Mac Time Trials: We test 12 fast new systems

Cyberdog! Apple teaches the Internet new tricks
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Make anything.

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revelations
happen
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You see patterns form. You come to understand.

You get it.
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CAN MICROSOFT BEAT THE BROWSER THAT MADE WORLD WIDE WEB A HOUSEHOLD PHRASE?

Is Netscape Navigator up for the challenge? The stakes are high as each browser jockeys to become the all-in-one Internet platform. The bottom line? Navigator faces some formidable competition from Internet Explorer—but this is good news for users.

By Jason Snell / 62

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Walking the Cyberdog

Apple’s new Internet application uses OpenDoc to deliver a radically different approach to Web browsing, e-mail, and other Internet functions. You have to see Cyberdog to believe it, but it’s definitely a tail-wagger. And best of all, it’s free.

By Henry Bartman / 69

Power Takes the Lead

The premier Mac-clone maker streaks past Apple again with its new PowerTower 180, which is at least 14 percent faster than Apple’s latest top-of-the-line machines. We test a dozen of the newest systems.

By Henry Bartman / 75

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Whether you’re scanning one big original in a design studio or batch-processing multiple images in a production environment, large-format flatbed scanners can do both. We evaluate five for image quality, speed, and price.

By Roman Loyola / 80

Quick Labs

Problem: We just can’t keep up with all the great products introduced each month. Solution: Quick Labs, a monthly bulletin of lab results on the latest printers, monitors, and storage systems.

By / 86
"PowerCADD's programmability and extensibility may make PowerCADD a better choice than high-end CAD programs."
Perfect output at a surprisingly perfect price.

For the first time in laser printer history, the new Accel-a-Writer® 8300 with X•ACT™ allows you to calibrate the accuracy of your printer to within the width of a single dot. No other printer on the market delivers these exacting standards. And true Adobe™ PostScript™ offers another standard of perfection with high performance and incredible output accuracy.

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Product Announcements and Updates

SEND PRODUCT INFORMATION to News Editor and send new products to Reviews Editor at MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404.
Amazing where you’ll find PowerBooks these days. On the road. In the air. At the beach. Everywhere.

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Attention desktop publishers, graphics users and Macintosh® owners, here's great news, times four: SonicTron™, ViewSonic's new color screen technology, is now available in four models.

Choose from our Professional Series and get all the features needed by the most sophisticated users. Or, choose from our more economical Graphics Series and still get the same great image quality.

<table>
<thead>
<tr>
<th>Model</th>
<th>SonicTron™ Professional Series</th>
<th>SonicTron™ Graphic Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT Size</td>
<td>PT810 (21&quot; (19.5&quot; viewable))</td>
<td>GT800 (20&quot; (19.1&quot; viewable))</td>
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<tr>
<td>Aperture Grille Pitch</td>
<td>0.30mm</td>
<td>0.25mm</td>
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<tr>
<td>Mac® Resolution (Max.)</td>
<td>1600 x 1200</td>
<td>1600 x 1200</td>
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<tr>
<td>Recommended Resolution</td>
<td>1600 x 1200 @ 73 Hz</td>
<td>1280 x 768 @ 75 Hz</td>
</tr>
</tbody>
</table>

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Byte magazine was similarly impressed with the PT810. Their reviewer, Jerry Pournelle said, “You'll have to fight me to get this monitor away from me. I am literally sitting here wondering how I got along without it all these years. I can read it comfortably from any position ... Highly recommended.”

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Cruel to Be Kind

I WOULD URGE MacUser not to continue to place Apple on a pedestal for the things Apple has done in the past. Apple has made some serious strategic business mistakes and will continue to make them if it listens only to praise from die-hard fans. It's time for some "tough love" and for MacUser to push the campaign to wake up Apple. It is time for Apple fans and management to listen to the things they don't want to hear.

Apple's lead in education is no longer secure. On most campuses, you find more PCs than Macs. In secondary education, Apple is up against stiff competition from PCs, because of the higher costs of Macs and because parents want their children better prepared for a PC-dominated workplace.

If you consider PCs (not individual brands) Apple's competition, Apple does not dominate the home market, because it's not price-competitive.

Apple wants to start spreading its operating system around so it can build a critical mass of Mac OS fans. Sounds like the business plan Gates wrote. The difference is that Microsoft had no plans to be in the hardware business but did intend to be a broad-based software supplier. Apple is still trying to use an operating system to sell hardware and is not positioned to become a force in applications software. Is it possible now to build a business around an aging operating system? Although Microsoft had an old operating system, it didn't have a Microsoft to compete with.

Finally, consider that Apple can't broaden use of its OS unless prices come down, and that means lower revenues. Apple can't currently make money by growing hardware sales (the more it sells, the more it loses), so giving away software is the road to ruin.

There are opportunities for Apple. IBM appears to have ceded the Mac/Windows-compatible hardware market to Apple. Once Apple gets beyond its immediate problems and completes its hardware "fire" sale, it needs to begin aggressively promoting Mac/Windows hardware. When it does that, it won't need lectures from Apple purists who believe that Apple has sold out to Satan. It will need support from MacUser and others who can recognize that their needs are best served by an economically healthy Apple.

Charles R. Cordero
Barrington, IL

Inflationary Claims

THE TRILLION-DOLLAR sizing of the future PDA industry ("Toy Story," April '96, page 68) is an absolutely absurd claim, and nothing even close to it was ever made by me. The only trillion-dollar projections I've made in the past are that the collective size of all industries that would be affected by the digital revolution (that is, all computers, all communications, all content, and all related services) would exceed several trillion dollars early in the next millennium.

John Sculley
New York, NY

// Apparently we are among dozens of news organizations that have misquoted you. Please add MacUser to the list. // AG

PDA Insight

THANKS FOR PAYING attention to the Newton and other so-called PDAs ("Toy Story," April '96, page 68). I don't really like the PDA moniker, since I view my new Newton as more of a small computer with a pen input system than as some sort of "assistant." Two things about the article surprised me: The "What's Missing" section fails to mention the single....
LETTERS

most antagonizing thing about the Newton: lack of backlighting. The Newton display is very hard to see, so the device is often difficult to use. Since I’m not familiar with the other Pads, I don’t know if they share this problem. If you can’t see the display, what good is the Newton?

Second, the article mentions “two ways to get application software into the Newton,” along with the idea that there isn’t very much software out there. Neither of those approaches is the most common in my experience, and I’ve found quite a bit of software. The real way most applications get onto people’s Newtons is not directly by card or indirectly by disk but instead by a download to a desktop machine and then a transfer onto the Newton.

Terry Schmitt
via the Internet

NICE TO SEE a review of the Mac’s little brothers. I’m happy to see there’s hope yet for the Newton. But you missed what I’ve found to be the best PDA on the market, the Psion series of palmtops. This little thing is a Mac user’s delight, with multitasking, excellent user interface, and easy programming. I see them being used on planes and trains all the time.

Aston J. Bridgman
astinj@havenios.com

Pippin Opinion

I DON’T THINK I can stand the suspense! I’m one of the (I hope) millions of Americans eagerly awaiting the arrival of the Pippin (“Prime-Time Player,” April ’96, page 64) in the U.S. Granted, the Pippin does need a few improvements, but I think it’s about time a truly versatile game system came on the market. The Pippin would be even more versatile with the Digital Video Disk installed and would be well worth even more than its estimated price.

Ken King
via the Internet

THE PIPPIN SOUNDS great, if a little pricey for what you actually get. But hey, why not market a SCSI VCR adapter so that info gleaned from the Internet can be stored on a cheap yet massive storage device? You could also run video games and apps straight off the tape! Until DVD recordables are as cheap as other media, why not explore other current consumer devices? How about a Pippin with an audiocassette drive? Reel-to-reel, anyone? These could also be used with the Mac as a cheap, useful link to span the technology and price gap of new gadgets in the pipeline.

Michael Alvarado
Santa Clara, CA

THE PIPPIN IS NOTHING more than a stupid little gadget Apple dreamed up when it should have been working on Copland. It’s similar to the Newton, in that it’s ahead of its time; it’s not cheap; and it’s not a necessity — no matter how hard Apple plugs it. And finally, it’s really cool and neat.

But when it comes down to whether we really need these gadgets, the answer is an overwhelming “I’d like one, but I can live without it.”

Kurt Ramsauer
heapers@nworks.com

Spinning Webs

CONGRATULATIONS ON raising some good points. Many Web designers are ignoring (“The Ant and the Grasshopper,” April ’96, page 91). Quite a few people don’t have the equipment, RAM, or desire to browse the Web with Netscape Navigator.

I would like to point out a solution that you didn’t mention: creating multiple sets of Web pages that accommodate either ants or grasshoppers.

First, create a home page for your site that’s attractive in any browser. From there it’s easy to let visitors choose their compatibility level: full graphics, minimal graphics, text-only, or any combination. Although this results in a little more work for the Web designer, it doesn’t have to be difficult if you just go about it the right way.

Once you’ve established the site’s overall design and written the content, start by creating text-only, HTML 2.0-compliant pages with no graphics and no proprietary Netscape tags.

Then, when you want to create your full- or minimal-graphics versions, insert the coding for placing the graphics, tables, and the like. This way, you’ll be able to accommodate all visitors without coming across as a Netscape-tag snob.

Jeff Carlson
kephi@halcyon.com

YOU PROVIDED SOME interesting general ideas on providing readable pages using HTML table tags on viewers that don’t support table tags, but the advice on adding leading spaces to <td> tags to separate column data and turning <br> to <br><br> data pairs works only if you’re not using </td> tags.

Following the article’s advice directly when also observing the HTML 2.0 tag specification leads to large amounts of white space preceding a table in Netscape browsers. Rather, you should add a space at the end of a table column and a <br> tag inside the last table column of a row. If you were following the HTML 2.0 format strictly, these changes would be required:

</td><td> → space</td>
and
</td><br>
</td>

Dennis Haase
via the Internet

When Is a Mac Not a Mac?

WHEN YOU WROTE about “Performa Anxiety,” you effectively straightened out the writer who was confused about the differences among machines (Help Folder, April ‘96, page 17), but you neglected to point out one key difference (and benefit) of Performas: They come with a one-year in-home warranty! For first-time computer buyers, this is an incredible service that shouldn’t be underplayed. Not that most Macs need it . . . .

Jim Sachs
Menlo Park, CA

I Good point. If you buy a Performa, Apple coddles you a bit more than if you buy a Mac. An Apple representative will come to your home to fix a problem, such as an inoperable monitor, if it can’t be solved over the phone. /NP

BOB AND CHRIS state there’s no difference between a Mac and its Performa counterpart. Why then does Insignia Solutions sell a SoftWindows for Performa and another version for the Mac? Does the Performa version run on a regular Mac? The Performa version is about $100 less.

Gary Willard
GaryW70451@aol.com

/ OK, OK. So we overlooked one eensy-weensy little detail. Most Performas don’t come with built-in Ethernet. OK, so it’s not such a little detail. SoftWindows for Performas is cheaper because it doesn’t have networking. Apple designed it that way because most Performas don’t have Ethernet built-in. /BL & CB
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LETTERS

Who's the YoYo?

INSTEAD OF SPENDING $149 on Big Island's YoYo Telephone Manager (News, April '96, page 29), you can get a much more affordable alternative, with practically the same options. Triplo Software's control panel PhoneWatcher (shareware, $15), combined with a modern capable of recognizing Caller ID, can log phone calls and callers, drawing names from a user database. Like YoYo, PhoneWatcher can call your pager and let you know who called. Considering the price difference ($134) and the fact that a control panel is somewhat easier to cart around than a hardware device, you tell me which is the better product.

Info and the program are available from Triplo Software's Web site: http://www.triplo.com/.

The Cyber Hitchhiker
cyberhikr@aol.com

Quicken the Dead?

MACUSER'S 4.5- MOUSE rating of the Quicken 6.0 Deluxe CD-ROM (April '96, page 40) was outrageously generous. It was probably the nicest thing anyone has done for Intuit since the Justice Department annulled its ill-fated marriage to Microsoft.

Quicken 6.0 Deluxe — it should really be called Quicken 5.5 — has two significant flaws. As an upgrader from 5.0 (as well as 4.0), I found that this upgrade added nothing important. Compare this with the upgrade from 4.0 to 5.0, which provided a cleaner interface and a graphical icon bar.


I urge anyone thinking about upgrading to MacUser to hold out for parity between 6.2 and 6.5, and you've got a product that no longer deserves the mouse rating it received.

Todd C. Merrill
tcmerrill@tasc.com

/Breath of Security

YOU CLAIM THAT Symantec's Norton DiskLock for Macintosh 4.0 ("For Your Eyes Only," April '96, page 82) is missing several features it actually does have. Your features chart says DiskLock has no "system control," when in fact DiskLock has a check box labeled "can modify system file and folder." The chart says DiskLock has no "system control," yet DiskLock has a check box labeled "can modify system folder." Unchecking it disables the floppy drive. You claim that DiskLock has no "system control," but you can make the top level of a hard disk read-only, which prevents users from moving files and folders. The chart says DiskLock doesn't support "drop boxes," although DiskLock actually has four options for locking folders, including drop boxes. And you say DiskLock doesn't support "drop boxes," yet the encryption preferences offer three levels of secure erase.

I know reviewers are people too and everyone makes mistakes, but the DiskLock review had so many errors that I have to wonder which product you actually reviewed.

David Shayer, Symantec
dshayer@netcom.com
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BEING AN AVID READER of MacUser for several years now, I was disappointed with your omission of On Guard, from Power On Software, in your security-software roundup. As a manager of over 20 Macs, I am always looking for software that will not only make my job easier but also prevent users from tampering with system software. On Guard does that and much more. Access levels can be set on specific documents, folders, or an entire hard disk. User settings can be configured individually or simply copied and pasted between users. Network setup couldn't be easier. Simply choose a zone or computer, and save the settings from the administrator's computer. Its ability to individually designate Launch, Open, Save, Copy, View, and Eject functions at any system level is a manager's dream come true.

The software is extremely solid and (unlike most other security packages) in no way interferes with the Mac's normal operations. Tech support is among the best I've ever encountered, and frequent updates continually improve the package.

Ralph Bellandi
rbellandi@aol.com

I ENJOYED YOUR STORY on software security, but I noticed that it failed to mention the password protection provided by Aladdin's StuffIt. It allows the user to stuff an archive with a password and keep it from prying eyes. This feature is even available in the shareware version. I'm sure this would be of interest to many Macintosh users, many of whom may own this software but be unaware of this feature.

Daniel Mangialetto
dmangia@GroupZ.net

IN YOUR SECURITY-SOFTWARE article, Edmark's KidDesk was notably omitted. This surprised me, since KidDesk is a delightful security option for home and school. The new family edition has added interfamily e-mail, voice-mail, an address book, and a notepad to the desk's original accessories: a calendar, a clock, a calculator, and the ability to put each child's photo in a frame on the desk. Children choose their own desk styles, and their files can be saved separately, preventing access by other kids.

The school edition allows classes to be organized separately by teacher, and there are options for an administrative password, a password for each teacher, and one for each individual student.

In both editions, a three-key combination controls access to the Finder, and the school edition also requires knowledge of the teacher's password.

Elsa Paton
Athol, MA

Making the Connection
HAVING JUST ADDED a couple of Macs and a LaserWriter to our Ethernet network, I noticed that you left out a simple solution for connecting LocalTalk printers to networks ("Easier Ethernet," April '96, page 103). Apple provides, in the latest version of the Network Software Installer (1.5.1), a control panel called LaserWriter Bridge 2.0.1. It allows a LocalTalk LaserWriter connected to the printer port of an Ethernet-connected Mac to be visible to the Ethernet network.

This software is free for downloading from most sites that have Apple software. We've been using it for several weeks and have experienced no problems.

Larry B. Macy
Mac1@jeffin.tju.edu

A Flood of Gates
ANDY, ANDY, ANDY. You paid $30 for a copy of Bill Gates' latest bloated offering ("Road Trip," March '96, page 210)? For shame. Why, around here there are piles of copies at the local Barnes & Noble for 40...50...yes, even 60 percent off! Had I but known, I would have gladly picked up a stack of them and asked our friendly UPS pickup guy to deposit them directly on your sundeck. They're like roaches underfoot, multiplying against all reason and threatening to overflow into the cutout shelves even before they're officially punted by the publisher.

Greg Dunn
gregdunn@indy.net

Correction
The author of "Motorola Joins, Power Speeds," May '96, page 27, should have been listed as Henry Bortman.
Each Corel® Professional Photos on CD-ROM Super Ten Pack contains 1,000 colorful and captivating images for you to enjoy.

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MacBench 3.0 publishing graphics mix test performed on a Power Mac 9500/132 with 40MB of RAM at 1152 x 870 in 16.7 million colors with Matrox Millennium for PCI Power Mac. Number Nine Imagine 128, IMS Twin Turbo 128 and Rickers Thunder 120/160.

