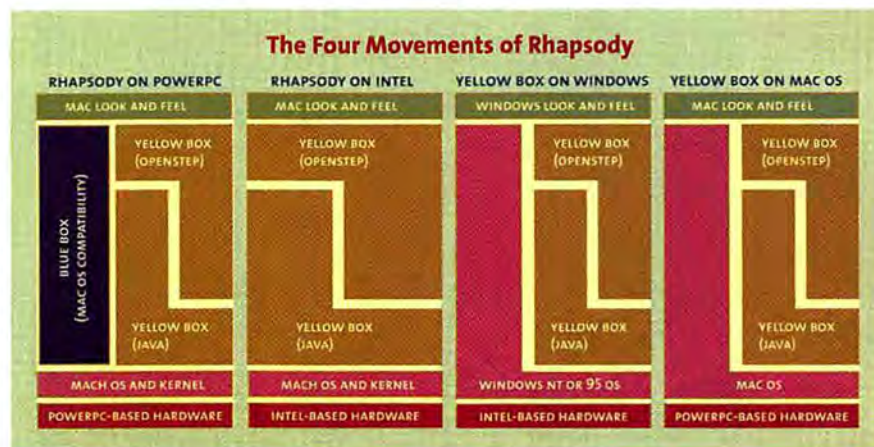
WWDC attendees applaud Apple's strategy to deploy its next-generation OS across multiple platforms.

APPLE'S WORLDWIDE Developers Conference (WWDC) is perhaps the best indicator of what's in store for the Macintosh over the next year. Unlike the last few conferences, where Apple's hype-filled presentations left developers jaded and suspicious, this year's WWDC seemed to indicate that 1998 is going to be a great year for Mac users.

Up until WWDC, Apple's marketing had failed to communicate the strengths of the company's dual-OS strategy. A confusion of code names, Mac technologies being killed and later resurrected, and little effort to explain the benefits of the two operating systems left most people scratching their heads. But at this year's WWDC, Apple's marketing types stepped aside and allowed the company's engineers to explain what was really going on.

Rhapsody in Blue, and Yellow

The primary focus of the conference was Rhapsody. Apple delivered, as promised, a developer release of the OpenStep-based core of Rhapsody, also known as Yellow Box, running on Intel systems. More



impressive, the company had hands-on labs where developers could play with Yellow Box on Mac hardware. And, perhaps most important, there was a lab where developers could test their Mac software on the Mac OS compatibility box, code-named Blue Box. By the end of the conference, Apple proudly declared that out of the hundreds of extensions, utilities, and applications tested in the Blue Box lab, only four didn't work.

"Rhapsody looks very promising; Apple made it to the first round by putting something real in developers' hands," said a systems analyst from a West Coast biotech firm, who asked not to be named. "I'm not ready to say that it rocks, but it has great potential for rockability."

If the hands-on labs were encouraging signs of progress, the announcement of a developer-tools strategy that embraced the Mac OS and Windows was a stunning reversal of past Apple OS travails.

Apple will offer the Yellow Box APIs, used to build native Rhapsody applications, for Windows 95, Windows NT, and the Mac OS. This will allow developers to build a Yellow Box application once and then recompile it so it can run on any of those operating systems.

"For a small developer like us, Rhapsody tools will enable us to create cross-platform products in a timely and cost-effective manner," said Terry Kunysz, president of Casady & Greene. "Microsoft

has been saying for years that its tools are cross-platform, but that hasn't been true."

Rhapsody Inside

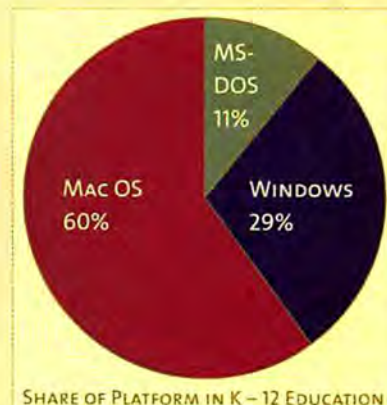
Apple also clarified the Rhapsody strategy itself. There will be two versions of the full-blown OS — one that runs on PowerPC computers and the other on Intel machines. The difference, besides processor architecture, is that only Rhapsody for PowerPC will have Blue Box; there will be no Mac OS compatibility on Intel machines. Otherwise, the two versions will share the same modern-OS features, core technologies, even the Mac look and feel.

"If Rhapsody were another NT, I wouldn't like it at all. Because why wouldn't I just develop for NT?" said Richard Zulch, vice president of engineering for Dantz Development. "What I like about Rhapsody is that the design is brilliant. There's no better rendering system than Display PostScript; there's no more proven, elegant operating system than Mach; and OpenStep is a proven object system that provides the best way to tie these components together."

"If Apple can pull Rhapsody off, it'll be back in the API war," said Greg Galanos, chief technology officer of Metrowerks, expressing a sentiment many WWDC attendees seemed to share. "I'm feeling more optimistic about Apple than I have in years." — *Andrew Gore*

Mac Stat • Andrew Gore

Macs Still No. 1 in K-12 Education



Source: Quality Education Data's survey of the computers in use in U.S. schools during the 1995-1996 school year.



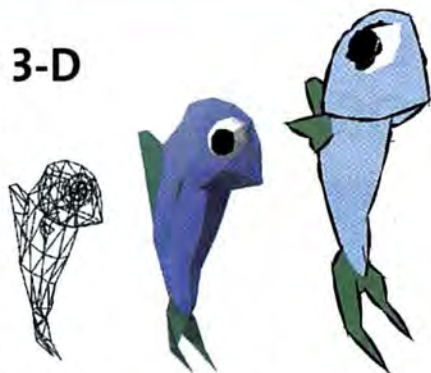
Future Tech • Rik Myslewski

Something's Fishy in 3-D

There's one big problem with real-time 3-D: It looks lousy. Most 3-D animation begins with a wire-frame model of an object, upon which surface planes, or polygons, are drawn, or rendered. The fewer the polygons, the faster the rendering — but also the chunkier the 3-D image. The processing challenge becomes even greater when textures — realistic surface treatments — are added to each polygon.

The folks at ThinkFish, a brilliant little San Francisco startup, are taking a different approach: They're ignoring reality. ThinkFish's rendering technology is based on real-time NPR, or non-photo-realistic rendering. Imagine images created with Fractal Design Painter animated in real time, and you'll get an idea of what a ThinkFish renderer can do with a standard 3-D wire-frame model. And, since ThinkFish technology requires neither complex wire frames nor bandwidth-gobbling textures, it's ideal for rendering images downloaded from the Web.

To join in this retreat from reality, you need the soon-to-be-released ThinkFish plug-in (usable in apps that accept QuickDraw 3D objects) and one or more LiveStyles, which is



what ThinkFish calls its renderers; among the effects are watercolor, cartoon, felt-pen, and pointillist. ThinkFish has begun selling LiveStyles on its Web site for about 20 bucks a pop, and Vertigo includes three with its Photoshop and Illustrator plug-in, 3D Dizzy. Expect more soon. Many more.

So far, 3D Dizzy is the only ThinkFish-enabled app available, although ThinkFish plans to offer its own plug-in "real soon now." Apple — along with Vertigo and Fractal Design — has licensed LiveStyles technology and is thinking of adding it to an upcoming system release. Give Gil a call, and tell him you want less reality in your future. I'm sure he'll understand.

Live Shot • Jason Snell

Babylon 5 Takes Macs to the Future

It's the series that's displaced *Star Trek* in the hearts of millions of science-fiction fans — and the Mac plays a vital part in its creation. The show is Warner Brothers' *Babylon 5*, a futuristic drama currently in its fourth season. Although the show's Emmy Award-winning computer-generated effects are modeled on machines running Windows NT, just about everything else is done on a Mac.

Walking into Netter Digital Entertainment, the company that produces *B5*, you immediately notice the Mac's impact. Staff artists merge PC-generated effects with live-action footage, using Adobe After Effects, which is also used to overlay effects on live images. *B5* coproducer George Johnsen,

meanwhile, is busy previewing matte paintings, created on the Mac with ElectricImage Animation System, among other applications, from artists scattered across the country. The artists post their work on a Web server, letting Johnsen preview it in Netscape Navigator. Keeping track of all the special effects is a custom-built Claris FileMaker Pro database.

In the editing rooms, Mac-based Avid Media Composer systems are used to assemble the show, pulling digital video from more than 150 GB of shared storage on a Seagate RAID via a high-speed Transoft Fibre Channel system. Music is created with assistance from DigiDesign's ProTools, and the sound is mixed on a Harrison console controlled by a Mac. On the set, the show's lighting is run on a Mac and all signs appearing on the sets are created with Adobe Photoshop and Adobe Illustrator.

Not only has *B5* broken barriers by blowing past the stagnating *Star Trek* franchise but it's also proven that computers can be used in every phase of TV production. As *B5* Technical Supervisor Jim Foreman puts it, "Anybody who thinks the Mac is dead is just stupid. Some computers simply perform certain tasks better."



Between the Lines

A complete transcript of this interview is at www.macuser.com/onlinecol/pompa.html

In Brief

Quark Happens. In a mildly puzzling move, Quark recently signed an agreement to acquire upstart multimedia-software developer mFactory, best known for mTropolis, its object-based content-creation tool. The only question remaining is, What will their first joint product be called? MPress? xTropolis?

Ménage à Tools. And speaking of consolidation, Fractal Design and MetaTools finally sent out the invitations to their long-rumored wedding. And, just to keep things interesting, MetaTools also decided to keep a little something on the side and acquired Specular. The combined entity will be called MetaCreations.

You Can Take It with You. In its never-ending quest to put a lot of data in your pocket, removable-media maven SyQuest has announced its Rocket drive. A Rocket cartridge will be able to store a whopping 4.7 GB of data; a Rocket drive will have a maximum data-transfer rate of 10.6 MB per second and an average seek time of 11 milliseconds. Finally, a way to take those MetaCreations applications and files with you.

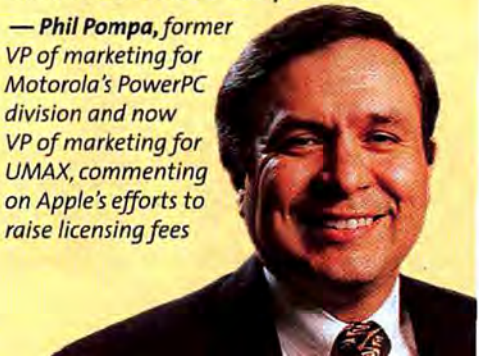
All That Jaz. Not to be outdone, SyQuest antagonist Iomega had some drive news of its own — a recall. If you have a Jaz cartridge that was manufactured between March 13 and April 20, 1997, with the letters MS below the date (check the back of the cartridge), call 800-336-1314 to get it replaced.

Between the Lines

Chip Exec Goes to the Clones

"We want Apple to be successful too; we're not trying to steal their business. We need them to grow so we can grow with them. That's our position."

— Phil Pompa, former VP of marketing for Motorola's PowerPC division and now VP of marketing for UMAX, commenting on Apple's efforts to raise licensing fees



Start Up

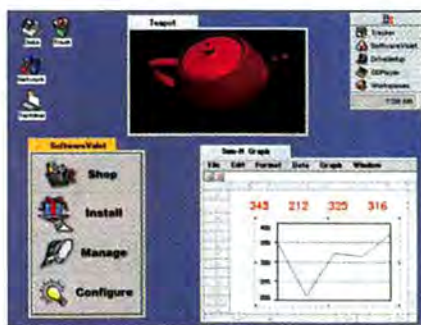
Be In: Users to Get First Taste of Revamped BeOS

IN MAY, BE OFFERED the first public look at the BeOS Preview Release. Due in June, the Preview Release, the first version of the upstart OS intended for end users, will be distributed free of charge.

Thanks to a reworked file system, the BeOS will now mount on its desktop Mac HFS volumes and support file copying between BeOS and Mac OS volumes. The Preview Release also sports improvements to the BeOS user interface: It now supports desktop icons and aliases, and the Be Dock has been shelved in favor of the new TrackBar. Be has also added embedded-component Replicator technology that provides functionality similar to OpenDoc's.

BeOS applications are still few and far between, but two major software vendors have announced product plans for the OS. Netscape will offer its popular Web server software, FastTrack Server, to Be users, starting this fall, and NeoLogic Systems will do a Be version of its cross-platform object-database engine, NeoAccess 5.0.

In related news, Be announced that



fredlabs has discontinued work on its Mac OS emulator, VirtualMac. Be has not yet said how it will support Mac OS applications, but the company has reaffirmed its commitment to supply some sort of compatibility. • *Henry Bortman*

What's Up, OpenDoc?

YOU MIGHT THINK doing OpenDoc development is about as appealing as playing second violin on the S.S. *Titanic*, but even in the wake of its consignment to development limbo in March, OpenDoc is far from defunct. Even as OpenDoc developers explore alternative component architectures such as Sun Microsystems' Java Beans and Microsoft's ActiveX — many still affirm OpenDoc as the superior standard.

"ActiveX is a joke, and Java Beans just isn't as mature as OpenDoc," says Brad Hutchings, of Hutchings Software, producer of Rapid-I Button, a tool for creating interactive interface controls. Support for multimedia resources such as QuickDraw 3D and the ability to do cutting and pasting are among OpenDoc's advantages over Java, developers say. OpenDoc advocates are encouraged that Apple plans to extend Java so it can tap directly into Rhapsody's Yellow Box functionality — although that extension of Java is at least a year away.

For now, the Component 100 Association (C100), established in 1996 to promote OpenDoc, soldiers on. The C100 is touting OpenDoc as "today's best component software" in OrbitPak, a CD-ROM containing Apple's Cyberdog Web

Online



Exclusive Utility of the Month.

Recapture wasted hard-disk space with MacUser's Cache Cow, a utility by Find Pro author Bill Monk. Just tell this control panel what kinds of files you want to delete and how often, and it will remove those unwanted hard-disk hogs from your Internet browser's cache folder. Cache Cow is available free, beginning June 30, exclusively from ZDNet Mac Download on the Web (www.macdownload.com) and on CompuServe (GO ZMC:MACUSER).



Finding Yourself.

Finally — FTP client software that works like the Mac does. NetFinder looks and feels just like your Mac's Finder. It offers drag-and-drop to your hard disk or within an FTP site, supports Mac-like file renaming and deleting, features on-the-fly encoding and decoding, and even resumes interrupted downloads.

Online Poll

Q. What Web browser do you use regularly?



To vote in the latest MacUser online poll, go to www.zdnet.com/mac/opinion.html.

The Off Beat • Nancy Peterson

Geek Chic

If you want to truly exude your computer geekiness, then what you need is clothing that reflects your inner self. Cyber Juice has a line of T-shirts that show you're darned proud to be part of the cyberculture — from one that reads "Don't become roadkill on the Information Super Highway" to a not-yet-released number that reads "Chicks Dig Me Because I

Surf." Don't be too irritated by the "chicks." There's also a line of shirts for women called the Cyber American Princess series.

A small selection of these shirts has been available through the CyberGeek Web site for a while now, but a new line of over 30 shirts will be available just in time for back-to-school season at computer stores and major department stores.



Image Editing for the Masses

Kai's Photo Soap aims to be Photoshop for Everyman — but Everyman may struggle with its idiosyncratic interface.

EDITING AN IMAGE is like playing the guitar: Anybody can master the basics, but it takes both raw talent and hard work to become a true artist. Kai's Photo Soap, a new consumer-level image-editing application from MetaCreations (née MetaTools), is aimed directly at the "Louie Louie," "Kumbaya" crowd, not at the virtuoso — and at \$49, it's priced to be an impulse buy. It's attractive, it's powerful, it's got all the image-editing tools novices need in order to prepare their scanned photos or digital-camera images for printing or the Web — too bad its nonstandard, arty interface is so hard to figure out.

The first challenge you face after launching Kai's Photo Soap is when your Mac OS disappears — that is, Soap completely takes over your desktop. You're no longer in familiar territory. You're now in Kai's MetaWorld: no menu bar, no document windows — here in Kailand, you do things Kai's way.

Soap is organized into seven Rooms, each corresponding to a step in the image-preparation process: In, Prep, Tone, Color, Detail, Finish, and Out. The In Room stores thumbnails of files you've chosen to work on; be prepared for a long wait as Soap gets them ready to display. In the Prep Room, you size, rotate, and crop your image in preparation for the image-processing work you'll perform in the Tone (brightness and contrast), Color (hue and saturation), and Detail (sharpness and spot-removal) Rooms. In the Finish Room, you add borders and edge effects, and — finally — in the Out Room, you print or save your work.

Although some processes are relatively easy to decipher, our beta version didn't have its Help system fully enabled, so we were left in the dark when wrestling with some of Soap's cute, photo-realistic tools. And since our beta version was so buggy, it was hard to tell if we had simply not decoded Kai's arcane interface correctly or if a bug was preventing the tool from modifying the image. Attempts at saving and deleting images and filter settings were particularly frustrating.

We'll reserve judgment on Kai's Photo



It's cute, it's friendly; it's confusing, it's convoluted. Using Kai's Photo Soap's powerful image-editing tools is made difficult by the application's nonstandard interface and MetaWorld desktop.

Soap until a fully debugged version ships. At this point, though, its nonstandard interface and self-conscious artiness get in the way of doing real work — even for novices. • *Rik Myslewski*

Pros: Attractive design. Powerful image-editing tools. Simple linear structure.
Cons: Nonintuitive interface. Design overwhelms utility.
Expected: Now.

Crash No More — Maybe

Symantec's Norton Utilities for Macintosh 3.5 adds speed and safety.

WE ALL OWN HARD-DISK DRIVES, so we can all share in the good news: Version 3.5 of Symantec's Norton Utilities for Macintosh includes a screaming-fast Speed Disk optimizer, step-by-step Apple Guide help, and a system-freeze-recovery feature called CrashGuard. And since it now ships with a bootable CD-ROM, you can more easily fix directory damage and optimize your disk.

Several presets are now built into Speed Disk to optimize your disk for multimedia, software development, CD-ROM mastering, and other specific uses. In our informal tests, we were able to fully optimize a highly fragmented 2-GB disk in less than 20 minutes.

Norton's new CrashGuard feature

offers an alternative to an ungraceful — and data-destroying — restart. CrashGuard watches over applications and displays a dialog box if they freeze or hang. You can then choose to quit, attempt to fix the problem in memory, or simply restart. Our beta-test version effectively handled crashes of America Online 3.0 and Netscape Navigator.

Apart from minor bug fixes, the rest of Norton Utilities remains virtually untouched. Although comprehensive testing will be necessary before we can fully evaluate its effectiveness, Norton Utilities for Macintosh 3.5 looks like a good buy at \$99. (You can upgrade from earlier versions or from MacTools or Alsoft's DiskExpress for \$49.) • *John Christopher*

Pros: Improved Speed Disk performance. Bootable CD-ROM.
Cons: CrashGuard runs only on Power Macs and handles limited Finder crashes.
Expected: Now.

First Looks

Apple Picks Up the Tempo

Apple delivers a solid system upgrade with Mac OS 8.

THE UNTHINKABLE IS ABOUT TO OCCUR:

Apple is about to deliver two major Mac OS releases — on schedule — within six months. As promised, Apple shipped Mac OS 7.6 in January 1997, and — also as promised — in July 1997, it will ship Mac OS 8, previously code-named Tempo. OS 7.6 was a bit of a dud on the features front, but not so OS 8: This new release is chock-full of goodies, including many features originally planned for the now defunct Copland. And it's stable: The beta version of Mac OS 8 we tested crashed less frequently than the release version of Mac OS 7.6.

To date, OS 8 hasn't attracted much interest. Rhapsody, Apple's forthcoming next-generation operating system, has held most Apple watchers' attention — that is, when they aren't fixated on the company's stock price. But although it's exciting, Rhapsody has one major shortcoming: It doesn't exist. Even when it does become available sometime in 1998, Rhapsody initially will appeal only to those with a flair for adventure. For most Mac users — the kind who like to get work done — Mac OS 8 will make a more sensible choice for some time to come.

MultiFinder Revisited

MultiFinder was Apple's name for the now defunct system-software feature that let you keep the Finder active while you ran other applications. Although MultiFinder eventually mutated into the official Finder, the Finder itself could still do only one thing at a time, until now. If you copied a file, for example, you had to wait to empty the Trash. If you emptied the Trash, you had to wait to open a folder.

But the wait is over. In Mac OS 8, the Finder is *multithreaded* — that's geek talk for being able to walk and chew gum at the same time. The OS 8 Finder can simultaneously initiate multiple copies, empty the Trash, and still let you cruise through folders on your desktop. And while we're on the subject of file copying, the OS 8 Finder is PowerPC-native (read: fast).

New Finder's a Fine File Minder

Multithreading is only one of the Finder's new tricks. A host of navigational aids

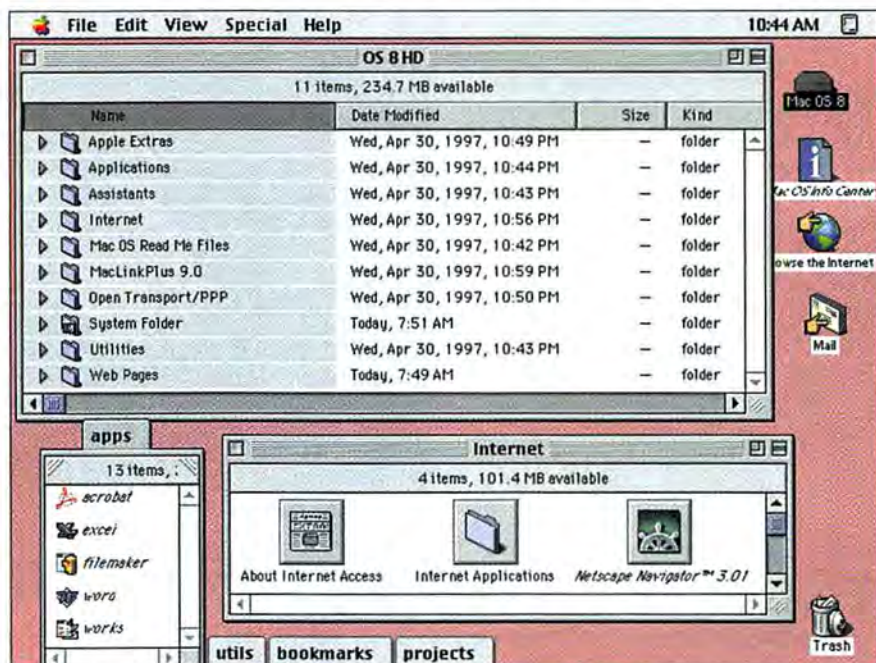


Figure 1: Mac OS 8 will sport a new 3-D grayscale appearance, the "platinum" look. It has a new system font, Charcoal, in place of the time-honored Chicago. Shown in this composite desktop image are the spruced-up list view and new button view. Other new time-saving Finder features include pop-up window tabs as well as desktop icons for easy access to Internet functions.

have also been added to improve your file-fiddling efficiency.

The most readily visible new feature is pop-up windows. If you drag a Finder window to the bottom of the desktop, the window turns into a folder tab. Click on the tab, and the window pops open. Click on it again (or on anything else in the Finder), and the window snaps back down out of the way.

Spring-loaded folders help you gain quick access to the obscure nooks and crannies of your hard disk's folder hierarchy. With this feature active, when you drag an item onto a hard-disk or folder icon, the folder springs open into a window. You can burrow down as many levels deep as you like in this manner. To back up, you drag the cursor outside the window frame; the window closes, and its parent window reappears. Spring-loaded folders can be a bit disorienting at first, but once you get used to them, you'll wonder how you ever lived without them.

And while we're on the subject of windows: You will notice that the top right corner of Mac OS 8 windows has a new

resident. It's the collapse control. Click on it, and the window collapses so that only its title bar remains visible — system-level WindowShade.

Two other handy innovations in the Mac OS 8 Finder are contextual menus and a new keystroke combo for making aliases. If you're tired of going to the File menu to make an alias and then dragging it to the desired location, you're in luck. In OS 8, if you hold down the Command and Option keys while you drag a file to a new location, you create an alias in that location. This works great in conjunction with spring-loaded folders.

You invoke a contextual menu for a file or folder in the Finder by holding down the Control key while you click on its icon. The menu presents a choice of several common actions you might want to perform on the item, such as copying it, moving it, or getting information about it.

Going Platinum

Well, you knew Apple marketing wasn't going to let an OS out the door sporting a fresh new look that answered to the stale

old name "Apple grayscale appearance." So instead, OS 8 will display the "platinum" look, which is a more subtle 3-D appearance than the flat, boxy look we've grown accustomed to over the years. Of course, if you've been running Aaron (a system-extension/font combination that hangs a platinum facade on Mac OS 7.x), you're going to wonder what all the fuss is about.

But the Mac OS 8 Finder's new face goes several steps beyond Aaron. List views, for example, have been given a makeover designed to benefit the bifocal crowd. And you now have a new view alternative, button view. Button view presents files, folders, and applications as buttons, all of which can be activated with a single click. Formerly employed only in the Launcher, button view is now available for use in any Finder window.

Wired for the Web

A pair of icons placed on the desktop when you install OS 8 offers a hint of Apple's efforts to integrate the Internet into its new OS. Both Claris E-mailer Lite and Netscape Navigator are installed as part of Mac OS 8 and are readily accessible from the desktop. Other Internet-related software is also included on the OS 8 CD-ROM but requires manual installation.

In addition, Apple has built into Mac OS 8 the ability to share a folder on your hard disk as a Web site. Web sharing is similar to System 7's file sharing, but in this case, the files being shared are HTML documents. Don't plan to use OS 8 Web sharing to create a major Web presence for your company, though; this feature will be of interest primarily to those looking for a quick and easy way to share information within an office intranet.

File sharing has also gotten a face-lift (see Figure 2). If you've never managed to figure out how to use this handy feature of System 7 because it was just too confusing, you might want to give it a second look. The interface has been greatly simplified in Mac OS 8.

Apple has other ways of making life easier for its customers as well. New to Mac OS 8 will be two setup assistants, one for general Mac OS use and the other for getting you up to speed on the Internet (see Figure 3). Unfortunately, we can't tell you very much about these new features: They're still under construction — but we think first-time users will find them an especially valuable addition.



Figure 2: Tired of wading through those confusing file-sharing dialog boxes in System 7.x? Apple has at long last simplified the task of sharing your data with coworkers.

It's Not Rhapsody, but It Rocks

Mac OS 8 promises to be one of the most exciting system-software upgrades from Apple in years. If you didn't upgrade to Mac OS 7.6, you didn't miss out on a whole lot. But odds are you'll want to take the leap to Mac OS 8.

If you can, that is. There's a bit of bad news mixed in with the good: Mac OS 8 will work only on 68040- and PowerPC-based Macs and clones. With this new release, Apple will discontinue ongoing OS support for 68030-based machines — yes, that includes even the venerable SE/30 and IIfx, two of the greatest Macs of all time. — *Henry Bortman*

Pros: Multithreaded, PowerPC-native Finder. File- and window-management enhancements. Improved appearance. New Internet and intranet capabilities.

Cons: Retains cooperative-multitasking underpinnings of System 7.x. Won't run on 68000-, 68020-, or 68030-based Macs.

Expected: Summer 1997.



Figure 3: To ease the pain of configuring your Mac for Internet access, Mac OS 8 will include an Internet Setup Assistant that walks you through the process of getting wired — and, no, we don't mean that it provides you with the address of the nearest Starbucks.

New & Notable

Ray Dream Studio 5.0. New Mesh-Form and vertex modelers, plus object gravity and collision detection, mark this 3-D-package upgrade. Also new are depth-of-field rendering, volumetric lighting, and lens flares. \$449; upgrade, \$99. Fractal Design: 800-846-0111 or 408-430-4000; www.fractal.com.

PhotoDV, MotoDV. Capture images in Photoshop from FireWire-equipped DV camcorders, using this software/hardware duo that includes the Radius FireWire card. The MotoDV software converts the DV data into QuickTime movies in real time. PhotoDV, \$499; MotoDV, \$99. Radius: 800-572-3487 or 408-541-6100; www.radius.com.

Vertigo 3D Words. Create 3-D text in Adobe Illustrator 7.0 with this new plug-in. You can make, move, and rotate text and edit depth, size, color, and other attributes without leaving Illustrator. \$99.95. Vertigo: 888-483-7844 or 604-684-2113; www.vertigo3d.com.

Panasonic EggCam. Capture video (up to 542 x 496 pixels) for e-mail and teleconferencing, using this oval-shaped camera with omnidirectional microphone, adjustable-focus lens, and CU-SeeMe software. \$149; with PCI video-capture card, \$249. Panasonic: 800-742-8086 or 201-348-7000; www.panasonic.com/alive.

Emblaze Creator 2.0. Use high compression rates to create Web-optimized multimedia with drag-and-drop assembly or JavaScript programming; then test your project with a bandwidth-simulation monitor. \$995. GEO-Interactive Media Group: 888-436-4999 or 602-902-5913; www.emblaze.com.

ViewSonic VP140 ViewPanel. This new lightweight, active-matrix, 14-inch, color LCD monitor boasts a maximum noninterlaced resolution of 1,024 x 768 pixels at a refresh rate of 75 Hz. \$2,599. ViewSonic: 800-888-8583 or 909-869-7976; www.viewsonic.com.

The Animation Stand 3.5. Eight new animation tools, a new line-cleaning feature, and multiprocessing support distinguish the speed-boosted upgrade of this cel-based animation tool. \$5,000. Linker Systems: 714-552-1904; www.linker.com. — *Brooke C. Wheeler*

Reviews

Web-Page and -Site Design Made Easy

GoLive CyberStudio 1.0



\$349 (list)

Visual Page 1.0.1



\$99 (list)

Microsoft FrontPage for Macintosh 1.0



\$149 (list)

Claris Home Page 2.0



\$99 (list)

Tools for Web design and site management are sprouting up everywhere. Shop carefully, however — the package that's right for you depends on your needs, and these four vary in price, quality, and capabilities.

WEB WEAVERS EVERYWHERE will be pleased to know that there's plenty to choose from when it comes to WYSIWYG Web authoring tools. Three solid new applications — GoLive CyberStudio 1.0, Microsoft FrontPage 1.0, and Symantec's Visual Page 1.0 — each take a different approach to Web-page design. Not to be outdone, Claris offers a 2.0 update to its Web authoring package, Claris Home Page.

GoLive CyberStudio 1.0

A replacement for the mediocre GoLive Pro, GoLive's new CyberStudio is for professional Web designers and site managers. CyberStudio comes close to providing all the power of page-layout programs such as QuarkXPress and Adobe PageMaker to Web designers while blending features found in NetObjects Fusion, Adobe PageMill, and Adobe SiteMill.

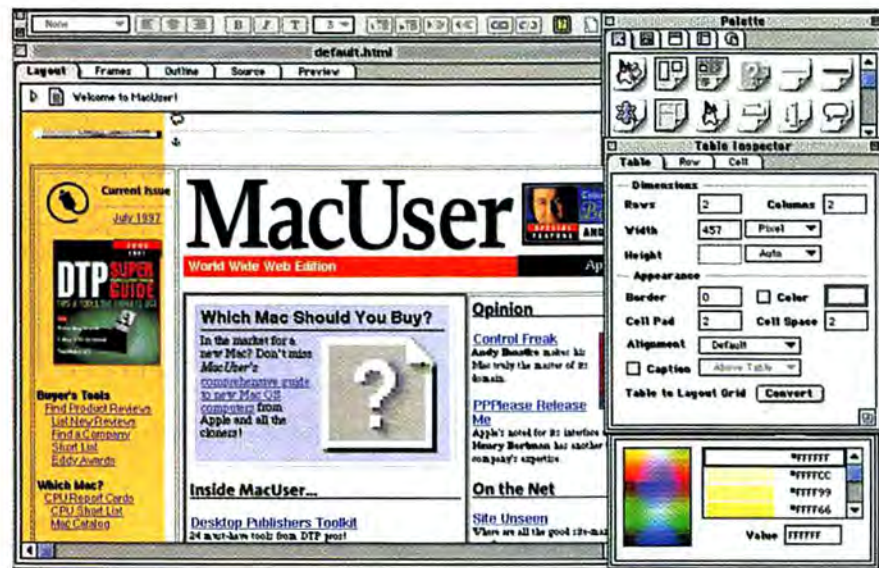
With CyberStudio, you can design Web pages by using tried-and-true HTML methods, carefully constructing grids out of nested tables. If you're not adept in the niceties of HTML tables, however, you can create complex page designs with CyberStudio's grid feature. After dragging a grid into a Web page from one of CyberStudio's floating palettes, you can place blocks of text and graphics on a page and drag them around, just as you would in a page-layout application or in NetObjects Fusion. Unlike Fusion, however, CyberStudio lets you use layout grids as well as PageMill-style text flows in the same document.

CyberStudio is also unique among HTML applications in its support for cascading fonts: You can define backup fonts for your text in case the font you choose isn't available on a reader's computer.

CyberStudio can also play animated GIFs, Java applets, and browser plug-ins in the editing window.

Keeping track of an entire Web site is fairly easy; you can catalog every page, hyperlink, and media file in your Web site and link to them. Changing a filename in a Project window automatically updates all links to that file. However, although CyberStudio lets you arrange your site's pages in a hierarchical view similar to that of NetObjects Fusion, it can't automatically generate navigational hyperlinks on your site's pages.

CyberStudio has amassed the strongest HTML-feature support of any Web-page editor to date, but it has its flaws. For example, you can't view and edit frame sets in place, à la PageMill 2.0. We also found several cosmetic bugs and a few minor HTML-creation bugs that GoLive says will be fixed in an update that should be available by the time you read this.



GoLive CyberStudio 1.0 has the strongest collection of HTML features of any Web-page editor.

Microsoft FrontPage 1.0

In many ways, Microsoft FrontPage for Macintosh 1.0 is Microsoft Word for the Web. FrontPage's page-editing interface looks just like Word's, down to the copious 3-D tool bars, and its power requirements (a 100-MHz PowerPC processor, at minimum) are pretty hefty.

If you're one of the millions who consider Word 6 an embarrassment, you'll be surprised by FrontPage's fast, easy-to-use page-creation application, FrontPage Editor, which lets you apply fonts and colors to Web text, create tables (through a table editor similar to Word's), and perform most other basic page-creation tasks.

Another FrontPage plus is a long list of Wizards, a set of templates and questionnaires that lets you quickly design Web

pages. FrontPage's Frames Wizard was quite flexible in helping us create a frame set, but we were disappointed that we couldn't edit that frame set in place.

FrontPage uses a clever concept called Bots: server-based extensions that let you quickly add features such as search forms and bulletin boards and automatically include text from other pages. Although Bots can be useful, they require that you install them on a Web server. What's worse, Bots don't work on *any* current Mac OS server software, such as WebSTAR or Quid Pro Quo. Naughty Microsoft.

Creating an external hyperlink in FrontPage is a frustrating experience involving clicking through a tabbed hyperlink dialog box. Just about every preference for placed objects must be set in a tabbed dialog box, a requirement that can quickly become tedious.

Site management is provided by FrontPage Explorer. We weren't as impressed with Explorer as we were with Editor. Explorer is more noticeably a program born of Windows 95: Its multipaned view of your site (either as a directory or in a flow-chart view of the site's hyperlinks) is reminiscent of Windows Explorer.

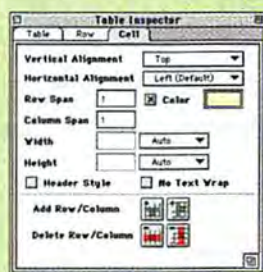
You can use Explorer to move files around in your site hierarchy, verify and change hyperlinks, and get an overview of your site's structure. Explorer can upload your whole site (or just the modified pages) via FTP to a remote Web server. Although Explorer did indeed work well when importing existing Web sites and modifying site hyperlinks, it did so quite slowly, even on a midrange Power Mac.

Visual Page 1.0.1

Symantec's Visual Page provides a simple, easy-to-understand interface well suited for generating Web pages for business Web sites and intranets. Reminiscent of Claris Home Page, it uses the same word-processor-style layout metaphor. In other words, there's no pixel-level positioning like that of CyberStudio or Fusion, but you can still create attractive designs by using HTML tables.

Visual Page supports most common HTML tags, but it lacks font support. It's also very responsive and works even on 68030-based Macs. It doesn't try to be a site manager, but its Site window lists all the files in your Web site. You can quickly place images in your Web page by dragging them in from the Site window, and

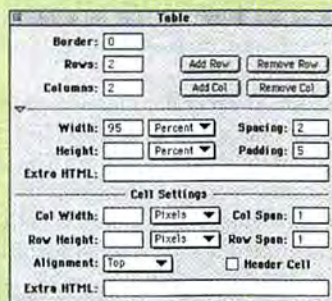
The table is a staple of Web design, so each application creates and modifies tables in similar — though subtly distinct — ways.



GoLive CyberStudio's table maker is the most complete, using tab menus for various options.



Symantec's Visual Page has a no-nonsense table-creation tool. If you click on a border and move it, the table will change as you slide a row or a column.



Those familiar with Claris Home Page 1.0 will notice that not much has changed from version 1.0 to 2.0.