CIRCLE 94 ON READER SERVICE CARD
Identity Crisis

APPLE TURNED 20 in April, but don’t feel bad if you didn’t get an invite to the party. Posting a $740 million loss has a way of deflating any birthday balloons. The company has instead decided to defer its celebration to another time — perhaps early 1997 — when it can face the future with a bit more optimism. By then, it’ll be close to Apple’s 21st birthday — an age associated with entering adulthood and leaving childish games behind.

Once again, Apple finds itself at a crossroads. Clearly, the company has to reinvent itself. Everything we’ve seen thus far from Apple’s new chief, Dr. Gilbert Amelio, indicates that the Apple we'll see at that birthday bash won't be the same company we're wringing our hands over now. But what will it be? More important, how will it change the Mac? I’ve gotten some indications from people within Apple, and Amelio’s plans are coming into focus, but the way I see it, the company can take the Mac in one of four directions:

The Computer for the Rest of Us. OK, so there's nothing new about this one, but many loyal Apple customers still cling tenaciously to an ideal that began as a marketing gimmick. It's the strategy that got Apple where it is today, reeling from massive losses and gasping for market share. Let's face it: The Mac is no longer the Computer for the Rest of Us — that computer, wherever it might be, is running Windows and Microsoft Office.

This is the scenario with the most currency. Amelio has publicly remarked that Apple's future lies in an "Internet-based computing architecture" that's well suited to propelling us into the Information Age. The Internet is the solution that conceivably embraces the other three scenarios — low-end or high-end.

The interesting thing about the Internet scenario is that the computer platform isn’t much of a factor, according to Amelio. In this age of online information, it doesn’t matter which machine you use to get onto the Internet: It's the experience you have once you're there. This strategy resonates with Apple's past. Twelve years ago, Apple employed a similar approach by offering an alternative to working with text-based command-line computers.

Apple's got the basic elements it needs in order to succeed, but the strategy needs to be clearly formulated and communicated. With the Internet, I think Apple's found the right medium for a turnaround. Look for that party invitation to arrive on the Net.

The Computer for All of Us. This is the scenario with the most currency. Amelio often neglects to mention publishing and education. I hope that's corrected — and soon.

The Computer for Some of Us. In this scenario, Apple builds on its current successes: graphics, publishing, multimedia, and so on. Think Niche Knack. The Wintel juggernaut has never really been a computer for the masses. Apple could embrace the Mac's snob appeal by creating sleek, slick machines that, much like luxury cars, make a statement about their owners. It's the Ultimate Computing Machine.

Instead of continuing to go through traditional computer-reseller channels, Apple could sell these Macs through executive-toy catalogs such as the one from The Sharper Image or at posh retail outlets such as New York's Museum of Modern Art Design Store (an Apple Classic is already in its permanent collection).

Apple's already working on machines like these, but will they ever see the light of day? I hope so, if only to reconfirm the coolness factor of the Mac. On the other hand, unless there's lots of power under the hood, machines such as these only reinforce the notion that the Mac is a toy rather than a business tool.

The Computer for Some of Us. In this scenario, Apple builds on its current successes: graphics, publishing, multimedia, and so on. Think Niche Knack. The Wintel juggernaut hasn't been very successful in these markets. As a result, Apple has a pretty clear shot, but this is no time to be sanguine — the gap is narrowing. In the multimedia arena, Apple needs to edge out Silicon Graphics in the competition for Hollywood big bucks. QuickTime has been a big hit, and with innovations such as the new QuickTime plug-in for Netscape Navigator (http://quicktime.apple.com), Apple continues to build on that success. If Apple licenses Windows NT to run on its servers, the Macintosh will further solidify its dominant position as a front end for print publishers. And in the field of education, Apple should take seriously the old SNL parody of another of its slogans — the Power to Crush the Other Kids.

Apple would be foolish to neglect these markets, but right now I think some people at Apple already take them for granted. In the comments he's made thus far, Amelio often neglects to mention publishing and education. I hope that's corrected — and soon.

When this slogan was first trotted out, the Mac had a distinctive look and feel, a certain power and elegance that distinguished the Macintosh from its PC rivals. But the playing field has leveled. Is there anything worth saving in this scenario? Yep. If Apple can get back to basics and simplify its product line (even Apple insiders are hard-pressed to tell you which Mac models have which features), then the company may still be a player in the low end, especially the home and small-business markets.

The Computer for the Few of Us. This statement may appear to be a sad commentary on Apple's market share, but think of it as a lifestyle mantra. Sure, it smacks of elitism, but so what? The Mac has never really been a computer for the masses. Apple could embrace the Mac's snob appeal by creating sleek, slick machines that, much like luxury cars, make a statement about their owners. It's the Ultimate Computing Machine.

As a result, Apple has a pretty clear shot, but this is no time to be sanguine — the gap is narrowing. In the multimedia arena, Apple needs to edge out Silicon Graphics in the competition for Hollywood big bucks. QuickTime has been a big hit, and with innovations such as the new QuickTime plug-in for Netscape Navigator (http://quicktime.apple.com), Apple continues to build on that success. If Apple licenses Windows NT to run on its servers, the Macintosh will further solidify its dominant position as a front end for print publishers. And in the field of education, Apple should take seriously the old SNL parody of another of its slogans — the Power to Crush the Other Kids.

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Mac No Longer Easiest to Use

Consumer-electronics giants show interest in new technology from innovative startup.

WHEN YOU WANT TOAST, you use a toaster — you don't struggle with a multifunction Sustenance Management System that'll prepare anything from a strawberry smoothie to a rib roast. A toaster does only one thing, but it does it well.

Dealing with information should be as simple as dealing with an English muffin. However, as you watch those dozen or so extensions march across your screen during startup, you're reminded of how far the Mac has strayed from its original goal: to be the world's first information appliance.

An ambitious startup in Belmont, California, is refocusing on that goal. Tiny Diba is negotiating with an impressive array of big guns from the consumer-electronics world — including Cable & Wireless, GoldStar, Hitachi, NEC, and Zenith, according to sources — about licensing the suite of hardware, software, and networking technologies that underlies Diba's new, simpler way of dealing with the Information Age: IDEAs (interactive digital electronic appliances).

A Diba IDEA is a single-purpose, easy-to-use, inexpensive information-management or -retrieval device. Because an IDEA is designed for only one task, its interface and form factor can be specifically optimized for that task and that task alone — much as a toaster's bread slot need not accommodate a Thanksgiving turkey.

DIBA INTERNET. The first piece of electronic equipment every red-blooded American kid learns to operate is the TV remote. With the Diba Internet, that basic skill can be used to surf the World Wide Web. The compact, futuristic Diba Internet box contains a 28.8-kbps modem, proprietary browser software, and a composite-video port for connecting to a color TV. The handheld infrared remote includes scrolling and pointing controls as well as a flip-open alphanumeric keypad for entering URLs. Browser software has been optimized for TV display and includes the ability to save a list of favorite Web pages. Manufacturing cost will be around $300; expect consumer cost to vary, depending on competition and supply.

DIBA MAIL. Nonbusiness e-mail is limited to the one-third of Americans who have a Mac or PC at home. The Diba Mail aims to up that percentage. The Diba Mail appliance has phone and fax capability, along with a fold-down keyboard and a monochrome LCD display. Its proprietary e-mail software has standard editing controls as well as an address book that includes batch fax and e-mail processing. Since the Diba Mail is designed to be used in conjunction with an e-mail service provider, Diba claims that the Diba Mail should be available at nominal cost from the service provider when you subscribe.

DIBA KITCHEN. If IDEAs are intended to be the toasters of the Information Age, why not an IDEA that complements your real toaster — and your blender, your microwave, and your Cuisinart? Enter the Diba Kitchen, a tiny menu planner, nutrition database, CD-audio player, and color TV that either sits on your kitchen counter or hangs from your cabinets. The Diba Kitchen includes a CD-ROM with thousands of recipes — accessible via buttons labeled Chinese, Italian, American, Mexican, Quick & Easy, and Other — and with nutritional information divided into 26 categories, including calories and cholesterol. An optional compact thermal printer connects to the Diba Kitchen's serial port. Estimated prices were not available at press time. 415-596-1177; http://www.diba.com/.

FUTURE TECH

IBM Licenses the Mac OS — Finally . . .

THE PROVERBIAL SHOE has finally dropped: IBM will license current and future versions of the Mac OS. The giant that was once Apple's most hated foe has become one of its most valuable allies.

The deal is similar to the recently announced Apple/Motorola agreement: IBM will supply the Mac OS to sublicensees of its choosing and may license current and future versions of the Mac OS to produce not only enterprise-class workstations but also servers, low-priced desktop models, and notebook computers for the U.S. market. Like Motorola, IBM will target the Chinese market, but it's eyeing Taiwan, India, Japan, and Europe too.

The key to these ambitious plans is the soon-to-appear PowerPC Platform (see "The Mac of the Future," May '96, page 78) — and the key to this customizable, multi-OS system will be its adoption by third-party chip, firmware, and motherboard suppliers.

Help is on the way. VLSI has announced its Gold Eagle PowerPC Platform ASICS (application-specific integrated circuits), and FirmWorks is now shipping Power FirmWare — ROM-based software that will let PowerPC Platform systems boot multiple operating systems and support plug-and-play PCI cards. No details were available at press time, but major motherboard makers are rumored to be ready to board the rapidly accelerating PowerPC Platform bandwagon. /RIR MYSEWSKI

MULTIMEDIA HEAVYWEIGHTS

Leapfrog Sun's Java Language

New authoring tools make it easy to create and maintain interactive Web pages.

FULL-STRENGTH multimedia-authoring programs are becoming Internet-savvy, making it easier to enhance your Web site with audio, video, and animations without learning Java or facing CGI (Common Gateway Interface) creation. SUPERCARD, Allegiant Technologies' Supercard plug-in for Netscape Navigator 2.0 lets Net surfers view interactive applications from your Web site. Supercard-enhanced pages can include buttons and scrolling text fields within Navigator frames and can download audio that plays while graphics download. Like any truly Internet-savvy application, Supercard can now import GIF-, JPEG-, and ART-compressed files. 619-587-0500; http://www.allegiant.com/.

AUTHORWARE 3.5. Shockwave for Authorware, delivered in version 3.5 of Macromedia's industry-standard authoring program, is able to play back sound and animations over the Internet via the Shockwave plug-in. Intranet-page designers can create interactive applications for their users to download or upload information to an FTP server for, say, a survey. The $4,995 Authorware Interactive Studio includes Director 5.0, Extreme 3D, xRes 2, SoundEdit 16 2.0, and Deck II. 800-326-2128 or 415-252-2000; http://www.macromedia.com/.

CLICKWORKS. Aimed at publishers who want to easily repurpose print material for use on CD-ROM or the Web, Scitex's ClickWorks doesn't require coding for many of its interactivity functions, such as creating navigation buttons — you choose actions from a series of pop-up menus. ClickWorks can embed URLs in graphics, and scripters can link a CD-ROM-based application to data on the Internet with support for linking to SQL databases. ClickWorks runs on Power Macs; has runtime versions for 680x0 Macs, Power Macs, and Windows platforms; and will be available this summer for around $1,000. 800-675-5666. /SEAN J. SAFREED

OpenDoc Coming to Your Office

IT'S STILL TOO EARLY to say whether OpenDoc will be a boon or a boondoggle, but practical OpenDoc parts are finally beginning to appear — and Digital Harbor, a startup company founded by former WordPerfect employees, plans to be among the first to provide them. Not surprisingly, the firm's first effort will be a word processor, code-named Opal, that will create OpenDoc container documents — parts that form the shell of a document in which other parts can be embedded. Opal will offer standard formatting functions, such as justification; a ruler for setting margins and tabs; and headers and footers. It will also support text wrap around irregularly shaped objects.

Other plans are still sketchy: Columns, search-and-replace, spell checking, and HTML output are some possibilities — but they also might be left as "opportunities" for other vendors to supply as bundled parts. Meanwhile, another group of WordPerfect refugees has demonstrated WorldSoft's WorldWrite running as an OpenDoc container. WorldSoft declined to comment.

Following Opal, Digital Harbor plans to release a full-featured word processor, code-named Jade, which will support named styles, bookmarks and hyperlinks, merging of multiple documents, table-of-contents and index generation, outlining, tables, footnotes and endnotes, and a thesaurus. Expect Jade when Copland ships in 1997.

Opal will sell for under $100 and will be available this summer, primarily over the Internet. 801-796-8213. /HENRY BORTMAN

Intel Inside

POWER-HUNGRY Windows 95 can finally run at high speed on a PCI-based Power Mac, thanks to new cards from Apple, Reply, and Orange Micro. Apple's two offerings are the most conservative. Either card can run Windows 3.1 or Windows 95 but not Windows NT, and neither is a speed burner. For $1,049, you get a 100-MHz Intel Pentium processor; $799 gets you a 100-MHz Cyrix 5x86 processor that Apple claims can provide speed equivalent to that of a 100-MHz Pentium. Each card includes 8 MB of RAM, an FPU, and a Level 2 cache and ships with DOS 6.22. You can also buy your card with a shiny new Power Mac wrapped around it — just ask for a Power Mac 7200/120 PC compatible. 800-538-9696 or 408-996-1010; http://www.apple.com/.

The Reply and Orange Micro cards will be able to run Windows NT, and they promise more speed. Reply is offering Pentium processors with clock rates of 100 to 200 MHz, from $695. Orange Micro plans to offer cards with AMD and Cyrix 5x86 processors as well as with a variety of Pentium processors, with clock rates of up to 166 MHz. Prices for Orange Micro's Pentium cards will start around $750; cards based on the AMD and Cyrix processors should cost much less. Reply: 800-955-5295 or 408-942-4804; http://www.reply.com/. Orange Micro: 714-779-2772. /CAROLYN BICKFORD

MACUSER UTILITY OF THE MONTH

Free Web-Management Tool

TIRED OF REMEMBERING to create bookmarks for your favorite Web sites? No sweat — MacUser's SiteSeeer plugs into Netscape Navigator, Spyglass Mosaic, and Microsoft's Internet Explorer; keeps track of every site you visit and creates simple drop-and-drag-aware windows for your bookmarks. Drop URLs in from the Finder, your Clipboard, or your favorite browser, and they'll be saved forever. And if you drag URLs or FTP addresses into the Download Later window, SiteSeer will grab all the files you've flagged, saving you repetitive chores.

Created by William Tudor, MacUser's SiteSeeer is available exclusively from the ZD Net/Mac user service on CompuServe (GO ZMC-MACUSER) and on the Web at (http://www.zdnet.com/macuser/). Available as of May 31. /SCOTT LOVE

JULY 1996
Which High-Speed Connection Scheme Will Replace SCSI?

SCSI'S DAYS ARE NUMBERED — and the numbers we're hearing are pretty damn fast. For example, check out the 40-MB-per-second basic throughput rate of SSA (serial storage architecture), appearing in systems from Microtech (see "Storage Milestone," June '96, page 28) and La Cie. Compared to SCSI, second data transfer systems on systems of the same price, SSA is also less expensive: Compare the estimated $5,000+ per node for Transoft's FibreNet system, which includes software, a PCI card, and an array with up to a terabyte of storage capacity, to MegaDrive's FC-AL Aria systems, due to ship this fall, should also start at about $5,000.

Now You Can Use Adobe Premiere to Control the Weather

DAZZLING SPECIAL EFFECTS just got a whole lot easier to add to QuickTime video being edited in Adobe Premiere. Artel Software's Boris Effects 2.0 sports new interface controls, and MetaTools' Final Effects AP adds the sci-fi thrills of particle effects and the power to conjure up a thunderstorm on command.

Final Effects AP offers most of the power of its After Effects professional-quality video-effect package to Premiere users with this set of 12 plug-ins and four transitions. Notable are the particle-effects generators that can be employed to create explosions or smoke effects. You can also use the FE Rain or FE Snow plug-ins to add a shower or blizzard to your video compositions. All the plug-ins are small, like the effects that they create. $199. 805-566-6200; http://www.metatools.com/. /SEAN J. SAFFEED

Low-Cost MultiProcessing

DayStar's Genesis MP 300 offers dual-multiprocessor performance at an affordable price.

TWO MICROPROCESSORS are better than one — and cheaper than four. DayStar Digital, whose premium-priced four-processor systems were the first (and, to date, only) multiprocessor Mac OS systems, has released a more affordable dual-PowerPC 604/150 model, the Genesis MP 300, with prices beginning at $6,499 for a stripped-down unit that has no RAM or hard drive. Figure another $2,500 to $3,000 for 32 MB of RAM, a 2-GB drive, and a graphics accelerator card, and you're ready to join the multiprocessor revolution.

We performed a set of five Photoshop tests on a prerelease Genesis MP 300 and compared the results with those of a quad-PowerPC 604/150 Genesis MP 600, Power Computing's new top-of-the-line 180-MHz PowerTower 180, and an Apple Power Mac 9500/132. On our Gaussian Blur (with a 2.3-pixel radius) and RGB-to-CMYK Mode Conversion tests, the Genesis MP 300 was nearly twice as fast as the Power Mac 9500/132 and outran the PowerTower 180 by a sizable margin. On our Rotate Image test, however, the Genesis MP 300 was only a bit faster than the Power Mac 9500/132. In fact, on this test, the PowerTower 180 beat the Genesis MP 300 — and the Genesis MP 600. (For more on the Genesis MP 600's Photoshop performance, see "Formula 1 Photoshop," June '96, page 70.)

In a related move, DayStar once again lowered its prices on Genesis MP 600 and 528 systems. A 16-MB/1-GB configuration of the Genesis MP 528 now squeaks in at just under $10,000; a 32-MB/2-GB Genesis MP 600 can now be had for $13,000 and change. 800-962-2077 or 770-967-2077; http://www.daystar.com/. /HENRY BORTMAN
The Geek Beat

ISDN. SAGEM, maker of the Planet line of ISDN cards, has developed an ISDN GeoFort Adapter ($495). The device can be also used with non-GeoFort Macs, with the addition of an included adapter. Eicon Systems' Diva TA ($495) is an ISDN terminal adapter on a Type II PC Card. Motorola now ships a Mac cable and software (Software Ventures' Internet Valet) with its BitSURF Pro ISDN modem and offers a free ISDN provisioning and tech-support service called LifeGUARD to its customers. Eicon: 214-239-3270. http://www.eicon.com/. Motorola: 800-894-4836. SAGEM: 408-446-8690; http://www.sagem.com/.

Network Hardware. Combine a router, an ISDN modem, and a 10BASE-T hub, and you get the WebRamp ($695), from Transcend. Targeted at small offices, the 8-port WebRamp includes Mac or Windows configuration software; an ISDN BRI and NT1; and support for AppleTalk, IP, and IPX routing. 408-988-5353.

Network Management. For the first time, AppleShare administrators can manage their servers remotely, with Nok Nok A/S 2.0 ($195), from The AG Group. 800-466-2447 or 510-937-7900; http://www.aggroup.com/.

Development Tools. Symantec's C++ Compiler ($399) now includes Java support and Caffeine, a graphical Java development environment. Version 8, Release 5, of the PowerPC-native development environment also includes support for Pascal and for creating 680x0 applications. 800-441-7234 or 510-334-6054; http://www.symantec.com/.

World Wide Web. RushHour ($295) is graphics server software for the World Wide Web, from Maxum Development. It works with Macs, UNIX machines, or any other Web servers to speed the delivery of graphics files to a browser. 708-830-1113; http://www.maxum.com/.

Net.Cetera

Adobe Responds to PageMill's Critics

ADOBE MADE becoming a Web publisher easy when it released PageMill 1.0 last year. However, most veteran HTML authors groused that PageMill lacked support for many common layout features. Adobe must have heard all that grumbling. We just had a sneak peek at PageMill 2.0, and we're willing to bet that its powerful and easy-to-use features will please both novice and professional users.

Like version 1.0, PageMill 2.0 displays your Web pages on-screen just as if they were in a Web browser. However, PageMill 2.0 can handle much more complicated designs: For example, you can create tables by a simple drag-and-drop operation, and merging table cells takes just one click on PageMill's expanded toolbar.

Other HTML features added to PageMill 2.0 include the wrapping of text around graphics, various font sizes and colors for body text, flush-right alignment, and hidden fields in interactive forms. The raw HTML code PageMill generates also promises to be improved — and those picky HTML wizards will be able to view and edit that code in PageMill's new View Source feature.

PageMill 2.0's new features don't end with HTML. Additionally on tap is limited support for some Netscape Navigator-compatible plug-ins, including ones that allow placement of PDF, QuickTime, and audio files. Editing is easier with a find-and-replace feature, a spelling checker, and the ability to import documents from word-processing programs. Also, PageMill 2.0 will finally be available for PCs running Windows 95 and Windows NT (but not Windows 3.1). $99, 800-623-2320 or 415-961-4400; http://www.adobe.com/.

The latest news from Inter-Con is less interesting: Version 1.2 of InterServer Publisher adds support for Open Transport, enhancements designed to speed CGI processing, and new security features that provide better control of FTP access. 800-468-7266 or 703-709-5506; http://www.intercon.com/.

Dantzing Windows

PC USERS NEED HELP when it comes to sharing a Mac backup server with Macs — and that's just what's provided by new Windows 95 and NT client software from Dantz Development, for use with its popular Retrospect backup package.

Windows users can request backup from a server and can protect individual folders from automatic backups — just like their Mac counterparts. Although PCs and Macs appear together in Retrospect's Remotes window, Macs are backed up over AppleTalk whereas PCs use the IP support Dantz has added to the Retrospect application. Dantz will sell 5-, 10-, and 50-user Remote Packs for Windows 95 and NT for $169, $249, and $1,095, respectively, 510-253-3000; http://www.dantz.com/.

Top Web Server Lengthens Its Lead

Rivals can't match WebSTAR's convenient plug-in architecture.

TIME'S RUNNING OUT for the competition to catch up with WebSTAR, the runaway favorite Mac Web server software. Taking a page from Netscape's technology plan, Quarterdeck's StarNine division has added plug-in support to version 1.3 of WebSTAR and has announced attractive enhancements for its upcoming version, 2.0. The improvements in one of WebSTAR's few competitors, InterServer Publisher, on the other hand, are decidedly underwhelming.

WebSTAR's server-extension plug-ins are compiled applications that drop into the Plug-ins folder. Sharing memory with WebSTAR, they're likely to be much faster than the CGI (Common Gateway Interface) applications currently available for WebSTAR and other Web server-software packages. Major developers such as Maxum Development (NetCloak and NetForms) have announced plug-in versions of their CGI software. StarNine has also announced a developer's kit as well as a security API that will allow developers to extend WebSTAR's security features.

Plug-ins will add new features — such as built-in image-map support — to WebSTAR 2.0 (scheduled for release in June). Version 2.0 will also sport an overhauled administration scheme and will support applications created with the security API. Version 1.3 is free to current users; version 2.0 pricing has not been announced. 800-525-2580 or 510-704-1272; http://www.starnine.com/.

The latest news from Inter-Con is less interesting: Version 1.2 of InterServer Publisher adds support for Open Transport, enhancements designed to speed CGI processing, and new security features that provide better control of FTP access. 800-468-7266 or 703-709-5506; http://www.intercon.com/.

Illustration / Margaret McMullen

Editors' Note

In the July issue of MacUser, the McGraw-Hill Chain of Distribution published an ad that misidentified the company as the McGraw-Hill Book Company. We regret the error and apologize for any inconvenience it may have caused.
Net-Phone Threat

Industry group wants FCC to regulate Internet telephony.

BEWARE: An association of long-distance-service resellers wants to keep you from using the Internet to make cheap phone calls.

Today you can make inexpensive long-distance voice calls over the Internet by using software such as Electronic Magic's NetPhone, DSP Group's DSPTrueSpeech, and the University of Illinois' Maven — but not for long, if ACTA (America's Carriers Telecommunication Association) has anything to say about it. This group of long-distance carriers and resellers has petitioned the FCC (Federal Communications Commission) to designate — and regulate — Internet-phone-software developers as telecommunications carriers.

Standard phone service is regulated by the FCC and by individual state PUCs (public utilities commissions) or similar agencies. In a petition filed on March 8, 1996, with the Policy Division of the Common Carrier Bureau of the FCC, ACTA argues that telephony on the Internet should be regulated in a similar way.

Not surprisingly, money is the central issue. According to ACTA, its 160+ members are "required to pay, directly or indirectly, various fees and charges in order to render their telecommunications service to the public." ACTA's members pass these expenses along to their customers, the upshot being that an average domestic long-distance call costs 22 cents a minute. ACTA claims that the same call made over the Internet via telecom software costs about 3.3 cents a minute.

"ACTA is, in effect, attempting to eliminate outside competition by banning emerging technologies," says Jeff Pulver, chairman of the VON (Voice on the Net) coalition, formed specifically to fight the ACTA petition. So far, at least 75 companies and 400 individuals have joined.

Apart from its overt threat to Internet telephony, the ACTA petition has other, darker implications. Along with the named companies, the petition mentions "other, unnamed providers" of unregulated phone services. "While the ACTA filing directly targets two-way voice communications," says Xing Technologies' president, Howard Gordon, "we expect it's only a matter of time before similar efforts are directed against Internet radio and television broadcasting." In other words, Internet teleconferencing products such as Xing Technologies' StreamWorks, Cornell University's CU-SeeMe, Apple QuickTime Conferencing, and VDOnet's VDOlive may be the next targets.

Tune your favorite Web browser to http://www.von.org/ to get a progress report on the ACTA petition. /STEPHEN SATCHELL AND H.B.J. CLIFFORD

CD-ROMS

Stress, Love, Elvis, and Peanut Butter

WHEN STRESSED out, how do you cope? Do you breathe deeply, turn to a friend, or settle down with a nice spoonful of peanut butter? Four new CD-ROMs may not cure your mental distress, but they'll at least get your mind off your troubles.

NATURAL STRESS RELIEF. Stop grinding your teeth, and take this disc's stress-reduction courses on How to Cope or Set Goals or start keeping a journal of (self-determined) stress levels. There's even Immediate Relief: a cloud-dappled screen replete with peaceful ocean sounds and a low male voice saying — you got it — "breathe." $80. InnerFlow Software: 800-928-9868.

THE LOVE & RELATIONSHIP TEST AND PERSONALITY TEST. With whom would you rather schmooze: Aristotle or Elvis? Answer such searching questions in these two CD-ROMs, and discover your intimacy quotient, your self-image, your destiny, and more. For a laugh, take the tests with a friend; for honest results, go at it alone. Either way, you might find out you have a fascination for large exotic cats — or worse. $20 each. Virtual Entertainment: 800-301-9545 or 617-449-7567; http://www.virtent.com/.

PEANUT BUTTER: HOW IT'S MADE. If all that anxiety is making you downright nutty, you should take a break at Lernerville, an animated peanut-producing pantheon, and find out everything you've ever wanted to know about the wacky world of peanut butter. But remember, 60 bucks buys an awful lot of the real thing. $60. The Lerner Group: 800-328-4929 or 612-332-3344. /REBECCA OLSON

Morph-o-Mania!

TWISTING, TWIRLING, and tweaking pictures may become the rage for children and professionals alike, with a new application from MetaTools euphoniously dubbed Kai's Power Goo — Kai being Kai Krause, the man responsible for Kai's Power Tools, Bryce, and the hallucinatory album covers of the '70s prog-rock proponents Yes.

What sets Kai's Power Goo apart from distortion competitors such as Gryphon's Morph and The Valis Group's Flo is its easy-to-use interface. Brightly colored buttons display distortion options for growing, shrinking, smearing, nudging, and nudging portions of a picture. You simply click and drag to "paint" a distortion. Further, Goo has a set of brushes for color manipulation such as lightening or darkening parts of a picture. You can also animate the distortions you create and save them as QuickTime movies. Price? Less than $50, 805-566-6200. /SEAN J. SAFREED

OFF BEAT

Here's Looking at You, Kid

GET A NEW ANGLE on videoconferencing, movie-making, or taking still pictures by mounting your digital camera on a mini tripod. When topped by a Connectix QuickCam, this 6.5-inch tall tripod with flexible legs looks like a creature from the Residents' Freak Show CD-ROM. Its swivel camera mount lets you take shots at any angle, including fully vertical or horizontal.

Usually for sale as an accessory with a QuickCam, the tripod is also available separately for approximately $15 from Connectix (800-950-5880 or 415-571-5195). It's worth shopping for the lowest price, since you ought to be able to find this or similar tripods at any camera store. /NANCY PETERSON
NEW & NOTABLE

HARDWARE

Nakamichi SP-3d. A pair of compact, lightweight satellite speakers and an independent subwoofer promise to give you crystal-clear stereo from your Macintosh and add a sci-fi look to your desktop. $199. 310-538-8150.

CODI AirPro. The ultimate in safe passage for your precious PowerBook. CODI AirPro carrying cases cushion shocks from drops of over 6 feet with a six-sided, variably inflatable system of internal air pockets and passages. $79 to $179. 800-263-4462 or 714-540-1337; http://www.codi-inc.com.

Digital Vision TeleEyes/SC. Use your television set as a second monitor or videotape multimedia presentations from your Mac by using this new VGA-to-TV scan converter with built-in on-screen controls. $499. 800-346-0090 or 617-329-5400.

Microtek ScannMaker E6. This 30-bit color flatbed scanner has a resolution of 600 x 1,200 dpi, an 8.5-x-13-inch scanning area, SCCL-2 compatibility, image-editing software, and a nice price. $599. 800-654-4160 or 310-297-5000; http://www.mteklab.com.

Hoyes Optimu 286 Business Modem. Targeted at the small-business market, this modem features fax and data transmission, voice-mail, flash ROM, and security measures such as access control and call-back. $450. 404-840-9200.

PixelCraft Pro Imager 7100. This productivity-oriented flatbed scanner features triple-DSP onboard acceleration, 30-bit color capture, enhanced resolution of up to 2,400 dpi, and also the handy ability to gang-scan images on its large 11.7-x-17-inch platen. $8,495. 800-933-0330 or 510-562-2480.

Lightwave Viewpoint. Weighing less than 4 pounds, this portable ICD data and video projector has NTSC/PAL/SECAM video capabilities and a resolution of 640 x 480 pixels. Also included is a 3-watt-per-channel stereo amplifier with integrated speakers. $6,500. 541-484-7052.

UMAX PowerLook II. You can scan 600-x-1,200 dpi, letter-sized, 36-bit full-color images in less than a minute with this single-pass flatbed scanner. $3,495. 800-562-0311 or 510-651-4000; http://www.umanx.com.

Lexmark Optio N. Designed for large workgroups, this 600-x-600-dpi monochrome laser printer comes standard with two 500-sheet paper trays, prints on paper as large as 11 x 17 inches, and has a built-in 50-MHz processor and a 24-ppm print engine. $3,339 and up. 800-891-0331 or 600-232-2000; http://www.lexmark.com.

SOFTWARE


Magic Separator 4.1. Improve color fidelity when you speakers. $6,500. 541-484-7052; http://www.umanx.com.

MultiClip PRO 3.5. This smart Clipboard replacement improves productivity when you combine combinations. $119. CE Software: 800-523-7638 or 617-665-2297.

Magic Separator 4.1. Improve color fidelity when you speakers. $6,500. 541-484-7052; http://www.umanx.com/.

MacINTOSH PRICE INDEX

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

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<thead>
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<th>Used</th>
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<tr>
<td>Classic II (4/40)</td>
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<tr>
<td>LC III (4/80)</td>
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<tr>
<td>Performa 521 SC (8/1GB)</td>
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For more pricing information on these and other models, call 800-755-3033 or 770-955-0569 or visit http://www.uce.com. And find it on ZD Net/Mac, in Library 1 (Special Reports) of the MacUser Forum (GO ZMC:MACUSER).
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Developers hold back on new technologies

By MacWEEK staff

There’s angst in the Mac developer community today, and it’s not all in response to Apple’s second-quarter loss.

Many developers question Apple’s continuing support for numerous technologies on its plate, and some are holding back their adoption of innovations, including OpenDoc, QuickDraw 3D, QuickTime VR and QuickTime Conferencing. With the Apple Worldwide Developers Conference around the corner, developers are seeking assurance that the company will back up its words with action.

“Apple doesn’t jump into a new standard with both feet,” said Chuck Shotton, vice president of Quarterdeck Corp. of Marina Del Rey, Calif.

Developers that have supported PowerTalk, publish and subscribe, QuickDraw GX, and other faltering Apple technologies said they feel justified in their hesitation.

“We really want to support OpenDoc, but we’re a little uncomfortable,” said Joe Kissel, Nisus product manager at Nisus Software Inc. of Solano Beach, Calif.

Kissel said several of Apple’s efforts have arrived unfinished. “It’s like they’re trying to test the waters and will decide later if they are going to support them,” Kissel said. “I just got the API for PowerTalk.”

Other developers pointed to Apple’s difficulty in bringing tools and products to market. “If there are long, significant delays in technologies, developers lose faith in them,” said Brian Lawley, director of C++ and Java tools at Symantec Corp. of Cupertino, Calif.

In addition to speedy delivery, Apple must prove its technologies more quickly into the OS, said Gary Gonzalez, president of Binary Software Inc. of Santa Monica, Calif. “QuickDraw GX will be 2 years old before it goes into the system software. It’s useless,” he said.