Microsoft FrontPage's table maker is similar to the table-creation tool in Microsoft Word 6.0.

dragging an HTML file onto selected text automatically creates a link to that file.

We were especially impressed that Visual Page lets you change the height and width of table rows and columns simply by clicking and dragging. Visual Page changes the table while you're dragging, so you can see how the changes will affect your layout.

We did find problems with the way Visual Page displays objects on a page, however. When we tried to place a table below a right-aligned image, the table displayed as if it were in a layer *beneath* the image — an impossibility in HTML. Visual Page fails when it comes to preventing you from using 8-bit characters such as curly quotes, for which there are no equivalents in HTML. Visual Page's acceptance of such characters leads to pages littered with unintelligible junk characters.

Claris Home Page 2.0

Version 2.0 of Claris Home Page adds support for client-side image maps; spell checking; and most important, fonts. But for the most part, Home Page 2.0 has changed little from 1.0 — it remains a program that couples support for most common features of HTML with an easy-to-use interface.

This upgrade fails to address the major problem of version 1.0: It's unable to display pages as they'll appear in a Web browser. For example, Home Page doesn't accurately display what some tables will look like once they appear on the Web, consistently misrepresenting the widths of tables and individual columns — you have to use a browser to check this and other layout scenarios. Home Page also fails to display placed images as they'll actually appear online — even the highest-quality JPEG images appear dithered. Despite Home Page's strengths and ease of use, it's hard to recommend it as a WYSIWYG Web authoring tool when it isn't fully WYSIWYG.

The Bottom Line: For professional Web designers and site managers, there's currently no better visual Web-site designer than GoLive CyberStudio. Microsoft Office fans who want to create Web pages will find FrontPage a familiar — if quirky — friend, but its site-management component isn't up to snuff.

Claris Home Page and Symantec's Visual Page capably help you create simple Web pages, but both have glitches that hamper their utility — Adobe PageMill 2.0 remains the best Web-page authoring tool for the average user. • Jason Snell

Reviews

Farallon Netopia ISDN Modem Model 412

\$349 (estimated street)

Osicom DataShuttle 128

\$995 (list)

Sagem Planet ISDN GeoPort Adapter

\$395 (list)

ISDN adapters come in many forms—external boxes, PCI cards, GeoPort dongles—but they all share one common challenge: the complexity of ISDN setup and use.

ISDN IS A NIGHTMARE to install and a dream to use—a dream, that is, when it works properly. Three very different ISDN adapters—Farallon's Netopia ISDN Modem Model 412, Osicom Technology's DataShuttle 128, and Sagem's Planet ISDN GeoPort Adapter—each attempt to take the frustration out of setting up and using an ISDN line. Their success varies.

Their design varies as well. The DataShuttle 128 is a PCI card. The Planet ISDN GeoPort Adapter plugs into—you guessed it—your Power Mac's GeoPort. The Netopia ISDN Modem Model 412 looks like a standard modem and includes two analog phone ports, into which you can plug telephones, modems, or fax machines and use two at a time over the ISDN connection.

Since ISDN lines are digital, they don't suffer from the same line-noise challenges that bedevil analog modems. Accordingly, each of these three ISDN adapters should be capable of 128-kbps transmission rates, since each is built to accommodate one *BRI* (basic rate interface), which consists of two 64-kbps *B channels*, each with its own dialing number, that work together on a single twisted-pair data line. However, it's up to each adapter's manufacturer to supply the software to take advantage of—or squander—this capacity.

Netopia ISDN Modem Model 412

Farallon provides a variety of software to enable the Netopia ISDN Modem Model 412 to access ISDN's power and to make setup and connection easy—too bad its performance is so spotty.

On the plus side is Farallon's Internet Connection Wizard, an ISDN rookie's dream for overcoming ISDN's complexity. For an extra \$99, Farallon will order your ISDN line for you and send a technician to your site to install the Netopia.

After installation, however, the problems begin. For example, the Netopia's interface claims that the adapter can

compress data so that it moves over the 128-kbps ISDN connection at the equivalent of 230 kbps. However, the bundled PPP dialer software maxes out at the equivalent of 115 kbps.

Use ZTerm, the popular shareware terminal-emulation program, also bundled, and you're limited to 64 kbps. Even Timbuktu, Farallon's popular remote-control and data-transfer app (also included in the bundle), is limited to only about one-third

conceived. The icons in its interface may not be particularly intuitive, but the functions behind them are powerful, including charge tracking for billing purposes, a dialing directory, speed dial, and file-transfer configuration. You can even install multiple DataShuttles in the same Mac and control and track multiple sessions.

Planet ISDN GeoPort Adapter

The Sagem Planet ISDN GeoPort Adapter doesn't have analog phone ports like the Netopia's or advanced software like the DataShuttle's, but it's the easiest to configure and works flawlessly. When both ends of the connection are running either the bundled Easy Transfer Light or Easy



The Osicom DataShuttle 128 PCI card (left), Sagem Planet ISDN GeoPort Adapter (center), and Farallon Netopia ISDN Modem Model 412 (right) each employ a different method for hooking up to your Mac.

of the 128 kbps, since it's optimized for slower analog-modem rates. We were finally able to transfer data at 128 kbps with Fetch, shareware FTP client software.

Osicom DataShuttle 128

If you're a digital-video or prepress pro who needs to move huge files cross-country at high speed, check out the DataShuttle 128. It's more expensive than the other two adapters we tested and requires an external NT-1. Designed for point-to-point file transfer, it requires another DataShuttle or compatible ISDN adapter at the other end of the connection.

The DataShuttle 128's installation procedure is well explained in the documentation. FileMover, the DataShuttle's bundled software, is professional and well

Transfer's server version (sold separately), windows with the contents of each machine appear on each—data transfer is just a drag and a drop away.

If you order the Planet ISDN GeoPort Adapter through the ISDN Now Web site (www.isdnnow.com), the purchase price will include the GeoPort Adapter; ISDN-ordering help; and initial setup with an ISP account on EarthLink, worth another \$50. Ordered after the sale, this service is \$59 plus the ISP-setup fee.

The Bottom Line: ISDN isn't easy, but with the availability of line-ordering and setup services, it's time to take the plunge. For business use, we recommend the DataShuttle 128; for your home or small office, pick up the Planet ISDN GeoPort adapter. —Nathan Garcia



Photo: Marc Gaede

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Reviews

Truevision Targa 2000 RTX Digital Video System



\$10,995 (list)

QUICK NAME A DIGITAL-VIDEO card that can perform real-time transitions and that costs within five thousand dollars of the Truevision Targa 2000 RTX Digital Video System. Did you mention one from Avid, Scitex, D-Vision, Panasonic, or Sony? Well, yes and no — although all these companies do sell cards that are capable of real-time transitions, their offerings are merely Targa 2000 RTX cards running each company's software. Fact is, no other video hardware on the market — Mac-based or otherwise — can do what the Truevision Targa 2000 RTX Digital Video System can do at such a low price.

Old-school, tape-enslaved video veterans have always had one valid complaint about QuickTime-based, nonlinear digital video: It takes ages to render a digital-video transition — a fade, wipe, or other effect that connects two video clips. Digital transition rendering can take anywhere from a few minutes to hours, depending on the length, complexity, and quality of the transitions — but only if you're using a single-stream video system, in which one video track is operated on at a time. Unfortunately, all affordable digital-video systems — until the Targa 2000 RTX — have been single-stream.

Truevision's Targa 2000 RTX, the first

Digital-video-editing card is an astonishingly powerful system, featuring no-wait transition rendering.

reasonably priced *dual-stream* video board, avoids rendering entirely, by simply switching between two tracks of video, using high-speed hardware buffers — two tracks, no waiting. This real-time transition capability gives the RTX its name: *RT* stands for *real time*, and *X* is video jargon for *transition*.

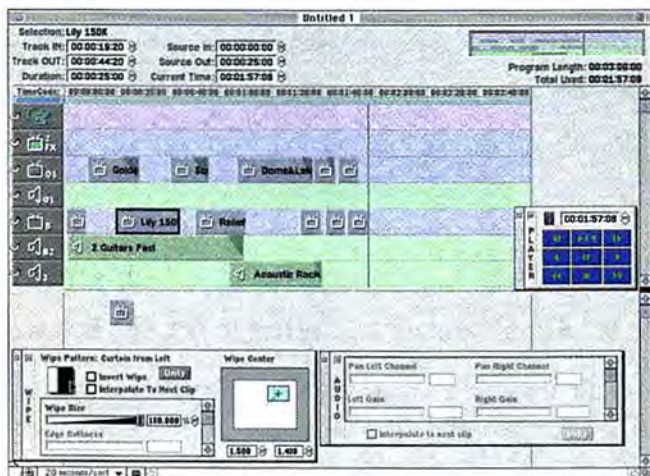
Two other elements are crucial to conjuring up real-time transitions. The first is software: Currently, dual-stream-capable Scitex SPHEREous (used for the tests in this article) and Avid MCXpress software can create real-time transitions with the Targa 2000 RTX. Next year, Macromedia's long awaited — and oft delayed — Final Cut is also scheduled to support dual-stream video. However, you don't have to rush out and buy new video-editing software to use the Targa 2000 RTX: Any single-stream video sequencer, such as Adobe Premiere, will work just fine — you just won't be able to perform real-time transitions with it.

Real-time transitions are only one highlight of this amazing card: Its output quality is well above that required by broadcast-quality systems. If you have a disk array that can handle the RTX's multimegabyte appetite, you can use the highest-quality compression setting

available on this card (and in the industry): 1.5:1, which is just a smidgen above uncompressed and which requires a throughput rate of well over 20 MB per second. We didn't notice a difference in quality between this ratio and compression schemes with ratios of up to 3:1. Beyond that, however, artifacts became slightly apparent when we zoomed in on frozen frames. The average music-video producer works with a 5:1 compression ratio — the RTX can handle that in its digital sleep.

Another highlight of the Targa 2000 RTX is its breakout box, an exceptionally well-designed, external, rack-mountable connector bay into which you plug all your in/out cabling. On it you find connectors for four video-input types (component, loop-through component, S-VHS, and composite) and two audio-input types (XLR balanced and RCA unbalanced). Apart from accommodating every professional and amateur input/output type, the breakout box is also quite handsome and has a heavy base you can attach if you want to place it on a desktop.

The Bottom Line: In a vertical hardware market that the Macintosh still dominates, the affordable, powerful RTX has become the card to beat. The real-time transitions, QuickTime-native operation, elegant breakout box, and reasonable price make the RTX a complete professional package. If you are serious about digital video or outputting animation to tape, nothing in its price range can touch the RTX. — Kennedy Grey



The dual-stream video technology the Targa 2000 RTX uses to enable real-time transitions is currently supported on the Mac only by Scitex SPHEREous (shown here) and Avid MCXpress software.



Since the Targa 2000 RTX is QuickTime-native, it can be used with any QuickTime sequencer, including Adobe Premiere or the long-awaited Macromedia Final Cut (shown here), planned for release next year.

Sony Multiscan GDM-W900



\$4,995 (list)

Sony's 24-inch monitor is impressively large, but its color uniformity needs work.

THE MOST OBVIOUS FEATURE of Sony's new \$4,995 Multiscan GDM-W900 is its unprecedented size: This 24-inch multiscan monitor supports screen resolutions up to a whopping 1,920 x 1,200 pixels at a 16:10 aspect ratio. However, although the large screen and bundled Light Source Colortron II handheld spectrophotometer imply that the GDM-W900 is ideal for graphics pros, its image quality needs improvement.

Although its screen is truly Brobdingnagian, the GDM-W900 has a footprint that's only slightly larger than that of a 21-inch monitor — but it can display about 20 percent more pixels than a 21-inch monitor that has a screen resolution of 1,600 x 1,200 pixels. Building such a large monitor is a formidable engineering challenge, and Sony has done a creditable job, delivering a monitor with excellent geometry that delivers a sharp image across the large viewing area.

We did, however, see some obvious flaws; despite our best attempts to use the very comprehensive front-panel controls, we found that the color uniformity left a lot to be desired. Even at the best settings we could obtain, we found that when we looked at a white (or even a neutral gray) desktop, the display was noticeably red in the center and blue in the corners. Objective measurements made with a Minolta Color Analyzer CA-100 confirmed our subjective impression.

We also found brightness to be low

when we calibrated the monitor to the industry-standard D50 (5,000° Kelvin) white point. Human eyes respond in a nonlinear fashion to changes in the brightness of white at D50; when the luminance falls below 25 footlamberts, we humans tend to see the on-screen white as yellow. This was the case with the GDM-W900, which at D50 produced a maximum brightness of only 23.8 footlamberts.

A monitor hood, standard equipment on other high-end monitors such as the Radius PressView and Barco Personal Display Calibrator, would help the apparent contrast immensely, but Sony doesn't supply one. In fact, Sony doesn't supply much of anything; you get the monitor and cables, a distinctly skimpy manual that merely lists rather than explains most of the fairly complex front-panel controls, and a box containing the full Colortron package for both Mac and Windows. The copiously documented, well-accessorized Colortron package makes the very basic nature of the monitor package even more obvious.

You operate all the monitor controls from the front panel via an on-screen menu system. When you set up the geometry on any monitor (particularly on one this size), you need to use a variety of test targets to check for pincushion and keystone distortion, aspect ratio, and color uniformity. Unfortunately, Sony doesn't include any — and even if you supply your own, the large on-screen menu

obscures critical areas of the screen. Sure, you can move it, but only by clicking on a lot of buttons.

The controls are very comprehensive, with separate ones for each corner of the screen in many cases, and they allow you to set the monitor geometry very precisely, but it's a lot of work. If ever a monitor cried out for direct software control, this is it, but the GDM-W900 lacks the serial port that would be needed to make



The vast 1,920-x-1,200-pixel screen of the Sony Multiscan GDM-W900 fits two WYSIWYG pages, with plenty of room for palettes.

software control possible.

Even though the GDM-W900 is capable of resolutions up to 1,920 x 1,200 pixels, you may have some difficulty finding a video card that can drive it at this resolution and in 24-bit color. You should also check the scan rates the card supports. Number Nine's Imagine 128 Series 2 card can support 1,920 x 1,080 at 80 Hz at 24-bit color. An 8-MB IMS TwinTurbo 128 graphics accelerator supports 1,920 x 1,080 pixels in 24-bit color only at a rate of 60 Hz, where we found flickering was quite objectionable. At 72 Hz, the flickering disappeared but the color bit depth dropped to 16 bits.

The Bottom Line: The inclusion of the Colortron II suggests that the Sony Multiscan GDM-W900 is aimed at the color-critical graphics and prepress markets. Unfortunately, the monitor's poor color uniformity and relatively low brightness make it less than ideal for color work and the lack of a hood is an obvious oversight. If you simply need to display a lot of pixels — for viewing huge spreadsheets or for laying out tabloid spreads, for example — the GDM-W900 may fill the bill, although we're not sure what you'll do with the Colortron. • Bruce Fraser



The Light Source Colortron II spectrophotometer and its powerful software (both bundled with the Sony Multiscan GDM-W900) enable the compact unit to function not only as a precision monitor calibrator but also as a handheld color-measurement and -specification device, usable on a wide variety of reflective surfaces.

Reviews

Apple eMate 300

\$799 (list)



YOU CAN'T HELP BUT SUSPECT that Apple's true motivation behind the eMate 300, the company's new Newton for kids, wasn't to create the ideal teaching tool but rather to salvage *something* out of its ill-fated first-generation Newton technology: a 25-MHz ARM 710a processor, 3 MB of RAM, a 480-x-320-pixel backlit grayscale screen, and the Newton 2.1 operating



Keyboard-equipped Newton for kids is more a costly toy than an effective teaching tool.

system. Sure, Apple's second-generation Newton MessagePad 2000 is a winner (see "The Newton Weighs In," June '97, page 68), but the eMate 300 doesn't share the 2000's advantages — or its 162-MHz StrongARM processor.

The eMate tries hard to be kid-friendly: Its textured, curvy, emerald shell has a modern look. However, since it lacks color, great sound, and familiar games, there's little to entice kids to use it. What's more, its backlighting simply adds a dim green glow (think Timex Indiglo) that decreases battery power — which, without backlighting, lasts 12 to 24 hours before recharging.

However cool the eMate looks, it's neither waterproof nor adequately shock-proof and — kids being kids — can easily be damaged. Its compact keyboard takes some getting used to: Teenagers with large fingers may have problems. Oddly, the best feature of the Newton, handwriting

recognition (vastly improved in recent Newton incarnations), can be used in only some of the bundled applications.

Built in are a handle, an earphone jack, and a card slot. An IrDA-compliant infrared beaming function allows students and teachers to broadcast information to each other — as long as they are within a one-meter radius. A serial port enables connection to desktop Macs and PCs; a Newton Interconnect port lets you hook up to a Newton or another eMate.

PelicanWare's minimalist QuickFigure Works, included, contains a word processor, drawing program, spreadsheet, and graphing calculator. A simple address-book/calendar application is also included. Although Newton developers PelicanWare and LandWare are developing eMate software, nothing's available from such educational-software heavyweights as Davidson, The Learning Company, and Edmark.

The Bottom Line: The eMate 300 is more a cool-looking toy than an effective educational tool. Although at \$799 it's far less expensive than a new PowerBook, its limited functionality and lack of software hamper its usefulness. — *LaMont Ridgell*

Video SpiceRack

\$129 (list)



Video-transition collection adds pizzazz to Adobe Premiere, Adobe After Effects, and Media 100 software.

VIDEO PROFESSIONALS and multimedia designers looking for something a bit more flavorful than their standard diet of bland screen transitions should take a look at Pixelan Software's Video SpiceRack. This CD-ROM is filled with images, in resolutions from 320 x 240 pixels to D1 video, that have been specifically designed for use with applications — such as Media 100 software, Adobe Premiere, and Adobe After Effects — that create video transitions from grayscale still images.

Because Video SpiceRack uses this approach instead of hand coding, it provides a great deal of flexibility. Any of its images can be edited in an image-editing program to create new effects and can easily be given a different starting point or direction. And because you're not hand-coding the transitions, there's no concern that they will conflict with future releases of your video-editing software.

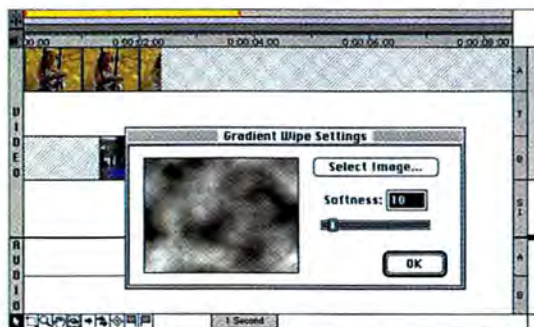
Any video professional will tell you that using straight cuts or dissolves is the

best, least intrusive way of transitioning from one video clip to the next. There are times, though, when you might need to inject some energy into a production. Although many custom transitions border on the cheesy — silhouettes of animals and humans in action, "wham-bam" effects — Pixelan has done a very good job of creating a collection of energetic but not obnoxious transitions. There are no wacky, goofy effects in this package: Video SpiceRack's transitions range from

variations on standard geometric wipes to attractive corrosive dissolves.

Video SpiceRack's manual is thin but comprehensive, providing many good tips on how to use the transitions. In addition, the manual walks you through the process of creating your own gradients.

The Bottom Line: Reasonably priced and well thought-out, Video SpiceRack is an excellent choice for video editors who want to season their productions with tasteful transitions. — *Ben Long*



Video SpiceRack includes 300 images that have been designed for the creation of appealing video transitions in applications that let you create transitions from grayscale still images.

QuickMail Pro 1.1

\$69 (list)

Claris EMailer 2.0

\$49; upgrade, \$39 (list)

WHETHER YOU LIKE IT OR NOT, e-mail is fast replacing the telephone as America's most indispensable communications tool. CE Software's QuickMail Pro 1.1 and Claris EMailer 2.0 each bring new capabilities to Internet e-mail, but each has its own limitations as well, preventing either from knocking off the current e-mail king of the hill, Qualcomm's Eudora Pro.

QuickMail Pro 1.1

Fans of the LAN version of QuickMail will be happy to see the features from that version, such as a spelling checker and forms, included in QuickMail Pro. Hot new features include automatic encoding of enclosures and background mail retrieval.

QuickMail Pro's Send button doesn't actually send a message but only saves it to the out box, even when a PPP or SLIP connection is open. To send, you can choose the Send Mail Now menu command or set the application to send mail periodically. This is OK for a LAN connection but not so convenient for dial-up links, especially since QuickMail Pro doesn't hang up a dial-up connection when it's finished sending.

QuickMail Pro's interface has a single window containing the in and out boxes and folders you create for filing messages. Using MIME, you can send a message embedded in any of two dozen included graphical forms, or you can create your

E-mail client-software packages have new features that challenge our all-time favorite, Eudora Pro — but they can't unseat the champ.

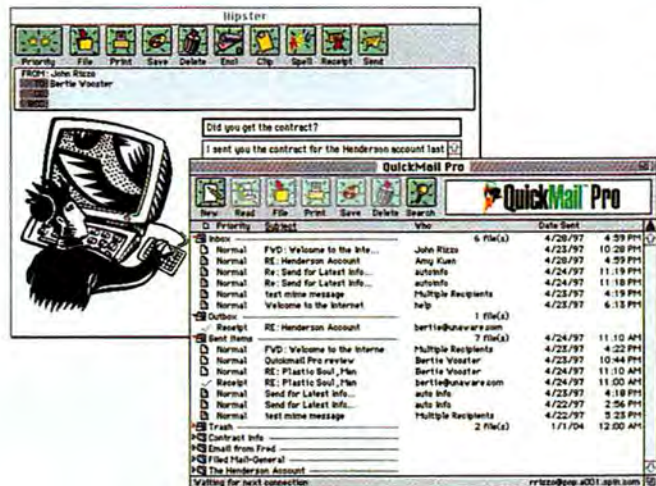
own forms. QuickMail Pro has all the formatting features of the LAN version, including multiple fonts and colors (EMailer 2.0 can't format text).

QuickMail Pro doesn't support multiple e-mail addresses for a single addressee, as does EMailer — you have to create multiple address-book entries. However, when it comes to enclosing files, QuickMail Pro wins hands down. When you create an address-book entry, you can designate whether the recipient is running Mac OS, Windows, or UNIX. QuickMail Pro will select the proper encoding method for an enclosure for each recipient, so a Windows user, for example, can open files sent from a Mac.

Claris EMailer 2.0

Claris EMailer 2.0 has some advantages over QuickMail Pro 1.1, such as hierarchical folders and more-powerful rules-based actions. Claris has repaired earlier deficits by adding a spelling checker and a more efficient method of storing messages. However, fans of Claris EMailer 1.1 may have less to cheer about with the new version, as Claris has broken some formerly trouble-free features and switched to a more complex interface.

EMailer 2.0 looks almost nothing like previous versions, sporting a new Browser window that looks and acts more like QuickMail Pro's. Unfortunately, it no



QuickMail Pro 1.1 uses a convenient single-window interface, but the application doesn't support multiple e-mail addresses for a single addressee; you have to create multiple address-book entries.

MacUser

COMING SOON

OCTOBER 1997

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

Supercharge Your Mac

Do you have an early-model Power Macintosh? Are you considering getting an upgrade to a newer system? Before you get rid of the Power Mac you've got, be sure to read the October issue of *MacUser*, where our editors will tell you about the best options available for upgrading and supercharging your current Mac. MacUser Labs does your homework for you and evaluates your processor upgrade options and other solutions that are sure to provide the most bang for your buck.

The Gaming Mac

If you're a serious gamer looking for the perfect Macintosh loaded with the hottest gaming equipment, look to The Game Room in *MacUser's* October issue. Roman Loyola, the ultimate Mac gamer, will assemble the ideal gaming system and recommend the hottest and most impressive CPU, speakers, joystick, and monitor for the Mac gamer.

HTML Style Sheets

Get ahead of the curve by boning up on the basics of this quick and easy way to style a Web site. This October in *MacUser's* new GraphicsUser section, Web guru Tonya Engst discusses a new HTML technique, based on cascading style sheets, that is soon to be supported by the major browsers.

OCTOBER AD CLOSE:

TUESDAY, JULY 15, 1997

STRATATM 2.0
STUDIO Pro
Relentless 3-D Power
for Creative Professionals



StudioPro 2.0 knows that you live in a world of deadlines, rendering times and bezier splines. It **knows you live** in a digital world. Online. You live to create. VRML for the web. QuickTime VR for games. Special effects for movies. It knows you need a stable 3-D product that you can rely on...and **2.0 satisfies your cravings**. You want fast and accurate **in-context modelers** so all the modeling power is right at your fingertips. 2.0 knows you need **precision control**—of models, of cameras and lights, of every object in your animation. And **everything time-varying** so everything can be easily animated. It knows you hunger for **realistic 3-D effects** through a **custom particle generation system**. It knows you want **volumetric effects** like **mist, fog and haze**. You crave **3-D textures** and the ability to apply **multiple textures**, to visually map textures on objects. You need **UV mapping**. You want the broadcast quality of **field rendering**. You want **real-world camera features** and smooth motions like **pan, crane, dolly, pitch, yaw and roll**. You also want **motion blur, lens flare and depth of field**. Well, 2.0 knows. It also knows that you need all of this power in an interface that is **easy to use**. Intuitive. **No compromises**. And you want a powerful **plug-in architecture** so extensions will continually deliver even more power. Hard to believe it could get any better! **StudioPro 2.0 knows your cravings and desires**. It knows you won't be satisfied until you have **the best**. Check out the **relentless 3-D power** for yourself.

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For academic pricing call 1-800-531-3227

StudioPro 2.0 is available for Power PC Macintosh.

CIRCLE 110 ON READER SERVICE CARD


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Portions of this image created by Marco Patti for the Multimedia World Summit.

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Reviews



If you run Eudora 2.0 on a Mac with a standard 640-x-480-pixel display, you won't be able to see all the columns without scrolling left or right and the multiple windows will overlap.

longer fits in a standard 640-x-480-pixel display — you can't see all the columns without scrolling left or right. There's one welcome new interface improvement: You can create folders within folders — although not by dragging and dropping.

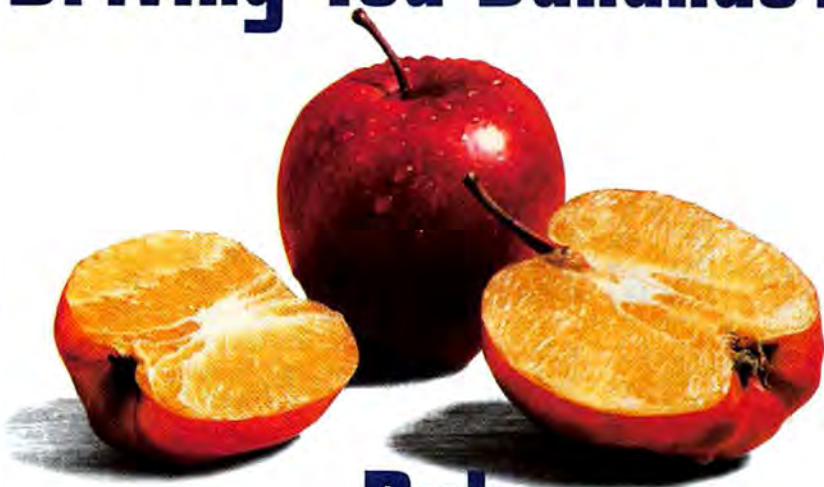
Both Eudora and QuickMail Pro have rules for automatically forwarding, replying to, and deleting certain messages. Eudora 2.0's are more powerful, allowing you to set up an Internet list server from within the application, automatically sending out scheduled messages, and allowing users to subscribe and unsubscribe. Eudora's scheduling capabilities are also more extensive.

Eudora's most welcome change is that the program now stores all messages in a single database file instead of creating a new file for each message. The result is a marked improvement in access and search time.

Unfortunately, we found a problem with Eudora's most distinctive feature, the ability to exchange mail directly with online services. Eudora 2.0 could not dial America Online with either a PowerBook 3400 internal modem or a Global Village OneWorld network modem server running a PowerPort Platinum modem. (Eudora 1.1.3 had no trouble with these modems.) At press time, Claris had not provided a workaround, although it had acknowledged the problem.

The Bottom Line: Each of these products has one or two features — such as QuickMail Pro's ability to correctly encode enclosed Windows files and Eudora's smooth handling of multiple Internet and online-service e-mail accounts — that outshine Eudora Pro's, but overall both fall short. • John Rizzo

PC Applications Driving You Bananas?



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CIRCLE 130 ON READER SERVICE CARD

Reviews

Cumulus Media Management System — Desktop Plus 3.0



\$595 (list)

TIRED OF HUNTING for your image, sound, page-layout, and movie files among various storage sites? Delegate this annoying



Cumulus Media Management System — Desktop Plus 3.0 displays thumbnails of search results in the Catalog window to help you find the image you need, when you need it.

Media-file-management software keeps track of all your image, sound, and movie files — plus it's scriptable, Web-ready, and easy to use.

task to Canto Software's Cumulus Media Management System — Desktop Plus 3.0.

The organizational center, Desktop Plus' new Category window, sports Finder-like icons that represent user-defined categories and nested subcategories. Drag and drop a file onto a Category folder, and Desktop Plus will create a pointer to the source file and then build a thumbnail.

Source files can reside anywhere off-line or online — including on hard disks, file-server volumes, and removable media. If you want a file that's offline, Desktop Plus will tell you the name of the volume you need to mount. It recognizes more than 40 file formats and ships with a utility that lets you create additional format filters.

To find your files, just double-click on a category to display the associated thumbnails in the Catalog window. Alternatively, you can use the powerful Find command to perform Boolean searches on criteria such as File Type, Resolution, text in Notes, and Creation Date.

Desktop Plus is now scriptable, with AppleScript or UserLand's Frontier. Additionally, it comes with CGI software that, if installed on a Web server, lets you publish your Desktop Plus catalog on the World Wide Web. If you want to burn your own media-catalog CD-ROMs, Canto allows you to bundle an included Browser application royalty-free.

Canto offers a pared-down \$99 version of Desktop Plus called Desktop, which lacks the scripting and Web features. Full-featured 5- and 20-client network packages are available for \$1,995 and \$4,995, respectively.

The Bottom Line: Desktop Plus 3.0 will help you keep your sanity when it comes to organizing, cataloging, and retrieving your media files. If you have a large collection of publishing or multimedia files, buy it. — *Shelley Cryan*

Number Nine Imagine 128 Series 2 for Power Macintosh



\$799 (list)

Accelerated-graphics card is not only fast for 2-D graphics but it also offers full-motion video and 3-D acceleration.

YOUR MAC HAS MORE WORK to do than ever before, what with more 3-D graphics and multimedia applications appearing almost daily. Now you can help it out by equipping it with a Number Nine Imagine 128 Series 2 for Power Macintosh graphics accelerator: Your screen will redraw faster, and you'll benefit from video and 3-D-graphics acceleration.

Our MacBench 4.0 graphics tests showed that the overall speed of the Imagine 128 Series 2 is similar to that of its earlier version: Both cards achieve a Hi-Res Publishing Graphics score about 35 percent higher and a Lo-Res Publishing Graphics score about 10 percent higher than those of the built-in video of a Power Mac 7600/132 with 32 MB of RAM.

This overall similarity masks some specific QuickDraw-speed enhancements of the Series 2 card, some of which — for



Equally Fast, but Faster

Although the overall publishing-graphics speed of the Imagine 128 Series 2 card is almost identical to that of its predecessor, the Imagine 128, what the chart below doesn't show is that some specific functions, such as Photoshop scrolling, are greatly accelerated.

The Hi-Res Publishing Graphics test uses profiles based on many different functions performed by industry-leading applications in desktop publishing and graphics. Our test platform was a Power Mac 7600/132 with 32 MB of RAM.

	MacBench 4.0 Hi-Res Publishing Graphics Score
NUMBER NINE IMAGINE 128 SERIES 2	237
NUMBER NINE IMAGINE 128	234
BUILT-IN VIDEO IN	
APPLE POWER MAC 7600/132	175
Reference systems	

instance, CopyBits — greatly accelerate such common activities as Photoshop scrolling. For example, the Series 2 card performed half of the 22 CopyBits calls in our tests twice as fast as the earlier Imagine card and a full three times as fast as the internal video in a Power Mac 7600/132. Photoshop users, take note.

The Series 2 card also offers video-playback acceleration for MPEG-1, Cinepak, and MJPEG with QuickTime 2.5. You can resize a movie to full-screen size (640 x 480 pixels) with no loss in frame rate and very little loss in image quality.

Some QuickDraw 3D acceleration is also supported. Although the card doesn't have the texture memory needed to accelerate many 3-D games, it does accelerate double-buffered and Z-buffered graphics and Gouraud-shaded triangles.

The Series 2 card also supports 16-bit color at a maximum screen resolution of 1,920 x 1,200 pixels at 75 Hz. The Series 2 card includes Mac and VGA ports, whereas the previous card contained only a Mac port.

The Bottom Line: The Series 2 card's functionality and speed make it a great option for content creators who need fast display. — *Jeffrey Milstead*



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CIRCLE 36 ON READER SERVICE CARD

Reviews

SuperCard 3.0



\$329; upgrade from any previous version, \$99.95
(estimated street)

AS POWERFUL a multimedia-development tool as Macromedia Director, new-look SuperCard 3.0 is an appealing tool for developing media-rich Internet or intranet applications.

SuperCard 2.5's editing environment, SuperEdit, has been replaced in version 3.0 by the new Project Editor, where you create as well as run *projects* (applications you develop with SuperCard). Project Editor is friendlier than SuperEdit, with a look and feel akin to that of PageMaker, in contrast to SuperEdit's MacWrite-like interface.

SuperCard 3.0's ClickScript utility is a point-and-click tool that automatically generates script snippets. The new development environment includes features you'd find in a modern programming environment, including the Property

SuperCard 3.0
Allegiant Technologies, San Diego, CA
800-255-8258 or 619-587-0500
www.allegiant.com
Reader service: circle #418

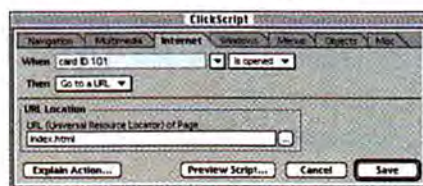
Microtek Color PageWiz
Microtek, Redondo Beach, CA
800-654-4160 or 310-297-5000
www.microtekusa.com
Reader service: circle #419

Mitsubishi S600C
Mitsubishi, Sunnyvale, CA
800-347-5724 or 408-773-3878
www.mitsubishi-infostorage.com
Reader service: circle #420

Multimedia-authoring tool makes it easy to create media-rich projects for the Web.

Inspector, for viewing and changing object properties, and the Project Browser, for viewing and changing the structure of a project, creating and deleting menus and windows, and sorting cards.

Allegiant supplies Roadster, a Web-browser plug-in that plays SuperCard projects. It's free and widely distributed and comes in Mac and Windows versions. Roadster won't run every SuperCard



SuperCard 3.0's helpful ClickScript utility automatically generates script snippets, reducing the amount of hand coding needed.

project, though: Some SuperCard features, such as file I/O, are disabled for security or other reasons.

To help make your projects Web-friendly, SuperCard 3.0 offers helpful on-line advice on Web-centric design, the ability to check your project against Web constraints, support for bandwidth-friendly compression and caching, compact vector graphics, and data streaming. There's also a Web-browser emulator that simulates various modem speeds, so you can get an accurate feel for how a project will play.

Web development is impressively integrated into the Project Editor and the scripting language. When you're developing for the Web, the Project Editor automatically generates an HTML file to wrap around your project, and the SuperTalk scripting language expresses file references as proper URLs.

The Bottom Line: Allegiant has turned an excellent multimedia-authoring tool into an excellent Web authoring tool. At \$329, it's a steal. —Michael Swaine

Microtek Color PageWiz



\$159 (list)

Mitsubishi S600C



\$299 (list)

THE IMPULSE-BUY SCANNER has finally arrived — but you'd better shop carefully. Although the \$159 Microtek Color PageWiz and the \$299

Color sheetfed scanners may be inexpensive, but the output quality of these two models from Microtek and Mitsubishi comes nowhere near that of a low-cost color flatbed scanner.

Mitsubishi S600C promise affordable color scanning, their output's image quality is disappointing — especially when compared with that of color flatbed scanners from Agfa and UMAX that can be found for under \$300 each.

Our scans with the Microtek Color PageWiz were particularly disappointing, especially in terms of sharpness and shadow detail. The images looked as if someone had done a creditable oil painting — but with a soft brush.

The Mitsubishi S600C's images weren't much better. Imagine taking a photograph of an outdoor scene about an hour after sunset with no flash — that'll give you an idea of the quality of most of the images we obtained from the S600C. In addition, its images all showed glaring and unacceptable artifacts. In fact, one image had an artifact *field*: a band running along the leading edge of the scanned

image, approximately one-eighth of an inch wide.

The S600C ships with an Adobe Photoshop plug-in for driving the scanner. The plug-in has several features seen in higher-level scanner drivers; unfortunately, the S600C wasn't capable of making good use of these features.

There is, however, one use for which both scanners are well suited and for which both performed acceptably: OCR scanning. Each scanner ships with Xerox TextBridge 3.0. Scanned pages in our tests showed no loss of formatting and few questioned words.

One other important note: Since both scanners are sheetfed, you can't scan anything other than thin reflective materials, such as photographs or pages of text. You can't scan slides or negatives or images in books or catalogs.

The Bottom Line: If you are looking primarily for an OCR scanner, then either of these scanners will more than fill the bill. If, however, you are also in need of an inexpensive image scanner for casual use at home or the office, then your choice is problematic. Of the two scanners we looked at, the Microtek Color PageWiz does have the image-quality edge, but you wouldn't want to bet your job on it. —Rick Oldano



The Mitsubishi S600C (left) and Microtek Color PageWiz are better-than-average OCR scanners, but they don't perform well when scanning color images.

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*Jamie
Graphic Designer*



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*Randy
MIS Manager*



Home Use

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*Brad
Web Master*



Music/Video

"Music's my life. CD-RW lets me tweak and change my audio and video tracks on the same disc until it's just the way I want it."

*Kim
Musician*



Authoring

"Producing multimedia and interactive CDs requires two things...storage and testing. With CD-ReWritable media, I can affordably test my work to perfection and then master it to a CD-Recordable disc."

*Janet
Production Engineer*

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Reviews

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 Casady & Greene, Salinas, CA
 800-359-4920 or 408-484-9228
 www.casadyg.com
 Reader service: circle #421

Phantom 2.0
 Maxum Development, Streamwood, IL
 630-830-1113
 www.maxum.com
 Reader service: circle #422

Spreadsheet 2000

\$76.49 (list)



IF YOU HATE MICROSOFT EXCEL and other traditional row-and-column spreadsheet programs, check out Spreadsheet 2000, from Casady & Greene. Yes, creating a spreadsheet can actually be fun.

Like its predecessor, Let's K.I.S.S. (see review, September '96, page 52), Spreadsheet 2000 lets you drag and drop every piece of your spreadsheet—including cell tiles, mathematical operators, formulas, and charts—from floating palettes onto a blank page. You then connect the elements with your mouse to create a chain of calculations. You can also select from a small selection of colors and fills to vary the look of your charts.

If your spreadsheets get cluttered, you can simplify matters by scrunching entire calculation sections into a single button and then saving it to a palette for reuse in another spreadsheet. You can also publish key cell tiles and charts to a report.

Although mastering Spreadsheet 2000 is remarkably easy, Casady & Greene makes life even easier by including 49

Spreadsheet software uses a simple, unique drag-and-drop worksheet-creation system.

templates for home, business, and school; you can find more on the company's Web site.

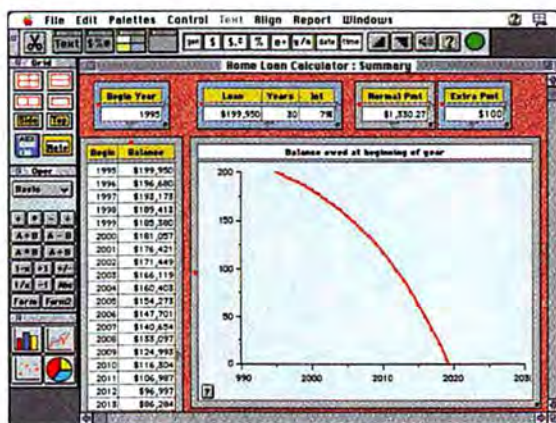
Besides having a new name, Spreadsheet 2000 now has the Quick Evaluate Calculator, which you can use for simple calculations. It also has several new operators: New time operators let you calculate the time elapsed between two dates and convert hours, minutes, and seconds into

decimal hours and vice versa. New data operators let you sort and search both numerical and text cell data.

If you're used to conventional spreadsheet programs, having to link cells and operators can be tedious. And because of Spreadsheet 2000's unconventional approach to number crunching, you can't import spreadsheets from other programs, although you can bring in raw numbers and text.

The Bottom Line: If conventional spreadsheet programs have always confounded you, you'll be delighted with what you can do with Spreadsheet 2000.

• Carolyn Bickford



Spreadsheet 2000's drag-and-drop interface presents an entirely new approach to spreadsheet creation.

Phantom 2.0

\$395 (list)



Web crawler has sophisticated search tools but slow indexing.

WEB CRAWLERS AND ROBOTS are no longer limited to simply seeking out sites or Web pages that match a keyword or phrase you provide. Now Maxum Development's Phantom 2.0, the only commercial Web crawler for the Mac, can also provide search capability for local and remote

content. This major upgrade provides sophisticated search tools, a new Web-based administration interface, and its own Web-server engine.

Phantom, which can run either as a stand-alone Web-server application or as a CGI (Common Gateway Interface) along with Mac Web-server software, uses its own database to index and search local or remote Web sites. Using a Web browser, you can send Phantom around the Net, cataloging entire sites, or you can have Phantom index your site. Once your site has been indexed, you can give visitors quick access to its contents, using HTML search forms included in the Phantom package. You can modify the forms within Phantom's browser interface by simply including your own headers, footers, and advertising banners, and you can alternatively create a completely customized search page.

Phantom 2.0 is a powerful indexer and

search tool, with several new features that make it well suited to large Web sites and complex Web crawling. You can filter site crawls to exclude certain pages and paths, and you can use the site maps Phantom generates to further refine crawl updates. Web-site visitors who use Phantom's forms to search for content you've indexed can use a Phantom agent to receive notification when changed pages are updated.

Indexing, never a quick process, is painfully slow with Phantom. It took Phantom several hours to index 800 HTML files (between 25K and 75K each) that were stored on our Phantom server. Fortunately, once initial indexes have been created, updates and searches are very speedy.

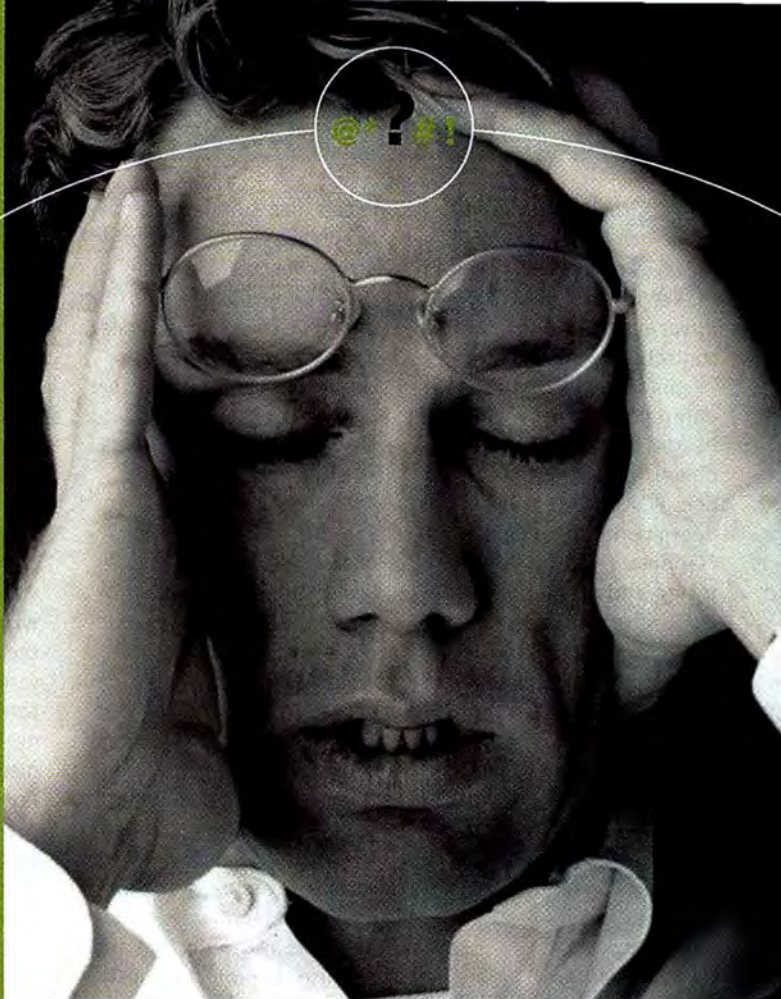
The Bottom Line: If performing Web crawls or making indexes available to your site's visitors is important—and you have the time to create the indexes—Phantom is worth the price. You'll also want to use a high-end Mac, plenty of RAM, and a fast Internet connection.

• Shelly Brisbin



Using Phantom 2.0, you can create a completely customized search page or can modify the forms within Phantom's browser interface.

macintosh
mac/os



windows
microsoft
office 97

where can't you go today?

Way to go Microsoft! Office 97 is packed with hot new features that make it number one. But those same features make Office 97 file formats completely unreadable by any Macintosh software. Period. So how do you go between your Mac and Word or Excel 97 files?

MacLinkPlus will get you there.

Just rely on new **MacLinkPlus 9.7** to take care of your Office 97 file conversion needs. Loaded with hundreds of translation possibilities, **MacLinkPlus** is the only choice for converting popular PC-based word processing, graphics and spreadsheet files for use on your Mac. Or vice versa. With just a point and click or a drag and drop. That's why Apple bundles **MacLinkPlus** with every Mac OS they sell. And why you should find out about upgrading to version 9.7 today.

Circle **163** on reader service card for special multipack pricing and general information.

Circle **164** on reader service card for general information.



DATAVIZ

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MacLinkPlus 9.7 lets you read and write Office 97 files on your Mac. Upgrade today.

For details, call 1.800.270.0030 ext. 130 or visit our web site at <http://www.dataviz.com/YouCanGo>

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Quick Clicks

The Metaphorically Blinking Pro

Everyday Objects Live Pro

\$\$\$
\$299 each (list)
PhotoDisc, Seattle, WA
800-528-3472 or 206-441-9355
www.photodisc.com
Reader service: circle #426

IF A GURGLING LAVA LAMP — or some other fun animation — is just what you're looking for to liven up your Web site, check out these stock-animation discs. Each includes 100 images



culled from PhotoDisc's Object Series and converted to Web-ready animated-GIF and Shockwave files. Also included are the Macromedia Director files you'll need in order to customize them.

Stock Web animation collections are a new category, and that newness is reflected in these discs' lack of polish. For example, the images were saved with a browser-safe palette (an adaptive palette is usually best for photographic GIF files) and therefore suffer from unattractive dithering. Also, you'll need to edit the animated GIF files' interframe delay if you want the animations to be more than colorful blurs. — Scholle Sawyer

DAVE for the Mac 1.0.1

\$\$\$
\$179 (list)
Thursby Software Systems
Arlington, TX
817-561-2313
www.thursby.com
Reader service: circle #423

DAVE GIVES YOUR MAC a new way of accessing files on Windows 95, Windows NT, and Windows for Workgroups machines: over a TCP/IP network.

Where cross-platform solutions such as Miramar's PC MACLAN put AppleTalk on the PC, DAVE installs a NetBIOS driver extension and a NetBIOS control panel on your Mac.

Unfortunately, DAVE has only half of the capabilities of PC MACLAN. It doesn't let Windows users access the Mac, as does PC MACLAN, and it doesn't print to non-PostScript PC printers. Setup is a bit confusing, and the manual assumes that you know how to configure the PCs. DAVE is a good start but needs some polish before we can recommend it. — John Rizzo

Baby Naming Software

\$\$\$
\$20 (estimated street)
December Fifth Creations
Van Nuys, CA
818-989-2229
www.dfcreations.com
Reader service: circle #424

WHAT'S IN A NAME? Well, with Baby Naming Software, from December Fifth Creations, you can find out in its database of over 10,000 names.

This easy-to-use program lets prospective moms and



dads — or, for that matter, pet and boat owners — select personal favorites and also provides each name's definition, origin, and variations. One fun feature is the name and word scramble: Choose up to three single names or words, and the program will rearrange the

letters into various name possibilities. Our only complaint concerns the application's paucity of names from Japanese, Polynesian, Chinese, and other non-Western cultures. — Teresa Lee Bojorquez

Dr. Solomon's Anti-Virus Toolkit

\$\$\$
\$99 (list)
Dr. Solomon's Software
Burlington, MA
888-377-6566 or 617-273-7400
www.drsolomon.com
Reader service: circle #425

THIS VIRUS-PROTECTION package consists of three parts: a control panel called MacGuard, a scanning application named FindVirus, and a scheduler for setting up regular scans. In daily use, MacGuard is as unobtrusive as Disinfectant and promises to protect against Word and Excel macro viruses as well as conventional Mac viruses such as nVIR.

Unlike its competitors, Dr. Solomon's currently provides one year of quarterly updates — only via physical mail rather than online, and the effectiveness of its Mac technology has not yet withstood the test of time — and the nefarious intent of virus-creating morons. But given the company's reputation for being on the leading edge of antiviral development for DOS and Windows systems, this is a newcomer to watch. — Stephan Somogyi

The Power of Touch

\$\$\$
\$49.95 (list)
digifilm.com, Soquel, CA
888-843-2376
www.digifilm.com
Reader service: circle #427

THERE'S NOTHING QUITE as relaxing as a professionally performed massage. Want to learn how to give one? Pick up a copy of digifilm.com's The Power of



Touch, a beautiful instructional CD-ROM about the art of massage.

This attractive guide is divided into sections, complete with kinesiology lessons, on the proper way to administer various massage techniques. It contains descriptions of over 95 individual strokes accompanied by 60 minutes of instructional video clips and can be played in an audio-CD player, for 25 minutes of soothing music. Also included are lessons on RSI and ergonomics and instructions on how to set up a relaxing massage environment. — LaMont Ridgell

Putt Putt Travels Through Time

\$\$\$
\$39.95 (list)
Humongous Entertainment
Woodinville, WA
800-499-8386 or 206-486-9528
www.humongous.com
Reader service: circle #428

PUTT PUTT'S BACK, and boy has he got his hands — er, tires — full! In his latest adventure, Putt Putt Travels Through Time, the cute convertible's troubles begin when he and Pep



(his pet dog) visit sporty Mr. Firebird to show off his history report and his nifty new school supplies. We won't give away what happens next, but Putt Putt soon finds himself traveling through time, with your child helping him find his faithful dog. The colors are bright, the music's catchy, and there are enough puzzles and games to keep a young child busy for hours. — LaMont Ridgell

PhoneMaker™

If you can imagine it, you can create it



Computer telephony: the integration of computers and telephones. While the concept of Macintosh telephony has been promised to us for years, little has been delivered on that promise.

Until now.

Introducing PhoneMaker 2.0, by MicroMat Computer Systems. Macintosh telephony the way it was meant to be. Whether you want to implement phone mail, auto-attendant, call-processing, fax-on-demand or integrated voice

response-PhoneMaker has all the tools you need. PhoneMaker allows you to create almost any telephone-based application imaginable. You can create applications as complex as phone-in auto-order systems or as simple as an automated personal dialer.

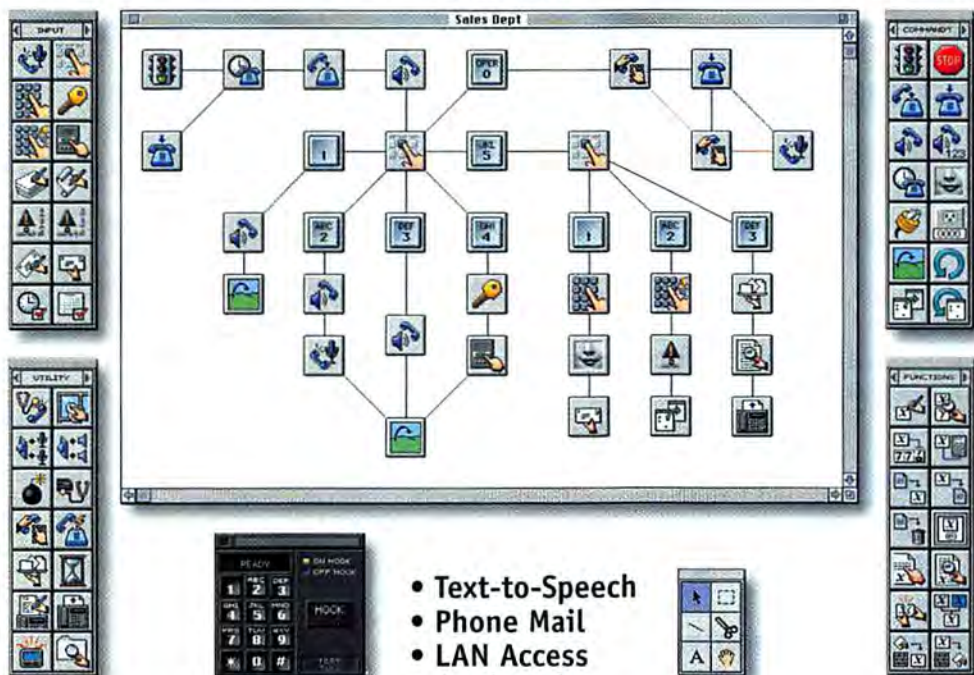
PhoneMaker doesn't just limit your applications to the telephone network. You can send email over the internet, interact with your database via AppleScript, send messages over your LAN and much, much more.

While PhoneMaker is a complete telephony development system, you don't need to be a programmer to use it. Simply drag out icons that represent functions (like answer the phone, play a message) and connect the icons in the order you wish.

PhoneMaker's hardware component, PhoneLink, is the premium Macintosh-to-telephone interface. Supporting the highest audio quality available, PhoneLink will make your applications rival systems costing thousands of dollars more. Most importantly, PhoneLink is

expandable; allowing you to add more lines to your system without having to supplant your original interface.

Find out more about this exciting new product by calling our fax-on-demand number at 707-838-4231. Order document 2001. Not only will you get the full details on PhoneMaker, you'll be actually trying out the system for yourself.



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- Internet Access
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- Multiple Audio Sources
- Database Access
- Unlimited Icons
- JukeBox Hold™
- 7Khz to 44Khz Sample Rates



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the SuperMac C500LT from UMAX. With the C500LT, you get a high quality upgradeable 180MHz processor with 16MB RAM, 256k upgradeable L2 cache, 8-speed CD-ROM, and UMAX's "High Upgradeability" design in its sleek and compact style case, which allows for flexibility when you want to upgrade your computer to work faster or play harder. Plus, the C500LT comes with utility software valued at about \$500. With the SuperMac C500LT, you get exactly what you want in a Mac OS system. Just ask our customers: In a June 1997 *Macworld* poll, UMAX was rated #1 in both service and purchase satisfaction. Now we give you everything you need for under \$1000.

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- ▶ **Power FPU**
- ▶ **TechTool® Pro**
- ▶ **CD-ROM & HDTool Kit® PE**



For more information on where to purchase the C500LT, call 1-888-236-UMAX or visit us at <http://www.supermac.com>

C500LT/180 SPECIFICATIONS:

MODEL NAME		C500LT/180	
Processor Type	603e/180MHz	Hard Drive	1.2Gbyte
Form Factor	Slim Desktop	Drive Bays	3 total
RAM	16MB	Total PCI Slots	2
Max. RAM	144MB	Video Memory	1MB
Level-2 Cache	256K	ADB Ports	1
CD-ROM Speed	8X	Serial Ports	2

*Monitor not included. Price and features subject to change without notice.

UMAX
Computer Corporation

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CIRCLE 141 ON READER SERVICE CARD

MACUSER RECOMMENDS: The Internet

Based on reviews published in MacUser, our editors recommend these top products.

WEB-PAGE DESIGN

Animation-Creation Software	Flash 2 Macromedia	You can create lively vector-based animations that download quickly and adapt to screen size.	★★★★ [*] Jan. '97	\$199 estimated street	800-888-9335 www.macromedia.com
Animation-Painting Software	WebPainter Totally Hip Software	If you want to investigate cel-style animation, you won't find a better way to get started.	★★★★ Feb. '97	\$99	604-685-6525 www.totallyhip.com
Dynamic-Content-Preparation Software	Media Cleaner Pro 2.0 Terran Interactive	This indispensable tool optimizes your video and motion-graphics files for CD-ROM and the Web.	★★★★ [*] June '96	\$359 estimated street	800-577-3443 www.terran-int.com
Image-Processing Utilities	PhotoGIF 2.1 and ProJPEG 2.1 BoxTop Software	These two Photoshop plug-ins create the tightest and brightest GIF and JPEG images, bar none.	★★★★ June '97	\$35 each estimated street	800-257-6954 www.bxtoptsoft.com
Java Authoring Tool	Symantec Visual Café for Mac 1.0 Symantec	You don't have to code your way into the Java revolution — just drag and drop into the Café.	★★★★ May '97	\$199	800-441-7234 www.symantec.com
Java Resource	Discover Programming with Java Metrowerks	Only Metrowerks could make learning programming both easy and — believe it or not — fun.	★★★★ Oct. '96	\$79	800-377-5416 www.metrowerks.com
Web-Page-Design Software	BEdit 4.0 Bare Bones Software	If you're a professional Web-page designer, you gotta have BEdit — but you already know that.	★★★★ Oct. '96	\$119	617-676-0650 www.barebones.com
WYSIWYG Web-Page-Design Software	Adobe PageMill 2.0 Adobe	In an ever more crowded field of competitors, an updated pioneer remains our favorite.	★★★★ Jan. '97	\$199	800-411-8657 www.adobe.com



ACCESS AND MANAGEMENT TOOLS

E-Mail-Client Software	Eudora 3.1 Qualcomm	Powerful message handling and a customizable interface distinguish this top mail manager.	★★★★ Oct. '96	\$59 estimated street	800-238-3672 www.eudora.com
FileMaker Pro Web-Server Plug-In	Tango for FileMaker EveryWare	Provide quick, easy, and secure Web access to select portions of your FileMaker Pro databases.	★★★★ Dec. '96	\$349	888-819-2500 www.everyware.com
Internet-Server Watchdog Software	PageSentry 2.0 Maxum Development	If your server goes on the fritz, it'll be restarted or you'll be notified by pager or e-mail.	★★★★ Mar. '97	\$149	630-830-1113 www.maxum.com
Messaging System	FirstClass 3.5 SoftArc	Add a gateway, and this cross-platform mail and BBS system will link your LAN to the Net.	★★★★ Apr. '97	\$495	800-763-8272 www.softarc.com
Remote-Access Software	Timbuktu Pro for Networks Farallon	If you manage multiple Web servers, this remote-access tool is a must-have time-saver.	★★★★ May '96	\$139 estimated street	510-814-5000 www.farallon.com
Turnkey Web-Server Hardware	Whistle InterJet 100 Whistle Communications	Let Whistle Communications take the trouble out of setting up your small-business Web server.	★★★★ June '97	\$1,995 estimated street	888-494-4785 www.whistle.com
Web Browser	Internet Explorer 3.0 Microsoft	Netscape Navigator has its fans, but we recommend Microsoft's snappy, full-featured browser.	★★★★ [†] July '96	free	800-426-9400 www.microsoft.com/ie
Web-Server Software	WebSTAR 2.0 StarNine	Fast, secure, easy to use, and supported by a raft of powerful plug-ins — what's not to like?	★★★★ Apr. '97	\$499 estimated street	800-525-2580 www.starnine.com

^{*}Rating is for previous version, then called FutureSplash Animator, from FutureWave Software.

[†]Rating is for previous version, then called Movie Cleaner Pro.

[‡]Rating is for previous version, Microsoft Internet Explorer 2.0.

All prices are suggested retail (list) unless otherwise noted.



Short List



MACUSER REPORT CARDS • Mac OS Systems

A comprehensive list of every Mac OS system on the market

INQUIRING MINDS WANT TO KNOW: Can you buy a 250-MHz PowerPC 604e Mac OS system, or can't you? Although both Power Computing and UMAX have announced 250-MHz systems, they also admit that — at press time — PowerTower Pro 250s and SuperMac S900/250s are trickling out of their manufacturing facilities only in very limited quantities. Caveat emptor.

Meanwhile, Apple — wisely, we believe — is staying clear of this megahertz one-upmanship. Its top-of-the-line 233-MHz Power Macintosh 9600/233 (below) is shipping in quantity.

In other news, UMAX has introduced the first sub-\$1,000, fully equipped Mac OS systems, the \$945 UMAX SuperMac C500LT/180 and the \$899 C500LT/140. PowerTools has now adopted a different low-price strategy — buy one of its no-frills, no-RAM, no-hard-drive, no-L2-cache systems and then add one of five configuration options, ranging in price from \$589 to \$2,977. (As we went to press, APS announced a similar pricing strategy.)

Sharp-eyed readers will notice that the MacBench 4.0 Processor scores for the APS M•Power 604e200, Motorola StarMax 4000/200 MT and 3000/200 MT, and UMAX SuperMac J700/180 increased over last month's listings. There's no mystery: We retested these systems, because they now ship with the performance-enhancing Mac OS 7.6. • Rik Myslewski



APPLE COMPUTER • 800-538-9696 • www.apple.com

POWER MACINTOSH 9600/233 604e/233 • 47MHz/32MB/4GB/512K	#### Aug. '97	\$4,200 428
POWER MACINTOSH 9600/200 604e/200 • 50MHz/32MB/3.9GB/512K	#### JUNE '97	\$3,700 409
POWER MACINTOSH 8600/200 604e/200 • 50MHz/32MB/2GB/256K	### Aug. '97	\$3,200 318
POWER MACINTOSH 7300/200 604e/200 • 50MHz/32MB/2GB/256K	## Aug. '97	\$2,700 358
POWER MACINTOSH 7300/180 604e/180 • 45MHz/16MB/2GB/256K	### JUNE '97	\$2,300 330
POWER MACINTOSH 6500/300 603e/300 • 50MHz/64MB/4GB/512K	#### Aug. '97	\$2,999 432
POWER MACINTOSH 6500/275 CREATIVE STUDIO 603e/275 • 50MHz/32MB/4GB/512K	#### Aug. '97	\$2,999 425
POWER MACINTOSH 6500/250 603e/250 • 50MHz/32MB/4GB/256K	#### Aug. '97	\$2,299 336
POWER MACINTOSH 6500/250 EDUCATION SERIES 603e/250 • 50MHz/32MB/3GB/256K	#### Aug. '97	\$2,099 332
POWER MACINTOSH 6500/250 SMALL BUSINESS 603e/250 • 50MHz/32MB/4GB/256K	#### Aug. '97	\$2,599 332
POWER MACINTOSH 6500/225 603e/225 • 50MHz/32MB/3GB/256K	### Aug. '97	\$1,999 244
POWER MACINTOSH 6500/225 EDUCATION SERIES 603e/225 • 50MHz/32MB/2GB/256K	### Aug. '97	\$1,799 244
POWER MACINTOSH 4400/200 603e/200 • 40MHz/16MB/2GB/256K	## JUNE '97	\$1,700 284
POWER MACINTOSH 4400/200 PC COMPATIBLE 603e/200 • 40MHz/32MB/2GB/256K	### Aug. '97	\$2,399 284
POWER MACINTOSH 4400/200 SMALL BUSINESS 603e/200 • 40MHz/32MB/2GB/256K	### Aug. '97	\$1,799 284
PERFORMA 6400/200 603e/200 • 40MHz/16MB/2.4GB/256K	## Oct. '96	\$1,599 258
PERFORMA 6400/180 603e/180 • 40MHz/16MB/1.6GB/NONE	## Oct. '96	\$1,399 184
PERFORMA 6360 603e/160 • 40MHz/16MB/1.2GB/NONE	### FEB. '97	\$1,199 175
POWERBOOK 3400c/240 603e/240 • 40MHz/16MB/3GB/256K	#### Aug. '97	\$6,500 337
POWERBOOK 3400c/200 603e/200 • 40MHz/16MB/2GB/256K	#### APR. '97	\$5,500 308
POWERBOOK 3400c/180 603e/180 • 40MHz/16MB/1.3GB/256K	#### APR. '97	\$5,000 293
POWERBOOK 1400c/133 603e/133 • 30MHz/16MB/1GB/128K	#### Aug. '97	\$3,199 136
POWERBOOK 1400cs/117 (w/ CD-ROM) 603e/117 • 33MHz/12MB/750MB/128K	### Aug. '97	\$2,000 114

APS TECHNOLOGIES • 800-568-2891 • www.apstech.com

M•POWER 604e200 604e/200 • 40MHz/160MB/4GB/512K	### Aug. '97	\$4,259 415
M•POWER 604e200 604e/200 • 40MHz/32MB/4GB/512K	### Aug. '97	\$2,558 415
PRODUCT NAME	MOUSE RATING	PRICE
PROCESSOR/CLOCK SPEED • BUS SPEED/RAM/HARD DRIVE/L2 CACHE	DATE RATED	MACBENCH 4.0 PROCESSOR SCORE

ALL PRODUCTS, CONFIGURATIONS, AND PRICES ARE AS OF MAY 15, 1997. SINGLE-PROCESSOR SYSTEMS ONLY.

M•POWER 604e200 604e/200 · 40MHz/32MB/3GB/512K	#### Aug. '97	\$1,981 420
M•POWER 604e200 604e/200 · 40MHz/24MB/2.5GB/512K	#### Aug. '97	\$1,821 418
M•POWER 603e240 603e/240 · 40MHz/24MB/2.5GB/512K	#### Aug. '97	\$1,672 375
M•POWER 603e200 603e/200 · 40MHz/32MB/3GB/512K	#### Aug. '97	\$1,758 314
M•POWER 603e200 603e/200 · 40MHz/24MB/2.5GB/256K	#### Aug. '97	\$1,249 311
M•POWER 603e180 603e/180 · 40MHz/32MB/3GB/256K	#### Aug. '97	\$1,599 300
M•POWER 603e180 603e/180 · 40MHz/32MB/1.2GB/256K	#### Aug. '97	\$1,399 297

MOTOROLA · 800-759-1107 · www.mot.com/computer/starmax

StarMax 5000/300 603e/300 · 50MHz/32MB/4.3GB/512K	#### Aug. '97	\$2,899 552
StarMax 4000/200 MT 604e/200 · 40MHz/32MB/2.5GB/512K	#### Aug. '97	\$2,699 421
StarMax 4000/200 MT ENTERPRISE 604e/200 · 40MHz/32MB/2.5GB/512K	#### Aug. '97	\$3,099 421
StarMax 4000/160 MT 604e/160 · 40MHz/32MB/2.5GB/512K	#### MAR. '97	\$1,899 331
StarMax 3000/240 MT 603e/240 · 40MHz/32MB/2.5GB/512K	#### JUNE '97	\$2,299 376
StarMax 3000/240 MT ENTERPRISE 603e/240 · 40MHz/32MB/2.5GB/512K	#### Aug. '97	\$2,499 376
StarMax 3000/240 MT SOHO 603e/240 · 40MHz/32MB/2.5GB/512K	#### Aug. '97	\$2,499 376
StarMax 3000/200 DT 603e/200 · 40MHz/16MB/1.2GB/256K	#### MAR. '97	\$1,299 277
StarMax 3000/200 MT 603e/200 · 40MHz/32MB/2.5GB/512K	#### Aug. '97	\$1,799 348
StarMax 3000/180 DT 603e/180 · 40MHz/16MB/1.2GB/256K	#### JUNE '97	\$1,249 287
StarMax 3000/180 MT 603e/180 · 40MHz/32MB/2.5GB/256K	#### JUNE '97	\$1,395 298
StarMax 3000/180 MT SOHO 603e/180 · 40MHz/32MB/2.5GB/256K	#### Aug. '97	\$1,395 298

POWER COMPUTING · 800-999-7279 · www.powercc.com

PowerTower Pro 250 604e/250 · 50MHz/32MB/2GB/1MB	#### Aug. '97	\$4,495 598
PowerTower Pro 225 604e/225 · 45MHz/32MB/2GB/1MB	#### MAR. '97	\$3,695 461
PowerTower Pro 225 RAID 604e/225 · 45MHz/32MB/8GB/1MB	#### MAR. '97	\$6,280 461
PowerTower Pro 200 604e/200 · 50MHz/16MB/2GB/1MB	#### MAR. '97	\$2,695 452
PowerTower Pro 200 RAID 604e/200 · 50MHz/32MB/8GB/1MB	#### MAR. '97	\$5,780 451

PRODUCT NAME PROCESSOR/CLOCK SPEED · BUS SPEED/RAM/HARD DRIVE/L2 CACHE	MOUSE RATING DATE RATED	PRICE MACBENCH 4.0 PROCESSOR SCORE
ALL PRODUCTS, CONFIGURATIONS, AND PRICES ARE AS OF MAY 15, 1997. SINGLE-PROCESSOR SYSTEMS ONLY.		

POWERCENTER Pro 210 604e/210 · 60MHz/32MB/2GB/1MB	#### JULY '97	\$2,525 568
POWERCENTER Pro 180 604e/180 · 60MHz/32MB/2GB/1MB	#### JULY '97	\$2,225 528
POWERCENTER 150 604/150 · 50MHz/16MB/1GB/512K	#### MAR. '97	\$1,495 307
POWERBASE 240 603e/240 · 40MHz/16MB/1.2GB/256K	#### MAR. '97	\$1,895 309
POWERBASE 200 603e/200 · 40MHz/16MB/1.2GB/256K	#### MAR. '97	\$1,495 285
POWERBASE 180 603e/180 · 40MHz/16MB/1.2GB/256K	#### MAR. '97	\$1,295 271

POWERTOOLS · 800-891-4307 · www.pwrtools.com

INFINITI 4200 604e/200 · 40MHz/NONE/NONE/NONE	NEW	\$1,399
INFINITI 3240 603e/240 · 40MHz/NONE/NONE/NONE	NEW	\$1,199
INFINITI 3200 603e/200 · 40MHz/NONE/NONE/NONE	NEW	\$999
INFINITI 3180 603e/180 · 40MHz/NONE/NONE/NONE	NEW	\$799

UMAX COMPUTER · 800-232-8629 · www.supermac.com

SUPERMAC 5900/250 604e/250 · 50MHz/32MB/2.1GB/512K	#### Aug. '97	\$4,899 528
SUPERMAC 5900/233 604e/233 · 47MHz/32MB/2.1GB/512K	#### Aug. '97	\$3,795 493
SUPERMAC 5900/225 604e/225 · 45MHz/32MB/2GB/512K	#### JAN. '97	\$3,495 410
SUPERMAC 5900/200 604e/200 · 50MHz/32MB/2GB/512K	#### JAN. '97	\$2,995 408
SUPERMAC 5900/180 604e/180 · 50MHz/32MB/2GB/512K	#### JAN. '97	\$2,795 377
SUPERMAC J700/180 604e/180 · 50MHz/24MB/2GB/512K	#### MAR. '97	\$1,995 449
SUPERMAC J700/150 604/150 · 50MHz/16MB/2GB/512K	#### JAN. '97	\$2,199 298
SUPERMAC C600/240 603e/240 · 40MHz/24MB/2GB/256K	#### FEB. '97	\$1,795 299
SUPERMAC C600/200 603e/200 · 40MHz/16MB/2GB/256K	#### MAR. '97	\$1,495 280
SUPERMAC C600/180 603e/180 · 40MHz/16MB/1.2GB/256K	#### MAR. '97	\$1,295 259
SUPERMAC C500i/180 603e/180 · 40MHz/16MB/1.2GB/256K	#### JUNE '97	\$1,195 268
SUPERMAC C500LT/180 603e/180 · 40MHz/16MB/1.2GB/256K	NEW	\$945
SUPERMAC C500LT/140 603e/140 · 40MHz/16MB/1.2GB/256K	NEW	\$899

PRODUCT NAME PROCESSOR/CLOCK SPEED · BUS SPEED/RAM/HARD DRIVE/L2 CACHE	MOUSE RATING DATE RATED	PRICE MACBENCH 4.0 PROCESSOR SCORE
ALL PRODUCTS, CONFIGURATIONS, AND PRICES ARE AS OF MAY 15, 1997. SINGLE-PROCESSOR SYSTEMS ONLY.		

Buyers Guide

21-Inch Monitors

Finally, monster Mac monitors are sharp, bright, and affordable.



IT'S THE AMERICAN WAY: Big is good, bigger is better, and biggest is best. Until recently, however, the biggest monitors available for your Mac — 21-inch behemoths — were rarely the best when it came to image quality. The technological challenge of tight focus over such a huge screen was simply too great — and in the rare cases when that challenge was met, the monitor's price soared beyond the reach of mere mortals.

Times have changed. If you're a graphic artist or a desktop publisher — or a spreadsheet jockey who can't stand scrolling — you'll be happy to hear that the latest generation of monster monitors is blessed with impressive image quality. In addition, stiff competition among vendors has pushed prices downward. If a 17-inch monitor is cramping your style, now's a good time to consider expanding your horizons to 21 inches.

To find out which monster monitor would be right for you, MacUser Labs evaluated a dozen 21-inch models. After you've examined our test results, check each monitor's features and read our recommendations — you're sure to be able to find the monitor that best suits your needs.

It's Getting Better All the Time

Using our precision monitor-testing facility, we ran an exhaustive battery of tests on each monitor. First, we used a Minolta Color Analyzer CA-100 to quantify color tracking and brightness and a Microvision SuperSpot 200 meter to determine MTF (*modulation transfer function* — a precise measure of sharpness). We then combined the results of a series of other tests with these to derive an overall image-quality score.