Developers said they have this same fear about QuickDraw 3D and OpenDoc. “If I were Apple, I’d be totally focused on integrating OpenDoc into the Mac OS,” said David Smith, CEO of Cary, N.C.-based Virtus Corp. Apple and Claris Corp. have also had a lackluster record in implementing new technologies.

“You never see a Microsoft product ship without OLE support,” Symantec’s Lawley said. Resolving this issue is most critical, he said, “because if Apple won’t bet on its own technologies, then no third party is going to.”

Some longtime Macintosh programmers said some Apple efforts seem to be little more than technological exercises without a clear market.

“It comes down to ‘What problem does this technology solve?’” Smith said. He gave PlainTalk’s speech recognition as an example: “When it’s barely accurate enough to recognize single words, you have to ask yourself, ‘Why spend a huge effort to integrate it into my application?’”

While many developers said Apple’s current technologies solved real problems, they were more concerned that Apple hadn’t learned from its past mistakes of keeping technologies proprietary.

Developers agreed Apple’s technologies need to be cross-platform.

Shotton said that for QuickDraw 3D and QuickTime Conferencing to succeed, Apple should publish them as open standards.

Virtus’ Smith agreed about QuickDraw 3D: “They make it an open standard or it ceases to exist. There’s just no choice.”

Reliability key issue for Apple

By Joanna Pearlstein and Kelly Ryer

Extended beta testing and a new Quality Council comprising decision makers from the company’s engineering, manufacturing, testing, product marketing and customer service groups are two key parts of senior vice president Frederick Forsyth’s plans to improve the reliability of Apple Computer’s hardware and software.

CEO Gilbert Amelio deputized Forsyth, Apple senior vice president for worldwide operations, to oversee quality-assurance efforts.

Forsyth said: “[Amelio] doesn’t care what the cause is — supply problems, design problems, manufacturing, service, distribution. He is looking across the organization to ensure we have the processes in place for resolution.”

According to Forsyth, one way to improve quality control is to augment the testing process with more input from outside sources. In the wake of public beta tests of Open Transport and OpenDoc, Apple said it will continue the trend with a public beta of Copland, its next major OS release. Nancy Morrison, an Apple spokeswoman, said, “It won’t be really widespread, but there will be a seeding program for customers.”

But Forsyth said: “We’re looking to find beta sites. We want to get a broader base of users to test things. [That’s] clearly required for major changes. We want to get some educational institutions and developers.”

An increased focus on quality is reflected in recent Apple actions. The company reportedly delayed the release of faster Power Mac models in order to ensure the machines will work properly when released.
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<th>Flexibility</th>
<th>Ease of Use</th>
<th>Power</th>
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<td>- On Line Help Systems &lt;br&gt; - Balloon Help &lt;br&gt; - Control Palette &lt;br&gt; - Bar Tracking Window &lt;br&gt; - Interactive Page Preview Layer &lt;br&gt; - Cursor Tracking Window &lt;br&gt; - Templates &lt;br&gt; - Auto Size Window &lt;br&gt; - Auto Resize Row Height</td>
<td>- Scheduled, Revised &amp; Actual Dates &lt;br&gt; - Custom Work Calendar &lt;br&gt; - Filters &amp; Sorts &lt;br&gt; - Task Dependencies &lt;br&gt; - Outline tasks to show sublevels &lt;br&gt; - Import &amp; Export Data as ASCII text &lt;br&gt; - Network Versions - File Locking, Passwording &lt;br&gt; - Available for Macintosh, Power Macintosh, Windows 3.1, Windows NT and Windows 95</td>
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MacWEEK REPORT

Apple puts Finder on the Web

By Joanna Pearlstein

Putting the face of the Mac OS onto the Internet, Apple last month unveiled WebFinder, a Finder-like tool for serving documents on the Web, as well as new versions of both MacPPP and AppleSearch Server.

WebFinder, an ACGI (Asynchronous Common Gateway Interface), displays Web pages in file directories that resemble those of the Finder. The program displays the file's icon, and users can sort items by Name, Size, Kind and Date Last Modified.

Whenever a user clicks on a text file in the directory, WebFinder converts it into HTML on the fly, while maintaining all styles, Apple said. Clicking on an Adobe Acrobat file launches the Acrobat plug-in, if a plug-in is available free in the near future.

WebFinder's access privileges are set through Apple file sharing.

John Dasher, engineering manager for Apple's CyberTech Internet programming group, said his team designed WebFinder "as a complement to FTP. FTP turned out to be a little too complex for some users, and we said, 'Gosh, there's got to be an easier way.'"

WebFinder is currently running on Apple's CyberTech Web site at http://cybertech.apple.com. The tool is expected to be available free in the near future.

In other Internet news, Apple Computer last month shipped MacPPP 2.5, an update to the tool used for a Point-to-Point Protocol (PPP) connection. The new version is compatible with Open Transport and offers improved virtual-memory support, better serial-port management on PowerBooks and several bug fixes.

The new tool is included in Version 1.1 of the Apple Internet Connection Kit and is available on Apple's Web servers.

MacPPP is free, but Apple supports it only for owners of the $49 Apple Internet Connection Kit.

Finally, Apple has released a patch for the AppleSearch Server, which enables Wide Area Information Server functionality with Open Transport; the Version 1.5.1 update is required only for those who are using Open Transport.

Both MacPPP 2.5 and the AppleSearch Server 1.5.1 Patch are available on the CyberTech site.

SPA survey: Mac app sales dropped in '95

By Mark Hall

Despite record shipments of 4.7 million Macs in 1995, Apple's software developers lost ground.

According to a survey of U.S. and Canadian personal computer software sales conducted by the Software Publishers Association of Washington, D.C., the Mac portion tumbled to $1.05 billion from $1.23 billion the previous year, a 14.3 percent decline.

Total software sales grew 12.3 percent, to $7.53 billion in 1995, up from $6.7 billion in 1994.

Mac application sales took 14.5 percent of the market, down from 18 percent in 1994, while Windows software dominated with 75 percent of overall sales. DOS software accounted for only 9.5 percent of annual revenue.

"The concern for Mac developers is: How big is the market?" said SPA Research Director Jim Sanders. According to Heidi Roizen, Apple vice president of developer relations: "Mac software sales were $1 billion last year. That's not a dead market."

The SPA said Mac databases, spreadsheets and word processing applications declined the most from 1994 to 1995.

"Our entire Mac business is down in line with the industry," said Dave Meltzer, Mac product manager for Microsoft Corp. of Redmond, Wash. "But the fundamental business strength measured in volume continues to be strong."

"We've seen some contraction, but we're not sure whether it's the overall industry, Mac-specific, or anticipation of upcoming releases," said CEO Ford Goodman of CE Software Inc. of West Des Moines, Iowa.

But Larry Zulch, president of Dantz Development Corp. of Orinda, Calif., said: "Our sales have been strong. Other than a short drop, we've been quite pleased with how sales have been going."

Critics have said the SPA's study reflects excessive channel sell-in of Windows 95 applications, not actual sales to customers.

Spyglass to acquire Surfwatch

By James Staten

Spyglass Inc. is adding a significant new tool to its Web kit. In April, the company announced a deal to acquire Surfwatch Software Inc., maker of Internet content-filtering tools.

Naperville, Ill.-based Spyglass plans to purchase Surfwatch in a stock swap valued at $12.6 million. Officials at Los Altos, Calif.-based Surfwatch said that upon completion of the deal, the company will become a West Coast research and development division of Spyglass. No layoffs are expected at either company.

Spyglass CEO Douglas Colbeth will run the combined company; the future role of Surfwatch President Bill Duval is as yet undetermined.

Jay Friedland, vice president of marketing at Surfwatch, said his division's first order of business will be to integrate its Internet filtering technologies into the client and server portions of Spyglass' Web Technology kits, slated for release this summer.

"[Spyglass] recognized that Internet filtering is more than a parental-control thing and that it has applications in the intranet and corporate worlds," Friedland said.
Great news in the battle to be more productive: the revolutionary upgrade for the leading Macintosh database is now shipping, complete with an arsenal of innovative features. "FileMaker Pro 3.0 is the ultimate in relational databases and it makes great improvements over its worthy predecessors," says Mac Home Journal (1/96). It "...puts all other Mac databases to shame," raves Small Business Computing Magazine (1/96). FileMaker Pro 3.0 only costs $99 to upgrade or $199 for the full product. So march on over to your nearest dealer, or just call 1-800-293-0673 ext. 995 to order direct.

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Color scanners for home/small office

HP ScanJet 4p

Apple Color OneScanner 600/27

UMAX Super Vista S-12

Capturing color images gets easier and cheaper.

"A SCANNER FOR EVERY MAC" hasn't yet emerged as a presidential-campaign slogan, but three new sub-$800 color scanners - the Hewlett-Packard ScanJet 4p, the Apple Color One Scanner 600/27, and the UMAX Super Vista S-12 - make that promise enticingly real for many home and small-business computer users.

Any of the three will do if your main concern is scanning black-and-white and grayscale images, but chances are you're interested in quality color images - after all, these are color scanners. In that case, these scanners are decidedly not equal.

All three are flatbed models that connect to your computer's SCSI chain, and all ship with necessary cables and SCSI termination. (The UMAX uses an external terminator, and the Apple and HP models offer switchable internal termination.) All three accommodate standard 8.5-x-11-inch pages, and the UMAX and HP models are large enough to scan 8.5-x-14-inch sheets.

Each includes software for performing prescans — quick, low-resolution scans that help you decide on scanner settings for optimal image quality — in addition to software for image acquisition and image editing. Although each scanner uses the same basic procedures, the tools for acquiring, editing, and further handling scanned documents vary considerably. Before you buy, be sure to consider the tasks you intend to accomplish with your scanner and make sure to get the tools you need.

**HP ScanJet 4p**

The ScanJet 4p's features list has everything you'd want in a small-office scanner: Multi-function, easy-to-use software; friendly, thorough manuals that walk you through setup, the scanning process, and troubleshooting; a simple color-calibration system; and support for an optional ($599 list) automatic sheet feeder for scanning multipage documents. Despite these credentials, however, the ScanJet 4p came up woefully short in image quality. In our tests, scanned photographic images generally appeared fuzzy and consistently exhibited poor color quality. Blues and greens appeared glaringly bright, and reds sometimes appeared washed out.

The main software for the ScanJet 4p is Visioneer's PaperPort, which acts as a control center for a variety of scanner operations. PaperPort's main screen consists of a customizable toolbar - with icons that represent applications you can employ to manipulate scanned images - and a large window, known as the Desktop, where documents appear as small thumbnails after they've been scanned. To activate an application in the tool bar, you drag an image's thumbnail from the PaperPort Desktop and drop the thumbnail onto the desired application icon.

Chief among the tool-bar applications are PictureScan, which you use to adjust the ScanJet 4p's settings, and Photoshop LE, a limited edition of Adobe Systems' versatile image editor that provides tools for sizing, cropping, color-correcting, and retouching your images. (PictureScan can be opened from within Photoshop LE and PaperPort.) Other tool-bar icons include one for PaperPort's built-in OCR tool, which converts scans of printed text into editable text, and one for ScanJet Copy, an application that lets you use the scanner and your printer like an office copier. Your currently selected printer and your fax application, if you have one, also appear as icons on PaperPort's tool bar.

HP designed PictureScan to spare first-time users any confusion, so its scanning adjustments are intentionally limited: You select a printer from a pull-down menu (which includes HP printers plus generic options such as "300-dpi inkjet") and specify one of four document types ("color image with text," for example),
REVIEWS

Although this approach appears sound, in reality it's merely inflexible. If the colors in your prescan don't look right — and most of ours didn't — there's little you can do other than scan the image and try to fix it afterward in Photoshop LE.

The ScanJet's color-calibration software offered little help, although it was easy to use: You scan a supplied sample page, print it on your printer, and scan the printout, and the software tweaks the scanner automatically. We observed some improvement in color quality after we calibrated the ScanJet, but color images still looked unacceptable on-screen and in printouts.

Part of the image-quality problem may be with PictureScan's inexplicable restriction of the ScanJet 4p to a maximum resolution of 200 dpi (the same resolution as most fax machines) — even though the hardware is capable of capturing images at 300 dpi. HP claims that resolutions greater than 200 dpi are overkill for the types of printers home and small-office computer users have. PictureScan therefore sets the scan resolution for most documents at 150 dpi — even though one of the program's printer options is a 1,200-dpi imagesetter.

We did find that a boost in scan resolution can make a big difference in image quality: When we printed images scanned at 150 dpi (PictureScan's chosen setting for our color dye-sublimation printer), the printouts were noticeably fuzzy. When we forced the scan resolution to 200 dpi (by "lying" to the scanner and saying we planned to print on an imagesetter), the resulting images were decidedly sharper. HP is shortchanging users by denying access to all that the scanner is capable of.

Apple Color OneScanner 600/27

The Apple scanner delivers most of the advantages promised by the HP ScanJet 4p but avoids the ScanJet's biggest drawback, making it easy to obtain acceptable-quality (if not picture-perfect) scans most of the time.

The Color OneScanner's central software application, a program called Dispatcher, presents you with four large buttons, each bearing an icon that corresponds to Dispatcher's main functions: The Scan button lets you use the Color OneScanner as a copier or conventional fax machine (provided you have your own fax software); you can fax a scanned page, or print multiple copies of it, without saving the scanned image to your hard disk. (These functions are made even more useful with the addition of an optional automatic sheet feeder [estimated street price, $350] that Apple supplies for the Color OneScanner.) The Archive button lets you view scans as thumbnails.

Dispatcher, like HP's PaperPort, lets you establish links to other applications in which you'd like to work on your scanned pages. Dragging an application's icon onto the Dispatcher toolbar adds that icon to the tool bar; dragging an image file's thumbnail onto an icon on the tool bar opens the file in the corresponding application. Apple supplies Xerox's Textbridge OCR application with the Color OneScanner and recommends that you use this drag-and-drop approach to activate it.

Dispatcher's simple Scan dialog box offers users the flexibility to adjust the scanner for most image types. You start the adjustment process by selecting an output device from a pull-down menu. Once you've done a prescan, you have the option of using slider controls to adjust the image's contrast and color balance. You can also override the scan-resolution setting Dispatcher has specified for your chosen output device. The Color OneScanner controls made it easy for us — after we found the output to our dye-sub printer a bit indistinct, for example — to improve image quality considerably by setting a higher scan resolution.

UMAX Super Vista S-12

Whereas the Apple and HP scanners aim to be multipurpose devices used for capturing text pages as well as images, the UMAX Super Vista S-12 is intended purely as an image scanner. It dispenses with OCR and copier functions in favor of tools devoted to obtaining high-quality image scans — and succeeds admirably at that goal.

The Super Vista S-12 ships with Photoshop LE and uses a Photoshop plug-in module, called VistaScan, for image acquisition and scanner-setting adjustments. Because VistaScan is a subset of the control module UMAX supplies with the company's higher-end graphics scanners, its interface may intimidate scanning novices. Fortunately, UMAX also supplies an outstanding tool called AutoScan, which automatically adjusts the scanner settings for a given document. It's so good that, in many cases, you won't have to use VistaScan at all.

AutoScan performs a prescan and, without showing you the image, automatically adjusts scanner settings for best results with the printer you've selected. Click on the Scan button, and the image appears in a preview window as it's captured. If you don't like the result, you can launch VistaScan (and Photoshop LE) from within AutoScan to override the automatic scan settings. VistaScan lets you choose from dozens of preset scanning resolutions, or you can type in your own. The plug-in also provides image-scaling and -correction features, such as sliders for Highlights, Shadows, and Brightness & Contrast.

The UMAX VistaScan offers greater graphics versatility than the Apple and HP printers. In addition to an optional sheet feeder ($495 list), it has an optional transparency adapter ($495 list) that lets you scan 35mm slides or transparencies as well as paper originals.

The Bottom Line

None of these scanners can compete with professional-caliber graphics scanners — but none of them attempt to. Each scanner's output exhibited some artifacts and signs of "noise" associated with imperfect captures. Nevertheless, the scans produced by two of these scanners are good enough for most any business-communications needs or for inclusion in family art or publishing projects.

Despite a well-rounded software bundle and excellent documentation, the HP ScanJet 4p falls flat where it really counts: image quality. For that reason, we can't recommend it. Apple's Color OneScanner 600/27 delivers usable-quality images and offers a strong software bundle that will be useful in offices where OCR is desired or where a scanner pinch-hits as a fax machine and a copier (in conjunction with your printer). If your needs are confined to image capture only, the UMAX Super Vista S-12, with its impressive AutoScan tool, offers exceptional results and value.

/ Rick Oldano

Apple Color OneScanner 600/27, 5599 (estimated street); Company: Apple Computer, Cupertino, CA; 800-538-9696 or 408-996-1010; http://www.apple.com/. Reader Service: Circle #401.

Hewlett-Packard Scanjet 4p, $615 (list); Company: Hewlett-Packard, Santa Clara, CA; 800-722-6538 or 408-246-4300; http://www.hp.com/. Reader Service: Circle #402.

UMAX Super Vista S-12, 5895 (list); Company: UMAX, Fremont, CA; 800-562-4000 or 510-651-4000; http://www.umax.com/. Reader Service: Circle #403.
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Iomega Jazz

Fast, high-capacity removable storage hits a high note.

COMBINING THE CONVENIENCE and affordability of its predecessor — the Zip drive — with remarkable speed, upgraded capacity, and superior design, the Jaz removable-carry card drive looks like another well-deserved hit for its manufacturer, Iomega. The drive, with its sub-$100 1-GB cartridges, is sure to appeal to anyone who works with large files, particularly folks in multimedia development and prepress.

Built for Speed
You won’t have to compromise speed for price with the Jaz drive: It's the fastest removable-media drive you can buy. In our MacBench 3.0 Disk Mix test, the Jaz drive was 37 percent faster than the previous speed leader among removable-media drives, the 270-MB SyQuest drive, and more than three times as fast as the Zip drive.

Results were even more dramatic in our MacBench 3.0 Publishing Disk Mix test, in which the Jaz was 58 percent faster than the SyQuest 270. (We tested the Jaz using the default driver settings, which, like those for the tested reference drives, had the write-verification option turned off. When we turned write verification on, as Iomega recommends for greatest data security, the Jaz’s speed dropped by about 18 percent but was still greater than that of the SyQuest 270 with write verification off.)

Despite these impressive scores, Iomega’s claim that the Jaz is faster than most hard drives isn’t applicable to most current drives. A 1-GB Quantum hard drive in a Power Mac 7500/100 easily beat the Jaz in the Disk Mix Publishing Disk Mix tests. The Jaz drive, however, came close to hard-drive speed when writing large (1 MB) data chunks sequentially to disk, which means it would be well suited for digital-video-editing work.

If you work with large files, such as digital-video clips, you may want to consider Iomega’s Jaz Jet, a $100 Fast SCSI PC! card. The Jet card improved speed on reads and writes larger than 1 MB in size; on the other hand, it slowed down the small reads and writes that are typical with word-processor and spreadsheet documents. If you live and breathe for fast throughput, you might consider one of the Jaz bundles from ProMax, MicroNet, or FWB — each of which offers two Jaz drives with RAID 0 software.

Built to Last
You don’t have to compromise on design or durability with the Jaz drive. Unlike the Zip drive, which offers only two SCSI IDs and 25-pin SCSI connectors, the Jaz drive has eight SCSI IDs and two SCSI-II HD-50 connectors. The HD-50 connectors provide excellent data security, but they’re not commonly used in the Mac market, so you need to use an adapter — which Iomega includes — to plug the Jaz drive into a Mac. If you want to hook it into a SCSI chain that has more devices, cabling can get complicated. You don’t have to worry about getting an HD-50 terminator, however, because the Jaz drive has built-in termination.

The 8-x-1.5-x-5.5-inch drive is small and light enough to carry around. You can’t orient the case vertically, but even if you could, you wouldn’t be able to use it, because the drive heads wouldn’t work in that position.

To test Jaz cartridge durability, we heated the cartridges up to 185 degrees Fahrenheit with 95-percent humidity and also dropped them onto a metal surface from a height of 2.5 feet. The cartridges came through essentially unscathed — a bit scuffed but with data intact.

The Jaz drive comes with the same easy-to-use formatting software as the Zip drive, and in fact, you can use the same software for both. One minor disappointment: You can’t use the software to format a Jaz cartridge for use with PC-compatible computers. If Iomega truly wants its removable-media systems to become the floppy drives of the future, it needs to give its Mac clientele the ability to transfer data to PCs.

The Bottom Line
Iomega’s inexpensive Zip drive was a runaway mass-market hit last year, but its relatively low-capacity, 100-MB cartridges made it impractical for large files such as digital-video and -audio clips. Jaz cartridges deliver much more storage capacity than do the highest-capacity SyQuest discs, and the drive is fast, reliable, and reasonably priced. Later this year, SyQuest plans to release its retort to the Jaz drive: the SyJet drive, which will use 1.3-GB cartridges. Producing a drive that combines speed and ease of use as well as the Jaz drive does should be a challenge for SyQuest — and a boon for consumers. / Kristina DeNike

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New stars step up to the plate in this revamped utilities package.

LIKE ANY BALL CLUB that has stars as well as benchwarmers, Now Utilities, that venerable collection of Mac-customizing tools, has some great features mixed in with others that, to put it kindly, still need work. Now Utilities 6.0 spruces up old favorites, but some awkwardness introduced in version 5.0 still remains. Rather than address those problems, Now Software has added three new utilities — Now Auto Type, Now Tabs, and Now Shortcuts — in hopes they'll prove heavy hitters. Here's a rundown on the latest roster, with our appraisal of each utility's prospects.

The Starting Team

Now SuperBoomerang is worth the entire price of Now Utilities. It adds menus of recently opened files and folders to the Open and Save dialog boxes. In Now Utilities 6.0, Now SuperBoomerang's folder and volume menus are hierarchical, up to ten folders deep. Another great utility, Now Menus, lets you place icons in the menu bar, to which you can attach SuperBoomerang's lists of recently opened items or frequently used applications or any other files or folders. You can drag a file onto a Now Menu icon in the menu bar and through the hierarchical menu to drop it into a folder as many as ten levels down. This saves lots of folder clicking and closing.

Now Startup Manager lets you create sets of extensions and specify which set loads when. It can even test your system for extension conflicts, although not quite as elegantly as Casady & Greene's Conflict Catcher 3.0 does. Now WYSIWYG Menus hierarchically groups typefaces in the Fonts menu by family and displays their names in their own fonts. Now Save automatically saves your work in any application at intervals you designate and additionally captures your keystrokes as you work, so even in the case of a catastrophic crash, you can resuscitate your most recent notes.

Now Benchwarmers

The following tools are members of the Now Utilities team that, at best, need a little coaching; a few of them might actually be better off retiring from the game altogether.

When you hold the cursor down on a folder or volume icon in the Finder, Now Folder-Menus rewards you with a painfully slow hierarchical menu, as many as ten levels deep, of the item's contents. Among other things, Now QuickFiller lets you compress files on your hard disk both in the background, much like Symantec's AutoDoubler, and on demand, like Aladdin's Stufflt. It also replaces System 7.5.x's Find File utility with a slower utility that allows you to see a file's size, creator, and type in a single window, but Now QuickFiller doesn't let you drag an item from its inspection window or change an item's file type and creator. Now Scrapbook, a stand-alone application, replaces Apple's Scrapbook DA and offers some nice features, such as an editor for text on the Clipboard, but it still doesn't support Macintosh Drag and Drop.

The All-New Rookie Squad

The star recruit is the nifty Now Auto Type, which lets you set up and use key combinations and abbreviations as alternatives to typing out frequently used or awkwardly long words and phrases. Even better, Now Auto Type monitors your typing, and if it notices that you're repeatedly typing a particular phrase, such as your return address, it will suggest that you create a key combination for it. You can also access a pop-up menu of your key combinations and abbreviations.

Now Tabs puts a tab bar along the bottom of your screen. You can drag any window in the Finder onto this bar, where it will turn into a small, labeled button. When you click on the button or drag something onto it, the button opens as a window, from which you can open files or into which you can save them.

Two buttons on the bar give you access to other functions: Clicking on either button pops up a menu that contains Now SuperBoomerang's list of recently opened files and folders (already easily accessible from the menu bar) as well as the date and time and several Finder commands, such as Restart and Shut Down.

For performing a variety of tasks, Now Shortcuts offers an alternative to mousing up to the menu bar in the Finder: When you Control-click on the icon of a file you want to manipulate, Now Shortcuts invokes a pop-up menu that lists — directly on the icon — Finder actions plus QuickFiller's Find, Archive, and Compress commands. Now Shortcuts can save you some mousing, but Control-clicking on an icon takes some getting used to.

Another new feature of Now Utilities 6.0 is support for plug-ins — macro commands that can be added to the menus invoked by Now Tabs' tab-bar buttons or Now Shortcuts. You get a developers kit with Now Utilities, so you can create your own plug-ins, and Now encourages users to post their plug-ins for trade on Now's Web site. As this article went to press, only two such plug-ins were available — one that makes it easy to arrange all the open windows on your desktop or to pull any one of them to the front and one that lets you specify an application to use in opening any file you select. Both are handy but hardly essential.

The Bottom Line

If you still don't own Now Utilities, buy it: It's still one of the best productivity enhancements you can get for your Mac. If you're currently using Now Utilities 5.0, the new functions and improvements in Now SuperBoomerang, Now Menus, and Now Startup Manager and the new utilities are worth the $29.95 upgrade price only if you know you'll find them useful. / Eric Taub

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mTropolis

mFactory's David takes on Macromedia's Goliath.

MULTIMEDIA AUTHORING software is an old tradition on the Mac, dating back to the creation of HyperCard in 1987. With the introduction of mTropolis, a new tool (with a fresh approach) has been added to the authoring-program ranks. Although still in its infancy, mTropolis has the potential to give the dominant tool, Macromedia Director, some serious competition.

The considerable power of mTropolis derives from several sources: Its clever drag-and-drop approach to object-oriented programming allows speedy project development and troubleshooting. And, because mTropolis successfully separates programming instructions from the media they control (QuickTime movies, animations, sounds, and so on), the program makes it extremely easy to reuse portions of a project. For example, once you've programmed a goldfish to swim in one project, it's simple to drop the same fish into another project — or to apply its behavior to a guppy character. This sort of flexibility is unheard of in Director. Furthermore, although mTropolis runs only on Macs and compatibles (68040 or better, at least 16 MB of RAM), you can use it to generate programs that run on Macs, Power Macs and compatibles, and Windows 3.1 and Windows 95 systems.

Most of your work in mTropolis is performed in the Project window. Here, you can organize your program into sections and scenes, create objects that are linked to external media, and control the objects through the use of modifiers — programming instructions represented as icons on floating palettes. To apply a modifier, you drag it off its palette and drop it onto the object you wish to control. Once a modifier is in place, you can double-click on it to open a configuration dialog box, where you specify the conditions under which the modifier's instructions are to be executed.

mTropolis comes with 36 modifiers, organized into five categories: Effects, Variables, Behaviors, Mini Scripts, and Messengers. Effects modify object characteristics such as color and transparency in text or graphics or the rate of a sound fade-out. Variables store numerical information, such as game scores and object-position coordinates. Behaviors serve as containers for groups of modifiers, including other Behaviors; they are organized hierarchically much like Finder files and folders, so for example, a Tail Wag behavior could sit inside a more complex Happy Dog behavior. Mini Scripts provide a simple but powerful programming language. And finally, Messengers govern object interaction by sending instructions to objects and modifiers.

The Message Is the Medium
Messages in mTropolis can be generated by the user (through mouse clicks and keystrokes), by mTropolis itself (as in events triggered by scene changes or completion of animations), or by any object in a project: In a simple example, a moving object that bumps into another might send a collision message telling the struck object how far and how fast it should ricochet.

Each Messenger modifier's configuration dialog box contains numerous standard messages, including Show and Hide (for any visible object), Play and Pause (for movies or animations), and Scroll (for text). These standard instructions go a long way, but for instances specific to your project, mTropolis makes it easy to create custom author messages. You might use a New High Score author message to trigger a scene change in your game, for example.

Some Programming Required
When you need to perform mathematical operations, inspect or change the attributes of an object, or do conditional tests in your project, you use a Mini Scripts modifier, which has its own simple but powerful programming language. If you're familiar with AppleScript, HyperTalk, or Lingo, you'll have little trouble learning the Mini Scripts language.

The Price of Power
Developers familiar with Director's score-and-cast metaphor or with the cards-and-stacks orientation of HyperCard and SuperCard will need some time to adjust to mTropolis' drag-and-drop environment, and lightweight documentation makes the learning curve steeper than it should be. Experienced multimedia authors can learn a great deal by dissecting and studying the many example projects included on the mTropolis CD-ROM, however, and can easily be doing productive work within a month of working through the mTropolis tutorial.

Before shelling out $5,000 for the program, however, be aware that it is a version 1.0 release and therefore has a few bugs — some of them quite serious: Using the Save command, for example, may corrupt your project (mFactory recommends using the Save As command as a workaround). And moving more than one message at a time into an Author Message group sometimes causes the messages to be deleted, but you're safe moving only one message at a time. mFactory acknowledges these flaws and has slated them for correction in release 1.1, which may be available by the time you read this. The update also promises several new features, including real-time 3-D, support for QuickTime VR, and the ability to generate programs that support multiple users over the Internet.

The Bottom Line
For professional multimedia developers, mTropolis is a promising — if extremely expensive — alternative to Macromedia Director (estimated street price, $850). Although it has a few rough edges and missing features (not surprising for a version 1.0 release), its greater power and flexibility make it worth a serious look. If mFactory follows through on its promises to squash the bugs and continue adding enhancements, mTropolis may prove irresistible. / Patrick Milligan

Finessing Big Files

Live Picture 2.5 ★★★★
xRes 2 ★★★

These programs handle large images that Photoshop can't.

ALTHOUGH ADOBE PHOTOSHOP continues to dominate the Mac graphics market, the venerable image processor does have weaknesses, particularly when it comes to working with very large (over 20 MB) images. In answer to this problem, both Macromedia's xRes and Live Picture's Live Picture provide tools optimized for working with large files.

Live Picture and xRes take similar approaches in their handling of large images. Each program converts your source images to a proprietary format, and while you're editing an image, each program applies edits only to the portion of the image you're viewing on-screen. Sparing your computer the effort of applying changes to unseen portions of huge images saves considerable time.

During editing sessions, neither xRes nor Live Picture changes your original images. Live Picture FITS documents and xRes MMI documents are simply descriptions of the edits you've performed. When you're finished editing, you can use the programs to render a final image in any of several formats.

For creating composites (multilayer images) involving many large images, these programs offer a level of performance undreamed of in Photoshop. However, this doesn't mean you should throw out Photoshop; you'll still want it around for preparing images and for final output.

Live Picture 2.5

Although not a major upgrade, version 2.5 of Live Picture adds some useful new features as well as some needed bug fixes. Live Picture's new price ($99.95) is steep, but Photoshop and Live Picture 2.5 make a powerful combination.

As in Photoshop, separate images in your document can sit in separate layers. In Live Picture, however, individual edits can also sit in separate layers. You can apply color corrections, sharpening, or distortions in different layers, which you can easily alter, hide, or remove at any time. This frees you to experiment by trying different editing techniques, in various combinations. What's more, you can use a brush tool to apply edits or effects from a particular layer onto selected portions of the image, without hassling with masks.

Among Live Picture's new features is its support for Photoshop-compatible plug-ins and ColorSync 2.0 and the addition of gamut-preview features similar to Photoshop's. Version 2.5 also lets you import any EPS file into (only) the topmost layer of your image — but Live Picture cannot edit EPS graphics.

Despite the improvements, many of Live Picture's weaknesses remain. The program's brushes, for example, still annoyingly apply ink only when the brush is moved, not when the button is pressed. For experienced Photoshop users, Live Picture's greatest weakness is its interface and the requisite learning curve. Otherwise excellent features, such as the silhouetting tool, are hindered by cumbersome controls.

Because Live Picture lacks a powerful set of painting and editing tools, you'll find yourself frequently moving between the program and Photoshop. Complicating this process is Live Picture's inability to preserve layers when it exports Photoshop 3.x files.

xRes 2

Although xRes' approach to managing data is very similar to Live Picture's, xRes' designers have gone to great lengths to make the program feel and act like Photoshop. In fact, version 2's most significant feature is its completely redesigned interface.

xRes makes a great complement to Photoshop for handling large images, but the program is also able to function as more of a stand-alone application than Live Picture. In addition to its Photoshop-like interface, the program provides a full set of natural-media brushes and familiar editing tools and, in version 2, the ability to print directly from the program. The natural-media brushes don't compare to those in Fractal Design's Painter, but for small touch-ups, they're quite handy.

Similar to Photoshop's Layers palette, xRes' Objects palette lets you move and relayer an image as well as create complex, multichannel masks. Unfortunately, where Photoshop automatically understands that empty areas of a layer are transparent, xRes requires you to create masks that conceal everything in a layer except for the objects you want visible. Making these masks is fairly easy, but it's an extra step Photoshop users won't expect.

xRes can't compete with Live Picture's speed or flexibility, however. Although xRes offers as many as 20 levels of undo, these require enormous amounts of scratch-disk space. What's more, file manipulation in xRes is far slower than in Live Picture. And xRes' Photoshop-like interface, although it has powerful tools, is not as flexible as Live Picture's layered-editing approach.