Although 21-inch monitors generally

offer the same resolutions, refresh rates, and other features of smaller monitors, controlling sharpness and color quality in their enormous CRTs (*cathode-ray tubes*) isn't simple. Fortunately, electron-gun technology is improving, and it shows — literally.

The overall winner in our tests was the Mitsubishi Diamond Pro 91TXM; in addition, it was among the top performers in each of the three subcategories shown here. We were also impressed with the image quality of the Philips Brilliance 201CS, the only multimedia (speaker-equipped) monitor in our roundup; the Sony Multiscan 20seII; and the ViewSonic PT813.

If you're simply looking for a big screen at an affordable price, you might be drawn to the ViewSonic G810, the lowest-priced model we looked at. Its image-quality scores left much to be desired, however. The two Panasonic monitors were also disappointing.

Controls, Warranties, and Stuff

Each monitor we tested had on-screen controls for tweaking such aspects of the



Testing Objectively • Features and image quality at a glance

Perception is highly individual: What looks like dark blue to you may look more like purple to someone else and to yet another person, it may look like the Mediterranean at midnight. That's why we perform objective benchmark tests when we evaluate monitors — *before* we turn our nitpicky

staff of experienced screen gazers loose.

We conducted all testing by using a Microvision SuperSpot 200 and a Minolta Color Analyzer CA-100. We performed all tests in a completely black room in order to prevent ambient light from interfering. Each monitor was set up for its optimal

combination of brightness and contrast.

The overall-image-quality score is a weighted average of tests measuring brightness, color accuracy, sharpness, and other characteristics. Color tracking is important to graphics pros. If you work with text or fine detail, you'll want to pay

Rating		List Price	Warranty (Parts, Labor, CRT)	Maximum Resolution	Vertical-Scan Rates	Horizontal-Scan Rates	Pitch	Free Mac Adapter
★★★★★	MITSUBISHI DIAMOND PRO 91TXM	\$1,649	3 YEARS	1,600 x 1,200 PIXELS @ 75 Hz	50 – 152 Hz	30 – 95 kHz	.28*	YES
★★★★	PHILIPS BRILLIANCE 201CS	\$2,199 [†]	3 YEARS	1,600 x 1,200 PIXELS @ 85 Hz	50 – 170 Hz	30 – 107 kHz	.22 [§]	NO
★★★★	SONY MULTISCAN 20seII	\$1,999	3 YEARS [‡]	1,280 x 1,024 PIXELS @ 75 Hz	48 – 160 Hz	30 – 96 kHz	.25*	YES
★★★★	VIEWSONIC PT813	\$1,795	3 YEARS	1,600 x 1,200 PIXELS @ 85 Hz	50 – 160 Hz	30 – 107 kHz	.28*	YES
★★★★	IIVAMA VISIONMASTER 500	\$1,799	3 YEARS	1,600 x 1,200 PIXELS @ 85 Hz	50 – 160 Hz	27 – 110 kHz	.27 [§]	NO
★★★★	NEC MULTISYNC P1150	\$1,879 [†]	3 YEARS	1,600 x 1,200 PIXELS @ 75 Hz	55 – 160 Hz	31 – 94 kHz	.28*	YES
★★★★	NOKIA 445Xi	\$1,899	3 YEARS	1,600 x 1,200 PIXELS @ 80 Hz	50 – 150 Hz	30 – 102 kHz	.22 [§]	NO
★★★★	NSA/HITACHI RASTEROPS MC 801HR	\$2,099	3 YEARS	1,600 x 1,200 PIXELS @ 76 Hz	52 – 160 Hz	31 – 96 kHz	.22 [§]	YES
★★★★	EIZO FLEXSCAN FX-E7	\$1,999	3 YEARS	1,600 x 1,200 PIXELS @ 75 Hz	50 – 160 Hz	30 – 95 kHz	.28 [§]	NO
★★★★	PANASONIC PANASYNC E21	\$1,649	3 YEARS	1,280 x 1,024 PIXELS @ 83 Hz	50 – 160 Hz	30 – 89 kHz	.25*	YES
★★★★	VIEWSONIC G810	\$1,495	3 YEARS	1,600 x 1,200 PIXELS @ 71 Hz	50 – 160 Hz	30 – 89 kHz	.25 [§]	YES
★★	PANASONIC PANASYNC PRO P21	\$1,849	3 YEARS	1,600 x 1,200 PIXELS @ 81 Hz	50 – 160 Hz	30 – 118 kHz	.25*	YES

MacUser BEST BUY

*Aperture grille

[†]Estimated street price

[§]Shadow mask

[‡]2 years for CRT

Listing is alphabetical within groups of equal mouse ratings.

- Mac compatibility and adapters
- replacement policy
- color-calibration options
- maximum possible resolution with your particular Mac
- antireflective screen coating



display as horizontal and vertical positioning, pincushioning and keystone, and color temperature. Although some monitors' controls can be somewhat arcane to the uninitiated, a quick read of each monitor's instruction manual will give you all the clues you need in order to

understand what the controls' icons stand for and how they work.

When a monitor breaks down or its array of controls can't correct obviously poor display quality, you want to rest assured that the vendor will fix your monitor, pronto. However, only Iiyama and ViewSonic offer a *cross-ship policy*—replacing the broken monitor with a loaner or exchange unit—for the duration of their warranties.

It doesn't matter how great a monitor's image quality or how easy the monitor is to use if you can't quickly and easily connect it to your Macintosh. See if the vendor provides a Macintosh adapter; if the vendor leaves it to the reseller to provide a Mac-compatible adapter, you may be in for a bit of frustrating experimentation before the monitor works at its best. Older Macs may combine the vertical and horizontal synchronization signals on the same wire as the green color signal. If you're shopping for a monitor to use with such a Mac, make sure the cable or the adapter can handle *sync on green*.

The Bottom Line

The Mitsubishi Diamond Pro 91TXM outperformed all the other monitors. Its superb image quality will be pleasing to your eyes, whether you're creating an illustration, producing a layout, working in multimedia, or crunching numbers in a spreadsheet. And at \$1,649, it'll please

Directory

Elizo Nanao Technologies

Cypress, CA
800-800-5202
310-431-5011
www.elizo.com

Iiyama

Warminster, PA
800-594-7476
215-957-6551
www.iiyama.com

Mitsubishi Electronics

Cypress, CA
800-843-2515
714-236-6166
www.mitsubishi-display.com

NEC Technologies

Itasca, IL
800-632-4636
630-775-7900
www.nec.com

Nokia

Sausalito, CA
800-296-6542
415-331-4244
www.nokia.com

NSA/Hitachi

Westwood, MA
800-672-4685
212-751-6302
www.nsa-hitachi.com

Panasonic

Secaucus, NJ
800-742-8086
201-348-7000
www.panasonic.com

Philips Consumer Electronics

Knoxville, TN
800-835-3506
423-521-4316
www.magnavox.com

Sony

San Jose, CA
800-352-7669
408-432-0190
www.sony.com/technology

ViewSonic

Walnut, CA
800-888-8583
909-869-7976
www.viewsonic.com

special attention to MTF (sharpness). If you want a monitor appropriate for the lighting in your work environment, look at the Brightness results. Acceptable scores are 90 percent or higher for color tracking, 50 or higher for MTF, and 20 footlamberts or more for brightness.

Overall Image Quality Score	Color Tracking Percentage	MTF (Sharpness) Score	Brightness Footlamberts
1.33	97	73	29
1.32	97	59	28
1.33	96	43	27
1.33	91	54	25
1.27	98	61	28
1.20	93	58	28
1.18	83	56	27
1.26	86	53	35
1.15	92	59	25
1.11	93	54	24
1.07	94	47	26
1.08	86	61	24

Best performer(s) in each test

your wallet as well. • Nathan Garcia and Roman Loyola

Both Nathan Garcia and MacUser Associate Editor Roman Loyola actually understand how a modulation-transfer-function score is derived. Testing for this report was managed by MacUser Labs Project Leader Rick Oldano.

EVER WISHED YOU HAD TIME to learn the *smart* way of doing something instead of doing it the only way you know how — or not doing it at all because the way you know is too frustrating? We have too — that's why we decided it was time to corral a group of the most knowledgeable Mac veterans around and make them reveal some of the secrets they learned

101

the hard way. The group included all-around Mac-system experts as well as specialists in the areas of the Internet, desktop publishing, and multimedia (see the "Meet the Experts" sidebar). Get wise to their hard-learned lessons the smart way — by studying these 101 short, information-packed tips.

COMPILED BY NANCY PETERSON

GENERAL PRODUCTIVITY TIPS

MAC SYSTEMS

1. Yes, you *can* install individual extensions and control panels in Mac OS 7.6, using the Mac OS 7.6 CD-ROM, but only if you use the well-hidden, custom 7.6 installer. Look for the installer (just called Installer) that's inside the Mac OS 7.6 folder (which is inside the Software Installers folder). Open that installer, and select Custom Install to pick and choose among control panels and extensions.
2. Reduce hard-disk clutter by getting rid of some common duplicate items. Obvious suspects are SimpleText and TeachText; other common multiple installs are EHelpengine, MoviePlayer, and Acrobat Reader. Use Find File to search for duplicates of these files, and then drag and drop the redundant files from the File Search window to the Trash.

6. Most modern Mac applications — but not all of them — are written to take advantage of the PowerPC processor. To identify PowerPC-native applications, click on the application's icon and press Command-I. If, at the bottom of the resulting dialog box, you see text that begins with *Note:*, the application is native.

7. Certain installers install a *fat* version of an application — containing both PowerPC and 680x0 code. Owners of 680x0 Macs who want to *trim down fat installs* can strip away their extra code with Hem Merriman's \$5 shareware program Code Trimmer 1.0.1 or with Aladdin's Spring Cleaning.

8. Don't drag fonts to the Fonts folder to install them. Instead, drag them to your closed System Folder. The Mac will **resolve conflicting font IDs** when fonts are installed this way.

EXPERT

Our panel of Mac industry experts

3. Here's how to find invisible files on your hard disk: Open Find File in the Finder, and while holding down the Option key, click and hold on the first pull-down menu. Select Visibility from that menu and Invisible from the second menu to view all your invisible files.

4. To speed up your Mac, try these tricks: Switch your monitor to the fewest colors your Mac allows; turn off the "Calculate folder sizes" and "Show disk info in header" options; turn virtual memory off, or set it to the amount of actual RAM plus 1 MB; and turn AppleTalk off (if you're not on a network or connected to a printer that needs it).

5. Here are a couple of handy ways to use aliases: Create an alias of your hard disk, and place the alias in your Apple Menu Items folder. Create an alias of the Trash, and place that alias in windows you use often.

9. Have more than 128 fonts, and your Mac won't take more? Remember, the limit is 128 font *suitcases*. If you need to squeeze in more fonts, just group them in suitcases. To do so, duplicate a suitcase that's in your Fonts folder, take it out of the System Folder, empty the suitcase, throw a bunch of your extra fonts in it, rename it, and then drag the suitcase back to your System Folder.

10. Our old friend Clarus the dogcow, in the page-setup dialog box of many programs, holds a secret page-measurement guide. When you click on Clarus' image, it reveals the paper size you're using and the size of your margins (in inches). Click again, and you get the same measurements in centimeters.

11. Game and multimedia CD-ROMs often won't let you use the program unless the disc is in the CD-ROM drive. You can sometimes

bypass the inserted-CD-ROM requirement by copying the entire CD-ROM to your hard disk (root level) and giving your hard disk the exact same name as the CD-ROM.

12. If you need to print a file from your PowerBook but are stuck in a hotel room without a printer, just fax the file to your hotel's fax machine, addressed to yourself.

WORD PROCESSING

13. Formatting header and footer text can be a pain, especially when you have to align several elements (such as current date, document name, and page number) across the width of the header or footer. Most people try tabs, but if your word processor supports tables, it's easier to insert a multicell, one-row table and enter the text elements into the cells. You can then apply formatting and alignment to the text in each cell.

ClarisWorks styles to your repertoire, choose Shortcuts (File: Shortcuts: Edit Shortcuts). Locate the two buttons for Uppercase (aA) and Lowercase (Aa), and add them to your Shortcuts palette with the Add button.

17. A common dilemma with ClarisWorks is how to create a new standard template — that is, how to change the word-processing-document defaults so a new document appears with specific font and margin settings. Open a new document, and choose the font you want all new documents to start with,

21. You're more likely to avoid hard-disk crashes if you run a full format on brand-new disks rather than just an initialization.

MAC TO PC

22. Once you've set it up, Apple's PC Exchange control panel is very obliging about making Mac applications open PC files when you click on them — except for those files you download from an online site to your startup disk. To make downloaded PC files open automatically with a double-click, follow these steps: Copy each file to a DOS-

TIPS



clues you in on 101 ways to work smarter, faster, and happier.

14. The easiest way to hasten Microsoft Word 6.0's startup is to severely prune the fonts you have installed in your system. Use a font-management utility such as Adobe Type Manager Deluxe 4.0, Symantec's Suitcase, or Alsoft's MasterJuggler to create a basic font subset just for the font-phobic Word.

15. The Fast Save option in Microsoft Word is turned on by default, but it can cause problems. Some applications can't open or import fast-saved Word documents. You can make Word files more compatible as follows: Choose Options from the Tools menu, click on the Save tab, and uncheck Allow Fast Saves.

16. ClarisWorks 4.0 added two new text styles you might never know about unless you examined Shortcuts available. The two styles — Uppercase and Lowercase — are not available from any menu. To add the new

plus the margins and any other settings you want preselected. Save the document as stationery in the ClarisWorks Stationery folder, using the name ClarisWorks WP Options.

STORAGE

18. If you buy a removable-media drive from SyQuest or Iomega, don't make this common mistake: formatting the cartridge that comes with the drive. That cartridge contains your only copy of the bundled software.

19. Set the Memory Control disk cache to at least 512K to speed disk reads and writes.

20. By now it's common knowledge that you can't assign a SCSI ID of 0 or 7 to your SCSI devices, since those IDs are already taken by the computer and the internal hard drive. But fewer folks know to stay away from SCSI-ID 3. That ID is used by the internal CD-ROM drive.

formatted floppy or removable cartridge, eject the disk, reinsert it, and then copy the file back to your hard disk. The PC file now has the Type and Creator codes needed to make your preferred application open it.

23. Trying to mount Windows 95 floppies? To mount 1.6-MB DMF (Distributed Media Format) Windows 95 floppies, you must use version 2.0.7 or later of Apple's PC Exchange (version 2.1.1 comes with Mac OS 7.6).

24. Have a Windows 95 file whose name has been mysteriously shortened to 31 characters? That's what happens if you use Software Architects' DOS Mounter 95 to mount a disk containing a Windows 95 file. You can view a Windows 95 file's full name (up to 253 characters) by opening the DOS Mounter 95 control panel and dragging your file to the File Information icon.

101 EXPERT TIPS

INTERNET TIPS

WEB BROWSERS

25. To open a hyperlink in a new window, using Microsoft Internet Explorer 3.0 or later, hold down the Command key while clicking on the link.

26. To download a hyperlink's contents to your hard disk, using either Netscape Navigator 3.0 or Internet Explorer, hold down the Option key while clicking on a link.

27. To make downloads more efficient in Internet Explorer, use the freeware Internet Config (available at www.macdownload.com) to set your helper application for FTP to Fetch or Anarchie. Then, Explorer will use one of those applications to download files via FTP, instead of trying to perform the download itself (and stalling your Web surfing in the process).

28. If you can operate an HTML editor, you can set up a local home page as a handy starting point within your browser. Use your HTML editor to create a page containing your favorite links, and save the page in your System Folder or Preferences folder. Use your browser's Open command to open that file. In Navigator, you then copy the file's URL and paste it into the Home Page Location box in the General Preferences dialog box. In Internet Explorer 3.0, go to the Home/Search Page preferences tab, select Home Page from the pop-up menu, and click on Use Current. Now this page will pop up whenever you open your browser. As your favorite links change, just update the HTML file.

29. Make bookmarking simpler with this trick: Click on a link, and hold the mouse button down to get a pop-up menu of options; from this menu, you can automatically add a link to your Bookmarks/Favorites list.

30. Type the URL `about:mozilla` into the Navigator Go To: field for a secret message from Navigator's developers.

31. To speed-load secure connections in Navigator, go to the Cache tab in the Network Preferences dialog box and check the Allow Persistent Caching of Pages Retrieved Through SSL box. Your secure pages will be

stored locally, which means they'll be only as secure as your hard disk is, but access will be dramatically faster.

32. If you've got lots of extra disk space, increase the size of your browser's disk cache (in Internet Explorer 3.0, Preferences: Advanced; in Navigator, Network Preferences: Cache) to make your Web surfing faster. The greater the number of graphics in the cache, the more pages you can return to without having to download graphics again.

33. Another way to prevent time-consuming graphics downloads is to turn off the automatic loading of images on pages (in Navigator, uncheck Options: Auto Load Images; in Internet Explorer 3.0, uncheck Preferences: Web Content: Show Pictures). You can still choose to download graphics on a case-by-case basis, as you need them. To load individual images, click on them, hold down the mouse button, and select the image-loading option. To load all the images on a page in Navigator, click on the image-loading button.

34. If you load a Web page in Navigator and you suspect it's an older version of that page, try this: Do a Super Reload (hold down the Option key, and choose View: Super Reload) to load the latest version of the page.

35. Want to type shorter URLs to tell your browser where to go? In Navigator and in

Internet Explorer 3.0.1, you can dispense with the `http://www.` and the `.com` in a standard commercial URL — when you type `macuser`, for example, you'll go right to `http://www.macuser.com`.

E-MAIL

36. Use Qualcomm Eudora Pro 3.1's Mailboxes window to organize your e-mail more easily. If you use lots of Eudora mailboxes, extend the Mailboxes window vertically so all your mailboxes and mailbox folders are visible. When you need to transfer mail among mailboxes or juggle mailboxes among folders, simply drag the messages or mailboxes to the appropriate icon in the window.

37. You can address mail more quickly to people in a particular company, or to those who use a particular ISP, by adding new items to Claris Eudora 2.0's Destinations pop-up menu. Simply specify the destination and domain name (for example, Earthlink and `earthlink.com`) in the Destinations setup window (Set Up: Destinations). Then, whenever you create a new message, you can choose the destination from the pop-up menu and you won't have to type the domain name.

38. If you check your e-mail from several locations, trying to keep downloaded messages together can become a problem. To save yourself from having to merge mailboxes by





hand after a road trip, choose your e-mail package's option for leaving mail on the server *before* retrieving e-mail remotely. At work, leave this option unchecked so that all your mail is downloaded to your primary Mac, even if you've been using a PowerBook to read mail during your trip.

39. If you filter messages based on the To: address to catch messages from a mailing list, some messages may not be filtered

properly in cases where a member of the list cc's the mailing list, rather than sending mail To: the list. To **avoid filtering problems**, set your filter to catch mail with any header that matches your mailing list's e-mail address (since the header includes the cc: field).

WEB-PAGE CREATION

40. Adobe PageMill 2.0 tables can often look misaligned because of the nonbreaking space the program inserts in any new table cell. To **prevent table-alignment problems**, do the following steps before entering new text in a cell: Place your cursor in the cell, select all (Command-A), and press Delete before entering your new text. If you've already placed items in the cell, put your cursor in front of the first character in your cell and press Delete to remove the nonbreaking space.

41. In Claris Home Page 1.0, hold down the Option key and click on the File menu to find the **hidden Remote feature**, which lets you connect to your remote Web server via FTP in order to upload and download files.

42. Even if you're a skilled Web author, you can **place images more quickly** by taking advantage of BBEdit 4.0's built-in HTML extensions. Click on the File button in the Image-extension dialog box (Command-Control-I) to pick the image you want to place — you can easily set image options such as having text display instead of the image, plus BBEdit automatically measures the height and width of the placed image.

43. If you're **picking background or text colors**, use only colors from the Browser-safe 216-color palette (available at www.lynda.com/hex.html). Any color with the pairs 00, 33, 66, 99, CC, and FF will work — for example, #003300, #009999, and #FFFFFF. Other colors will dither on many monitors and will make your text unreadable.

44. If you're not sure **whether to use GIF or JPEG**, apply this rule: If your graphic is simple line art, is a screen shot, contains transparent areas, or needs to be animated, GIF is your format. If it's a photograph, go with JPEG.

WEB-SITE MANAGEMENT

45. Before you create the first file for your Web site, do some **advance site planning**:

Map out what your site will contain — both at launch and down the road — and create a folder hierarchy for your files. The last thing you want is to end up with one directory containing 500 files, so create a folder for your images (with subfolders inside it as needed) as well as folders for various sections of your Web site. This quick organizational step will make it much easier to find your files later.

46. To **keep your Web site backed up** and to provide an up-to-date version suitable for editing and experimentation, keep a copy of your site on a machine other than your Web server. Use file-synchronization software such as Leader Technologies' PowerMerge to keep the live copy and the backup up-to-date.

47. To **create easy-to-update Web sites**, always use relative — rather than absolute — links within the HTML pages that make up your site. Absolute links, which reference files by specifying exact pathnames, break if any folder or disk name within the path changes. Relative links, in which the path to the page you're pointing to is *relative* to the page doing the pointing, minimize this problem and make it easier for you to update links.

48. When naming files and folders within your Web site, **use short, meaningful names** that will stand the test of time. If you get clever and, say, name the folder containing your images after the latest dance craze, you may have trouble finding your corporate logo once the Macarena is nothing more than a distant memory.

49. **Prevent HTML misunderstandings** by creating and editing all the Web pages on your site with the same HTML editor. Each application adds comments and tags in a slightly different way and may not recognize another program's elements.

50. If you manage a site containing hundreds or thousands of small HTML files, store your backup copy of the site on a small (less than 500 MB) disk drive. Since files stored on larger disks eat up more disk space per file, using a smaller disk will **save disk space — and money**, if you're paying for server space by the megabyte. Plus, it will give you a better idea of how large your site really is, before you upload it to a server.



Bookmark

For more Mac tips, check out these related Internet sites:

ZDNet Mac Tip of the Day
A regularly updated list of Mac tips.
www.zdnet.com/mac/tips.html

MacFixIt
Mac troubleshooting tips and hints from Ted Landau, *MacUser* contributing editor and author of *Sad Macs, Bombs, and Other Disasters*.
www.macfixit.com

MacIntouch Home Page
News about current problems and solutions in Mac computing, from *MacWEEK* contributing editor Ric Ford.
www.macintouch.com

Or, for one-click access to these and other sites, go to www.macuser.com/bookmarks.

101 EXPERT TIPS

DESKTOP-PUBLISHING TIPS

PAGE LAYOUT

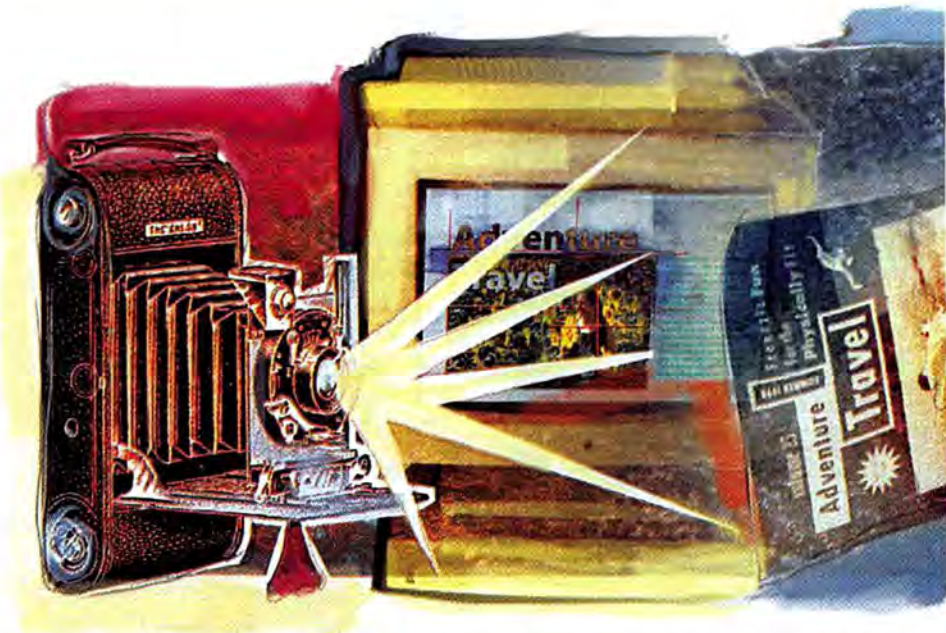
51. To get rid of unwanted guidelines in QuarkXPress 3.x, you don't have to drag them back toward the originating ruler. Instead, grab a guide near its end and drag it to whichever ruler is closer. For instance, drag the left end of a horizontal guide to the vertical ruler. When you release the mouse button, the guide will be gone. To eliminate all horizontal or vertical guides on a page or spread, hold down the Option key and click on the appropriate ruler.

52. Instead of fussing manually with the extra-narrow column that often results when you wrap text around a picture in QuarkXPress, automate your column tweaking by creating custom Hyphenation & Justification settings (H&Js, accessible from the Edit menu) that apply several adjustments simultaneously. Create a set, for instance, to tighten the character spacing slightly, allow more consecutive hyphens, and break words after only two characters.

53. Sometimes QuarkXPress throws text in adjacent pages or columns out of alignment by shifting the text downward slightly in just one page or column. Avoid alignment problems such as this by specifying the following Text Box settings (Item: Text Box Specifications): Set the First Baseline offset equal to the size of the largest type in your running text; then set the Origin Down value to the same amount, as compensation. If you set up your text boxes in this way on the master page, then all your text will remain aligned.

54. Save mousing when you want to see a custom view of a document page in QuarkXPress — press Control-V to highlight the small View Percent field in the lower left corner of the screen so that you can quickly type in a new value. Entering T in the field shows you thumbnails of your pages.

55. The easiest way to ensure unbroken headline words is to turn off hyphenation in the style sheet you use for headlines. In QuarkXPress, uncheck Auto Hyphenation in the Hyphenation & Justification dialog box (Edit: H&Js). In Adobe PageMaker 6.5, either turn hyphenation off or — to be more



flexible — select Manual Only (in the Hyphenation dialog box).

56. You can quickly link text blocks in Adobe PageMaker as follows: Drag a set of them into a vertical stack, in sequence, with the first block at the bottom; select the whole pile with the Marquee tool; cut or copy; switch to the Text tool; and paste. Voilà! One new block with all the text in order.

57. You can make drop caps from ordinary text in PageMaker 6.0.1 or later by turning one or more characters into a graphic — a useful trick if you need to include more than one character, such as a quotation mark and a letter, in the drop cap. To create such a drop cap, use the Group function (Command-G) to turn your text into a graphic (even if it's only one letter) and then apply a text wrap to the graphic. Done. Unfortunately, you can't then group the altered characters with running text.

58. To temporarily view a compressed image at full resolution in PageMaker, press the Control key as you take any action that results in a screen redraw (selecting Display Master Items in the View menu, for example).

59. PageMaker runs diagnostic tests when converting files from one format to another. You can sometimes take advantage of this testing process to salvage a damaged file, as

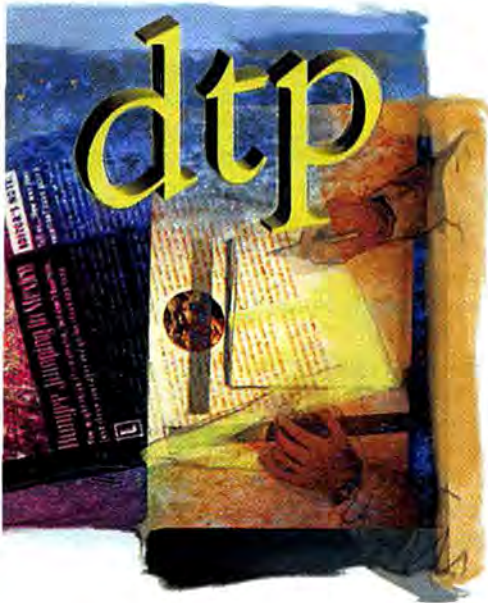
long as it's still readable and was created in version 6. Here's how: Use Save As to save a copy in the format of an earlier version of PageMaker. Then open the copy again in your current version of the program. Any file that has crashed more than once is a good candidate for this trick.

DRAWING AND ILLUSTRATION

60. If you're using Adobe Photoshop filters to alter rasterized images within Adobe Illustrator 7.0 or Macromedia FreeHand 7 and you also have Photoshop installed, you probably have some redundant files. The Photoshop filters are supposed to reside in Illustrator's Plug-Ins folder and FreeHand's Macromedia Xtras folder as well as in Photoshop's Plug-Ins folder, but you can use aliases to keep your filter footprint slim. Just put the actual filter files in Photoshop's Plug-Ins folder, and put aliases of the filters in the appropriate folder for your drawing package.

61. Need to reduce a stroke weight by a factor of 3? Quadruple a font size? Avoid math burnout by letting your drawing package do the calculating for you. In numerical fields, FreeHand and Illustrator understand mathematical operations. Just type in an operator (*, /, +, or -) and a number, and the application will recalculate the value for the field.

62. Tired of dragging out Illustrator 7.0's Color palette to switch among RGB,



Grayscale, CMYK, and HSB color modes? Try holding down the Shift key and clicking on the Color palette's color ramp to cycle through color-mode choices.

63. Here's how to duplicate layer contents quickly in Illustrator 7.0: Click on the layer's name in the Layers palette, and drag the name to the New Layer icon. Now, all items in the source layer will be duplicated in a new layer.

64. If you'd like a quick way to access several color swatches in Illustrator 7.0 — for instance, if you have several clients, each of whom requires a unique set of colors, patterns, and gradients — try this: For each client, create an Illustrator file that contains all the appropriate swatches. Save each file, using the name of the client, and store them in Illustrator's Swatch folder. The next time you launch Illustrator, those filenames will appear as selections in the Swatch library.

65. You probably already know that if you double-click on a gradient with the Eyedropper tool in Illustrator 7.0, the entire gradient is copied to all selected objects. Here's a twist: To copy just one pixel's color from within the gradient, hold down the Shift key while you double-click.

66. Illustrator provides simple but little-known shortcuts that let you hide or lock

unselected objects (that is, everything except selected objects). Simply press Command-Option-U or Command-Option-L, respectively in version 7 (Command-Option-3 or Command-Option-1 in version 6).

67. Trying to select a group of objects in FreeHand can be tough if it's somewhere within a hierarchy of larger and smaller groups. Sometimes the best way is to approach it from an easier-to-select subgroup. If you press the ~ (tilde) key when anything is selected in a subgroup, FreeHand will select the next group up in the hierarchy.

68. In FreeHand, these key combinations can help you keep objects lined up: Shift-click on a selected object to constrain its movement to either a horizontal or a vertical straight line; Shift-Option-click on an object to duplicate it in a straight line.

69. Here's how to lose the white rectangle that appears around an object you've converted from vector-based to bitmapped in FreeHand: Put the bitmapped object on a white background, double-click on the Trace tool, and select Outer Edge from the pop-up menu. Next, using the Trace tool, click and drag a rectangle around the bitmap; FreeHand will then outline the bitmap. Select the bitmap, cut it, and then select the outline path. Choose Paste Inside from the Edit menu in order to drop the bitmap into the outline. Position the bitmap exactly where you want it; set the stroke on the outline path to None; and then group the outline and the bitmap so that they'll move as a unit, ready to place anywhere.

70. Create funky, 3-D-like gradient effects by employing FreeHand to blend multiple objects. To make a blending of 2-D objects appear to protrude toward the viewer as a single 3-D object, keep the darkest, largest source object on the bottom layer, immediately above the background. Place another, smaller and lighter, object with the same number of anchor points just above that. Rotate it a tad to get a twisting effect. Put the smallest, most light-colored object on the top layer. Blend all the shapes. Include the background in the blend if you would like to create the shadowy effect that's illustrated here (see Figure 1).

IMAGE EDITING

71. Don't use removable media as Photoshop scratch disks. Not only do some forms of removable media have slow access speeds but they're also not built for constant reads and writes. Instead, use a fixed hard disk — preferably an optimized and defragmented one — for a more efficient scratch disk.

72. In Photoshop 4.0, every time you add text (using the Text tool), you add another layer — and extra layers increase file size, both on disk and in RAM. To prevent added text from fattening files, use the Merge Layers command (Command-E) to merge recently created, adjacent text layers whenever you can.

73. The Info window in Photoshop often goes underused. You can use it not only to find out color values but also to get image details such as rescaling and rotation values

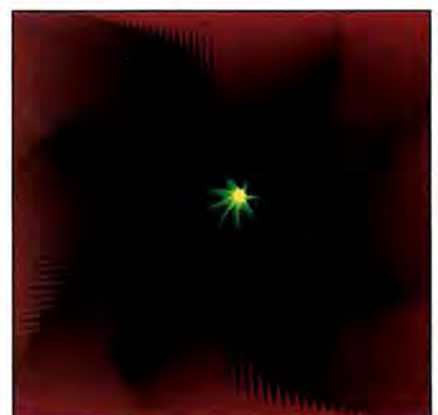


Figure 1

and the dimensions of a selection area. And when you're using the Free Transform tool, the Info window can display the scaling and rotation values for Free Transform operations.

74. Viewing layer and channel thumbnails slows Photoshop, because the program has to draw each thumbnail after every operation. You can **speed up Photoshop** by turning thumbnails off if you don't really need them; use the Palette options available on the Layers palette pop-up menu.

75. If you need to switch often between tool-specific options in Photoshop 4.0 — for instance, between next and previous brushes for the Paintbrush tool — use this **shortcut for switching tool options**: Control-click in the active window, and you'll get a pop-up menu that shows a few of the most crucial options for your current tool.

76. Need to **turn down saturation** on out-of-gamut colors for print reproduction without desaturating your midrange tones? You can use the Photoshop Color Range feature (Select: Color Range) to automatically select out-of-gamut colors. Then use the Hue/Saturation command (Image: Adjust: Hue/Saturation) to desaturate those unprintable colors while leaving the rest of your image intact.

77. Photoshop 4.0's new, undocumented Big Data feature lets you retain more information about an image than you previously could — and sometimes more than you want it to, such as layer information that's beyond an image's canvas. Because you don't see this information, you can forget it's there and end up with a lot of surplus data. To **prevent extra data retention**, select all (Command-A) and use the Crop command (Image: Crop).

78. If you hold down the Shift key while dragging and dropping a layer from one Photoshop window to another, you can **automatically center the layer** in the receiving window. If you want the layer to be centered in a specific area of the destination file, then select the area and hold down the Shift key while dragging and dropping.

79. Although Photoshop 4.0's new Navigator feature lets you view an image at odd zoom ratios, such as 33 percent, be sure that you **don't edit at odd zoom ratios** — especially with manual tools, such as the Dodge/Burn and cloning tools. Photoshop's method of interpolating pixels at uneven magnifications makes it difficult for you to see what you're really doing to the image. Instead, limit your editing tasks to views at even zoom

increments, such as 50 percent, 100 percent, and 200 percent.

SCANNERS

80. If your scanning application can correct color and sharpness, **maximize scanning accuracy** by having the software make these corrections as you scan, rather than making them yourself afterward.

81. **Save scanning time** by thinking about the image's destination before you scan. For instance, if the image will end up on a Web site, you need to scan it at only 72 dpi, and 200 dpi is sufficient for a newsletter image.

82. Your Web authoring program, word processor, and page-layout program may not be able to read a scanner's proprietary file format. To **prevent file-reading problems**, remember to save scanned images in formats that all the destination applications can read.

83. To **view scanned-image colors accurately**, make sure your monitor is set to a color temperature of 5,000 degrees Kelvin (the color temperature for daylight and the standard color temperature for color-matching operations). Most monitors have on-screen controls that let you set the color temperature to 5,000, 6,500, or 9,300 degrees; the latter two settings provide whiter whites on-screen, but they detract from color accuracy.

DIGITAL CAMERAS

84. The viewfinder on most digital cameras does not have you look through the lens to capture an image — so it's easy to forget to remove the lens cap. **Don't waste shots**: Be sure to check that the cap is off before you snap.

85. Be especially careful about light reflections when taking photos with digital cameras. **Avoid specular highlights** — bright light reflecting off a highly reflective surface — by moving the light, camera, or subject as needed. Such highlights tend to overload the CCD elements in digital cameras and create clumps of blown-out pixels — an effect that's much easier to prevent than to correct later.

86. Many digital cameras can create *Christmas-tree* artifacts — unanticipated color-fringing artifacts that resemble Christmas-tree lights — in photos. An easy way to **eliminate color artifacts** such as these is to use Camera Bits' Quantum Mechanic Photoshop plug-in (a demo is downloadable from www.camerabits.com).

87. Downloading images from a digital camera to a computer can take several minutes and consume a significant amount of power. **Conserve your batteries** by using the camera's AC power adapter (if it has one) during downloads.

Meet the Experts

David Biedny and Nathan Moody, of IDIG, a polymedia design firm, contributed the image-editing tips and several multimedia-authoring tips.

Christopher Breen, *MacUser* contributing editor and Help Folder columnist, contributed the Mac-system tips.

Shelly Brisbin, ten-year online veteran and current Webmaster of a large, music-oriented Web site, contributed the e-mail and Web-site-management tips.

Shelley Cryan, *MacUser* contributing editor and professional illustrator, contributed the drawing and illustration tips.

Kristina De Nike, test manager for MacUser Labs, contributed the storage tips.

John Dunning, interface designer at mFactory, contributed the tip about multimedia authoring in mTropolis.

Andrew Gore, editor of *MacUser* and coauthor of *PowerBook: The Digital Nomad's Guide*, contributed the PowerBook tip.

Kennedy Grey, Online Media Director for the Fast Forward Media Lab in Seattle, contributed the desktop-video tips.

Ben Long, *MacWEEK* contributing editor and professional illustrator, contributed the 3-D tips.

Rick Oldano, MacUser Labs project leader, contributed the scanner and digital-camera tips.

John Rizzo, author of *How Macs Work* and *MacUser Guide to Connectivity*, contributed the Mac-to-PC tips.

Jason Snell, MacUser Online senior editor, contributed the Web-browser and Web-page-creation tips.

Kathleen Tinkel, *MacWEEK* columnist and long-time writer on graphic-design and prepress topics, contributed the page-layout tips.

Gregory Wasson, *MacUser* contributing editor and freelance technical writer, contributed the word-processing tips.

101 EXPERT TIPS

MULTIMEDIA TIPS

3-D

88. To create malleable, natural-looking 3-D objects, try these tips: First, always model a new object centered on the origin, to ensure that lathes, mirrors, and other operations function properly; also, bevel all the edges — no real-world object has perfect edges.

89. To make your lighting realistic, never use default light settings in MetaTools Infini-D or Strata Studio Pro (both programs default to 100-percent white light, which doesn't exist). Instead, lower the light intensity and add a slight blue tint. Also, always add a tiny bit of fog to create a depth-of-field effect and to soften hard highlights and edges.

90. Be careful with overlapping light sources. Overlapping lights should not combine to create a light with an intensity greater than 1. If your lights overlap, either lower their intensity or undo the overlap by tweaking their drop-off settings.

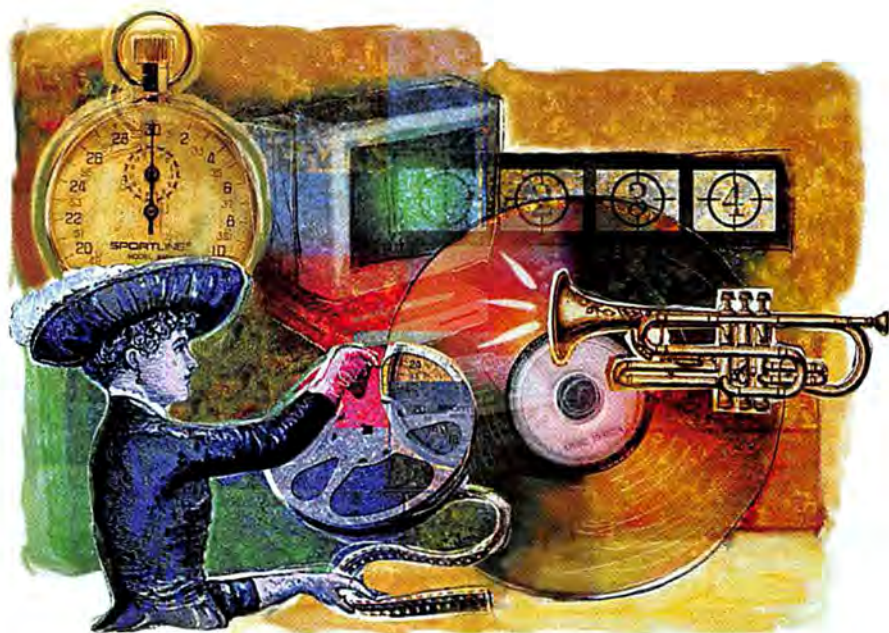
91. Here's a way to shorten rendering times: If a background isn't going to change, render it once and use Photoshop or After Effects to composite it as needed with changing foreground objects (and their shadows).

92. Create effects more easily by adding them in postproduction, not modeling them in 3-D. Smoke and fire effects are easier to create by compositing renderings with pre-shot video of smoke and flames, and it can be easier to create deformations with a postproduction distortion effect such as The Valis Group's MetaFlo' than to model the effect.

DESKTOP VIDEO

93. A quick way to turn a movie into a Web file (RealMedia or VDOLive format) is to capture and edit your video with Adobe Premiere and export it into Terran Interactive's Media Cleaner Pro 2.0. Since Media Cleaner Pro recognizes native Premiere files, you won't need to render your footage as a stand-alone QuickTime movie before importing it.

94. You can have Media Cleaner Pro batch-compress (or "flatten") movies — up to 2,000 of them — while you're away from your computer. Simply by dragging and dropping



movies onto the Media Cleaner Pro program icon, you can create a batch.

95. If you need to accommodate 8- or 16-bit video playback, use Media Cleaner Pro to generate a custom 8- or 16-bit palette for a movie. You can then attach the custom palette to 24-bit video to ensure optimal playback on an 8- or 16-bit monitor.

96. The easiest way to make a fast-moving music video in Premiere 4.2 is to sync clips to markers set on the drum beat of a song. You can do so by playing the song file you're using for the video and adding markers on the beat (using the + key) as the music plays. The markers will show up as blue arrows in the movie-sequencer window; you can then easily align your video clips to these markers.

97. Having trouble trying to key a title clearly in front of an image in Premiere? The problem may be that titles created within the program default to using a white alpha matte behind the letters. To fix this problem, simply put your title clip on the superimpose channel and select White Alpha Matte in the Transparency Settings window for the text. The title will then appear perfectly keyed over your movie after rendering.


MULTIMEDIA AUTHORIZING

98. Even though Macromedia Director 5.0 lets you change 8-bit-color palettes during an

animation, be aware that doing so might make your Director (or Macromedia Shockwave) movie crash a large number of Windows-based machines. To prevent palette-provoked crashes, try to get all your images to look good with a single color palette. Then set that palette at the beginning of your Director document, and leave it be.

99. In order to optimize playback speed for QuickTime movies imported into Director, make sure the Direct to Stage option (in the Cast Member Properties dialog box) is checked. But be aware that you can't place any animated objects in front of the QuickTime movie when this option is set.

100. The vector-based shape tools in Director's main Tools palette let you create memory-conserving visual elements, since vector-based graphics typically take up much less memory than bitmapped graphics. Try using vector-based graphics as simple animated shapes or as backdrops for text blocks on complex backgrounds.

101. Plan ahead in mFactory's mTropolis by aliasing behaviors rather than individual modifiers. Instead of creating a messenger, aliasing it, and dropping it on each element, put the messenger inside a behavior modifier that you then alias. To add to the behavior later, simply drop another modifier into it — all the alias copies will be updated. 



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CIRCLE 43 ON READER SERVICE CARD



A Power Mac beats MMX Pentium systems in a Photoshop showdown.

By Jeffy Milstead

Pentium II

The Empire Strikes Out



IT'S ALMOST ENOUGH to give even the most faithful Macintosh purist some pause: Wintel PCs (running Microsoft Windows 95 on Intel hardware) have started to make inroads into two of the Mac's traditional strongholds, prepress and image processing. Furthermore, Intel's much-ballyhooed MMX technology claims to add a host of funky new multimedia capabilities to Intel's Pentium-processor family. Has the time finally come for you to consider making a PC your next content-creation platform?

Not yet. After conducting a battery of real-world tests with that workhorse of the prepress trade, Adobe Photoshop, we found that the Mac OS running on a PowerPC-based machine remains faster overall than a Wintel machine, even one with MMX. In fact, our tests show that although MMX is great news for PC users, it merely pushes them within reach of the horsepower built into today's PowerPC systems. A 200-MHz PowerPC 604e-equipped Power Mac beat a system based

on a 200-MHz MMX-equipped Pentium in the vast majority of tests. That's not terribly surprising, because a straight Pentium processor is roughly equivalent to a PowerPC 603e, the 604e's less powerful sibling. But the 200-MHz Power Mac also beat a latest-generation 266-MHz Pentium II system. (The Pentium II is an MMX-equipped successor to the 604e-equivalent Pentium Pro chip.) And the 200-MHz PowerPC chip is getting long in the tooth; 225- and 233-MHz successors are widely available, and systems based on the 250-MHz PowerPC 604e are trickling out to customers.

The Photoshop Proving Ground

We chose to run tests with Photoshop not just because it's a staple for content creators designing for print, the Web, or interactive CD-ROM but also because it's one of the first MMX-enabled programs available to PC users. Application software must be rewritten to take advantage of MMX, similarly to (but much more

simply than) the way Mac OS applications had to be rewritten to exploit the muscle of PowerPC.

MMX, which stands for *multimedia extensions*, is essentially an upgrade to the Pentium that allows the chip to execute 57 additional instructions. These instructions are specifically geared for multimedia and image-processing tasks that required numerous instructions on older x86 chips. These 57 instructions share logical addresses with the Pentium's standard floating-point instructions, and performing tasks that use MMX as well as floating-point instructions forces the Pentium to perform a wasteful context-switching operation. Excessive context switching can erode MMX's significant speed benefits. The Pentium II's design avoids this by eliminating context switching.

We tested Photoshop 4.0 for Windows, using version 4.0.1 of Adobe's MMX plug-in. The tests we performed comprised a variety of tasks that Photoshop pros perform many times each day. These tasks include opening and saving files; rotating images; switching color modes; and applying effects, including the essential Gaussian Blur and Unsharp Mask filters (see the "Testing Their Mettle" figure).

We ran two sets of tests — one operating on a large, 50-MB file guaranteed to exercise both the processing and the hard-disk subsystems of each system and the other, smaller set, using a 10-MB file. Choosing a smaller file meant that it would fit better into the approximately 40 MB of RAM we assigned to Photoshop and would stress the memory and CPU components of the system rather than the connected drives. We also timed how long it took to open a 2.5-MB JPEG image.

Apples to . . . Apples

For our basic comparison, we chose three high-end systems: an Apple Power Mac 9500 with a 200-MHz PowerPC 604e; a Gateway 2000 G5-200, built around a 200-MHz Pentium equipped with MMX; and a Gateway 2000 G6-266, built around a 266-MHz Pentium II. The Power Mac's system-bus speed was 50 MHz; the PCs had 66-MHz buses.

To make the playing field as level as possible, we configured these systems with identical Seagate ST343171W drives connected via Adaptec 2940W SCSI adapters. The display cards we used on the test systems — an ATI 3D Expression on the PCs and an ATI Xclaim VR on the Mac — each contained 4 MB of graphics RAM and used the ATI Rage II graphics-controller chip. All systems were outfitted with 64 MB of DRAM, although the Pentium system used synchronous DRAM (SDRAM), a faster type of memory that's not supported by the Power Mac 9500/200 and that wasn't available for the Pentium II system we tested.

Clocking the Future

To get a glimpse of the Mac OS' future hardware, we also tested prototype IBM Long Trail PowerPC Platform (PPCP) systems, one with a 200-MHz PowerPC 604e and the other with a 233-MHz PowerPC 604e. (Long Trail is a reference design that IBM plans to license to other companies but will not be selling under the IBM name.) The Xclaim VR display card and the Adaptec SCSI card were not compatible with the IBM Long Trail prototype at test time, so we substituted ATI's Xclaim GA card and StreamLogic's SCSI JackHammer adapter.

Windows 95 was installed on the PCs and Mac OS 7.6 on the PowerPC systems. (Adobe's Photoshop plug-in for MMX was running poorly under Windows NT at the time of our testing. Adobe has since corrected the problem and reports an overall speed boost of about 15 percent under NT as compared to Windows 95. We were unable to evaluate those results by press time but will do so in an upcoming issue.)

And the Winner Is . . .

The results of the 200-MHz Pentium tests were encouraging for Mac loyalists. In 16 of the 17 tests, the Power Mac 9500/200 beat the stock 200-MHz MMX-equipped Pentium system. In 14 of these, the Power Mac 9500/200 was more than 19 percent to a maximum of 82 percent faster. In 2 of the 3 remaining tests — Despeckle and Rotate .3 degrees — the Power Mac won by a margin of less than 5 percent. In the one test in which the 200-MHz MMX Pentium system did the best — applying a Gaussian Blur with a processor-crunching (and somewhat impractical) radius of 100 pixels — the Pentium machine was 90 percent faster than the Power Mac.

The Power Mac's lead narrowed when it was pitted against the Pentium II machine. The 200-MHz Apple system beat the 266-MHz Pentium II computer, with its 33-percent-faster system bus, in 10 of the 17 tests, but in 6 of these — including the important Unsharp Mask and small-radius Gaussian Blur tests — the winning margin was less than 15 percent. Of the 7 tests the Pentium II system won, the PowerPC machine lost by 15 percent or less in 5 of them. The remaining 2 tests were decisive victories for the Pentium II system: It was 36 percent faster than the Power Mac for applying a 15-pixel feathering effect, and in the 100-pixel Gaussian Blur test, it was a whopping 168 percent faster. The enormous difference in the results for this Gaussian Blur test is a result of optimizations in the Windows version of Photoshop that don't exist in the Mac OS version.

PCs have traditionally had faster hard-disk subsystems compared to Macs. But in fact, with all platforms on an equal footing

Testing Their Mettle • Photoshop speed-test results for PowerPC systems and MMX PCs

To compare the speed of PCs that use Intel's latest MMX Pentium chips with that of PowerPC systems, we performed a battery of real-world Photoshop tests. The test platforms were

configured as similarly as possible, each having 64 MB of RAM and identical Wide SCSI drives. The IBM Long Trail systems required a different graphics card, for compatibility reasons, and ran

	50-MB PHOTOSHOP FILE										
	Open File	Rotate 90°									
	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds
GATEWAY 2000 G6-266 (266-MHz PENTIUM II)	23.4	53.9	78.6	15.1	84.2	94.2	97.2				
GATEWAY 2000 G5-200 (200-MHz MMX PENTIUM)	28.4	55.1	88.4	29.8	89.6	120.1	135.4				
APPLE POWER MAC 9500/200	20.7	43.8	86.4	20.5	75.1	88.8	92.2				
IBM LONG TRAIL 233/66	22.9	43.1	80.9	22.5	63.8	82.8	82.8				
IBM LONG TRAIL 200/66	21.8	43.3	83.7	24.1	64.0	77.1	81.4				

*Test not run

■ Best performer in each test

Powering Up • Mac OS-hardware enhancements

Just because the Mac OS/PowerPC tag team fares well against MMX Pentium PCs, don't think that PowerPC manufacturers Motorola and IBM, or Apple and its licensees, are sitting on their laurels. Even as Intel trumpets the Pentium's new MMX multimedia capabilities, Apple and company are exploring ways to boost the Mac OS' handling of complex data types.

For starters, the Apple/IBM/Motorola (AIM) alliance has announced the as-yet-unnamed G3 line — G3 merely stands for "generation 3." Chips from this next-generation PowerPC family should be making their way into shipping Mac OS systems later this year. They were designed from the start to run the Mac OS — fast.

The first G3 chip, code-named Arthur, is pin-compatible with the PowerPC 603e, but it will leave even the more powerful PowerPC 604e chips of today in the dust. Arthur will offer a caching scheme far superior to those of today's PowerPC chips and will be able to run at higher clock speeds (250 MHz for starters, up to a projected 400 MHz). Motorola predicts that we should expect a speed improvement of about 45 percent over PowerPC 604e chips running at the same clock speed and an 80-to-90-percent improvement over comparably clocked PowerPC 603e chips. We can only fantasize about the caliber of

performance we can expect from the G3-class successor to today's PowerPC 604e.

Also developing on the processor front is Exponential's family of superhigh-speed processors for the Mac OS. Exponential chips running at clock speeds of 400+ MHz are nearing readiness for market. Like today's fastest PowerPC chips, they'll run on existing systems, but they will probably require faster boards and components in order to fully exercise their formidable muscle. *[Editor's note: As this article went to press, Exponential announced that it was shutting down, having lost funding after its chips failed to achieve predicted speeds.]*

One of the most intriguing avenues that Apple is exploring concerns media processors, a relatively new class of coprocessor chips designed specifically for multimedia functions. Media processors, which promise to be available on PCI add-on cards, and eventually on Mac OS-system logic boards, are essentially programmable successors to digital signal processors (DSPs) like those built into the old Quadra 840AV and Centris 660AV. But whereas earlier DSPs were designed for narrowly defined tasks, such as audio and video digitization, media processors can load multiple instruction sets in order to perform a much wider variety of tasks.

Programming for DSPs is a fairly

complex business and programming for media processors won't be much different, but Apple says that it aims to simplify the process for Mac OS developers by offering system-software-level support for media processors. Apple hopes to make cross-platform media-processor support painless for software developers by designing future versions of QuickTime so that any application written for the QuickTime Media Layer (QTML) will automatically take advantage of media processors if they are present on the host computer. QTML comprises video and audio compression, 3-D rendering via QuickDraw 3D, QuickTime VR virtual-reality software, and MIDI support.

Apple says that it is examining several media processors, but it's not saying which one it will definitely support. One certain candidate is Philips' TriMedia TM-1000 (formerly TM-1), a chip that's expected to cost about \$50 in bulk and that can be adapted to decode MPEG-1 and MPEG-2 video and AC-3 sound for DVD playback and compression of video and audio for teleconferencing, voice-mail, software-modem applications, and audio synthesis.

That means that, for example, you could actually play Marathon Infinity, surf the Web, and play a background MIDI file while participating in a videoconference.

— Jim Shatz-Akin

and using the same storage components, the Mac was no slouch. Hard-drive-intensive operations, such as opening our 50-MB test image and rotating it 90 degrees, were faster on the Power Mac than on either of the Pentium machines.

A comparison of the results with those of future machines was even more heartening for Mac fans. Not only can the Mac OS systems of today hold their own against those based on Intel's latest chips, but our results also revealed the clear — albeit uneven — benefit of future Mac OS-based PPCP machines.

Faster SDRAM and a faster system bus (66 MHz, compared to 50 MHz on the Power Mac) powered the prototype Long Trail machines to test results that were often significantly better than those of the Power Mac 9500/200. The 200-MHz Long Trail

system outran the Power Mac in 9 of our 15 tests. (Time constraints forced us to eliminate 2 tests for each of the Long Trail systems.) The 233-MHz Long Trail system beat the Power Mac in 10 of the 15 tests.

In several instances, the PPCP systems were oddly, but repeatedly, slower than the Apple machine, and in a few cases, the 233-MHz version of the Long Trail system was slower than the 200-MHz version. This uneven performance may have been because these machines were prototypes running an unreleased version of Mac OS 7.6.

There was also one puzzling instance — our Despeckle test — in which the machine with the 266-MHz Pentium II was slower than that with the 200-MHz MMX-equipped Pentium. One

Mac OS 7.6 with version 1.0 of a PPCP-specific enabler. The Apple Power Mac 9500/200 was running Mac OS 7.6. Both PCs used Windows 95 with default system settings. Photoshop 4.0 on the

Mac was set to use 41,273K of RAM. On the PC, Photoshop 4.0 was set to its default available memory (75 percent). Preview saving was disabled. Test times include a complete screen redraw.

Gaussian Blur (1 pixel) Seconds	Gaussian Blur (2.3 pixels) Seconds	Gaussian Blur (100 pixels) Seconds	Despeckle Seconds	RGB->CMYK Seconds	Save CMYK Seconds	Reduce 50% Seconds	10-MB PHOTOSHOP FILE Lighting Effects Seconds	2.5-MB JPEG FILE Open JPEG Seconds
78.7	88.5	230.5	92.5	75.5	95.7	38.4	21.2	21.0
84.2	118.1	326.0	76.4	84.3	103.7	61.4	29.3	32.3
70.2	84.5	618.1	72.8	61.2	57.0	40.8	22.4	22.5
57.7	68.9	445.2	61.3	68.2	58.2	*	*	22.8
59.3	71.9	462.7	63.4	69.8	*	*	23.2	23.0

By the Numbers • Statistics of old and new chips

This table provides a broad view of the latest generation of processors for Macs and PCs. Generally, higher is better for each attribute, except for power draw and price. The number of transistors is an indicator

of raw computational power; the clock speed relates directly to computational speed. Cache sizes are related to the ability to get needed data to the main processor quickly. As our tests bear out, these stats

are not direct indicators of real-world speed; fundamental differences in the architectures of the PowerPC and the x86 design, and in Windows 95 and the Mac OS, bear heavily on user experience.

	POWERPC 604e	MMX-EQUIPPED PENTIUM	PENTIUM II	IBM/MOTOROLA G3 "ARTHUR"
NUMBER OF TRANSISTORS	5.1 MILLION	3.1 MILLION	7.5 MILLION	6.3 MILLION
SUPPORTED CLOCK SPEEDS	166, 180, 200, 225, 233 MHz	166, 200 MHz	233, 266, 300 MHz	250+ MHz
DATA-CACHE SIZE	32K	16K	16K	32K
INSTRUCTION-CACHE SIZE	32K	16K	16K	32K
INTEGRATED-L2-CACHE SIZE	NA	NA	512K	NA
POWER DRAW*	15 WATTS	15.7 WATTS	43 WATTS	APPROXIMATELY 5 WATTS
PRICE (IN LOTS OF 1,000)	\$443 (200-MHz VERSION)	\$492 (200-MHz VERSION)	\$775 (266-MHz VERSION)	NA

*For top-clock-speed version.

possible reason for this is that the Pentium II system we tested used conventional DRAM instead of the faster SDRAM in the Gateway 2000 G5-200.

Licking the Wounds

Despite the Power Mac's impressive overall performance, Mac OS vendors would do well to emulate some traits of the MMX machines. For example, PCs have always beaten Mac OS systems at launching applications, and we noted that the Pentium II system launched Photoshop enviably fast. Improvements in the Pentium architecture were clearly evident in the improved performance of the Pentium II system over that of the MMX-equipped Pentium system. Aside from having a faster clock speed and eliminating context switching, the Pentium II has other advantages over the MMX-equipped Pentium, including improved processor-to-memory bandwidth, owing to larger built-in caches, and a more advanced implementation of the MMX instruction set.

Another way in which vendors of Mac OS systems should emulate their PC counterparts is in pricing. PowerPC chips themselves are very competitive in terms of price/performance; at this writing, the 200-MHz PowerPC 604e used in our Power Mac was available from Motorola for \$443 in quantities of 1,000 or more;


the 266-MHz Pentium II was available in quantity from Intel for \$775. The price difference reverses once a computer is built around the chip, however. Outfitting a Mac like the one we tested would run you a little more than \$5,000; Gateway 2000's Pentium II system, equipped as much like the Power Mac as possible, costs just under \$3,800 — and, unlike the Mac, it comes with a 15-inch monitor, a modem, and a speaker system with a subwoofer. Even discounting Gateway 2000's inherent advantages as a direct reseller, that's a bargain Mac OS vendors still can't match.

The Bottom Line

Our tests with Adobe Photoshop demonstrate that a PC with an MMX-equipped Pentium chip is slower in most cases than a PowerPC 604e machine running at the same clock speed. In fact, it takes a system with the latest and fastest Pentium processor, running at a 33-percent-higher clock speed, to approach the speed of a Mac OS system that isn't even the fastest one available today.

Although MMX is a tremendous win for PC users who can afford it, it doesn't hold a candle to what Mac OS systems have been doing for some time. MMX alone doesn't offer a compelling reason for Photoshop users to jump ship, especially with faster Mac OS processors (see the "Powering Up" sidebar) and the faster PPCP system architecture right around the corner. The prototype PPCP hardware showed significant although uneven gains over an existing Mac OS system containing the same PowerPC chip running at the same speed.

These results give an inkling of how hamstrung PowerPC Mac OS systems have been from the beginning, revealing Apple's dark secret: Power Macs and clones that share their motherboard designs have never shown the full potential of the PowerPC chip. Apple's original Power Mac design philosophy — continuing to the present — traded higher system-bus speed for lower component cost.

Although it's easy to get excited by these preliminary PPCP results, you can't buy a PPCP system today. But when they do arrive, PPCP-based Mac OS systems will be running Mac OS 8, which has the most PowerPC-native code of any Mac OS to date. This evolutionary Mac OS system will also be socket-ready for the next generation of PowerPC silicon from IBM and Motorola, ensuring that the Mac will continue to defend its turf. 

Senior Project Leader Jeffy Milstead oversees system testing for MacUser Labs.



Bookmark

For more information about the future of the PowerPC, check out these related Internet sites:

PowerPC Roadmap

An overview of when and how the Apple/IBM/Motorola (AIM) alliance plans to deliver ever-more-powerful processors for running the Mac OS.

www.mot.com/SPS/PowerPC/overview/roadmap.html

Guided Tour of the Long Trail Motherboard

A walk-through of IBM's reference design for next-generation PowerPC Platform (PPCP) board design.

www.chips.ibm.com/products/ppc/Developers/longtrl/longtrail.html

Yellowknife Info Page

Motorola has a PPCP board design of its own, code-named Yellowknife; get the lowdown here.

www.mot.com/SPS/PowerPC/solutions/yellowknife.html

Or, for one-click access to these and other sites, go to www.macuser.com/bookmarks.

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For the giant-sized graphics, sound, and video files that content creators use, high-capacity drives simply aren't fast enough. RAID 0 systems offer the speed you need at attractive prices.

Ready-Made RAID

By Kristina De Nike



Patience is not just a virtue — it's also a necessity, especially if you're a content creator: a digital-video editor, graphic artist, desktop publisher, sound editor, Web-page designer, photographer ... you get the idea. The mammoth files you work with occupy lots of storage space and also take a while to access and process. You need more storage *and* speed for dealing with your files: Your best option? Get a RAID array — for the capacity you need, and the speed too.

To assess your options for a good first-time RAID 0 setup, MacUser Labs evaluated eight all-in-one RAID packages: the Direct Connections Predator AV-5209, Dynatek AVA9.oFDD/W, Jems 18 GB Gemini Ultra SCSI Wide Array, MegaDrive Enterprise E-2, Micro-Net DataDock 18 GB Ultra Wide Array, ProDirect PowerRAID-M18, ProMax PR2-18071 WPU, and StreamLogic SledgeHammer-Pro 2 17400 PCI Ultra Wide Differential.

Each RAID 0 bundle we tested had two 9-GB drives (for a total capacity of about 17 GB, after formatting), a Wide SCSI PCI card, and RAID software. We found that nothing beats a RAID 0 system for throughput speed. If you're worried about price, don't be: Some of the arrays we tested sell for under \$4,000, a wonderful deal when you consider that one high-speed, Narrow SCSI 9-GB drive costs about \$2,000.

More Than Zero

All the packages we tested were RAID 0 systems — one of several classes, or levels, of RAID (redundant array of independent disks) developed in the late '80s. Back then, there were essentially two flavors of hard drives: low-capacity, affordable, accident-prone drives

and high-capacity, expensive drives. A group at the University of California, Berkeley, came up with a plan to create one large volume by writing data across multiple low-capacity drives. But increasing the number of hard drives increases the risk of drive failure, so the plan included an extra hard drive for holding redundant and/or parity information. If one hard drive failed, the redundant data could be used to rebuild the data. There are several RAID levels, most involving some type of parity-recording scheme.

The arrays we looked at use RAID 0, which offers a big boost in speed by splitting data across multiple disks without using an extra drive to store parity information. It's the speed potential of RAID 0 that is of interest to content creators. Worried about losing data on a RAID 0 system? Fortunately, not only do today's hard drives store a ton of data but they're also faster, more affordable, and more reliable — although you should back up your RAID system frequently (see the "RAID Dos and Don'ts" sidebar).

Two Are Faster Than One

How do the RAID systems we looked at compare to a single high-capacity drive? To find out, we tested a 23-





GB StreamLogic drive with a single Seagate mechanism. At \$4,454, the price per megabyte is about 20¢, compared to 24¢ to 48¢ per megabyte for a RAID 0 system.

Although the single drive gives you more room for your money, it gets left in a RAID system's dust

when it comes to speed; in our throughput tests, the StreamLogic Hammer 23000 was 75 percent slower than the slowest RAID 0 system we tested.

Running on Full

To find the array that best satisfies the need for speed, we used four tests from MacBench 4.0, our industry-standard benchmarking tool. The Publishing Disk test is based on profiles of the disk activity of two desktop-publishing applications, Adobe Photoshop and QuarkXPress. The 1-MB Sequential Read and Write tests simulate working with large files, especially for performing digital-video tasks. Our test Mac OS system was an Apple Power Mac 9500/200 with 64 MB of RAM, running System 7.5.5.

A RAID system's speed is mainly dependent on the speed of the individual drives in the array. In our tests, the Direct Connections, the ProMax, and the StreamLogic arrays, whose drives contained Seagate mechanisms, were the fastest in the bunch, with the StreamLogic array squeezing the most speed from these mechanisms and taking the top honors for overall speed. Slightly slower than the Seagate mechanisms were those from Micropolis, used in



Bookmark

For more information about RAID, check out these related Internet sites:

RAID Advisory Board
Committee devoted to promoting the understanding and use of RAID and related storage technologies.
www.raid-advisory.com

Disk/Trend
Supplier of market studies on rigid-disk drives, optical-disc drives, disk arrays, and removable data storage.
www.disktrend.com

University of California at Berkeley ftp Archive
Technical reports from the Berkeley RAID project.
<ftp://ftp.cs.berkeley.edu/pub/raid>

Or, for one-click access to these and other sites, go to
www.macuser.com/bookmarks.

the Jems, MicroNet, and ProDirect arrays. The Dynatek array, which used Fujitsu mechanisms, was the slowest, but it still offered a significant speed improvement over single-mechanism drives.

Despite its speedy Seagate mechanisms, the MegaDrive array fared poorly in our high-throughput tests, the 1-MB Sequential Read and Write tests. That's because its case has Wide Ultra SCSI connectors but the drives in the case use a Narrow Ultra SCSI specification.

Wide Ultra SCSI supports a throughput rate of 40 MB per second; non-Wide, or Narrow Ultra, SCSI gets you a throughput rate of only 20 MB per second. All the arrays we tested had Wide SCSI PCI cards, which are great for speed. Wide SCSI also supports up to 16 devices, compared to 7 for Narrow SCSI.

To get a sense of how the arrays handled constant data streams such as those you need for digital-video and -audio work, we also ran the MacBench 4.0 Maximum Frame Rate video-playback test, which makes use of a QuickTime feature that lets you strip the audio from a clip and stream the video at the maximum speed. We used the 320-x-240-pixel uncompressed clip that comes on the MacBench CD-ROM, although this test works with any QuickTime file.

The fastest array in this test, the ProDirect PowerRAID-M18, uses the AV version of the Micropolis mechanism, which gives it an advantage for QuickTime-video playback. AV drives are optimized for consistent data flow, crucial for audiovisual work — a pause in the playback of a sound file can ruin the song for the

audience, and using AV mechanisms in a RAID array is great insurance against that possibility.

Building Blocks

Despite its speed, the biggest drawback of Wide SCSI is that it allows a maximum of only 3 meters of cable. Yet another drawback: If you use more than four devices, the maximum allowable cable length actually *decreases* to 1.5 meters.

Most manufacturers anticipate this problem by building cases that use short ribbon cables. These cases have only one set of SCSI connectors each, which limits configuration flexibility, since the drives must always be on the same SCSI bus. For most users, this limitation is not a problem.

The cases that allow the most flexibility are those of the MicroNet and StreamLogic arrays, which have a set of SCSI connectors for each drive. MicroNet uses a 2-inch block to connect its two drives; StreamLogic includes a .3-meter cable.

What's the Differential?

StreamLogic provided the only array in our roundup that used Differential SCSI. Differential SCSI supports up to 25 meters of cable, but it requires the use of Differential SCSI drives and cards. Adding more drives does not introduce a cable-length problem, but Differential SCSI drives are more difficult, although not impossible, to find and are a little more expensive than drives with any other kind of SCSI.

In the next year, a new variety of SCSI will be introduced — Ultra 2 — which, according to the specification, will be LVD (Low-Voltage Differential). The drives' prices will be in the same range as current Wide Ultra drives', and the buses will each support 12 meters of cable. But to take advantage of the better cable-length tolerances, you will need a new SCSI card and new drives. Older drives will work with Ultra 2 SCSI, but adding an older device will limit you to using the older maximum cable lengths.

Remove with Caution

Some of the arrays we tested — those from MegaDrive, MicroNet, and ProMax — offer hard-drive removability, but use it carefully. These are high-capacity, high-speed drives, and they're sensitive to jarring, even at rest. The drives in the ProMax array, although removable, have no case around the bare mechanism, making them sensitive to electrostatic discharge. If you need to transport files long distances, buy a removable-media drive.

Getting a case with removable drives still has advantages, though. You can ensure the security of your data by removing a drive and locking it up for the night, can share data with coworkers, and can reconfigure your array with new drives.


The MegaDrive and MicroNet arrays were the only ones in our roundup to support *hot swapping*. Hot swapping allows you to drag an array's icon to the Trash and then eject the drives without shutting down your Mac first.

RAID Software

All the software packages support booting from a RAID 0 partition. We found a bug in the Remus software, which ships with the Direct Connections, ProDirect, and ProMax arrays. We had to add an extra system extension to be able to boot from a RAID 0 volume. Trillium (now owned by Adaptec) says the bug is limited to Power Mac 9500s and other Macs based on Tsunami-design motherboards. By the time you read this, Trillium should have the extra system extension available on its Web site.

All the RAID software we tested, except for MicroNet's Power

The Bottom Line

RATING	PRODUCT	SPEED	PRICE	CASE	SUPPORT
★★★★ 	ProDirect PowerRAID-M18 For \$3,699 (direct), you get a fast RAID system, toll-free tech support, and a five-year warranty — a great deal.	+	+	•	+
★★★★	StreamLogic SledgeHammer• Pro 2 17400 PCI Ultra Wide Differential	+	-	+	-
★★★★	Direct Connections Predator AV-5209	•	+	•	+
★★★★	ProMax PR2-18071WPU	•	+	+	•
★★★★	Jems 18 GB Gemini Ultra SCSI Wide Array	•	•	•	•
★★★★	MicroNet DataDock 18 GB Ultra Wide Array	•	-	+	•
★★★	Dynatek AVAg.oFDD/W	-	+	-	•
★★★	MegaDrive Enterprise E-2	-	•	+	-

Listing is alphabetical within groups of equal mouse ratings.

+ Outstanding • Acceptable - Poor

Direct Connections 800-572-4305 or 612-937-9604; www.directdc.com

Dynatek 800-461-0052 or 902-832-3000; www.dynatek.ca

Jems 800-838-5367 or 508-749-3660; www.jemsdata.com

MegaDrive 818-700-7600; www.megadrive.com

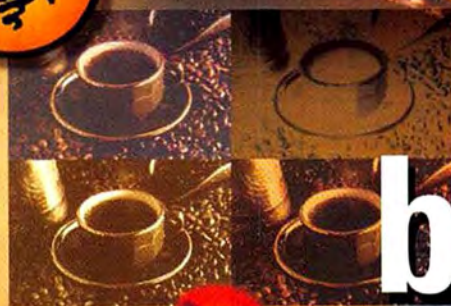
MicroNet Technology 714-453-6100; www.micronet.com

ProDirect 800-524-9952 or 612-941-1805; www.pdisales.com

ProMax 800-977-6629 or 714-727-3977; www.scsidisk.com

StreamLogic 510-608-4000; www.sledgehammer.com

JavaTM Computing enriching the future of your business



So

WHAT'S
THE
ANSWER?JAVA
COMPUTING

*It's time for a bit of
invention in response to
all of the necessities...*



Necessity, we've always been told, is the mother of invention. Rarely have those words rung more true: these days, businesses of all kinds face a phalanx of new necessities:

- **Forging cooperative links.** Organizations need to work closely with more and more people outside their corporate perimeters, especially partners and suppliers. This is particularly true for businesses with a strategic mandate to focus on core competencies and outsource activities that don't help competitively differentiate the organization. Archaic, inefficient communication and information sharing among partners and with suppliers is simply unacceptable in this just-in-time era.

Necessity: solutions and tools that enable effective, realtime cooperation within and between enterprises. Early adopters gain competitive edge in customer satisfaction, cost containment and product quality.

- **Knowing thy customers.** Staying close to customers to understand their needs and recognize when those needs change stands paramount in any age. Current information technology offers important ways to improve customer service and boost product quality, and most of your customers know this. Hence you're confronted with both a promise and a threat: you can use today's technology to find out a great deal about what your customers want and need — or you can ignore the technology's potential and lose competitive

ground to others who embrace it.