The Bottom Line

Live Picture and xRes handle large composites and edits much more speedily than Photoshop, but neither program is perfect. Although xRes features a more familiar interface and a broader tool set, its speed doesn't compare to that of Live Picture. Live Picture, meanwhile, is hampered by a cumbersome interface and dependence on Photoshop for many editing tasks. If we had to choose just one of these two programs, we'd opt for Live Picture, because of its superior speed and flexible editing environment.

Ben Long


Trio of tools tries to tame troublesome type.

**IF YOU'RE A MAC USER WHO** depends on fonts for your work, you probably fall into one of two categories (we hesitate to say _types_): You don't even pretend to understand the Mac's font architecture and you have a difficult time managing your typefaces, or you're an experienced user with a thorough understanding of the Mac's font architecture and you have a difficult time managing your typefaces. Fortunately, three new utilities can help you sort through the confusion associated with multiple font-file types, corrupted fonts, or font-naming and -ID conflicts.

All three of the programs we tested — Suitcase, from Symantec; theFONDler, from Rascal Software; and Font Box, from Inside Software — perform their feats on TrueType, PostScript Type 1 and 3, and Adobe multiple-master fonts. Currently, Suitcase is the only program that supports QuickDraw GX.

**Suitcase 3.0**

Although Suitcase has been around since the early days of the Mac, version 3.0 is the first update this product has seen in years. Longtime users will be thrilled that version 3.0, a complete rewrite, is fully PowerPC-native and stable on current-generation computers.

The original aim of Suitcase was to relieve demands on system memory that result when large font libraries load into RAM. The small Suitcase application lets you "turn on" sets of typefaces without having to move any files into or out of your System Folder. With Suitcase, only active fonts load into memory and fonts can reside on any volume.

Suitcase 3.0's all-new interface enables you to create font sets by dragging and dropping folders from the Finder into Suitcase's single window or onto the Suitcase application's icon. Once the sets are defined, you activate them by double-clicking on their names in the Suitcase window. Any font or font set can be dragged into the predefined Startup set and will be available at boot time.

Although the new interface is uncluttered and easy to use, previous versions of Suitcase made thorough use of keyboard command equivalents and could thus be driven entirely from the keyboard. The new interface is not as mouse-free, which may be irksome to experienced Suitcase users. However, the new version is entirely AppleScript-able — it can't record macros, though.

As of this version, you can create application-specific font sets by dragging any application's icon into the Suitcase window. Fonts added to an application set are opened any time that application is launched. We'd like to see the addition of document sets, which could activate font sets upon the opening of a document.

Unfortunately, there's no link between Suitcase's sets and their original Finder folders, so changing the contents of the original folder on your disk does not change the font set inside Suitcase. Instead, you have to make changes manually to your Suitcase sets.

**theFONDler 4.0**

Providing management as well as maintenance features, theFONDler is a diagnostic laboratory for identifying everything from simple problems such as corrupted or missing printer fonts to more-esoteric troubles such as "Bad Style map offsets."

At the management end, you can use theFONDler's Collect feature to search a volume or folder for fonts and move or copy them into a single folder. With the Disburse function, you can then organize the folder into separate subfolders, each containing all the files relating to a single font family (the regular, narrow, and italic versions of Helvetica, for example). Longtime Mac users will appreciate theFONDler's ability to delete now-obsolete
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THE RIGHT MAC TO PACK FOR COLLEGE
Don't leave home without it - that is, the Freshman Guide to Mac Computing in September's Personal Mac section. It's all here: the best Macs for students, budget-friendly equipment recommendations, software to give you an academic edge, and other Mac-related fun stuff. Recommended reading for the class of 2000.

SEPTEMBER AD CLOSE:
MONDAY
JUNE 17, 1996

AFM (Adobe Font Metrics) files and correct potential errors such as font-ID conflicts. Collect and Disburse are great helps for quickly organizing all those files in your font folder. Such organization is particularly crucial for users who need to be sure they're delivering all the necessary font files to a service bureau or print house.

For more-serious diagnostic work, the FONDLer can analyze any file, folder, or volume; examine all the included fonts (whether they're installed in your system or not); and create a text file containing a detailed report about potential problems and anomalies. In addition to reporting any number of fatal errors, the FONDLer also provides information about potential design problems in a font. For example, the "Kerning applied to symbolic characters" warning is an indication that a font may have spacing problems.

Most of the information in the FONDLer's reports are these sorts of warnings and reports, which can be quite daunting to inexperienced users. Fortunately, the program places a small icon next to each entry to let you easily differentiate warnings from fatal errors. Unfortunately, other than renumbering font
Font Box takes an automatic approach to font troubleshooting and offers only a few configuration options.

(and vice versa), and unneeded screen fonts. It also resolves font-ID conflicts and moves loose screen fonts into suitcases.

Because Font Box can search multiple volumes (including network volumes), it's ideal for groups of designers who want to ensure that they all have the same fonts installed.

Since some users might be a little concerned about having an application muck around with their installed fonts, Font Box can copy them to a new folder and create an optimized library there. You then have the option of installing the library or not.

The Bottom Line

Suitcase is probably the most useful of all these utilities. A great improvement over the Mac's built-in font-management facilities, Suitcase is a program you'll use repeatedly every day as you switch from project to project. Although there's room for improvement, version 3.0 is a good upgrade.

Both theFONDler and Font Box provide good diagnostic features that will benefit the owner of any large type library. But unless you're eager to sift through theFONDler's obscure reports and then track down and manually deal with the errors they identify, Font Box, with its automatic approach, is probably the better choice, despite its inability to find every possible font problem.

Whatever your choice, you might move from being a user who has difficulty understanding the Mac's font architecture to a user who has a program that understands for you.

/ Ben Long


Adobe
PhotoDeluxe

Image processor 'for the rest of us' hides many of its strengths.

WITH PHOTODELUXE 1.0, Adobe Systems puts much of the functionality of Photoshop — its popular image-editing warhorse — into a program designed for home users. Photo­Deluxe may go too far in shielding new or casual photo editors from Photoshop's power.

Like Photoshop, PhotoDeluxe lets you do basic image-editing tasks, such as cropping, rotating, or resizing images; adjust colors; apply basic filters (such as Sharpen); and apply special effects. Also like its predecessor, Photo­Deluxe accepts plug-ins; can handle many file formats; and accepts images from scanners, digital cameras, and Photo CD discs.

PhotoDeluxe keeps available controls to a bare minimum. After you launch PhotoDeluxe for the first time, only the Apple, File, and Edit menus are visible. (You can get more menus by selecting Long Menus from the File menu.) The only additional controls are large, colorful buttons whose purposes are hard to miss.

PhotoDeluxe nests its tools inside two areas: Guided Activities and On Your Own. Each one, accessible by a click on a button, organizes the various tools for a project differently. Each of the Guided Activities is a minitutorial on a basic task, intended to give a sense of PhotoDeluxe's practical and creative possibilities. Each Guided Activity makes available only the tools needed for the task at hand.

Graduates of the Guided Activities and seasoned image editors might prefer the On Your Own area. It has the same type of button interface as Guided Activities but allows more flexible access to a wider range of features.

Even with PhotoDeluxe, image processing is a demanding task. A poor photograph or badly scanned image will require great time and effort to bring to even mediocre quality.

Despite Adobe's efforts to make Guided Activities and On Your Own goof-proof, users will find much to confuse them in both areas. In some instances, clicking on a big, friendly button invokes a dialog box that asks for relatively cryptic information. The slim manual and online documentation offer little help.

We suspect that once you've experimented a bit with PhotoDeluxe, you'll find its interface overly friendly. Like us, you may wish you could thwart sometimes-baffling safeguards.

We grew tired, for example, of having to go to Step 2 of the "Remove Red Eye" Guided Activity to use the magnifying-glass zoom tool. Other frustrating limitations include a limit of one open document at a time and restriction of paint colors to the 256-color Mac system palette — even though the program can open and edit images in millions of colors.

PhotoDeluxe has tough hardware needs: 8 to 12 MB of free RAM (not a stretch for graphics pros but too much for home users). It also requires a 68040 or PowerPC processor.

The Bottom Line

A laudable, if imperfect, attempt to make image editing accessible to nonprofessionals, PhotoDeluxe offers a safe, friendly introduction to digital-photo manipulation. But once you've got your feet wet, you may long for a tool with fewer restrictions. / Michael de la Peña

Adobe PhotoDeluxe 1.0, $89 (estimated street).

Reader Service: Circle #413.
KPT Cool Effects

Low-cost PhotoDeluxe plug-ins have some interface problems.

STUNNING SPECIAL EFFECTS on the cheap — that's the promise of KPT Cool Effects. This set of powerful image-manipulation tools works with any application that accepts Photoshop-style plug-ins but is designed for users of Adobe's entry-level image-processing tool, PhotoDeluxe. KPT Cool Effects can provide professional results, but its awkward interface makes it less than a pleasure to use.

KPT Cool Effects dresses up borders, text, and backgrounds by creating lighting effects, textures, abstract patterns, and overlays. Image filters and pattern generators create faux wood picture frames, simulate neon type, and make photos appear more like paintings or professional "glamour" shots. Although 5 of its 26 effects are included with PhotoDeluxe, KPT Cool Effects is a steal that's hard to pass up.

KPT Cool Effects filters let you add "noise" or distortion effects to any selected part of your image, including type. Although they're a snap to apply, fewer than a fifth provide a preview window. And although most effects can be intensified or weakened on a scale of 1 to 10, if you choose your setting before pulling down the PhotoDeluxe Effects menu, you may lose the ability to undo. Save early and often. Also, watch out for the weather effects: The distortions of the breeze and wind effects are the reverse of what their names suggest.

The Gaussian Electrify and Gaussian Glow filters, which create subtle blurs that lighten or darken an image, are particularly striking, especially when applied to portraits and location shots. The first gives your photo an angelic look; the second makes it appear to have been shot in the glow of a neon sign.

In addition to the filters, KPT Cool Effects has four pattern generators — Gradient Designer, Gradients on Paths, Fractal Explorer, and Texture Explorer — which transform any selection into a modifiable pattern. As powerful as these generators are, their interfaces are cumbersome. Navigating them requires repeated scrolling through menus and submenus. What's worse, many preset patterns have unhelpful, self-consciously hip names such as Djungloid 2 and Killer Sweepoid that tell you nothing about what effect they produce. Luckily, all four pattern generators have helpful, although small, preview windows.

The help text for the filters and the pattern generators, which describes the less-than-obvious effect features, can be accessed only through the four pattern generators: Even if you want assistance with a filter, you must open a pattern-generator window to access help. The limited manual doesn't help much either. Fiddling around is the best way to discover what the filters and the pattern generators can do. However, when you finally conjure up the perfect effect, it's hard to say that it wasn't worth the effort. The combinations of shapes and colors can be truly stunning.

The Bottom Line

If you have Adobe PhotoDeluxe, using KPT Cool Effects is a fun way to take your digital-imaging skills to the next level. There are enough accessible, interesting effects to keep you exploring for days. However, the quirky Undo function and the paucity of preview windows can be frustrating. / Marcie Shatz

REVIEWS / SCANNERS

IRIS IRISPen

Scanning 'pen' soaks up print and pours it into your Mac.

NO MATTER HOW FAST computer hardware becomes, keying in data will always be slow, tedious, and error-prone. Accordingly, developers keep coming up with new scanners and OCR (optical character recognition) programs designed to move information from paper to computer, avoiding the keyboard altogether.

The latest such device, Image Recognition Integrated Systems' IRISPen, combines a scanner you hold like a pen with software that converts the type, as you scan it, into digital text and pours it directly into any application. (Primax Electronics, which manufactures the hardware, sells the same product under the name DataPen Personal Text Scanner.)

Handy Hardware

The scanner, which looks more like a utility knife than a pen, is connected by a thin cable to a stand, which, in turn, is connected to one of your Mac's serial ports. Ordinarily the stand is also connected to an AC adapter, although you can choose instead to power it with five AA batteries.

The IRISPen scans only one line at a time. You place the scanner at the beginning of the text you want to capture, press down to start scanning, and roll the pen across the line. Learning to keep it straight and finding an optimal speed take practice, but we soon got the hang of it.

We never came close, though, to the throughput of "up to 100 characters per second" that IRIS claims. Typically, it took about 6 seconds to scan and recognize a line of about 100 characters. (Our average was 15 seconds per 100 characters until we turned off our interactive spell-checking extension.)

One-Way Gate

The IRISPen's stand has a pass-through serial port — this is a nice touch, because it allows you to keep a modem and a printer or a LocalTalk network connected simultaneously. Making use of this option can be cumbersome, however: You have to reinitialize the IRIS software, a process that involves two dialog boxes and five mouse clicks, after you've used other hardware via the pass-through port.

There are other limitations too. For one, the scanner can't share a serial port with an Apple GeoPort Telecom Adapter. And if it shares the printer port with a LocalTalk network, you have to turn off AppleTalk and thereby lose any active network connections before you can use the pen. Then, after you're through with scanning, you'll have to remount any servers you were using.

Soft and Easy

Happily, the IRISPen 2.0.4 software won't bloat your Extensions folder: It's just an application you launch when you want to use the pen. The software requires at least 2 MB of RAM (2.5 MB on Power Macs and compatibles not running virtual memory). The standard installation copies more than 90 files, which take up more than 8 MB of disk space, but that includes support for 11 languages and you can get rid of most of the bulk by eliminating languages you don't expect to use.

Because the IRISPen software emulates the keyboard, it works within any application. The software has numerous useful configuration options — for instance, you can select characters for entry at the start or end of each line.
scanned line (such as a space, a tab or dollar sign, or even a string such as Tel.). You can also train the system to improve its accuracy with problematic fonts and teach it how to handle special symbols. And there’s even a special setting for left-handed users.

The IRISPen system can handle any font in sizes from 8 to 22 points, but it isn’t able to recognize the fine print used for many business cards, phone books, footnotes, certain catalogs, and other listings. In tests with a variety of magazines, books, press releases, and receipts, it typically recognized 95 to 100 percent of the characters correctly. Remember, though, that 98-percent accuracy means that you’ll have two mistakes to correct in each 100-character line. We had particular problems with the first character or two in each line. More often than not, the system failed to recognize them, no matter how carefully we positioned the scanner. In addition, we encountered frequent errors when we tried to scan close to the gutter in books and magazines that wouldn’t open flat.

**The Bottom Line**

Even though its performance and accuracy are far from perfect, the IRISPen generally works as advertised. Its hardware and software both have an elegant look and feel, and it comes with a clear and even amusing manual as well as Apple Guide online help.

Our main question, though, is, Who needs it? If you’re entering significant amounts of text, line-by-line scanning is tiresome and inefficient; for small amounts, most people will find typing faster and easier. But if you really don’t like to type or you regularly need to enter large amounts of text a few words or lines at a time — say, personal data from paper forms, product information from catalogs, or perhaps short excerpts from books and magazines — the IRISPen can provide some welcome relief. / Henry Norr


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REVIEWS / POWERBOOK ACCESSORIES

Panasonic KXL-D742 CD-ROM drive


SOME GOOD IDEAS ARE SO OBVIOUS, you have to wonder why no one thought of them sooner. The Panasonic KXL-D742 portable CD-ROM drive is just such an idea: a battery-operated, quad-speed external CD-ROM drive designed specifically for PowerBooks. Just the kind of goodie Power Book road warriors have been craving ever since Apple added multimedia capabilities to its portable line.

The Panasonic drive delivers quadruple-speed CD-ROM data access plus support for multisession Photo CD, CD-ROM XA, and audio CD. It can run off a tiny AC power supply (included), six AA batteries, or an optional rechargeable power pack. With a status LCD and push-button controls for play, pause, and track control, the drive can also operate as a stand-alone audio-CD player.

It's obvious Panasonic had Apple's portables in mind when it designed, if not when it named, the KXL-D742. The drive comes in a slim, wedge-shaped chassis about as thick as a pack of cigarettes and weighing about a pound with batteries. Graceful curves and a charcoal-gray case make it look like a natural extension to a 5300- or 190-series PowerBook. And unlike the only other portable CD-ROM drive we've tested, MediaVision's Reno Portable, it doesn't require any additional cables or adapters: The supplied 50-pin-to-HDI-30 cable is PowerBook-ready. The KXL-D742 also includes a mini stereo cable for PowerBook audio playback, but no headphones.