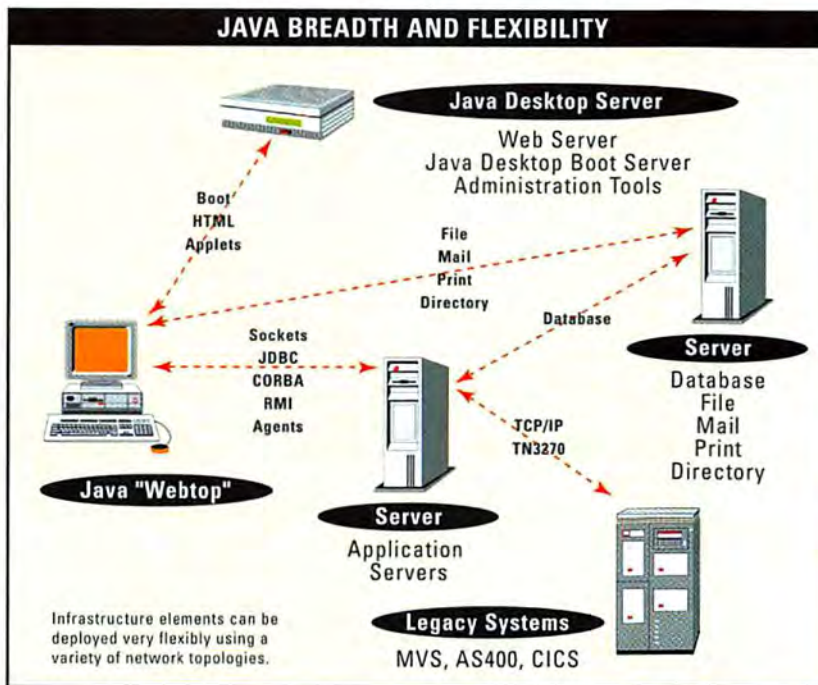
Necessity: solutions and tools that make it easy and simple to gather customer data and improve an organization's ability to respond quickly and accurately to customer demands and concerns. Early adopters benefit from better understanding of their markets, an ability to recognize trends faster and opportunity to plan appropriate strategies.

- **Working virtually.** Sometimes business can be conducted most successfully away from the office. Today's information technology enables many employees to work on the road, from home or from other virtual workplaces.

Necessity: solutions and tools that cost-efficiently support the wandering workforce with balanced, easy-to-access end-user computing capabilities. Early adopters field more productive, happier employees able to interact better with each other as well as customers, suppliers and partners.

- **Taking it to the web.** A new medium of trade and transaction has begun to emerge from the same Internet technologies that soldiers and scientists pioneered 20 years ago and that companies the world over now use to transport the many messages of everyday business. It is, after all, a short step from talking about a commercial transaction over the Internet to conducting and completing such transactions over the Internet.

Necessity: solutions and tools that enable businesses to offer convenient



and secure electronic commerce capabilities to customers. Early adopters will claim whole new kinds of market share and customer loyalty as they explore and exploit a brand new commercial landscape.

These new necessities have spawned much adaptation of existing systems, but as any manager can testify, unresolved problems and unconquered barriers loom large. Applications remain limited to particular computing platforms. Information sharing across business environments continues to be spotty and unreliable. The scope and potential of new technologies bulging with promise is hobbled because they cannot be retrofitted to work with older systems.

Clearly, it's time for a bit of invention in response to these necessities: Java™ computing. A whole new way to deal with information and information systems, Java computing overcomes the suffocating problems that keep traditional PC-oriented client/server computing costly, cumbersome and failure-prone.

Java computing puts object-oriented programming to breakthrough use: downloading nuggets of Java applica-

tion code from server to client on demand, regardless of the platform.

Since Java applications normally reside on a server and are delivered to a client via standard network protocol only when needed, both application code and client data storage can be centralized on servers, along with administration and configuration control, enabling organizations to increase the cost-efficiency of their information systems infrastructure.

Unlike any other kind of computing environment, Java computing offers an architecture that leverages enterprise computing investments across all platforms. If you want to revitalize, not replace your existing systems, you need Java technology. And if you want to exploit emerging opportunities in Internet-enabled commerce, Java computing is downright essential.

JAVA COMPUTING: PRESERVE THE LEGACY & FOCUS ON THE FUTURE

Though it's just less than two years old, Java computing and the language

Safe and secure with Java computing

It's precisely Java computing's unique ability to distribute executable code over the Internet that has raised concern about its effect on network security.

Happily, much of the security needed to protect organizations using Java applets and applications containing executable code has been built right into the Java platform.

Applet limits

At least theoretically, a Java applet can come from anywhere and be capable of attacking unprotected machines in ways that might not be stopped by traditional methods. That's why the Java platform protects its users by placing strict limits on applets to prevent malicious applets from stealing information, spreading viruses or acting as Trojan horses for viruses. They cannot read from or write to the local disk. Standalone windows created by other applets are clearly labeled as being owned by untrusted software.

Applets are also prohibited from making network connections to other computers on a corporate intranet, which prevents malicious applets from exploiting security flaws that might lurk beneath a corporate firewall or in the underlying operating system.

Sandboxes

The Java platform's security allows a user to import and run applets from the web or an intranet without undue risk to the user's machine. The Java applet's actions are restricted to its "sandbox," an area of the web browser dedicated to that applet. The applet may do anything it wants within its sandbox, but cannot read or alter any data outside of its sandbox, allowing users to run untrusted code without compromising their trusted computing environments. If a user does accidentally import a hostile applet, the local machine will not be damaged.



100% Pure Java certified: Corel Office for Java

The first suite of office productivity applications written entirely in the Java language, Corel Office for Java offers a platform-independent, document- and network-centric, modular and extensible

environment for document creation and workgroup collaboration.

Corel Office for Java delivers a complete client/server enterprise solution that not only includes popular productivity applications but also provides workgroup functionality and back-end enterprise support. Corel Office for Java is an enterprise solution that will have full support for JavaBeans™, JDBC™, LDAP, vCalendar, ICAP, POP3, and IMAP4 protocols.

The importance of portability

Chris Biber, Corel's Director of Strategic Alliances, points to the cross-platform capabilities of the Java platform as integral to the entire Corel undertaking. Corporations with mixed platform requirements are looking for a unifying suite of office productivity components, available on all platforms, with a strong server basis, Biber says. Java's strengths in this area are a big reason Corel opted to develop an office suite for the Java platform from the ground up.

What's more, Java's platform-independence and architecture-neutrality enable Corel to improve the efficiency of its Java software development by orders of magnitude.

"By going with Java, we've made software upgrades and maintenance of Corel Office for Java much easier than ever

before," Biber says. Maintaining a single version of source code saves both time and money, and reduces the likelihood of introducing errors into the process. It's also a plus for corporations, who can dramatically decrease the burden on their own MIS departments as a result.

Office on the intranet

Corel is eyeing the growing corporate intranet trend with interest. Corel Office for Java is, in Biber's opinion, an ideal candidate for intranet deployment. One reason for that is its compact size: the client beta version weighs in at only three megabytes.

Another reason is the ability to instantly distribute Corel Office for Java over any local or wide area network. The application can be transparently downloaded — on demand — to the user's system from the central server where it resides.

In a corporate setting, this can be particularly advantageous, since all Corel Office for Java users are synchronized on identical software versions. Because the client side of Corel Office for Java has won 100% Pure Java certification, all documents are readable and editable across all platforms. These features, together with strong support for Internet standards, are essential to make effective workgroup computing an achievable reality, according to Biber.

Corel is also busy applying the Java platform to the Internet publishing process. With a new web publishing engine called Barista now integrated into Corel's WordPerfect 7 and Ventura 7, users quickly can transform existing documents and images into web-ready Java files — without any programming required. Every WordPerfect 7 and Ventura 7 user is now automatically a web publisher, with complete control over the look and feel of their material.

"Java's unprecedented cross-platform support and distributed architecture make all of this possible," says Biber. "Basically, Java has changed the rules."

Find out more about Corel Office for Java at <http://officeforjava.corel.com/>.

on which it's based has attracted more interest than the C programming language managed during its entire first decade.

But why has Java computing enjoyed such an unprecedented embrace? To paraphrase another famous moment of insight: it's the Internet, st-p-d! And many of the capabilities that make Java computing so attractive for Internet applications are even more valuable to the enterprise:

- **Powerful and portable.** The Java language is modern and object-oriented and comes complete with single-state and multiple interfaces — an efficient and powerful combination that works

well with the CORBA and DCOM distributed programming models. Meanwhile, the Java environment's standard, platform-neutral binary format at both source and binary levels renders it innately portable. And because the Java platform includes a language as well as a set of standard class libraries, it's easy to build powerful, mission-critical applications that run on any Java virtual machine in any environment.

- **Efficient and reliable.** The same Java applications run on all platforms and networks — a seamless environment reaching from server to client to cell phone and beyond. Thanks to its virtual

machine orientation, the Java platform's tightly designed set of bytecodes are easy to transport across Internet or intranet environments. And the same Java programming platform can be used to build your client and your server software. It encourages production of reliable, simple code and its object and component orientation promotes re-use and library-building. Java platform design also enables highly efficient code interpretation and compilation.

- **Safe and secure.** Java computing bolsters good software engineering practices, such as clearly separating interfaces from implementation, and easing



exception handling. So despite its power, the Java language is actually a safer development environment than low-level languages like C or C++: its uniform reference semantics, automatic storage management and lack of programmable memory management tools such as pointers eliminate one of the largest causes of programming errors; its sophisticated lexical exception mechanism helps developers produce robust code; and all Java operations are type-safe. Java bytecodes are defined at a high enough level, even in binary form, so that developers can verify that a binary is consistent with a valid source program.

• **Obsolescence-proof and future-ready.** Since Java enabled browsers installed on any kind of desktop system can display any HTML page, they can run forms-based HTML applications. With Java enabled web servers acting as gateways to in-place systems, HTML can be used as a way to publish

information both within your organization as well as to suppliers and customers.

• **Simple and familiar.** Many believe that the Java language is, basically, C++ done right. The Java language is far less complex than C++, while retaining most of its power. Java developers particularly benefit from the language's automatic storage management, which frees them from dealing with the intricacies of pointer arithmetic. Since Java syntax and semantics borrow liberally from the widely used C programming environment, the Java language is already familiar to an enormous and quickly expanding population of developers, even though it's very new.

The implications, of course, are profound.

Aiming for a Java computing front end to rejuvenate its printing and publishing operations, RR Donnelly & Sons Co. has invested \$500,000 to \$1 million over the last year to create a web-enabled publishing system that allows customers to receive titles in the media of their choice. Eliminating the sending of disks to and from customers, the firm plans to use the Java computing front end to immediately download changes customers have made via the Internet.

At a time when most organizations struggle to keep their desktop computing environments from careening into a chaos of incompatible platforms and costly you-can't-get-there-from-here scenarios, Java computing offers welcome — and necessary — relief.

COMPARING JAVA TO OTHER PROGRAMMING LANGUAGES

	Java	SmallTalk	ICL	Pearl	Shell	C	C++
Simple	●	●	●	◐	◐	◐	○
Object Oriented	●	●	○	●	○	○	◐
Robnet	●	●	●	●	●	○	○
Server	●	◐	◐	●	◐	○	○
Interrupted	●	●	●	●	●	○	○
Dynamic	●	●	●	●	◐	○	○
Portable	●	◐	●	●	◐	◐	◐
Neutral	●	◐	◐	●	◐	○	○
Threads	●	○	○	●	○	○	○
Garbage Collections	●	●	○	○	○	○	○
Exceptions	●	●	○	●	○	○	◐
Performance	High	Medium	Low	Medium	Low	High	High

JAVA COMPUTING: IT FITS WITH WHAT YOU ALREADY HAVE

Are you looking for ways to preserve and extend your organization's huge investment in existing IT systems and applications?

Existing systems and data interoperate easily with Java enabled computers, so you can build Java frontends onto your current systems and take advantage of the benefits of Java while protecting your investments in hardware, software and training.

What about gradually linking your organization's diverse networks and architectures, shifting system and net-

JDBC classes deliver access to relational data

A standard set of Sun Microsystems' specified Java computing classes providing vendor-independent access to relational data, the JDBC class structure is modeled after ODBC. JDBC classes provide standard features, including:

- Simultaneous connections to several databases,
- Access to database dictionaries,
- Simple queries,
- Transaction management,
- Calls to stored procedures,
- Manipulation of precompiled statements with bind variables,
- Streaming access to long-column data,
- Descriptions of cursors.

Sun Microsystems' reference implementation of the JDBC class structure relies on an ODBC bridge: JDBC class calls get converted to ODBC calls and these, in turn, call a vendor-specific API.

The JDBC vendor-independent library provides access only to standard SQL types and does not support vendor-specific types or user-defined object types and collections. But the JDBC library is extensible and is capable of supporting new data types and, not surprisingly, vendors such as Oracle are providing their customers with complete and efficient implementations of JDBC classes. Vendors will also deliver JDBC extensions to support their own SQL types, as well as extensions to improve data throughput.



work management from idiosyncratic desktop systems to a network you can centrally control?

Both long IT experience and recent research have shown that an ability to centrally manage networks, servers and client desktops can save a bundle on the bottom line. With Java computing, you can begin to slowly create the more centralized, network-focused information environment your organization needs.

You can add Java computing capabilities now to large numbers of your proprietary PC platforms and stand-alone applications, then gradually supplement them with low-cost, easy to administer network computers or replace them at your business convenience. Meanwhile, for those specialized applications requiring local processing

power, you can keep your high-powered desktop systems and add Java browser capabilities without incurring any hardware replacement or retraining costs.

And when you're ready to take the next step toward web-based commerce, your foundation technology, based on Java computing, can be extended and expanded as more Java-based hardware and software products continue to emerge.

The result? A low-cost, low-administration networked computing

environment that couples the flexibility of client/server systems with the centralized maintenance and administration of mainframes. The days of local administration of configuration files will be over and you'll be able to eliminate versioning problems, too, since applications on network computers will be instantly and centrally updated. Client management costs will stay in line and it'll be easy to scale up any computing environment, because the Java platform allows a comparatively high ratio of network computers per server.

Finally, your organization can begin to cost-effectively free itself from a rigid application architecture that limits the ways in which computers can add value when executing transactions, servicing customers, analyzing data and so on. The payoff is an information technology infrastructure that's much easier — and less expensive — to manage, maintain and grow with your business.

Already, 62% of Fortune 1000 companies are using the Java platform for some development, according to Forrester Research and 42% expect Java computing to play a strategic role within the year. Many larger Fortune 1000 companies eventually intend to convert as much as 90% of all their existing desktops to Java devices. Meanwhile, growing numbers of independent software vendors are revamping their enterprise applications using Java technology, including such major players as Oracle, IBM, Lotus, Novell, Netscape, Corel, Symantec, Borland, and many, many others.

<http://java.sun.com>

WEB COMPUTING WITH A MORE EFFICIENT INFRASTRUCTURE

What, then, should a Java computing infrastructure look like? As you begin developing and deploying Java computing capability throughout your organization, here are the elements you'll need and what you'll get from them:

An enterprise network based on an intranet to improve integration of corporate applications. Java computing relies on Internet standards and protocols, so you'll need an intranet — the application of Internet technologies and protocols in internal corporate information networks — founded on a TCP/IP-based network with both local (10-Base-T minimum speed) and wide area network connectivity where needed.

A web server that'll deliver HTML pages and Java applications and applets to desktop clients via your intranet. As your Java environment grows, you may need to replicate your web server so you can support more clients without increasing your administrative burdens.

Distributed application servers containing business applications or objects to be accessed by clients across the intranet. These servers interface with your existing code and databases to deliver application services to Java enabled clients.

Dedicated-function servers accessible by Java client applets (including database, file, print, mail, directory servers). Depending on the size of your installation and the needs of your organization, these services may also reside on the same physical machine on which resides your web or applet server.

100% Pure Java certified IBM Host On-Demand

IBM's Host On-Demand is a 100% Pure Java certified solution that provides access to central computer applications and databases from any Java enabled end-user platform — a fast and easy Java based solution for customers wanting to use the Internet or corporate intranets for occasional access to central computer applications and databases.

An Internet-to-SNA connectivity solution that incorporates industry-standard Telnet 3270 (TN3270) protocols, Host On-Demand requires no customer programming or additional hardware. Users can initiate Host On-Demand from any Java enabled end-user platform by simply clicking on an SNA application hotlink within their web browser.

All the software needed is automatically downloaded in the form of a Java applet which disappears once the host session is over. Each time the user initiates Host On-Demand, the most up-to-date applet is downloaded.

"The explosive growth of the Internet has proliferated the use of the web browser as a familiar interface," says James Neiser, vice president of marketing at IBM Networking Software. "With Host On-Demand, customers can use their browser to explore new ways to take advantage of corporate information."

Giving users the power to browse corporate data

For example, Host On-Demand enhances an automobile manufacturer's customer service by making its inventory information available to dealerships via web browsers — 24 hours a day, seven days a week.

With Host On-Demand, regional insurance agents can now use web browsers to access corporate policy records and rate schedules — without having to install additional software. The insurance company also benefits, using Host On-Demand to streamline support by maintaining software on a small number of servers, instead of a vast number of individual workstations.

"Host On-Demand has been designed to connect through the Internet or intranets to leverage customers' existing investments in clients, servers,

distributed computing power and 3270 applications," explains Neiser.

"From a user perspective, availability of additional content and services is dramatically increased. Host On-Demand extends the availability of existing host data to a greater number of users without the need for costly, time-consuming installation of additional software or workstation programming changes."

What's IBM doing with Java computing, anyway?

Host On-Demand reflects both IBM's pledge to add significant Internet support to its multi-platform, multi-protocol communications clients and servers as well as its commitment to 100% Pure Java Initiative.

IBM has supported Java computing since its introduction. Why? Because Java computing's open-standard foundation gives businesses cross-platform support throughout and beyond the enterprise as well as a more cost-effective way to manage information. Providing customers with a complete solution for business is what makes the Java platform such a compelling new technology for IBM.

"Between IBM and Lotus, we have more than 1,000 developers in 24 labs in 21 countries, doing research and development in Java," said David Gee, worldwide program director, Java marketing at IBM. "We will spend hundreds of millions of dollars over the next few years on Java development. IBM is doing everything we can to deliver on the promise of Java, including working closely with Sun, Netscape and others on the 100% Pure Java Initiative."

For more on Host On-Demand access http://www.networking.ibm.com/hex/hexprod_en.html.





Since the Java platform is based on an open architecture, anyone can use it. Today, the Java envi-

There are any number of ways this can happen. Take Microsoft's ActiveX as an example. Whereas the Java platform makes links to components in other computing models, ActiveX encapsulates components, which thereafter can run only on proprietary ActiveX platforms. When Java code is encapsulated into ActiveX, its cross-platform attributes have been compromised.

The 100% Pure Java logo: Cross-platform compatibility of Java applications

ronment is available on all major computing platforms and has been licensed for still others.

Many believe that genuinely platform-independent network computing depends on establishing and enforcing open, non-proprietary standards for the Java platform. Both end users and developers need assurance that programs written in the Java language will indeed run flawlessly on any Java certified platform or device.

But Java's platform-independence can be sustained only if everyone uses the same Java. Pure Java. In fact, we need a standard for 100% Pure Java.

Why? Because contaminated Java technology loses its platform-independence and its abilities to ensure a secure computing environment. Which means that contaminated Java technology simply isn't Java technology at all. But some might still claim it's Java, even though it's a proprietary knock-off that can't do the job.

The 100% Pure Java Initiative, supported by more than 100 independent computing vendors, defines an objective, consistent quality standard for Java software and published API specifications. Keep your future safe. Use only 100% Pure Java technology.

Look for the 100% Pure Java logo on the products you buy to make sure that your organization's Java compatibility won't be contaminated or compromised.

An integrated management system for handling servers, networks and clients. This system will manage all elements in your network environment, including traditional PCs and less resource-intensive network computers.

These elements can be deployed very flexibly using a variety of network topologies. For instance, your branch offices or a customer site may have a local web server to boot and serve Java applets via a LAN to the local Java devices. Such a branch server would actually act as a mirror site of the master web server at your main office, so all of its administration could be accomplished centrally by means of Java front-end management tools.

Of course, anytime you're building custom software, you need to make sure that you're using not only the best development tools for the job at hand, but also the best tools for integrating your new application into your existing IT architecture. So how does the Java platform stack up?

For a start, it's especially good for building next-generation software. Since Java technology has become so widely adopted by software tools vendors, many of the best traditional development environments and middleware tools are already available for constructing Java applications. There are also new Java based development tools from new vendors.



database API (see sidebar, pg. S6)) as well as to CORBA-based object servers (through a Java IDL API) and to other object servers (through a JavaBeans API, which integrates Java, ActiveX, OpenDoc and Live Connect objects into a new cross-platform framework).

In addition, many of Sun's Java allies have developed other useful connectivity tools, such as IBM's Host On-Demand (see sidebar, pg. S7) and OpenConnect's OC//WebConnect 3270 emulator written in the Java language.

Selecting the best Java development tool

Already, the variety of available Java development tools is so broad that you'll have no trouble finding the right toolset for your needs. To select the best Java development tool for you, focus on three criteria: developer experience, application type and developer platform.

For example, professional developers with C/C++ experience who need to

JAVA DEVELOPMENT: NEXT-GENERATION SOFTWARE

To be most effective, a Java computing infrastructure will probably require more than hardware, networks and off-the-shelf software.

Preserving your existing systems with Java computing

The Java platform is particularly effective when your organization needs to access existing databases and transaction systems as well as new applications. Why? Because the Java platform has been extended to connect to databases (through the JDBC Java


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build a complex, high-performance online transaction processing application should consider integrated Java development environments such as Sun's Java™ WorkShop™, Symantec Cafe and Borland Latte.

Why 100% Pure Java computing?

When you're developing Java applications, safeguarding their cross-platform portability is crucial if you want to integrate diverse corporate IT resources and ensure your ability to deliver the right information to the right people at the right time, regardless of data origin or its format and regardless of where your users are.

Java platform-independence works as long as everyone continues using the same Java computing standard and resists the urge to add non-uniform features that destroy its portability.

This is always a risk. In Microsoft's ActiveX component software strategy, for instance, Java applets are swallowed whole (encapsulation) and are no longer able to run on anything but Microsoft's proprietary Win32 platform.

In fact the risk of contaminated Java applications is strong enough that more than 100 vendors, led by Sun Microsystems, have launched the 100% Pure Java Initiative that defines an objective, consistent portability standard for Java software and published specifications. Only products that have achieved 100% Pure Java certification can exhibit the "100% Pure Java" logo.

This distinguished brand provides customers with a benchmark for portability that is unprecedented in the industry. The logo's presence on soft-

ware and hardware products guarantees its compatibility with all other 100% Pure Java products. So Java buyers get better products and more effective network computing environments.

Already several products have won the right to carry the 100% Pure Java logo, including:

- IBM's Host On-Demand,
- Corel's Office for Java,
- Oracle's Developer/2000 Web Cartridge.

INCREMENTAL DEPLOYMENT BEGINS WITH A JAVA BROWSER

A Java computing evolution can be undertaken gradually and seamlessly. In most organizations, it begins with putting a Java enabled web browser on every client desktop.

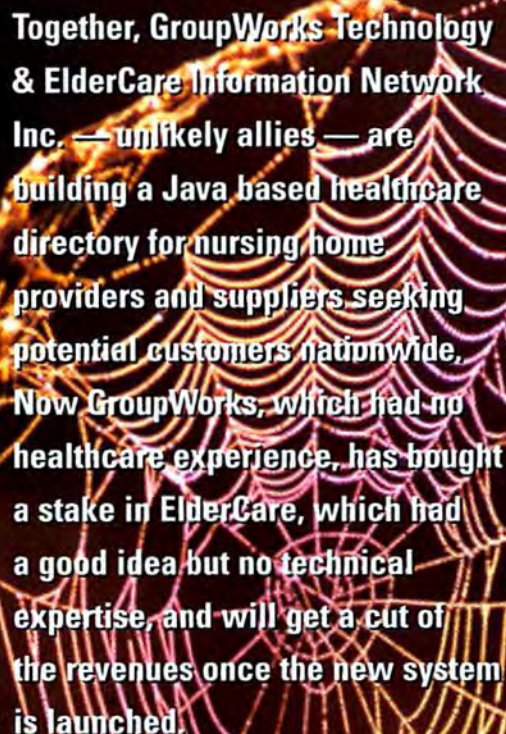
This platform — a Java browser atop any desktop client, including resource-rich, file-laden PCs — can be used to share information within an organization, initially in the form of Internet-standard HTML pages.

Do e-mail first. Since all client desktops have been made ready for Java computing, their Java enabled browser can also be used to roll out corporate applications. Make your first webtop application electronic mail — shifting to Internet standards for mail (IMAP4 and SMTP) simplifies management and familiarizes end-users with

browser capabilities and techniques.

Power to the network: support scalable multiprocessing. Java computing reliability and scalability depend on the network and servers. These need to support scalable multiprocessing, clustering and RAS features to ensure high availability and performance.

Integrate existing systems via your intranet. Access to these systems is provided through application server "glue code," or, in the case of



Together, GroupWorks Technology & ElderCare Information Network Inc. — unlikely allies — are building a Java based healthcare directory for nursing home providers and suppliers seeking potential customers nationwide. Now GroupWorks, which had no healthcare experience, has bought a stake in ElderCare, which had a good idea but no technical expertise, and will get a cut of the revenues once the new system is launched.

Oracle's Developer/2000 Web Cartridge is a 100% Pure Java certified environment that will enable organizations to rapidly deploy cost-effective intranet and Internet-based applications.

100% Pure Java certified: Oracle's Developer/2000 Web Cartridge

Developer/2000 Web Cartridge delivers timely application development support for Java enabled applications and Oracle's recently announced Network Computing Architecture — a common set of technologies that allow all PCs, network computers and other clients to work with all web servers, database servers and application servers over any network.

"Oracle is 100% committed to 100% Pure Java — it's the wave of the future and will play a huge role across all tiers of Oracle's Network Computing Architecture," proclaims Cindy Braun, an Oracle senior marketing manager. "Java allows people to develop in a single language and deliver on multiple platforms; it's what's enabling us to get our applications running on something as cost-effective as the network computer."

The certification of Developer/2000 Web Cartridge makes Oracle the first major enterprise development tool vendor to offer a development tool under Sun Microsystems' 100% Pure Java Branding Program, which guarantees that applications don't contain any platform-specific code.

"100% Pure Java is one of the only ways to be certain we run on multiple platforms; that's what's really important here," says Braun. "Most organizations today have a variety of platforms; 100% Pure Java transcends the problem, which makes it especially attractive." And she warns, "Developers who don't use 100% Pure Java are limiting the deployment of their applications."

Developer/2000 Web Cartridge: Application development support

All applications built with current and prior versions of Oracle's Developer/2000 environment may be deployed on the web using Java Technology. The 100% Pure Java certified Developer/2000 Web Cartridge performs the bulk of the pro-

cessing on an application server. A Java applet is used for visual representation of the Developer/2000 applications and is downloaded when a user invokes the application.

The implementation of Java computing in the Developer/2000 Web Cartridge allows organizations to gain all the benefits of deploying Java applications without requiring developers to learn how to write Java code.

A long standing commitment to portability

Oracle's long standing commitment to portability and application partitioning has made Developer/2000 for the Web possible. The Developer/2000 Java applet makes portability across all client platforms transparent, from Windows to Mac to Motif to network computers.

"One of the chief reasons for Oracle's success is portability and the ability to run on many different platforms; it's something that's been needed in the industry for a long time," Braun believes. "Java brings that capability to everyone. Java's architected to be cross-platform and portable."

The Developer/2000 Web Cartridge will run on Windows NT and all major UNIX® server platforms. Developer/2000 is the first open database-development web tool created and available on NT, giving all NT customers thin-client access to workgroup and enterprise-level data.

"Many of the same benefits being touted for the web — including reducing maintenance and support costs of PCs — are available using 100% Pure Java," Braun asserts. "Statistics indicate companies spend more than \$10,000 per workstation per year on support and maintenance, but most users don't need industrial-strength PCs."

To get more information about Oracle, call 415-506-7000 or surf to <http://www.us.oracle.com/>.

current applications that do not have Java computing front-ends yet, through Java terminal emulator applets.

Target simple, repetitive apps.

Initial deployment of Java devices should target applications that are less complex, narrowly focused and do not require access to productivity applications — examples include order entry, call centers, branch banking, reservations. Client desktops where such applications are conducted are better suited to so-called "thin" network computers that maintain little or no storage and memory resources, instead dynamically downloading both applications and files from central servers only as the job demands.

Save your PCs. As more general productivity applications become available in Java environments, wider deployment can begin. That doesn't mean trading in all existing desktop machinery and starting afresh. On the contrary, PCs can be kept running indefinitely by transforming them into network computers running Java enabled browsers.

Corel's Office for Java, certified as a 100% Pure Java application (see sidebar, pg. S4), signals full productivity desktop functionality in the Java environment and promises new life for your PCs.

Lotus Development Corp. has also launched a major Java initiative, code-named **Kona**, which includes Lotus' InfoBus technology enabling a new class of dynamic business applications for the web and personal computers. Kona applets are easier to create and much more powerful and interactive because they can share and exchange information with no programming required. Other aspects of Kona: a set of business productivity applets, an

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operating environment and Java development work supporting open-standards protocols.

Unlike competitive offerings, Lotus' Kona applets are built from the ground up in the Java language to be compact, task-focused, modular, extensible, programmable and designed with an easy-to-use web-like interface.

Keep resources where they belong. Many of today's client desktops are more resource-intensive than they need to be. Up to 90% of some organizations' desktop clients don't require PC-level storage or memory; a "thin" client, with little memory, and maybe no hard drive at all, will do nicely as long as all the applications and data needed at that desktop can be dynamically downloaded on demand.

Such thin Java devices with access to server applets across your corporate intranet (and the Internet to the extent allowed by your network security policies) can cache Java applications and applets dynamically as needed, storing nothing locally. Disk caches to improve response time can be added to those clients needing to access large numbers of applications quickly, but these local disks would store no permanent data and require no administration.

Storage- and memory-intensive clients (such as PCs, Macs) would then be used only in certain realms, where key applications are diverse and require large amounts of local data manipulation and storage.

With Java computing, local client processing is used to reduce peak network and server loads, while all administrative and management tasks are handled centrally on the server.

PACKAGED SOLUTIONS FOR JAVA

Hundreds of software development companies have already produced package Java -based applications and applets for a growing range of tasks. Here are a few:

Business Applications

Computron
Dun & Bradstreet
Oracle
PeopleSoft
SAS

Manufacturing

Adra
BAAN
Computervision
Mentor
Metaphase
SAP
Sherpa

Finance

Airteam
GSI
Hani
Reuters
StockSmart
Tibco
Trimark

Education and Government

Facet Decision
Silver Platter

Desktop Applications

Active Software
Applix
Corel
Interleaf
Kinesis
Lotus
Sybase/Powersoft

Development, Management and Middleware Tools

Atria/Pure
OpenConnect
Rogue Wave
Unify
Visigenic
Web link

Customer Management Systems

Broadway & Seymour
Cambridge Technology Partners
Graham Technology
Pega System
Scopus
Trilogy

Telecommunications

Solselect Technology
Ubiquity Software

CENTRALIZED MANAGEMENT FROM ANY CLIENT PLATFORM

Because all management in Java computing is accomplished at the server rather than at each individual desktop, you can greatly reduce the manpower you'll need to manage your desktop clients. There's no permanent client data or code, so there's no client state to

manage. A client hardware failure gets corrected by a simple swap of desktop machines. And you can centrally set policies that specify who can run which applications and access which resources.

Powerful tools like Sun Microsystems' Solstice™ Enterprise Manager™ system can manage all servers and clients in your IT environment. Internet standards like DHCP (Dynamic Host Configuration Protocol) allow automatic IP address assignment to clients, further

<http://java.sun.com>



minimizing desktop administrative tasks. Additional tools, such as Sun's Solstice™ Backup™ Archive and Solstice™ DiskSuite™, address the data backup, reliability and performance needs of your enterprise network.

With Java servers and Java powered network management tools, your network administrators can manage all systems from a central location, carrying out such tasks as the addition or removal of users, software configuration control, monitoring and troubleshooting. What's more, you can use a Java interface to, with proper authorization, access your centralized management environment from any Java enabled client platform.

Employee mobility. Java computing can make it easier to keep employees connected to the enterprise, too, even when offices get shuffled. For those with Java enabled network computers, there's no need to move desktop computer files when a person is moved, since no permanent client data or code resides on any desktop machine.

Instead, all permanent state information stays in the intranet web, so users may log on anywhere they can access the intranet and enjoy full access to their complete home environment. This kind of network-centric Java computing also makes it possible to provide mobile

users with their complete computing environment through authorized dial-up access at home or on the road.

IT'S EASY TO MOVE INTO THE FUTURE WITH JAVA COMPUTING

A full migration to Java computing will take several years but you can accomplish it easily in small steps without discarding a single existing computing application or platform.

New life for old Windows. Java clients can display any HTML page, so forms-based HTML applications also can be run from any Java browser desktop, including Windows 3.1 or Win95. Terminal applications (e.g., 3270 or VT100, etc.) also can be run anywhere a Java Virtual Machine is present via Java emulator applets.

Evolving from mainframe to server. Meanwhile, when business and technology considerations properly converge, your back-end systems can be gradually moved off mainframes to high-end servers.

The connectivity you need. Since Java Virtual Machines and just-in-time compilers are now included in almost

every major operating system, middleware can be written in any language, using off-the-shelf tools from a variety of vendors producing TP monitors, CORBA ORBs messaging and queuing systems. Middleware can also be written in the Java language to take advantage of Java's Write Once, Run Anywhere capability.

More than any kind of computing that precedes it, Java computing builds on your current infrastructure, positioning your company to fully exploit emerging technologies even as it extends the life of old systems beyond their creators' wildest imaginings.

Furthermore, moving to Java computing really is easy: you can implement incrementally, at a pace that fits your organization's needs and goals. You can keep your existing hardware or software resources, so it won't make your employees' training and skill sets obsolete.

Now is the time to carefully consider the possibilities and opportunities that Java computing opens up for your organization. You'll be in good company.

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RAID Dos and Don'ts *Tips for maintenance*

DO:

Use fast drives

Always use drives with a high internal transfer rate. If the rate is listed in megabits per second, divide by 8 to get the megabyte-per-second rate. For database and publishing work, you should also check the cache or buffer size and the average access time.

Optimize the mode pages

Use a utility, such as FWB's Hard Disk ToolKit or CharisMac's Anubis Pro, that gives you access to the drive's mode pages. On mode page 8, turn on both the read and the write caches and check if the drive gives you control of the number of cache segments. Set the number to 1 for digital video, to 3 or more for publishing work.

Partition the array

Partitions larger than 4 GB are an inefficient use of space and hinder seek time. As of System 7.5.2, you can create partitions of up to 2 terabytes.

Number the partitions

As you go through the process of creating the partitions, number them in order of their location on the disks. The first volumes are on the outside of the disks and have the shortest access times. Use the first volumes for files you're currently using and the later volumes for files that you're storing.

DON'T:

Exceed four drives in an array

Theoretically, the more drives you use with RAID 0, the higher the speed you'll get — Wide SCSI supports 16 devices. But in practice, speed stops increasing when more than 4 drives are attached to one card. You can use either two SCSI cards or a dual-bus card in order to add more drives.

Daisy-chain SCSI cables

Don't exceed a total of 3 meters of cable with a Wide SCSI array. As cable length increases, so do SCSI errors that slow down operations or ruin data. For more than two drives, get a case that can hold multiple drives and that has short internal ribbon cables or use a Differential SCSI card and Differential SCSI drives.

Clutter your SCSI chain

Don't connect additional drives that are not part of the array to your SCSI card, especially if those drives are slower than the ones in the array.

Forget to back up your data


By splitting the data over two drives, you've just multiplied the chance of a drive failure by at least 2. And striped data is harder for disk-recovery services to rebuild. Perform frequent backups.

Stripe drives that have differing capacities and speeds

You can do it, but you really shouldn't. You won't get optimum speed. Always add drives of the same capacity and speed for the best performance.


Raven, supports RAID Level 1 and drive spanning. MicroNet offers its feature-rich DiskWorks for RAID 1 and drive spanning. RAID 1, also called *mirroring*, writes the exact same data to each drive in an array and is great for backup security. Spanning, on the other hand, links multiple drives in order to create one large volume, which is useful when you have drives with differing capacities and speeds that would not work well together to provide a RAID 0 volume but your files are too large to fit on one drive.

RAID-y or Not . . .

Anyone working with very large files welcomes extra speed, and RAID systems are easier to find and more affordable than ever. Check out the chart below for specs and speed results and "The Bottom Line" for our picks and ratings. 

MacUser Labs Test Manager Kristina De Nike believes you can never ever have an excessive plethora of redundancy. She also managed the testing for this report.

Specifications and Speed *The nitty-gritty on each RAID array*

 You can never have too much speed when you're working with large files. Using a RAID 0 array can dramatically reduce the time you spend waiting for files to process. After we noted each array's feature set, we ran all the arrays through a series of MacBench 4.0 tests to compare their speed. First, we ran the Publishing Disk test, which calculates a score based on profiles of the

disk activity of two desktop-publishing applications, Adobe Photoshop and QuarkXPress. Next, we ran the 1-MB Sequential Read and Write tests, which simulate working with large files, especially performing digital-video tasks. The final test we ran was the Maximum Frame Rate video-playback test, which makes use of a QuickTime feature that lets you strip the audio from a clip and stream

the video at the maximum speed. Our test platform was an Apple Power Mac 9500/200 with 64 MB of RAM, running System 7.5.5. The arrays are listed here in alphabetical order.

MacBench 4.0 Publishing Disk scores are relative to those of an Apple Power Mac 6100/60 with a 250-MB hard drive and no L2 cache, running System 7.5.5. The baseline system is given a score of 100.

	List Price	RAID Software	Drive Mechanism	Removable Drives	Warranty	MacBench 4.0 Publishing Disk Score	1-MB Sequential Read MB/second	1-MB Sequential Write MB/second	Max. Frame Rate Frames/second
DIRECT CONNECTIONS PREDATOR AV-5209	\$3,999*	REMUS LITE 1.4	SEAGATE	NO	5 YEARS	502	21.07	21.31	51.71
DYNATEK AVA9.0FDD/W	\$4,699	RAID ToolKit 2.0.6	FUJITSU	NO	5 YEARS	407	16.37	14.97	43.98
JEMS 18 GB GEMINI ULTRA SCSI WIDE ARRAY	\$5,425†	ANUBISRAID 1.3.2	MICROPOLIS	NO	5 YEARS‡	446	20.27	20.02	47.67
MEGADRIE ENTERPRISE E-2	\$6,400*	RAID ToolKit 2.0.5	SEAGATE	YES	2 YEARS	503	17.62	17.42	45.25
MICRONET DATADOCK 18 GB ULTRA WIDE ARRAY	\$6,814	POWER RAVEN 3.0.9	MICROPOLIS	YES	3 YEARS	420	20.37	19.61	49.35
PRODIRECT POWERRAID-M18	\$3,699*	REMUS LITE 1.4	MICROPOLIS	NO	5 YEARS	366	20.22	21.36	52.00
PROMAX PR2-18071WPU	\$4,595*	REMUS LITE 1.4	SEAGATE	YES	5 YEARS‡	502	21.10	21.31	51.69
STREAMLOGIC SLEDGEHAMMER* PRO 2 17400 PCI	\$7,109	RAID ToolKit 2.0.2	SEAGATE	NO	5 YEARS‡	529	21.12	21.15	50.04



MacUser BEST BUY

*DIRECT PRICE

†ESTIMATED STREET PRICE

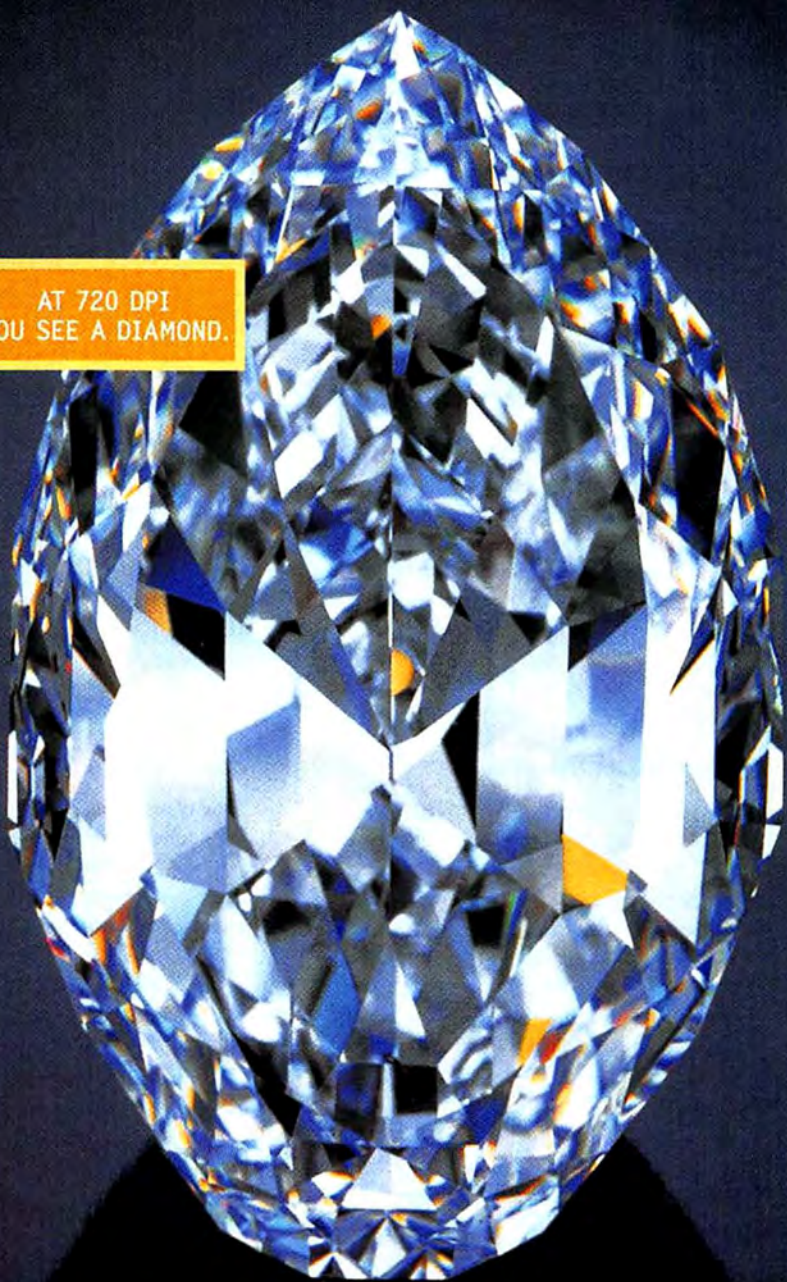
‡2 YEARS FOR CARD

§3 YEARS FOR ENCLOSURE, 2 YEARS FOR CARD

■ BEST PERFORMER IN EACH TEST

AT 360 DPI
YOU SEE A STONE.

AT 720 DPI
YOU SEE A DIAMOND.



YOU'VE GOT TO SEE IT IN

EPSON

COLOR.



AT 1440 DPI
YOU SEE A FAKE.

Presenting the extraordinary new EPSON® 1440 dpi printers. Outrageous Photo Quality color. Microscopic detail. Laser-quality black text. All from our exclusive Micro Piezo™ Technology—for the smallest, cleanest, most consistent dot ever created. You'll get outputs that look just like originals—at overall print speeds 21% faster than any competitor's. Starting at just \$299. Call 1-800-GO-EPSON and ask for Operator 3010 or visit us at www.epson.com. You'll see exactly why these printers are, well...real gems.

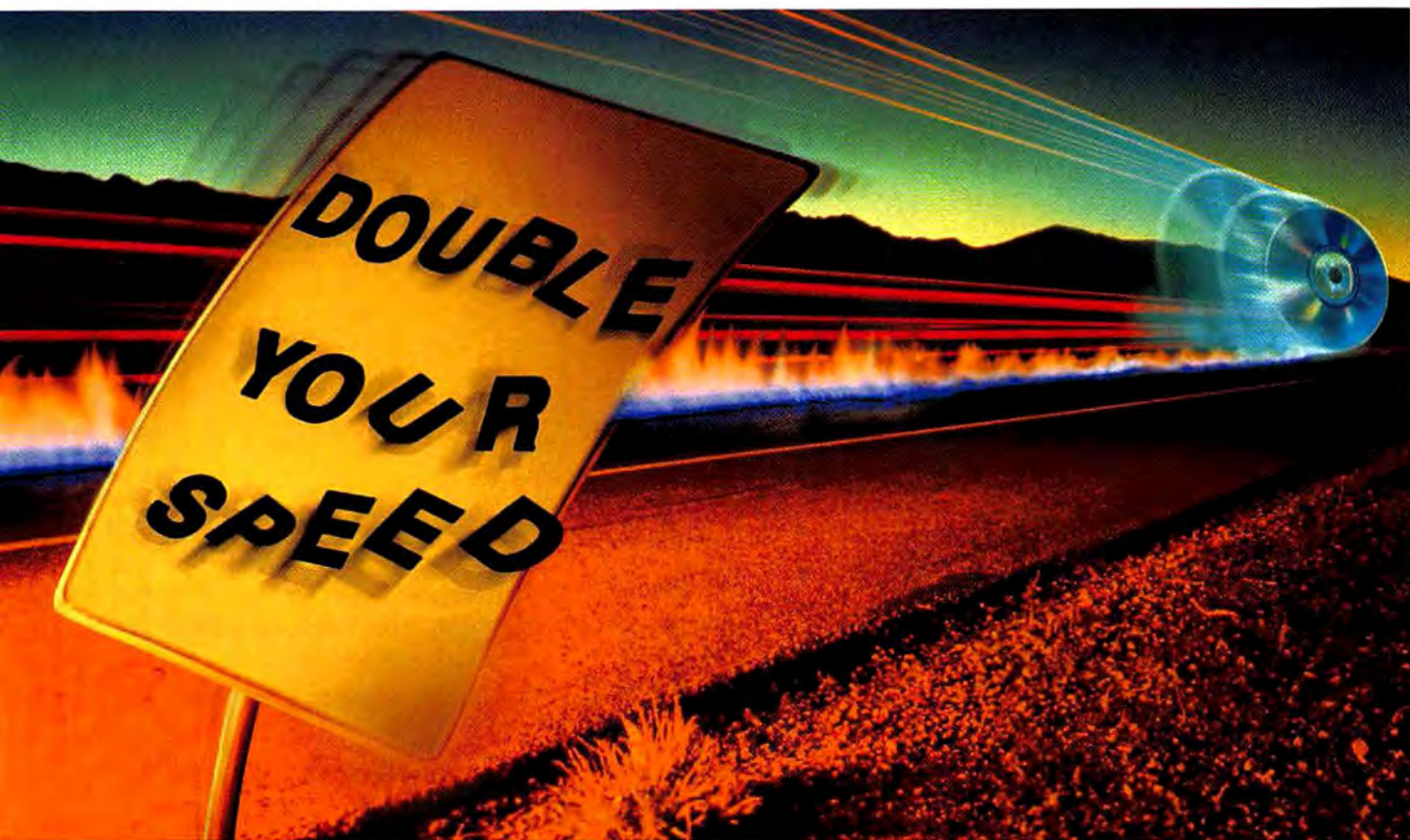
INTRODUCING THE WORLD'S ONLY 1440 DPI COLOR INK JET PRINTERS.



EPSON Stylus® Color 600 just \$299. Photo Quality for home and office.

EPSON Stylus Color 800 just \$449. High-performance business printer.

CIRCLE 123 ON READER SERVICE CARD



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

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CATCHING ERRORS in your documents as early as possible before they go to press conserves time, resources, and materials. Prepress professionals call this process preflighting, because it's much like what pilots go through before takeoff. The latter check switches, tap dials, and make sure every item on their master lists is in order, all to ensure that everything will work correctly once they're up in the air. In both cases (with planes and PostScript RIPs), the idea is to prevent crashes.

Pen and paper used to be the mainstays of the preflight process and are yet to be completely replaced, but these days, there are also many automated tools that can help you make sure your documents are in order. In fact, so many tools, comprehensive or specialized, are now available for graphic design, prepress, and printing that you're probably missing something that can make your job a lot easier.

We've gathered together the following list of useful programs — freeware,

shareware, and commercial — that can help in the preflight process. Take a look. There may be a tool here for you.

Preparing Files for Takeoff

Collection and analysis tools are intended to eliminate those 3 A.M. calls from the printer saying that a critical file is missing and your job can't be printed. If you're on the layout, design, or production side of the publishing equation, this broad category of tools is meant for you.

Let's start with the free utilities included in popular page-layout programs. If you do nothing else to prepare your files, you should use one of these tools. Adobe PageMaker 6.5 comes with the built-in **Save for Service Provider** utility (free, Adobe Systems), a basic preflight kit. This tool collects the graphics linked to the document and copies them into a folder. It does the same with the fonts in the document as well as any fonts in your EPS graphics. It also creates a basic report

By Chuck Weger and Sandy Bozek
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Preflight Insurance

Handy preflight tools to help your PostScript documents fly



providing document statistics, including what colors, graphics, and fonts you've used.

QuarkXPress users have a similar built-in tool, **Collect for Output** (free, Quark), at their disposal. This utility does most of the same basic tasks that the PageMaker tool does. It creates a report file containing information about the document, and it copies the document, the graphics files, and the report file into a folder. However, it copies neither the fonts in the document nor those in the embedded graphics. It lists them, but you must collect them yourself.

Users of QuarkXPress can, however, turn to the **Magpie XT** XTension (\$99 estimated street, Show-Ads Omega Group) if they want a tool that goes a little further. In addition to performing the same tasks as XPress' Collect for Output, this XTension collects the fonts you need. It can also use Symantec's Norton Disk Doubler to compress all the required files before you take them to the printer.

If you want a much more powerful preflight tool that can be used to promote proper printing of files generated in many different PostScript programs — including QuarkXPress, Adobe PageMaker,

GraphicsUser

Adobe Illustrator, and Macromedia FreeHand — try **FlightCheck** (\$399 list, Markzware). This 1995 MacUser Eddy Award winner in the Prepress Application category was the first general-purpose preflight program, and it does comprehensive analysis and reporting tasks.

FlightCheck can give detailed reports in addition to examining linked and embedded graphics for font and color information. It can gather the components of a project to send to a service provider and does quite a thorough job. A useful feature is that it gathers not only the fonts within graphics but also the fonts embedded in graphics within other graphics.

FlightCheck is configurable, which means that you can specify what degree of errors it will report. The program's high degree of flexibility is one of its strengths but also means that the interface is sometimes confusing. FlightCheck may require an experienced hand at setup.

Extensis Preflight Pro (\$399.95 estimated street, Extensis) is a new combination stand-alone application and Quark XTension that should be released by the time you read this article. It's a comprehensive preflight program similar to FlightCheck, but it works only with QuarkXPress and is designed to be easier to use.

Extensis has dressed up Preflight Pro's complex workings in a metaphor familiar to prepress professionals, the job jacket. In the manual preflight process, the job jacket is the folder that holds all the project information. Preflight Pro creates an electronic Job Jacket into which users drop files to be inspected for problems. The program can hunt for potential graphics and font problems and can check and report on multiple QuarkXPress files simultaneously (see Figure 1). Also notable is Preflight Pro's Pilot feature, which not only reports problems but also takes you directly to the problem area in QuarkXPress and suggests changes. The program also includes the Collection feature, which gathers pieces from multiple on-line locations and places them on single or multiple removable disks.

You may need powerful, comprehensive preflight programs for collecting and analyzing your files, but there are also small utilities available that are tailored to specific tasks. Some do chores that the big preflight tools don't do; others may simply do the one thing that's important to you.

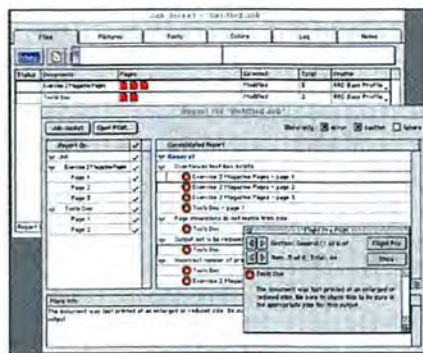


Figure 1 • Several tools can help you do comprehensive preflighting of your documents. *Extensis Preflight Pro*, for example, can find, and suggest solutions for, graphics, font, and other problems in multiple QuarkXPress documents. (A beta version is shown here.)

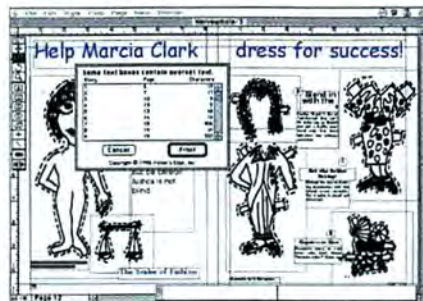


Figure 2 • Some tools can help you with very specific preflight tasks. The free *Overset Alert* Quark XTension, from Vision's Edge, kicks in when you try to print your document. If there's any overset text — text that doesn't fit — *Overset Alert* will stop the printing process so you can fix the mistake.

One such tool is **DocumentDoctor XT** (\$79.95 estimated street, Lepton Technologies), a Quark XTension that examines documents for potential errors and, if you choose, can fix some common mistakes automatically. You can set search criteria in four categories — boxes, text, pictures, and trapping — and DocumentDoctor will alert you to problems in each category. For example, you can search for violations of user-specified maximum and minimum scale, tracking, baseline-shift, leading, kerning, and inset amounts. DocumentDoctor also generates a report of problems found and fixed.

A very handy shareware tool focused on another task is **Find RGB** (\$5 shareware, Paul Reznick). How many times have you printed out a proof of your document and discovered a picture that looks rather odd? If you forget to change an RGB image to print-ready CMYK mode, the image may print only on the black plate, instead of on all four. This little utility can spare you that experience by searching a

folder and all its subfolders for TIFF and Photoshop EPS files that are in RGB mode rather than in CMYK. You can use this as a final check after you've collected your graphics files.

Last-minute text changes are a fact of life, even though changing just a single word can result in paragraph reflow throughout a document that causes type to spill out of the bottom of a text box and disappear. The Quark XTension **Overset Alert** (free, Vision's Edge) can help you catch overset text before you output a document. As your document is preparing to print, *Overset Alert* searches it for overset stories. If none are found, printing continues as usual. If there are overset stories, a dialog box appears in which you can view any of the overset stories by double-clicking on them there (see Figure 2). You can pay for a fuller-featured version of this XTension called **CopySet XT** (\$129 estimated street, Vision's Edge), which lets you correct oversets without canceling your print job.

A Quick Look Under the Hood

If you're a printer, service-bureau professional, or anyone who occasionally receives PostScript files instead of application files from clients, you need some additional tools in your preflight toolbox. Sometimes you need to be able to get under the hood of a PostScript file to check for knocks and pings. You need to be able to print a range of pages instead of all the pages in a PostScript file, or you need to check to see what fonts are included in a PostScript file without opening the file in a text editor.

One handy utility can help with tasks such as these, by pretending to be a high-end output device.

Download Mechanic (\$250 list, Acquired Knowledge) allows you to download, test, analyze, and edit a PostScript file on-screen without committing it to expensive film or plates.

The program has tools for helping you identify, locate, and fix problems (assuming you can speak the language of PostScript) within files and also provides tools for day-to-day printer management that replace separate font downloaders, namers, and other printer-management software.

This application is able to download multiple PostScript files in the background, and it allows you to specify a range of pages to work with. The

file-analysis feature gives you detailed information on the file and also lets you test files with your own RIP without actually printing.

The Final Check

The last task you need to tackle in the preflight process is proofing. The following tools help create "soft" proofs, which you can view on-screen. By doing this, they save you the time and expense of outputting a proof on paper or film when the document still may hold mistakes. A soft proof is derived from the same PostScript file you will eventually print, so poring over the proof can often help you catch errors.

One popular way to create a soft proof is to use **Adobe Acrobat 3.0** (\$295 list, Adobe Systems) to create a PDF (Portable Document Format) version of your document. You can open the PDF file in Acrobat Reader and look it over carefully for mistakes. Essentially, Acrobat's Distiller is a RIP you can use to simulate other, more expensive RIPs. If you see errors, such as blank picture boxes, in the PDF version of your document, there's a good chance that you would see the same if you printed your file.

Acrobat has many other uses as well. You can use the program as a PostScript cleaner when you're faced with a PostScript file that simply won't RIP or is too complex for your RIP. Frequently, running a file through Acrobat will simplify it and generate PostScript code that will run smoothly. Acrobat is also able to save an EPS file that has all fonts embedded. This means that if you are producing an ad that will be placed on a publication page, you can use this feature to assure that the fonts you want to display get used instead of the page's default fonts. Finally, you can do simple edits, such as a last-minute folio change, to text on a PDF page.

You'll find another potent proofing option in **Transverter Pro** (\$395 list, TechPool Software). This program can preview only one page at a time, but unlike Adobe Acrobat, it lets you do last-minute edits of your graphics files as well as of text.

Transverter Pro provides a viewer and a converter for PostScript files. The viewer is a PostScript previewer that RIPs the file to the screen for inspection. The converter changes PostScript files into editable file formats — including FreeHand, Canvas, and Illustrator — or into TIFF or EPS with an attached preview, for placement

in documents. With Transverter Pro and some patience, you can reverse-engineer an entire document, pulling out and editing all the images.

If you were intrigued by the basic capabilities of Download Mechanic (discussed earlier), you may want to spring for the professional version, **Download Mechanic Pro** (\$499 list, Acquired Knowledge). This version adds soft-proofing features and boasts the addition of a software preview RIP. The RIP creates a low-resolution (72 to 144 pixels per inch) grayscale or RGB color version of your file that you can check for errors.

Another soft proofifier you may want to look at is **Epilogue** (\$895 list, Total Integration). This Photoshop plug-in is a network-accessible, software PostScript interpreter and quick-viewing application that allows users to preview PostScript and EPS files on-screen.

Takeoff!

As you think about what preflight tools you may want to use, remember that the point of preflight is to eventually get your document off the ground. It's possible to spend inordinate amounts of time preflighting a file, and if you find yourself doing this, stop and reevaluate your procedures. Preflight shouldn't really take more than five minutes per page. On the other hand, it's fair to warn you that investigating an error and repairing it can take a lot longer, especially since it can mean sending the file back to the person who created it in order to get it fixed.

Preflight is necessary, and it's feasible for most people these days. But tools are only a small part of the larger file-preparation process. We can't use software to magically solve all of our problems in digital prepress. The process starts with printers, trade shops, and service bureaus educating their customers (and themselves) about efficient ways to prepare their files, and it ends with that trite-sounding but necessary activity called *communication*.

All the preflight programs in the world won't help your files if there's a failure to communicate between you and your service provider. Remember that, and the runway to positive preflight won't be paved with potholes. ☐

Chuck Weger, in addition to being a MacUser contributing editor, is a graphic-arts consultant with Elara Systems who developed the concept of

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303-343-2086 (fax)
www.quark.com

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847-776-2378 (fax)
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Vision's Edge, Tallahassee, FL
800-983-6337 or 904-386-4573
www.xtender.com

preflight, in 1991. Sandy Bozek is manager of Support Central, a group that provides support for R. R. Donnelley & Sons' 20-plus digital-prepress plants. She is also coauthor of Photoshop in Black and White.

By Sherry London

graphicsuser@macuser.com

Perfect Patterns

Create better background images for print or the Web by taking advantage of Adobe Photoshop's powerful layer masks.



1 Choose or create your base image, and edit it in Photoshop.

Open the image you wish to make into a seamless tile, and crop or resize it to an appropriate size for your project. If you're printing at 300 dpi on a laser printer, you won't want your tile to be smaller than 100 pixels square; 150 to 300 pixels will work even better. However, unless you're printing a poster or outputting the final image on a film recorder, you probably won't want a tile larger than 1,000 pixels, because it won't have much chance to repeat. If you're going to use your pattern on the Web, work at 72 dpi, which is screen resolution.



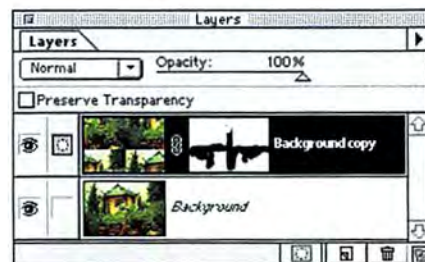
2 Create and offset a duplicate background layer to take a good look at the seam line.

When a photo is seamless, it has no obvious edges; when it's tiled you have a hard time seeing where each individual image begins and ends. But to create this illusion of endlessness, first you need to take a good look at how the image's edges fit together. To begin, duplicate the background image (Layer: Duplicate Layer). Next, offset the image in this layer (Filter: Other: Offset), making sure to choose the Wrap Around option and set the horizontal and vertical offset distances to one-half of the image's dimensions. This will place the outer edges of the image (the edges that will meet in a pattern) next to one another along the center of the image, letting you see an obvious seam line.



3 Create a layer mask, and begin to brush out the seam line.

Create a layer mask (Layer: Add Layer Mask: Reveal All) in this top layer, and brush over the seam line that bisects the image in both directions. Paint with a fairly large, soft paintbrush, and use black as the foreground color. (When you paint with black in a layer mask, your painting hides the current layer and reveals the layer below.) You will probably have to paint all the way to the edges of the image in order to cover all the obvious flaws. However, try to make as few changes to the edges of the image as possible, because any changes you make could create new, more obvious seams when the image is tiled. Your particular photo will dictate exactly what details you brush in or out. If you're trying to make a seamless floral image, for example, you might want to reveal an entire flower from the layer beneath, even if it means removing more from the top layer than just the seam line.



Adobe Photoshop
 Adobe Systems, San Jose, CA
 800-833-6687 or 206-628-2749
 716-447-7303 (fax)
 www.adobe.com

Stock Photography Distributor
 Image Club, Calgary, Alberta,
 Canada
 800-661-9410 or 403-262-8008
 www.imageclub.com

ENDLESS JELLY BEANS, REPEATING ROCKS — whether you're wallpapering your desktop or your Web page, seamless, tiled photographs serve as attractive, sometimes striking, background images. However, making something seamless isn't necessarily simple. The tools most commonly used to patch together photographic patterns — the Seamless Welder filter in Kai's Power Tools 3.0 and the Photoshop Rubber Stamp tool — both present certain problems.

The Seamless Welder filter is fast and efficient but often leaves a noticeable blurriness along each tile's "seamless" seam line. This blurriness can form an unintended pattern of its own. On the other hand, the Rubber Stamp tool can work wonders, but

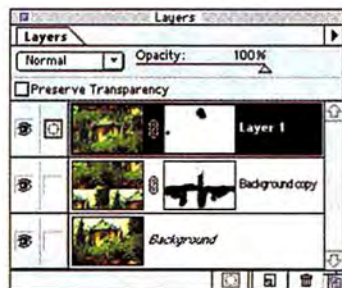
using it is usually a painstaking process. Worst of all, by the time you've used the Rubber Stamp to cover the seam line with detail from another part of the image, you can easily have muddled the texture past the point where it can be used.

The trick is to brush out, rather than blur out, the edges of your image in Photoshop, and the best way to do this is with a layer mask. Using a layer mask gives you total control over your results by letting you modify and perfect exactly how the edges of your photographic pattern blend.

Here we'll show you how to tailor a photographic image so that — when tiled — it will create a perfect pattern. (We've used Photoshop 4.0 keyboard commands, but the steps also work in

older versions of Photoshop.) Keep in mind, however, that you'll get the best results when you start with source material that has some reason to be made into a pattern. A photo that shows only the top half of a person (and therefore clearly has a piece missing) is likely to look a trifle odd no matter what method you use to make it repeat! But an image that has no obvious beginning or end, such as a field of flowers, the ocean, or a table-full of cookies, can work wonderfully.

Sherry London is a graphic artist and a contributing editor for Computer Artist magazine. You can find more texture techniques in her new book Photoshop Textures Magic (Hayden, 1997).



4 Test the altered image's seamlessness.

Your image may appear seamless at this point, but that doesn't mean it is quite yet. You need to test it. To do so, create a new layer (Layer: New: Layer) and drag it to the top of the layer stack. Next, press the Option key while selecting the Merge Visible command (Layer: Merge Visible). This places a copy of the combined image into the new, empty layer you created, so that you can evaluate the new version of the image and see if it will tile seamlessly.

5 Repeat your steps until you eliminate any lingering seam lines and flaws.

We discovered problem areas when we tested our image — specifically, hard, sharp lines at the center top (going down to the roof line) and the middle left edges. If you see such flaws, you need to repeat your steps. Reapply the Offset filter (Filter: Other: Offset) to the top layer of your image, just as you did in step 2. If there's still a straight line along the offset seam line, then the image definitely needs more work. Even if there's not an obvious line, however, if you look carefully, you'll probably still see traces of a seam. The most likely places are at the center of each edge of the image and at the exact center of the image. Create another layer mask, and repair the seam as you did in step 3. Repeat again if necessary.



6 Apply the finishing touches, and tile your image.

Certain images are more stubborn than others, but if you find yourself with more than four or five layer masks, you might want to go ahead and smudge out any remaining problem areas with the Rubber Stamp tool. (Make sure to apply the tool to the *image*, not the layer mask!) This tiny bit of fiddling is usually all that is needed. When you're convinced that your image is seamless, select it (Select: All) and turn it into a pattern (Edit: Define Pattern) so that you can tile it easily. Create a new image (File: New) that is the size you want, and then fill the canvas with your completed pattern (Edit: Fill: Pattern). A perfect wrap!

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CIRCLE 126 ON READER SERVICE CARD

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SO YOU'RE MAKING THE TRANSITION from managing a handful of Web pages to managing a site of dozens, even hundreds, of pages. But you're wary of the challenges. You know that several tools are available to help you manage your site, from Adobe SiteMill to DeltaPoint's QuickSite, but you're also aware that these commercial applications are expensive and may not individually include all the features you need.

Before you decide to invest in a site-management program, consider an alternative that's increasingly popular in the Mac Webmaster community: UserLand Software's Frontier. Although it isn't the easiest Mac application to use, it has very

important advantages over most site-management tools on the market — it's flexible, and it's free.

The New Frontier

Frontier began life in the early 1990s as a commercial scripting environment, designed to automate file management and to remotely control scriptable applications. Today it's free, and unlike AppleScript, Apple's scripting software, it's fully PowerPC-native and multithreaded and has a built-in database in which you can store information permanently.

With the advent of the World Wide Web, Frontier has become a powerful tool for Web-site management, allowing Webmasters to organize and automate the creation of large Web sites. You can also use it to create CGI (Common Gateway Interface) applications that add capabilities to Mac Web servers.

Frontier isn't a WYSIWYG page-design application; you must know the basics of HTML to use it. In fact, it's not much of an HTML editor, instead providing a framework for your Web site and its pages. Like AppleScript, Frontier is a scripting environment, and you'll want to learn at least the rudiments of UserTalk, Frontier's scripting language. This isn't as challenging as it sounds, as you can easily get by with knowing only a few of Frontier's many commands. But the fancier you want your site to be, the more you'll want to spice it up with custom scripts.

In this article, we'll give you a taste of Frontier's structure and site-management interface; take you step by step through the site-creation process; and describe some of Frontier's more important tools, including templates and glossaries.

Frontier Basics

So what is Frontier, anyway? It has two basic components — the Frontier application itself and a companion file, called Frontier.Root. The root file is actually a database, organized much like the Finder, with a tree structure. Like folders or an outline, the database is a hierarchical collection of objects. We'll describe a few of the many kinds of objects, as we use Frontier to create a basic Web site.

The first kind of object you're likely to notice is called a *table*. Tables can contain other objects, references to files, and even other tables (see Figure 1). Another useful object is *wp text*. Clicking on a wp text object reveals a window into which you can

By Eric S. Taub

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Web Sites, Frontier-Style

If you're a Webmaster looking for flexibility and power, take a look at UserLand's Frontier, the rough-and-ready (and free) site-management tool.



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enter text, just as if you were typing in a word processor. For starters, you'll enter most of your HTML pages' body text into these text objects (accessible from the root table), although more-sophisticated pages can use other Frontier objects, such as *outlines* and *scripts*.

If you've ever worked with Microsoft Word in Outline mode, Frontier's outline objects should look familiar to you. You can nest lines of text hierarchically and can rearrange outlines by dragging various outline elements. Outlines can play a special role in a Frontier-managed Web site: You can use them to create various kinds of lists, tables, and even forms. Scripts look quite a bit like outlines, except that instead of containing text, they contain commands in UserTalk (you can also write AppleScript scripts and store them in Frontier script objects, if you prefer).

Name	Value	Kind
examples	55 items	table
people	1 item	table
headline	on disk	wp text
scratchpad	on disk	table
suites	38 items	table
system	14 items	table
user	26 items	table
workspace	2 items	table

Figure 1 • Tables can be nested within other tables, as they are in this topmost table in the root file's hierarchy of objects. The way you nest tables within your Web sites in Frontier can have a great effect on how they're finally formatted.

Name	Value	Kind
#alink	000000	string [6]
#bgcolor	FFFFFF	string [6]
#filters	2 items	table
#ftpSite	3 items	table
#link	0000FF	string [6]
#template	3 lines	outline
#vlink	800080	string [6]
#glossary	0 items	table
#tools	0 items	table

Figure 2 • The mySite table contains objects and a set of Frontier directives used to configure and organize your Web site. The #alink, #bgcolor, #link, and #vlink directives refer to the page-background color and the colors for active, nonactive, and visited links that will be specified in the header of any page created from this table.

Your First Frontier Web Site

A complete description of Frontier's site-management capabilities and tools is beyond the scope of this article, but you can get a pretty good idea of them by creating a simple Web site. After you've launched Frontier and entered your name and e-mail address as prompted, you can create a new site or import an existing site into your root file. Frontier can properly parse pages created by HTML editors such as Adobe PageMill and Claris Home Page.

To see the full benefit of Frontier's automation capabilities, let's create a site from scratch, using these steps:

1. Select New Site from the Web menu. Name your site "user.websites.mySite," and click on OK. Frontier creates a table containing *directives* (the table entries beginning with #) as well as empty glossary and tools entries. Directives contain information that will be automatically incorporated into the HTML pages Frontier generates for mySite when you give it the command to create, or, in Frontier parlance, *render* the site. Directives in the table affect every page in the site and in subsidiary tables, unless you override them with other directives specific to a given page (see Figure 2). Most of the directives Frontier supplies for you pertain to the colors that will be applied to pages controlled by the table.

2. Before you can create Web pages, you have to tell Frontier where to put the HTML files it renders. You do this by choosing a destination with your site's #ftpSite table. Click on the triangle at the left of #ftpSite to open the table, and you'll see that Frontier has stored the path of a local folder it has created for your pages in the Folder entry and has made a space for you to enter your site's URL. After you've rendered your site, Frontier can use FTP client software to upload your pages to a Web server. For now, store your site in the local folder. Close the #ftpSite table.

3. With your mySite table frontmost in Frontier, select New Text from the Table menu. Name the text cell "home" (it'll become your site's default home page), and click on OK. Open the new entry, and type

```
#title "My First Page"
This is my first page.
This is just a test.
Now close the window.
```

You have just created your first Web page in Frontier. If you'd rather use a text editor to create and modify your pages,

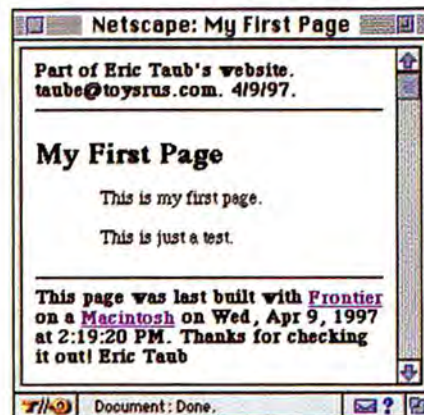


Figure 3 • Using Frontier's "normal" template, you can add formatting and boilerplate text to your Web page automatically. Notice how the template formats the page title; applies the Block Quote tag to your body text; and even retrieves the user name and e-mail-address information you entered, to create a footer for the page.

you can use BBEdit. With BBEdit installed, highlight the home entry you just made and launch your home page in BBEdit with the keystroke Command-E. When you save your changes in BBEdit and return to Frontier, the text will appear within your text cell.

To preview your page, highlight the home entry in your Web site's table and select View in Browser from Frontier's Web menu. The page that appears in your browser isn't fancy, but it's all yours!

4. Add this line to the beginning of your home text cell:

```
#template "normal"
```

Now preview the page in your browser. It looks something like Figure 3. You've just gotten your first taste of the power of Frontier's templates and produced a basic home page. Now let's take a look at some more-advanced features that Frontier offers.

Massaging the Page

You may have noticed that your rendered pages, especially the one to which you applied the "normal" template, contain information and text you haven't actually typed yourself. Frontier's rendering process does some very neat, and welcome, transformations of your text.

First, anytime you type a URL, Frontier will automatically insert the appropriate tags around it, so that `http://www.macintouch.com` in your text object would be rendered as ` http://www.macintouch.com`. In a

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By Jason Snell

jason@macuser.com

Not Your Father's HTML

Innovations in the language of the Web will change your relationship with HTML forever.

IT'S HARD TO BELIEVE but true. HTML used to be a simple, easy-to-use language that let just about anyone publish documents to an audience of millions, via the Web. But the humble little markup language has morphed into something radically more complex than its text-based beginnings: HTML has become a nearly indecipherable patchwork of tags more suited to creating pixel-perfect front ends for interactive applications than for simple text documents.

Back when I started on the Web, HTML files looked a lot like plain text files, save the stray `<i>`, ``, or `<p>` tag and a few `<h1>` headers. Of course, there were drawbacks to this simplicity: Anyone used to working in a modern word-processing app, let alone page-layout programs such as QuarkXPress or PageMaker, chafed at HTML's restrictions. There were no easy ways to wrap text around images, center text, or place objects on a grid.

These days, you can do all that and more in HTML. Too bad all these new capabilities, especially those supported by the forthcoming Netscape Navigator 4.0, will be the death blow to HTML as a readable, easily coded language. Although a few hackers will still tweak their pages by hand, most of us will end up tossing aside

BBEdit, relying instead on intermediaries such as NetObjects Fusion and GoLive CyberStudio.

Web PostScript?

Although I'll miss the old days, this doesn't necessarily mean I'm sad to see them go. A couple of Navigator 4.0 HTML innovations, namely layers and pixel-level positioning, may make it worthwhile to leave the past behind. With layers, for example, you can embed several items in one HTML document and then allow the user to turn those items on and off. Layers will allow Web authors to add interactivity to their sites via HTML, rather than forcing them down a complicated

Because the Web is the lowest-common-denominator environment. Many Web authors avoid Java, because it's unreliable, often slow, and not enabled in many browsers. They avoid using browser plug-ins, because relatively few users have the right plug-in installed and there's currently no good way to download and install them on the fly. By contrast, *every* browser supports HTML.