In our tests, the Panasonic drive ran for two and a half hours off six alkaline batteries. Even when there wasn't enough juice left to run the drive as a 4x data peripheral, our alkalines still held enough of a charge to play the 45-minute soundtrack from Pulp Fiction twice from start to finish. Although this was admirable performance, giving users a way to switch from 4x to 2x could extend battery life even more.

The drive goes to sleep when it's not in use, waking up when the SCSI bus queries it for data. FWB's CD-ROM ToolKit 1.5.9, which ships with the drive, provides caching options that can extend the amount of time the CD-ROM drive stays in sleep mode. Unfortunately, setting caches with FWB's software is difficult and can affect data-streaming performance. In our tests, for example, a medium-sized cache caused significant audio and frame dropout when we ran a QuickTime movie off a disc.

The Bottom Line

Even our most nitpicky examination uncovered little to criticize in Panasonic's portable CD-ROM drive. Using the drive would be a great way to feed that field sales presentation with images and sound the next time you're on the road, plus feed your eyes with great CD-ROM-based entertainment or your ears with a few good tunes on the flight home.

And for $399, only $60 more than the cost of Panasonic's 4x CD-ROM drive for desktop Macs, you may have enough money left over for an upgrade to first class. / Andrew Gore


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3D World

Entry-level 3-D program is easy to use but limited.

NOW SHIPPING WITH EVERY Power Mac, Apple’s QuickDraw 3D System Extension puts powerful 3-D rendering onto everyone’s desktop. The first program to harness that power in a creative tool, 3D World, from Microspot, is a generally easy-to-use introduction to 3-D creativity. But spotty documentation, a far-from-intuitive lathe tool, and a stingy set of supplied textures limit its value in comparison to similarly priced, more powerful (if harder-to-learn) 3-D applications.

3D World’s interface is simple and straightforward. Four palettes provide access to tools for creating objects and manipulating, lighting, and viewing them in a scene. Anyone familiar with basic Mac 2-D drawing tools will quickly understand the tools for creating solid objects such as spheres, cubes, and cones, which can be grouped and combined to create more-complex shapes. Far less intuitive is the lathe tool, which allows you to create complex tooled objects (such as decorative table legs) as well as helixes (such as corkscrews or bolts).

Once you’ve created the objects you want to work with, you can change views, using the Camera palette; place and adjust lights, using the Light palette; and specify object size and position, using the Info palette. (You can move and resize objects by dragging them instead, but using the Info palette gives you greater precision by letting you enter size dimensions and position coordinates for your objects.)

After you’ve finished a scene, you can use 3D World’s handy orbit tool to take a flying tour around the place. You can easily stop at any time during the trip and set up a new camera view or make adjustments to the positions of objects.

3D World’s architecture allows for the addition of plug-in enhancements. Microspot supplies 6 plug-ins with the program and another 14 when you return your registration card. A few of these plug-ins simply fill in important gaps in the program: The align tool, for example, is essential for snuggling objects against one another for assembly into larger structures — a process that’s truly difficult using the Info palette alone. More-innovative plug-ins include Light Director, which lets you direct lighting to specific locations on an object by pointing and clicking, and 3D Text, which creates 3-D text from any of your fonts.
REVIEWS / GRAPHICS TOOLS / WRITING TOOLS

Unfortunately, the only documentation provided for the plug-ins is skimpy and comes in the form of Read Me files.

Render Me Speechless
3D World's greatest strength lies in its real-time rendering capabilities. When you create an object, it appears fully rendered on the screen. Double-click on it, and you're presented with the Info dialog box, which lets you specify several aspects of the object: its size and position on the x-, y-, and z-axes; its color; and its shininess and reflectiveness. If you have a QuickDraw 3D accelerator card installed, you can even render it transparent. When you drag a PICT or 2-D map onto an object, it wraps around it. Macintosh Drag and Drop capabilities also allow you to embed sounds or URLs in 3D World objects — clicking on the object plays the sound or links to the corresponding Web address. A separate library program that ships with 3D World lets you store colors, textures, bitmapped images, and views for reuse in 3D World. Unfortunately, the only sample textures Microsoft supplies are a handful of swatches from the Apple Scrapbook and Desktop Patterns DAs. Compared to the scores of realistic metal, wood, and stone sample textures and shaders supplied with other entry-level 3-D packages, such as RayDream Studio (now sold by Fractal Design) and MetaTools' KPT Bryce, this is a big flaw.

3D World can be enhanced by installation of a QuickDraw 3D accelerator card, but this is by no means necessary. Even with the minimum required RAM (16 MB, mostly required by the QuickDraw 3D extension) and a small amount of virtual memory, the program ran without a hitch.

The Bottom Line
3D World is easy to use, very stable, and genuinely fun. Although it's not going to take the place of programs such as Specular Infini-D or Strata's StudioPro, it most definitely provides adequate 3-D drawing capabilities to the average user. However, for the price, you might do well to consider some of the slightly more complicated but fuller-featured competing programs. They may be harder to learn than 3D World, but they provide higher-quality object rendering plus more sample images and textures to help you generate top-notch 3-D objects. / Jeff Batterby and Jim Shatz-Akin

Dramatica Pro 2.0

Professional writers' story-analysis and troubleshooting tool.

SOMERSET MAUGHAM ONCE SAID there are three rules for writing a novel — but unfortunately, no one knows what they are. Well, Dramatica Pro 2.0, from Screenplay Systems, doesn't know the rules either, but if you're a serious screenwriter, playwright, novelist, or short-story writer, the program can offer meaningful help for honing your craft.

Dramatica Pro differs radically from other writing programs, such as Collaborator, Storyline Pro, and Plots Unlimited, in that it's focused far less on the process of writing than on the planning and development of characters before you write. By helping you sort through character motivations and relationships, story theme, action, and plot, Dramatica Pro helps you define the essence of the story and avoid unnecessary rewrites. If you've got an existing story that's proving difficult, the program can also help you troubleshoot it and uncover weaknesses in its plot or character development.

A Compelling Argument
Key to Dramatica Pro is a theory that all the characters, scenes, and action that make a good story are elements in an argument — the central message or experience you, the author, want to communicate. Dramatica's purpose is to help you clarify that message and then ensure that the elements of your story advance it. (This theory, as well as the specialized terminology that appears throughout the program's story-development process, are detailed in a highly readable, if weighty, 416-page textbook that ships with the program.)

For starters, Dramatica asks you a series of highly structured multiple-choice questions about the characters, themes, problems, scenes, and outcomes of your story. (Where appropriate, the program prompts you to type character names and other information in addition to answering questions.) Queries touch on technical matters, such as whether your narrator will be the main character or a detached observer, and thematic ones, such as whether you want your protagonist to change over the course of the story or to resist change.

Based on your answers, the program selects one of 32,000 possible "Storyforms" — diagrammatic story representations — for your story. The Storyform includes events Dramatica concludes should occur to build and resolve the story's essential conflicts, and the roles characters in the story must play (examples include the Goad, who pricks the protagonist to action, and the Foil, whose behavior contrasts and underscores the protagonist's). If, in the course of answering Dramatica's queries, you've described characters that play any of these roles, Dramatica places them in the Storyform for you.

Dramatica Pro's Build Characters screen helps you model your story's characters and diagram their relationships.

Dramatica's next step is to help you fill in the gaps in the Storyform. By using the StoryGuide Pro textbook and a series of detailed worksheets, you add, delete, or change episodes and characters; enter notes on action or begin drafting dialogue and narrative. When you've finished — or at any time during the process — you can view or print your notes or any of 35 reports that chart plot progress, character development, and so on. You can use the reports as a kind of superoutline when you get down to actual writing.

Dramatica Pro's developers have gone a long way to make things easier in version 2.0, notably with a completely rewritten manual and the StoryGuide Pro textbook, the new workbook, and greatly expanded online help. Still, the program demands significant effort and time. It's not for dabblers or hobbyists.

The Bottom Line
Dramatica Pro 2.0 won't write your screenplay or novel for you (or improve your style), but it's invaluable for helping you think through all the elements of your story. / Michael Miley

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CIRCLE 128 ON READER SERVICE CARD
Choosing a Web browser is a no-brainer, right? If you’ve got a direct connection to the Net, you use Netscape Navigator. If you’re a dues-paying member of an online service such as America Online, you go with the browser your service provides.

**NOT ANYMORE.**

Now, anyone who surfs the World Wide Web has a choice. For the first time, Navigator has some real competition: Microsoft’s Internet Explorer 2.0 for the Macintosh, a speedy and compatible Web browser with a feature set that matches — and often exceeds — Navigator’s.

Everyone has a choice — even subscribers to AOL and CompuServe. Later this year, America Online will integrate Internet Explorer into its software and will also provide compatibility with Navigator. CompuServe will allow its customers to use either browser.

Navigator and Internet Explorer are freely downloadable from the Internet, so you can try them both out yourself — but in the end, you’ll have to pick one of them to be your main surfboard.

Which should you choose? The groundbreaking standard setter or the upstart challenger from the mega-company all Macintosh users love to hate? And does it really matter? After all, isn’t a browser just a window onto the Web that simply displays the creations of Web-page designers?

You bet it matters. The Web is still in its frontier phase, with millions of designers developing new tricks and techniques daily. You need a browser that can handle anything the Web throws at it today and that’ll be ready for whatever appears tomorrow. Luckily for you, Netscape and Microsoft are each firmly committed to winning the Battle of the Browsers — and both have deep enough pockets to fund their armies of developers.

What does a browser need to do to win the war? Let’s take a look at the combatants.

**HTML Go Beyond the Basics**

In order to compare Web browsers, you need to understand how they work. When a Web page is sent over the Internet, it’s all plain text — there are no bold or italic characters, no fonts or point sizes, not even any graphics.

Instead, the plain text uses a system called **HTML**, HyperText Markup Language, which describes styled, graphics-rich pages by using special codes called **tags**. When a browser receives an HTML file, it interprets the tags and draws the page on-screen, calling on image files as needed.

Because HTML was originally designed to describe pages only in general terms (“This is a big headline,” rather than “This is a 48-point headline in Times Bold”), the same page might be displayed in wildly varying ways.

**BY JASON SNELL**
FIRST BATTLE OF THE BROWSERS. THE WINNER? IT COULD BE YOU.
BATTLE OF THE BROWSERS / Microsoft's Internet Explorer beats Netscape Navigator

**FEATURE** | **ADVANTAGE**
--- | ---
**HTML** | Support: Solidly supports standard HTML tags as well as Netscape’s enhanced tags.  
Enhancements: New text-display and sound-management tags give Web designers further options.  
--- | Web browsers owe Netscape a debt of gratitude for its contributions to HTML.  
--- | Frames are promising but difficult to implement and navigate.  
--- | Its plug-in architecture may still be shaky, but it opens up a world of possibilities.  
--- | Support of JavaScript is good, but most in-line multimedia support still needs work.
--- | Software developers will ignore them. Although this may sound distressing, Microsoft turns it into a virtue: Designers can add Internet Explorer-specific tags to their pages without fear of turning away the legion of Navigator users on the Web — the Navigator users may not even know they’re missing anything.

**MULTIMEDIA** | Plug-ins: Microsoft has done a good job of providing support for Navigator-compatible plug-ins.  
Other: Supports multiple sound and video formats and a primitive but workable VRML browser.  
--- | Some browsers will ignore them. Although this may sound distressing, Microsoft turns it into a virtue: Designers can add Internet Explorer-specific tags to their pages without fear of turning away the legion of Navigator users on the Web — the Navigator users may not even know they’re missing anything.

**PERFORMANCE** | Speed: Smart page-drawing techniques make Internet Explorer simply feel faster.  
Reliability: Somewhat more robust than Navigator, but still unacceptably unstable.  
--- | Users should demand more stability from such an important, everyday application.

**USABILITY** | Interface: A better scheme for managing favorite Web addresses provides a slight advantage.  
Mac savvy: Internet Config makes a Net administrator’s life easier; QuickDraw 3D is a welcome addition.  
Other: Send-only e-mail and rudimentary newsgroup access are disappointing afterthoughts.  
--- | File-download-progress bar is nice, but bookmark management needs improvement.
--- | AppleScript support is solid, but Internet Config support is a must for version 3.0.
--- | Full send-and-receive e-mail and a better news reader give Navigator the edge.

---

Internet Explorer supports almost every feature offered by Navigator — since it has to: Why would you want to switch from Navigator and lose access to all the graphically pleasing HTML tags Netscape has introduced? Navigator and Internet Explorer each support the most popular of the "extended" HTML features, most of which were introduced or popularized by Netscape: background patterns and colors, colored text, type-size controls, tables, and horizontal and vertical positioning of graphics.

Microsoft hasn’t merely replicated Navigator’s tags — it’s one-upped Netscape by introducing a host of additional HTML tags Navigator doesn’t yet support, such as ones that let designers set text in various typefaces and have a background sound play while a page is being loaded.

Most browsers simply ignore HTML tags they don’t understand. If a Web-page designer uses tags supported by only one browser, other
Navigator laden with graphics, tables, and interactive forms, it looked nearly identical to the same page as viewed by Navigator — absolutely identical in most details.

We even encountered an instance of Internet Explorer rendering pages better than Navigator. On an interactive Web page containing an HTML table embedded within a cell of another HTML table, Internet Explorer correctly rendered both tables. But Navigator couldn't — it showed what was supposed to be the embedded table as if the table tags weren't even there.

The one notable HTML feature Navigator 2.0 provides that Internet Explorer doesn't is frames. When a frames-based page is displayed in Navigator, Navigator can split the page into several scrollable panes and view multiple HTML documents at once. By using frames, a Web designer can, for example, create a hyperlinked table of contents that can remain open while pages referenced in that table of contents are viewed in a separate pane of the same browser window. Unfortunately, it's notoriously difficult to create pages that use frames — most current efforts look ungainly, and such pages can be extremely hard to navigate.

### Multimedia Be Ready for Anything

Although HTML support has traditionally been the major issue in evaluating Web browsers, version 2.0 of Navigator introduced a new set of issues: how best to play multimedia content. A major new feature comes directly in the browser window. Although multimedia content could previously be displayed with external "helper" applications, the plug-in architecture built into Navigator 2.0 allows the playing of just about any multimedia file format in the browser window, as long as a suitable third-party plug-in has been installed.

Since the world of Navigator-compatible plug-ins is so new, the future of the technology is hard to predict. Major plug-ins such as Adobe's PDF (for high-quality HTML rendering) and Macromedia's Shockwave (for animation and increased interactivity) will probably become popular, and no doubt some of the many new plug-ins on the market will also become de facto standards. If a Web browser is to compete with Navigator, it must support in-line display of PDF documents, Shockwave presentations, QuickTime movies, and more — to do so, it must support the appropriate plug-ins.

Internet Explorer is the first browser other than Navigator to support Netscape's plug-in architecture. Although the plug-in technology is still shaky — even Navigator doesn't run all plug-ins successfully all the time — Internet Explorer works with most common plug-ins, including those from Adobe and Macromedia. As a result, just about every multimedia format in use on the Web can be played in Internet Explorer as well as Navigator.

Internet Explorer also supports some multimedia formats without needing plug-ins: It can play sounds in the common WAV, AIFF, MIDI, and Sun µ-law formats as well as movies in either the AVI or the QuickTime format — users of Internet Explorer don't necessarily have to download and configure helper applications just to hear the latest sound clip from Friends or to view a teaser of next week's episode of Babylon 5.

Internet Explorer also offers rudimentary support for VRML, Virtual Reality Modeling Language, via Apple's QuickDraw 3D technology. Internet Explorer's VRML browser doesn't support mapped textures and other advanced VRML features, and it's not easy to navigate a 3-D world by using the QuickDraw 3D interface, but Internet Explorer provides the Mac's first usable, stable VRML browser.

Netscape currently offers VRML support only through plug-ins, and at press time, there was still no Mac VRML plug-in that could match the quality of Internet Explorer's VRML browser.

Neither Internet Explorer nor Navigator yet supports Sun Microsystems' Java, the much hyped cross-platform language that allows small programs called applets to be embedded in Web pages and executed within the browser window. However, Navigator — unlike Internet Explorer — currently supports a simplified subset of Java, known as JavaScript, which allows simple scripts to be embedded in Web pages.

Trying to be the only Internet-access application you'll ever need, Internet Explorer and Navigator each also support e-mail and newsgroup access. However, you can only send — not receive — mail with Internet Explorer. Using Navigator, you can send as well as receive mail, using the POP and SMTP protocols. Navigator's news reader is more advanced than Internet Explorer's, which is rudimentary at best — but to be honest, neither program's e-mail and news features come even within hailing distance of adequacy. If you send and receive e-mail or read newsgroups on a regular basis, you'll be better off using free stand-alone tools such as Qualcomm's Eudora Light or John Norstad's NewsWatcher.

### THE ALSO-RANS / too little too late

It's a tough sell when you're up against the free-to-download, $49 Navigator and the completely free Internet Explorer. Four second-tier browsers are hanging on, however — although just barely.