Doing It with Style

The question is how to satisfy the demands of professional Web publishers and keep HTML accessible. I'm not convinced we have to retrofit roller skates with rocket engines to get where we want to go. Wouldn't it be better to create a new standard, some language that's *not* HTML, and use it to create the small fraction of Web pages that need pixel-level control and multiple layers? Perhaps a more realistic hope would be that Web authors will get fed up with HTML bulge and move to another format, perhaps a browser plug-in such as Macromedia's Flash. Such an approach will become more likely when Navigator 4.0—which adds the ability to automatically download and install browser plug-ins on the fly—ships.

Another possibility is that the new HTML style sheets supported by both Internet Explorer 3.0 and Navigator 4.0 will lure Web designers away from bulging HTML. Style sheets let Web authors define what standard HTML styles can represent for one document or a whole site. For example, you can use a style sheet to define the typeface and point size for your `<h1>`-tagged headlines, the indent and margins for your body text, and what color your background will be—all in a file that's separate from HTML itself. Then, your HTML documents can be simple style-neutral repositories for your Web content, with custom styles added when the pages go out to your readers.

All Web designers should be excited about the new power they'll find in the next generation of Web browsers. But at the same time, they should be aware that just because these browsers can use HTML in new and exciting ways doesn't mean that HTML is the best vehicle for their cutting-edge designs. ☐



road to Java or Shockwave. Unfortunately, the new tags that make this possible also contribute to making HTML files unreadable by average mortals.

Then there's pixel-level control, which *really* confuses things. Even at HTML's most complex, objects have always appeared in logical order. Not so with pixel-level control, which will let you control the exact placement of items on your Web page. With this change, HTML is becoming a spit-and-baling-wire construct that lets you create the precisely formatted screens you might have once created in QuarkXPress—or even Director.

These new features will eventually give Web designers the control they've desperately desired for years, especially when Web-authoring apps supporting these innovations appear. The problem is that they also continue the trend of retrofitting HTML to do things it was never meant to do.

So why does this keep happening?

Jason Snell, MacUser's senior editor, online, is also the editor of the online publications *InterText* (www.etext.org/Zines/InterText) and *TeeVee* (teevee.intertext.com).



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CIRCLE 54 ON READER SERVICE CARD

SmartUser



By Bob LeVitus and Christopher Breen
helpfolder@macuser.com or tips@macuser.com

Help Folder

Get Internet info fast,
identify System Folder
debris, and trick AOL.

Trade Net Speed for Disk Space?

I've discovered a mysterious Netscape Navigator folder called Cache f. What is this? And can I trash the more than 5 megs of files it contains?

David Scudder, via the Internet

Bob: Yes, you can toss the files, but you may not want to — keeping them can speed up Web browsing.

Chris: Exactly. What happens is that when you visit a Web page, using almost any browser, the browser creates a cache file of that page and stashes it in your Cache f folder (located in the Netscape f folder in your System Folder's Preferences folder). If you later revisit the page (and if that page hasn't been updated), your browser will use the cached file on your hard disk rather than download the file from the Web. If you've had more than 46 seconds of experience with the Web, you know that a page stored locally on your hard disk loads waaay faster than one coming in over your modem.

Bob: It's up to you to decide if having 5 megs of disk space is more important than squeezing every ounce of speed you can out of your browser. If you do opt for saving space, you can reduce the size of the contents of the Cache f folder or

completely empty it. Here's how to reduce the size if you're using Netscape Navigator: Choose Network Preferences from the Options menu, and set the Cache Size to 1 or 2 MB. If you want to get rid of everything in the Cache f folder, click on the Clear Disk Cache Now button.

Conversely, if you prefer pages to load faster when you revisit them, you should set the cache size to be as large as you can afford.

Chris: Those of you who want to save space and are fans of Microsoft's Internet Explorer, version 3.0 or later, choose Preferences from the Edit menu, click on the Advanced tab, and proceed as Bob explained. To empty the Explorer Cache folder (which corresponds to Navigator's Cache f folder), merely click on the Empty Cache button.

If you want the end-all and be-all of browser speed, try taking an entirely different tack — use a RAM disk for your cached files. Pulling cached files from RAM rather than from your hard disk will give you that extra oomph you've been craving.

The Overloaded Performa

My new Performa came loaded with a lot of software I don't need. Although it's relatively easy to clear the hard disk of unwanted applications, it's not so easy to tell what to trash from the System Folder. Is there an easy way to figure out just what each System Folder item is for?

Cyndy Henry, via the Internet

Bob: Well, the cheap and easy way is just to move the likely items out of the Control Panels, Extensions, or Preferences folder; restart your Mac; and then see if anything untoward happens. Whatever you do, don't trash the files for a few days, as some untoward happenings take a while to manifest themselves.

Just as cheap but not quite as dangerous is to use Apple's Balloon Help and point at extensions and control panels in hopes of finding useful descriptions. Probably more useful is Mac OS 7.6's Extensions Manager. Just like Casady & Greene's Conflict Catcher 4 and Now Software's Now Startup Manager, Extensions Manager gives you a brief rundown on what the various items in your System Folder do.

Chris: For those who are willing to spend a few bucks on shareware (it's the right thing to do, you know), there are a couple

of programs that may help you out, most notably the five-mouse-rated InformInit, created by Dan Frakes and available for a mere \$15.

InformInit shoots you the poop on hundreds and hundreds of System Folder files: control panels, extensions, and other System Folder contents from Apple as well as from third-party developers. It includes file descriptions, version numbers, and helpful tips (even a few "secrets") plus information on RAM consumption and who needs what. We like it a lot — and not just because Dan rightfully credits us with one of the entries.

The only negative is that as of this writing, it doesn't cover Mac OS 7.6 (it goes only up to System 7.5.5). But look for it in your favorite shareware library online or from the library of a Macintosh user group. More than likely, a version covering Mac OS 7.6 will be available by the time you read this.

Another even less expensive product is Extension Informant for Macintosh and Power Macintosh, by Joseph Cicinelli. This \$10 shareware is a HyperCard-based help system that explains over 150 Apple and third-party extensions and control panels, with hypertext links and direct access to related Web sites. But like InformInit, it's current only through System 7.5.5 at this writing.

Bob: Finally, for those who are shareware-impaired or lacking Net access, there's a book that contains a chapter entitled "What Can Stay and What Can Go" that discusses extensions and control panels and tells you how much RAM and hard-disk space each requires and what the consequences will be if you delete one. Best of all, it's current up to Mac OS 7.6. I should know. I wrote it. It's called *Mac OS 7.6 for Dummies* (Foster City, CA: IDG Books, 1997).

America Offline

AOL has recently instituted a policy that gives loyal subscribers yet another reason to dump it. After about 40 to 45 minutes online, AOL disconnects you if you don't respond to a warning that pops up on-screen. The other night, I tried to download a long file; stepped out of the room; and by the time I came back, had been disconnected. This is not unlimited service for \$19.95 per month.

Is there a way to make these warning screens disappear automatically?

Name Withheld, via AOL

SmartUser

Chris: Bob, you want to be the good cop or the bad cop on this one?

Bob: You mean there can be a good cop? You know how I feel about America Online.

Chris: Hmm, I see your point. Tell you what. I'll be the passive/aggressive cop, and you give the answer after I'm done with my rant.

Bob: Fine by me. Go get 'em, tiger.

Chris: Name Withheld, let's put ourselves in America Online's place. The company instituted a flat-fee policy and — gosh oh gee, what a surprise — it discovered that when people are allowed to take as much of something as they like, they do — and then some. The result? The company's access lines were swamped, and it was nigh on impossible for the computing masses to log on.

Bob: You mean like tonight, when I got 22 "all circuits are busy" messages while trying to log on? But I digress.

Chris: So what did the company do? Pleaded with users to restrain themselves until it could install more access lines and hardware. A perfectly reasonable request, although the folks in charge should be pilloried for opening the floodgates before having the requisite hardware. Despite the company's pleas, several AOL members decided to have and hold onto their connections on the rare occasions when they became available. This just made the problem worse and prompted America Online to create the notorious "Get off here if you're not doing anything, Bub" dialog box.

Although I agree that something should be done about line hogs, it's unfortunate that people like Name Withheld

get booted offline when their intentions are pure.

Bob: If you're done with your tirade, I'll get on to answering Name Withheld's question. There's a great \$8 shareware control panel — AlwaysOnline (see Figure 1), by Alex Rampell — that can ease the woes of many an AOL user. Not only does it automatically hit the OK button for you in dialog boxes that ask if you want to remain online but it also allows you to dial as many as 999 times to get online. Without the control panel, the maximum number of dial-up attempts you can make is 5.

There is one other alternative: Use an ISP (Internet service provider) to connect to the Internet, and then log onto AOL via that connection.

Consult This Consultant

Chris: In the April '97 issue (page 95), we recommended several inexpensive PIMs (personal-information managers). Well, clear the decks and hold me back, Bobby LaVee — we've got a new fave. Chronos' Consultant costs \$25 and can be downloaded from MacUser's Mac Download or directly from the company's Web site at www.chronosnet.com. Consultant is commercial-grade software that can be purchased at a shareware price.

Auto On/Off for Older Macs

Bob: Finally, several readers wrote to inform us that owners of older (read "non-PCI") Macs can use Apple's Auto Power On/Off control panel to turn their Macintosh on and off at specified times. You may have to perform a custom install of system software (Mac OS versions 7.1 or later) to get this little booger onto your hard disk, but for those of you who have NuBus Macs, it's cheaper than the product I recommended in April (page 96). However, you should still consider the product I mentioned — the PowerKey Pro, from Sophisticated Circuits — if you want more versatility.

Chris: If you're a Performa owner, you'll have to make a little extra effort to get the Auto Power On/Off control panel. Even though certain Performa models support it, Apple did not include it on the Performa system-software discs. It's not online; Apple won't give it to you; and because it's Apple's property, we're unable to mail you a copy. You can get it by purchasing the retail version of Mac OS 7.6, however. ☹

Tips • Extension Managers

Custom Packages

You can turn a bunch of extensions and control panels on or off with just one click by using a new feature (called packages) in Mac OS 7.6's Extensions Manager. For example, you can turn all Open Transport components on or off simultaneously. Here's how to create packages:

Using ResEdit, open copies of the extensions and control panels you want to package. For each file, open the version resource and then open resource ID 2. In the text field labeled "Long version string (visible in Get Info)," type the name of your package — if, for example, you want to place all your CD-ROM extensions in a package, call it CD-ROM Package. Save the hacked files, quit ResEdit, and replace the copies in your Extensions and Control Panels folders with the hacked versions. The next time you open Extensions Manager and view your extensions and control panels as packages (select Packages, on the View menu), you'll find your hacked files neatly packaged together.

Lee Slone, via the Internet

Rid of Multiplying Launcher Aliases

In the article "Bug Extermination," in the April '97 issue (page 93), Ted Landau discussed the problem of Launcher aliases that multiply in the System Folder's Duplicate Items folder. It seems that these aliases result from a misunderstanding among the Launcher, the General Controls control panel, and Now Startup Manager. Landau suggests changing the name of the Launcher alias so that it no longer matches the name of the original. This is good advice as long as you never turn the Show Launcher option in the General Controls control panel off and then on. If you do, your problem will return. I have a more permanent solution:

Remove the Duplicate Items folder from the System Folder. Create a one-character file in SimpleText, name it Duplicate Items, and place it in the System Folder. Now Startup Manager won't be able to put the alias in this file, and because folders can't replace files, the system software will be unable to create a new Duplicate Items folder, as it normally would if you simply threw the old Duplicate Items folder away.

David Vasilevsky, via the Internet



Figure 1 • Tired of getting the bum's rush from AOL 3.0? Check out Alex Rampell's AlwaysOnline. It's available from MacUser's Web site and, oddly enough, from AOL's.

Bob LeVitus is the Mac columnist for the Houston Chronicle and a consultant to the Motorola Computer Group. Christopher Breen is the author of The Macintosh Bible Guide to Games, published by Peachpit Press.



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APS ST 4300 W	Seagate Barracuda, 4148MB, 7200 rpm	N/A	\$99995	\$104995
APS ST 4500 W	Seagate Cheetah, 4348MB, 10000 rpm	N/A	N/A	\$124995
APS Q 9000 W	Quantum Atlas II, 8682MB, 7200 rpm	139995	144995	149995
APS ST 9000 W	Seagate Barracuda, 8600MB, 7200 rpm	N/A	159995	164995
APS ST 9100 W	Seagate Cheetah, 8683MB, 10000 rpm	N/A	N/A	199995

APS POWERBOOK STORAGE

Model	Description	Int.	SR 2000	APS Pro
APS PowerBook Drive	IBM DS0A-21080, 1080MB, 4000 rpm w/ SCSI converter card	\$59995	N/A	N/A

APS REMOVABLE DRIVES

Model	Description	Int.	SR 1000	SR 2000
APS SQ 5200	SyQuest 5200, 190MB	\$34995	N/A	\$38995
APS Jaz	(with 1 cartridge) 1GB	N/A	\$39995	39995

APS MO DRIVES

Model	Description	Int.	SR 1000	SR 2000
APS 230 MO	(with 1 cartridge) 217MB	N/A	\$29995	\$37995

APS CD-ROM DRIVES

Model	Description	External
APS CD16	16X CD-ROM in slimline case	\$15995*
APS CD-R	2X record/6X read CD-R (Phillips)	49995
APS CD-R Plus	2X record/6X read CD-R (Sony)	49995
APS CD-R Pro	4X record/6X read CD-R in Pro Enclosure	79995
APS CD-R Pro	4X record/6X read CD-R in Full Height Enclosure	89995
APS Jaz/CD-R System	2X record/6X read CD-R	89995

*Available in an SR 2000 Enclosure for an additional \$100.00

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APS HyperDAT®	DDS-2DC, 8GB	74995	79995
APS HyperDAT® Pro	DDS-2DC, 8GB	84995	89995
APS HyperDAT® III	DDS-3DC, 24GB	114995	119995

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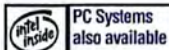
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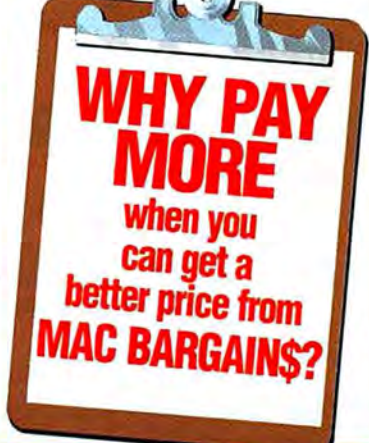
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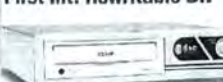
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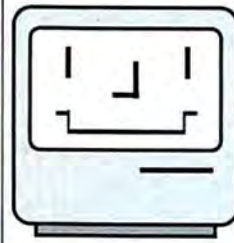
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I'D COLLECT PETS INSTEAD OF KIDS if I were the old woman who lived in the shoe. Fat, fluffy, furtive, or fast; slinky, slimy, stinky, sharp-clawed, and slobbery — they'd all be welcome. But I'd have one big advantage that the old woman didn't have — my Mac. When I got to the point of having so many pets that I didn't know what to do, I could turn to the overwhelming amount of resources available for pet lovers, both on CD-ROM and the Web (pet sites seem to be second in number only to porn sites on the Internet).

If you too dream of a cat in every corner or simply want to do a better job of taking care of Spot, come along on this tour of Macintosh pet resources.

Catnip for the Soul

In the '90s, the phrase "are you a cat person or a dog person?" has become a social

litmus test akin to "What's your sign?" Since the cat people have a reputation of being more, shall we say, persnickety, let's attend to their needs first.

For cat-loving kids, there's Inroads Interactive's **Multimedia Cats** (♦♦♦, \$39.95 list). Although this children's CD-ROM is entertaining, it comes up short in a few important areas. There's no real opening to get you warmed up, and most of the video has no sound. Another problem is a bland interface. It's based on the uninspired metaphor of a shelf containing objects that represent the CD-ROM's different areas, such as cat breeds, games, and general reference material.

Even though it's not flashy, Multimedia Cats does offer useful information; cute photos; and most important, some fun games for kids. Youngsters will especially appreciate the Cat-Scan section, which lets you find your dream cat by setting preferences such as how often you'd be willing to groom it or how friendly you'd like it to be.

For a more informative tour of the feline world for adults and children, I'd recommend DK Multimedia's **Eyewitness Virtual Reality Cat** (♦♦♦♦♦, \$29.95 list), a CD-ROM that would do even the Nature Channel proud. Based on a museum metaphor (and boasting a beautiful 3-D interface), Eyewitness Virtual Reality Cat demonstrates how captivating multimedia can be. Wandering the museum halls, you'll find an exhibit on every type of feline (although the domestic cat is dealt with only briefly) surrounded by artifacts and paintings that delve into its place in history and mythology. You'll also find exhibits about cat anatomy and calls, learn how to track cats by their footprints, and watch high-quality video on every conceivable topic.

A Doggy-Dog World

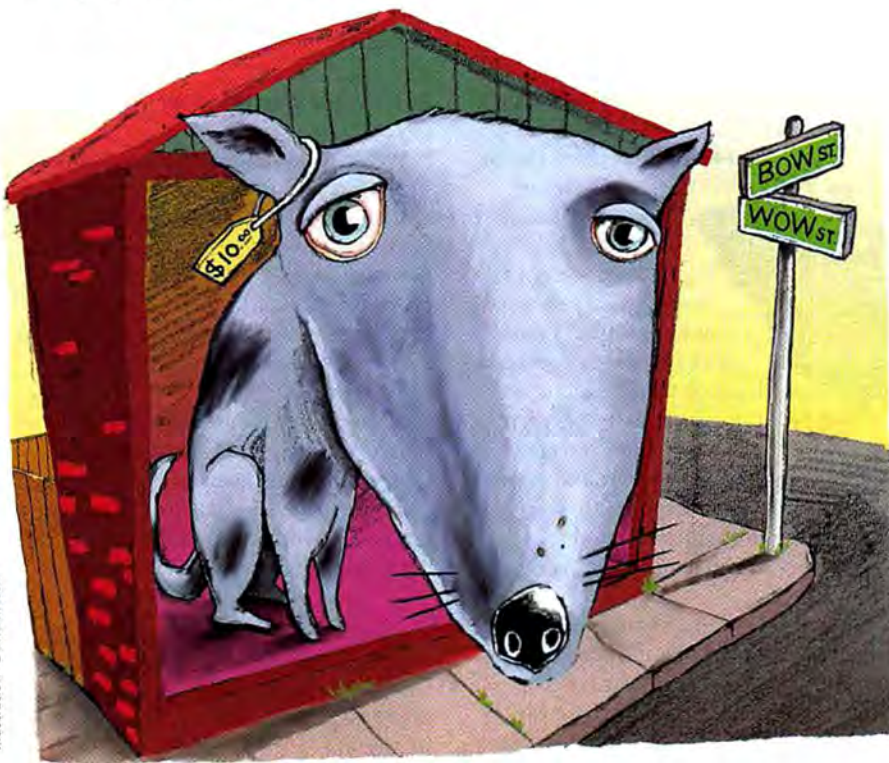
If you want as much information on dogs as can be packed onto a CD-ROM, take a look at The American Kennel Club's **Best of Breed** (♦♦♦♦, \$49.95 list), from Macmillan Digital USA. But be aware that this CD-ROM is more about information than about entertainment. Its long scrolling fields of text come directly from *The Complete Dog Book*, and not much has been done to take advantage of the main perk of CD-ROMs — interactivity. As a reference, however, the text is thorough, comprehensive, and searchable, covering every aspect of dog ownership and breeds.

By Scholle Sawyer

maxuser@macuser.com

The Pet Shop

Not only can your Mac tell you how much that doggy in the window is but it'll also help you care for it.



Multimedia Animal Titles
Inroads Interactive, Boulder, CO
 888-467-6237 or 303-444-0632
www.inroadsint.com

Dogz and Catz
PF.Magic, San Francisco, CA
 415-495-0400
www.pfmagic.com

Site-seeing



This usefulness as a reference — coupled with charming photos and some long, albeit hard to find, video clips — makes *Best of Breed* a worthwhile purchase.

If you're looking for something more appropriate for children, try Inroads Interactive's **Multimedia Dogs 2.0** (\$39.95 list). It's more fun, but it suffers from some of the same problems as *Multimedia Cats* and has even less variety in the videos — it's almost all dog-show footage without sound.

On the plus side, this CD-ROM boasts a lot of entertaining activities for kids, such as the Dog Quiz; a Movie Gallery with clips of tumbling puppies; and the interactive quiz, Fetch, which helps you pick your perfect dog.

And a Horse, of Course

My days of whinnying and cantering around my elementary school's playground are gone, but when I want to reminisce or need a gift for a young horse-crazed relative, I pick up Inroads Interactive's **Multimedia Horses** (\$39.95 list).

The first thing this CD-ROM has going for it is the miniature model horse that comes in the package. After you finish playing with that, you may notice that *Multimedia Horses'* interface and general breed information aren't very inspired. Overall, though, this CD-ROM is more polished than *Multimedia Cats* and *Multimedia Dogs*. The Topics and Fun sections are richer and more informative. Not only will you find playful clips of horses but you'll also find good-quality videos about how to buy and groom one and about different riding styles.

The Feathered and the Freaky

Not all of us yearn for pets capable of crushing our feet, however. Some people

love little fluffy things that they can fit in their hand. Some even have a soft spot for the scaly and the creepy. If you're one of these sorts of folks, your CD-ROM resource is **Multimedia Exotic Pets: Horses, Birds, Aquatics and Pocket Pets** (\$39.95 list). It's a fun source of information on everything from snakes to hedgehogs, but like the other Inroads Interactive CD-ROMs, it has numerous weak points. I do like the quiz area, which is filled with tons of pithy facts that you can drop at your next cocktail party — for example, gerbils do indeed have a tendency to lapse into epileptic fits when they're startled.

For a more focused tour of the world of our feathered friends, DK Multimedia's **Eyewitness Virtual Reality Bird** (\$29.95 list) is without rival. This CD-ROM shares the same dazzling museum interface *Eyewitness Virtual Reality Cat* uses and covers the scientific and historical aspects of birds in the same thorough and creative manner. Especially noteworthy are the How Birds Sing exhibit, which allows you to compare calls and learn about their purpose, and the Birds Eye View exhibit, which enables you to see through the eyes of a vulture and a duck and explains why they see so differently.

Loving Bunch o' Bits

Finally, even if your finances and square footage prevent you from filling your home with four-legged companions, your Mac has the next-best things — PF.Magic's **Dogz** (\$19.95 list) and **Catz**

(\$19.95 list), two of the most creative pieces of software I've seen.

Choose one of these virtual pets as a puppy or kitten (shown here), and watch it grow and learn on your desktop. You can leave it in its "playpen" (if



you have a high-powered Mac), running in the background as you work, or you can turn your full attention to it as it frolics across documents or whatever else you happen to have on your desktop.

Dogz was the first virtual-pet CD-ROM that PF.Magic released, and even though the former is charming, *Catz* reflects improvements. It has much more variety. For instance, *Catz* has more cat toys —

Cat Fancy Web site

For news and articles about cats and a database of shelters where you may find your next pet, go to www.petchannel.com/cats

Cats on America Online

If you're an AOL member and a cat lover, go to the cat section of the Pet Care Forum (Keyword: Pet Care).

American Kennel Club

Before you spend \$600 on that purebred dog, go to this site to make sure it's the one you want. www.akc.org

Deaf Dogs Web Page

If you're wondering why Fido hasn't responded to training (especially if Fido's a Dalmatian), you may get some useful insights at www.kwic.net/~cairo/deaf.html

The Hay.net Site

To stay up to date on the nearest Pony Club shows and the best model-horse trading sites, go to www.freerein.com/haynet

Thoroughbred Times On-Line

For daily race results and in-depth bloodline and jockey information, check out www.iglou.com/thoroughbredtimes/thoroughbredtimes.html

The Gerbil FAQ

Get advice on such quandaries as "Ack!! My gerbil is eating her babies!!" at www.dimensions.com/~oshcnsit/gerbil.html

including catnip, a squeaky toy, and a ball of yarn.

What makes these programs fascinating is that your desktop pet seems to learn as it matures. For instance, one of my *Catz* got better and better at catching a virtual mouse. It progressed from frantically chasing, to crouching in wait, to finally sticking its paw into the mouse hole. Even its dreams changed quite unexpectedly over time.

Using your Macintosh and these resources can help you feed your animal frenzy. And if you keep at least some of your pets virtual, unlike the old woman in the shoe, you won't require a lenient landlord. ☺

Assistant Editor Scholle Sawyer has an obsession with animals that's recently manifested itself in attempts to slip pictures of her border collie corgi, Elly, into the magazine whenever she can (see January '97, page 21).

You Gotta Love a Guy Who Thinks the Bureau of Alcohol, Tobacco & Firearms is a Convenience Store!

"Absolutely the best first-person game of the year, bar none...Duke Nukem is the undisputed king."

Boot Magazine

"Gives players something they can't get elsewhere: A hero with an attitude."

Wall Street Journal

"★★★★★" (5 out of 5 stars)

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System Requirements: Any Macintosh with a 68040 or higher microprocessor, 8MB RAM, color monitor and CD-ROM drive. Also accelerated for Power Macintosh.

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MaxUser

lot of mayhem with ZPC (Zero Population Count). And you are, which could be a good or bad thing. Good, because that's what you want in a first-person shooter. Bad, because you may find yourself mesmerized by the awesome artwork in this game at times when you should be defending yourself.

ZPC is a good game, and the artwork (shown below) is amazing. The artist is Aidan Hughes, whose work has been featured in animated shorts

getting his head blown off — splatter and all.

Damage Incorporated

■■■■

\$34.99 (list)

MacSoft, Plymouth, MN

800-229-2714 or 612-559-5301

www.wizworks.com/macsoft

Reader service: circle #431

OF THE THREE GAMES this month, *Damage Incorporated* (shown above) is the best. That's partly because it takes a bold new step — this game marks the first time a squadron is used successfully in a first-person shooter. You play the leader of a marine squadron sent on six covert missions to disable militia movements.

Playing the game is similar to the way in which you play other first-person shooters, but you have additional controls for your squadron. Luckily, the controls are simple keyboard commands and there's an on-screen legend to help you learn them.

Having a squadron opens up new strategies for first-person shooters: Your troops can seek and destroy, killing everything in their path; they can provide cover for you; you can break them up into subdivisions; and you can even have your soldiers do all the killing, so you never have to pull your virtual trigger to finish a level.

The game supports up to eight individual opponents over a network or four players and their squad members.

Prime Target

■■■■

\$34.99 (list)

MacSoft, Plymouth, MN

800-229-2714 or 612-559-5301

www.wizworks.com/macsoft

Reader service: circle #432

SOMETIMES THE shenanigans of those slick politicians in our nation's capital make you so mad you want to storm federal buildings and blast anyone



who gets in your way. Well, don't do it for real — you'll end up dead or being a spotter for Spike in the San Quentin weight-lifting room. Just buy a copy of *Prime Target* to release your pent-up frustration.

The plot of *Prime Target* is that you've been wrongfully blamed for killing a senator and must solve the murder mystery. You spend your time running through replicated versions of actual federal buildings in Washington, D.C., picking off people who are trying to stop you.

Although based on the *Marathon 2* engine, *Prime Target* improves on that game by adding some new features: QuickTime videos that play when you advance to a new level, the ability to jump and duck (in the *Marathon* series, jumping and ducking are faked), and the ability to backtrack to previous levels. Also, the doors in the game swing instead of slide. And *Prime Target* has movable objects — you can push chairs, plants, and flagpoles. The graphics of blood and guts spewing from your target's wounded torso add to the game's intensity.

Prime Target is a great alternative to the typical first-person shooter, which usually has a sci-fi or fantasy theme. Some will find *Prime Target*'s realistic drama refreshing, but others may not like the idea of shooting humans instead of Pthor or S'pht.

After all the violence, it took a CD-ROM dose of Winnie the Pooh and the Honey Tree to calm MacUser Associate Editor Roman Loyola down.

By Roman Loyola

gamerom@macuser.com

The Game Room

Bungie Software may have ended the *Marathon* series, but the *Marathon 2* game engine lives on.

ZPC

■■■■

\$49.99 (list)

GT Interactive, New York, NY

800-469-5961 or 212-726-6500

www.gtinteractive.com

Reader service: circle #430

THE TAG LINE "No flesh shall be spared" should be your first sign that you're in for a whole

for MTV as well as on the albums of the industrial band KMFDM. His powerful artwork is made up primarily of shades of red, white, black, and yellow, giving ZPC a nihilistic atmosphere.

In ZPC, you play Arman, the rightful heir to the throne of the land that has been taken over by the Black Brethren. It's up to you to regain your throne. Your journey isn't an easy one, though, as tons of enemies are trying to stop you.

The literature for this game clearly states that it's intensely graphic. They weren't kidding; when your character gets killed, the game shifts from the playing field to a QuickTime movie of your character





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Andy Ihnatko



By Andy Ihnatko

andyi@macuser.com

Small Wonder

This Newton's really a dog, and that's exactly why you'll love it.

HUMANKIND HAS GOTTEN more comfortable with computers over the years, and I'm convinced that this has less to do with operating systems and Killer Apps than it does with simple, caveman-type responses to concepts of Scale.

The Number One most terrifying concept to your basic caveman was, of course, God. So enormous that you couldn't see Him, touch Him, or hear Him (the prophets notwithstanding), He nonetheless had a very real impact in terms of earthquakes, lightning, and other forms of mass entertainment of the day. Next down were the cave bears and saber-toothed tigers. Enormous, yes; terrifying, definitely. But you could see them, and anything you could see you could run away from.

Humankind really started feeling comfortable with the natural world only after it had been domesticated and could actually do useful things for people. The cow gave us milk, for which we were grateful, but it was the dog that we wound up slinging Frisbees at. Why

did *Benji*: The Hunted star a small cuddly stray mutt instead of an asphalt-clomping stray Holstein? Scale, ladies and gentlemen . . . *scale!*

The same variety of evolutionary downsizing applies to computers. They started out as enormous mainframes, behemoths hidden in the basement, unseen save for the acts of terror they inflicted upon humankind. And We Were Afraid and thought of them as angry, Old Testament-type gods. Before long, though, they got small

enough to have around the house and they became useful: The Mac and the PC are now the draft horse and the cow — the big, smelly, daft-as-a-Manitoban-rice-steamer cow — of the modern homestead.

And finally, after several false starts with palmtop computers, I think the goofy Black Labrador Retriever of the computing world has arrived, in the form of the Newton MessagePad 2000. Oh, the previous Newtons were great, but compared to this latest edition, they're pit bulls. Those of us who use and love our Newton 100s swear up and down that they've just gotten a bad rap in the press, but hey, just try convincing someone *else* to allow one around their children.

No, here at last is a digital companion, as it were, eager to please and always by one's side. The MP 2000 is powerful not because it's the most computationally incredible hardware on the planet but because it's a friendly beast that's perfectly scaled for humanity. Will this sweep us into a new chapter in our relationship

with computers? Well, why not?

As it is, I think the Newton is my favorite Internet device. I waste so much time on the Internet, and not just by visiting the Spam Cam page. I read. Every morning, I spend my first two waking hours reading the morning news on CNN and MacInTouch and a bunch of other Web sites. It's usually valuable information, but nonetheless, the Internet wastes my time because it demands that I be planted in front of a screen while I retrieve information.

Using NetHopper (the browser that ships with the MP 2000), I simply fill this electronic paperback with the digerata of the morning, and I'm free. NetHopper has an insanely simple and profound feature: It caches entire Web pages. So on Friday morning, I hit Roger Ebert's page at the Sun-Times and — bang — reviews of all the new movies are in the cache, where I can read them whenever and wherever I have time.

But what will happen once we scale these things down even more? Well, we have a couple of preliminary answers in the form of Wearable Computers. The components already exist commercially: an

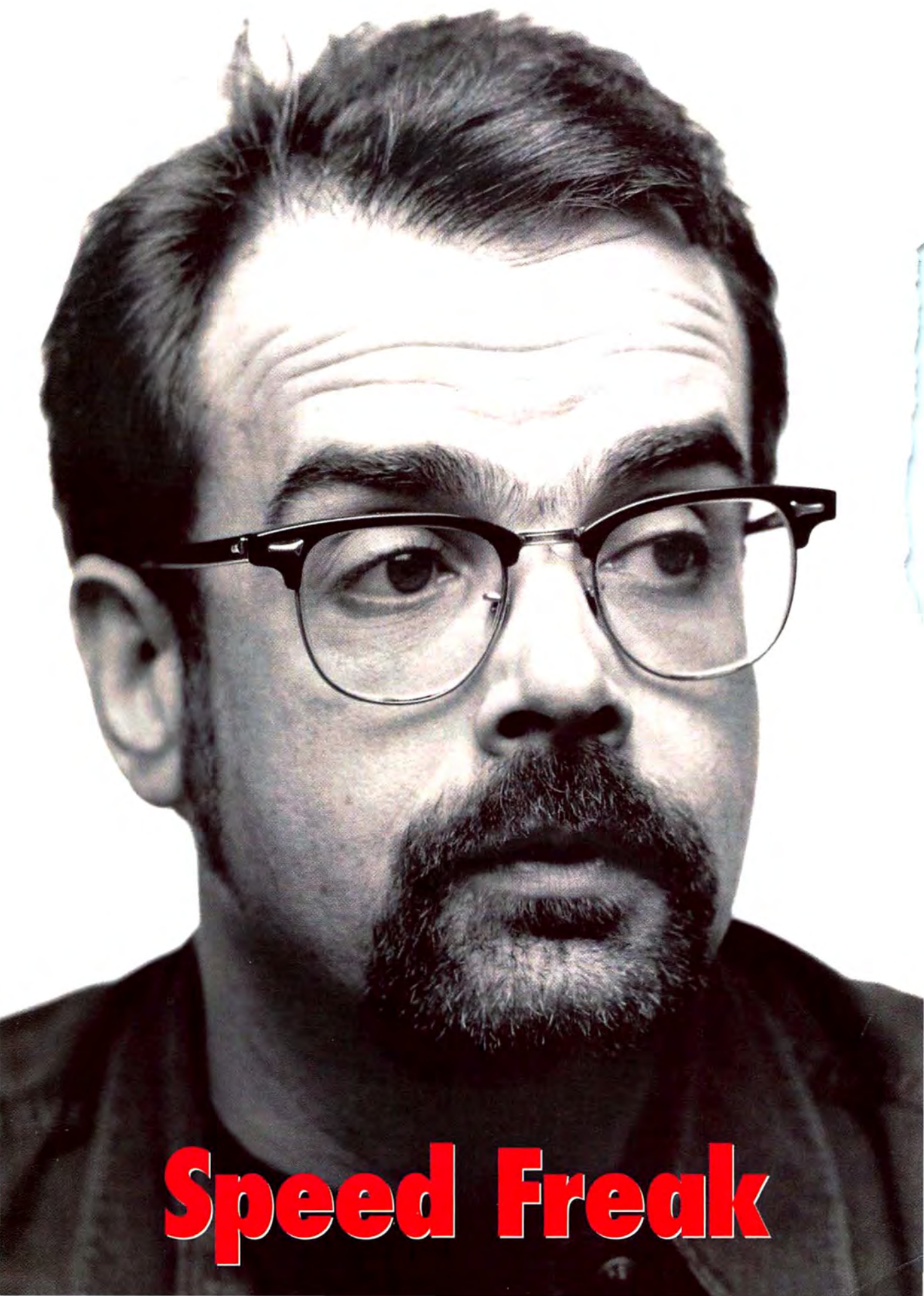
eyepiece that tosses an enormous virtual screen over your field of vision, a keyboard and a pointer packaged in a fob that you twiddle with your fingers, and a bunch of Web sites that tell you how to manage to get them working with your portable computer.

And here we have the Ear Mites of the Industry. Oh, I'm excited about the concept, to be sure, but wow, what enormous pests these things could become. You thought it was annoying to have your lunch with your date interrupted by the burble of her cell phone . . . how will you feel when you finish your surefire story about the time the hotel receptionist mistook you for R.E.M.'s lead singer and suddenly realize that she's been looking at you the whole time from behind a screenful of information from The X-Files Episode Guide? Is there the danger that in the future, we will see and hear only those things our computers have processed and filtered for us?

Well, actually, I was going to use that as a lead to a profound statement about the concept of The Enormous Scary Computer becoming The Tiny Scary Computer, but now that I think about it, that sounds kind of cool. ☺



Illustration • Mark Betcher



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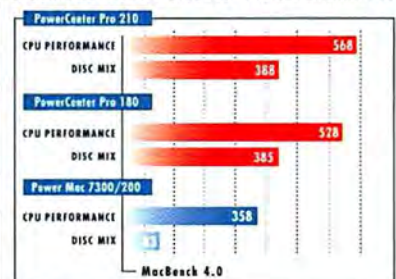
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