#### MacWeb 1.1.1
from Tradewave, was the first good Mac Web browser — small and simple, not requiring much RAM or hard-disk space. Unfortunately, MacWeb is showing its age — it doesn't support background colors, tables, or just about any Netscape innovation. Hopefully, MacWeb 2.0 will offer some improvement, but for now, MacWeb is useful only if you're stuck with an underpowered Mac.

#### NCSA Mosaic 2.0.1
is the latest version of the browser that started the World Wide Web revolution. Mosaic 2.0.1 supports a variety of HTML features, although it can't display background colors or patterns. It can be sluggish, and it's pretty bare-bones: There's no drag-and-drop support, and you don't get a pop-up menu when you click on a hyperlink. Mosaic is free... but, then, so is Internet Explorer.

#### Spyglass Mosaic 2.1
an updated version of NCSA Mosaic — is the third-best Mac Web browser but has no compelling advantages over the top two. It's speedy and supports most Netscape extensions to HTML, and it offers some Spyglass innovations, such as client-side image maps, that are now supported by Navigator and Internet Explorer. A demonstration version is available directly from Spyglass; the product is bundled with various books and software packages, including StarNine's WebSTAR.

#### TCP Connect II 2.3.1
from InterCon Systems, is the ClarisWorks of Internet access, offering e-mail, FTP, Gopher, and news in addition to Web access — at $395, a pricey but convenient collection. The browser will be familiar to plenty of AOL users and eWorld expatriates: It's the one those services used — although AOL is now replacing it with Internet Explorer and eWorld has expired. The browser is serviceable but painfully slow. It supports most HTML extensions but not Navigator plug-ins or any form of Java. We recommend it only if you must use just one application for all your Net access.

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July 1996 / MacUser
INTERNET

Performance | Speed Down the I-Way

Given the deserved grief Microsoft got from Mac users when Microsoft Word 6.0 was released — complaints were that it was as slow as erosion, looked like a Windows application, and didn’t support Mac technologies — it’s fair to question how Internet Explorer matches up with Navigator in terms of speed and usability.

It matches up quite well, actually. When it comes to displaying pages, Internet Explorer is faster. For example, when you click on Navigator’s Back button, you usually experience a brief delay, followed by a wait while Navigator redraws all the items on the previous page. In contrast, moving back one page in Internet Explorer is nearly instantaneous, with the page appearing completely rendered. Likewise, selecting text takes noticeably less time in Internet Explorer than in Navigator.

The method Internet Explorer uses to render pages also beats Navigator’s — page loading feels faster. It’s just a matter of page-loading priorities: When Navigator loads a page, it won’t display anything below any images that have yet to be loaded unless the Webpage designer has embedded the height and width dimensions of an image in the HTML code. Also, Navigator won’t draw any part of a table until all the images in that table have been loaded.

Internet Explorer, on the other hand, is designed to display everything as quickly as possible. If an in-line image is present but the HTML code doesn’t say what its height and width dimensions are, Internet Explorer will draw a generic placeholder, render the rest of the page, and then move items on the page around once the image begins to appear. Tables appear as soon as they’re loaded and then constantly redraw as their images are loaded.

Even though each browser takes the same total time to download a full page of text and graphics, Internet Explorer’s method of always displaying as much of a page as it can (and first displaying the most-useful information — the text) makes it feel much more responsive.

Usability | Be Easy to Handle

The two browsers have quite similar interfaces. Both include a tool bar, although Internet Explorer’s provides more options than Navigator’s. Both display pop-up menus when you click and hold your mouse button on a hyperlink, offering the ability to open a link.

SUBTLE DISTINCTIONS / small additions add up to big improvements

INTERNET EXPLORER AND NAVIGATOR may look similar, but they’re far from identical: Their interfaces are subtly different, and both support some unique HTML features.

Internet Explorer’s large tool bar gives one-click access to news and mail, the Microsoft search page, “favorites,” and settings. Other buttons increase and decrease font size, copy, cut, and paste; and display HTML source code.

Internet Explorer uses this coffee cup steam and spin, thanks to a linked AVI movie; users of other browsers will still be able to see a still image of the hot java.

Internet Explorer displays a placeholder while a graphic is loading, even if the graphic’s size isn’t known or the graphic is part of a table; pages are readable sooner than in Navigator.

Another Internet Explorer HTML addition is the marquee tag, which lets authors place moving text on a Web page — about as annoying as Navigator’s blink tag, which causes text to flash ad infinitum.

This key is an indicator of browser security: If the browser is connected to a secure page, the key will appear whole. Navigator supports the SSL Sun Microsystems’ Java security protocol, as does Internet Explorer.

This page takes advantage of Navigator’s frames to divide itself into different panes, with a navigation frame at left that includes links to various topics. When you click on a link, its corresponding page is loaded in the large frame at the right.

Navigator’s main tool bar is smaller than Internet Explorer’s, but a second row of “directory” buttons offers automatic links to several Netscape-maintained Web-resource pages.

This headline is in a typeface different from the body text’s, thanks to Internet Explorer’s support for the font face HTML tag; a backup typeface can be specified if the first choice isn’t installed on a user’s system.

The scrolling text in the bottom of the browser window is created by a script embedded in the Web page and written in JavaScript, a subset of Sun Microsystems’ Java programming language.

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in a new window, download a file to disk, or copy an image to the Clipboard. Both use the same file format to store bookmarks (in Netscape terminology) or favorites (à la Microsoft) — names and addresses of your favorite Web sites. And both use a similar interface to organize that information: a Finder-like window.

Here the similarities end and Internet Explorer's advantages begin to show. Although Navigator 2.0's bookmark manager is a big improvement over version 1.0's, it's slow and frustrating: The bookmark window may look like a Finder window, but you can't rename bookmarks without selecting Edit Bookmark from the Item menu. Microsoft's Favorites window, on the other hand, works like a good Finder window should — right down to the keyboard shortcuts. It's also much speedier.

Navigator does offer one interface element Internet Explorer can't match: Netscape knows that when you're downloading a file, you don't want to stare at an empty Web-browser window. Taking a page from the book of FTP client software everywhere, Navigator creates a small, separate progress window while it's downloading files. In contrast, Internet Explorer downloads files from within the browser window, wasting screen space and making it far too easy to mistakenly abort your download by clicking on a link in that window or by accidentally closing the window. Neither browser, however, can display information from FTP and Gopher sites in as Mac-like a fashion as can Apple's Cyberdog (see "Walking the Cyberdog," in this issue), which works like the Finder in ways a Web-browser window can't.

Both applications offer acceptable AppleScript support, but Internet Explorer also offers support for Internet Config, the Mac-only system of sharing preferences among various Internet applications — and a great time-saver for network administrators. If you use applications that support Internet Config (such as Claris Emailer, Eudora, NewsWatcher, Anarchie, or Fetch), then many common Internet settings — including information about file formats, server names, and e-mail addresses — don't need to be reentered every time you install new Internet-savvy software.

Sadly, Navigator and Internet Explorer are still annoyingly unstable — unforgivable behavior for such important, everyday tools. Both crash much more frequently than other mainstream applications — and they usually bring the whole Mac down with them. (In our testing, Navigator crashed much more often than Internet Explorer. We extensively tested both applications exclusively on PowerPC-based machines.) And any use of plug-ins only heightens the chances of a crash — in fact, our experience suggests that every popular plug-in is still susceptible to sudden crashes.

The Battle for Internet Dominance

This competition between two free products isn't making either Microsoft or Netscape much money (Navigator is actually free only to members of educational and nonprofit institutions; other users are obliged to pay $49). However, this battle is just the first shot of a growing war over the Internet.

With its agility as a startup company founded by Internet veterans, Netscape has quickly become a major developer of Web-browser and money-making server applications (none of its servers run on the Mac OS, however). Microsoft is using its money and muscle to catch up fast. Considering that Navigator currently holds between 80 and 90 percent of the browser market, it'll be a tough chase — but Microsoft has time.

Well before the end of this year, both companies will release version 3.0 of their browsers. Navigator 3.0, already in prerelease testing, offers full support for Java, some support for Internet Config, and built-in support for several multimedia formats. We expect Internet Explorer 3.0 to also add Java support and to match Navigator's support for frames and JavaScript. And, of course, Microsoft will try to extend the Web playing field: Internet Explorer 3.0 will also support ActiveX — a Microsoft-created alternative to the Navigator plug-in architecture — which allows various kinds of data to be viewed by Web browsers.

Since you can download both browsers from the Internet, you can easily try them out for yourself. Internet Explorer is a fast, well-behaved, well-made product, one any Web surfer can use to travel the Net. And Navigator's immense popularity isn't a fluke — it's also a solid application that, with every successive version, seems to steer the Internet in exciting new directions.

But in the end, we recommend Internet Explorer; it's the best Web browser available today. What's more, its price — free — can't be beat. In the first skirmish of the Web War, Microsoft has pulled off a stunning victory. ☑
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Software for MACINTOSH, WINDOWS, WINDOWS 95, featuring Netscape Navigator 2. EarthLink Network is one of the largest Web space providers in the U.S. and also provides ISDN, Frame Relay, T1 and other internet services. *There is a one-time set-up fee of $25.00. Prices for Canada are different.
These days, Netscape Navigator is the big dog on the Web, although Microsoft's Internet Explorer seems poised to take a bite out of it (see "Web War," MacUser's contribution to the debate, in this issue). However, using a Web browser isn't the only way to surf the Internet, as Apple is showing with Cyberdog, an OpenDoc-based Internet application that barks up quite a different tree.

Both Navigator and Internet Explorer approach the Web from a similar vantage point. When it's time to surf, you launch a browser application and get to work. The problem with this approach is that other Internet functions, such as e-mail, newsgroup access, and FTP file transfers, get tucked in around the edges of the browser's central function. In fact, many people opt to use a separate application for each of these functions: Eudora or Claris Emailer for e-mail, Fetch or Anarchie for FTP transfers, and so on.

By implementing Cyberdog as a collection of specialized software components, not unlike the way ClarisWorks combines spreadsheet, word-processing, and graphics capabilities, Apple has created an all-in-one Internet application users can customize or even use pieces of in other OpenDoc-compliant software.

By Henry Bortman
CYBERDOG

CYBERDOG: GREATER THAN THE PARTS

Rather than being yet another monolithic browser application, Cyberdog is a collection of OpenDoc parts, small chunks of application code, each of which serves a particular Internet-related function. The easiest way to understand how these parts work together is to take a look at Apple's Cyberdog Starting Point document.

Starting Point contains several CyberButtons, which are OpenDoc parts. CyberButtons are embedded in what is known in OpenDoc parlance as a container document. In this case, the container is a Cyberdog DocBuilder document, but it could just as easily be created by any OpenDoc container application. Claris, for example, has announced that the next release of ClarisWorks will be able to generate OpenDoc container documents (see figure 2). This is the beauty of Cyberdog: You no longer have to use specialized applications to access the Web, download a file, or send e-mail; instead, you can embed a cyberlink in any OpenDoc-savvy document.

Each CyberButton has associated with it a CyberItem that defines its behavior and a graphic. For some buttons, such as Starting Point's Explore and Search buttons, the CyberItem is a URL — clicking on one of these buttons opens a browser window that connects to a corresponding Internet site. Clicking on other buttons, such as Starting Point's Log and Notebook buttons, invokes special functions.

CYBERCRUMBS: DOGGING YOUR TRAIL

When you click on the Log button, for example, Cyberdog's Log window opens. The Log lists CyberItems for the last 100 Web pages, FTP sites, and newsgroups you've visited. It updates automatically each time you visit an Internet site and is smart enough not to display the same site multiple times. You can display the Log's listing hierarchically, chronologically, or alphabetically.

figure 1 / ANATOMY OF A CYBERDOG

A. Cyberdog Starting Point

Apple provides a document entitled Cyberdog Starting Point, a collection of CyberButtons that enable you to access the full range of Cyberdog's features. You can customize this document to provide instant access to Web pages, FTP sites, your personal Internet mailbox, and other Internet functions that reflect your individual work routines.

B. Notebook

When you first click on the Notebook button in the Starting Point document, you see Cyberdog's default notebook. You can create as many additional notebooks as you like. You can drag and drop CyberItems that represent e-mail addresses or URLs for Web pages, newsgroups, FTP sites, and other Internet locations into a notebook. Any e-mail address stored in your default notebook becomes accessible automatically when you're addressing Cyberdog e-mail messages.

C. Web search

Starting Point's Search button takes you to Apple's Cyberdog Search Web page, which is wired to Digital's Alta Vista search engine. This page provides access to other search engines as well.

D. Newsgroups

The left-hand button in Starting Point's discussion area takes you to a listing of CyberItems for newsgroups you have connected to. You can access newsgroup messages by double-clicking on these CyberItems.
Cyberdog's notebooks are similar to the Log. They too can contain CyberItems for Internet locations. A notebook can also contain mail addresses, pointers to text and binary files, and other CyberItems. But whereas the Log updates automatically, following you like a digital bloodhound, notebooks contain only CyberItems you've dragged into them.

A notebook also lets you rename items. If, for example, you drag a CyberItem for a favorite home page into a notebook, you can rename it with a more recognizable title, just as you would rename a file in the Finder. In this way, notebooks act almost like little Finders for Internet-related data.

You can put as many CyberItems as you like into a notebook, and you can group them into folders for easier cataloging, although folders can go only one level deep. You can also create multiple notebooks. One of the notebooks you create (the default notebook) has a special property: Addresses you store in it are directly accessible from within e-mail and newsgroup message windows, relieving you of having to type lengthy and enigmatic Internet addresses.

**CYBERDOG FETCHES THE PAPER**

Cyberdog Starting Point includes CyberItems for accessing Internet mail and for news reading. You access these services from the two CyberButtons labeled Discuss in the Starting Point document. Clicking on the mail button (the right-hand button) opens the CyberMail window, which displays a list of your mail trays. CyberMail comes with In and Out trays and a Trash tray, for deleting e-mail messages. You can create additional trays to help categorize messages you want to store. Clicking on the triangle next to a tray expands its contents, much like expanding a folder in the Finder. Double-clicking on a mail tray opens a window that displays a list of stored messages.

**E. Log**

Cyberdog's Log automatically maintains a running list of the last 100 Internet sites you've visited. You can sort the Log hierarchically, chronologically, or alphabetically. Double-clicking on an icon in the Log opens the appropriate applet window.

**F. Tool palette**

Cyberdog provides a simple tool palette to aid in designing documents with Cyberdog DocBuilder.

**G. Cyberdog Parts palette**

The Parts palette gives you an easy way to embed (from left to right) text elements, CyberButtons, and notebook elements in an OpenDoc document.

**H. Web access**

Clicking on Starting Point's Explore button opens a browser window that displays the Cyberdog Explorer home page. The CyberItem icon in the upper left corner of the browser can be dragged to a notebook for permanent storage, onto a CyberButton to create a link to a Web page, or into a Cyberdog document window to embed a Web page directly in the document.

**I. CyberMail**

Cyberdog lets you access Internet e-mail by clicking on the right-hand one of the two buttons labeled Discuss. You can attach any type of CyberItem, as well as files and graphics, to a Cyberdog e-mail message.

**J. Progress bar**

This progress bar is displayed when a new browser window is being opened.
CyberMail is fully compliant with MIME (Multipurpose Internet Mail Enclosures): You can enclose files within a mail message by dragging them directly into the message body. Drag-and-drop enclosure also works for any CyberItem. If the recipients of your mail messages are also Cyberdog users, they can drag the enclosures back out of the messages onto their desktop or into a Cyberdog notebook.

Clicking on the left-hand Discuss button opens a window entitled News Groups, Cyberdog's news reader. Within the News Groups window is a list of available news servers and newsgroups. As in Cyberdog's Mail Tray window, you can expand the contents of a news server by clicking on the triangle to the left of the news server's icon. This is a feature that NewsWatcher, the most popular freeware news reader for the Macintosh, fails to offer. Cyberdog goes even further to make life easy for newshounds: its news reader enables you to view the contents of more than one newsgroup simultaneously. One shortcoming of Cyberdog's news reader, however, is its poor handling of binary files that are embedded in newsgroup messages; they appear in a news message as garbage text.

WEBBING THE DOG

Starting Point also contains two buttons that access specific Web pages. The Explore button opens a browser window that displays the Cyberdog Explorer home page. The Search button takes you to a Cyberdog-customized front end to Digital's Alta Vista search page. When it comes to surfing the Web, Apple's Cyberdog is a mixed bag. The browser windows are HTML 2.0-compliant and support tables and backgrounds. They do not, however, support right-aligned text or client-side image maps; nor do they support Navigator plugs-ins or Java. These are serious shortcomings in a world in which the sizzle half-life of new Web features is measured in months.

Although notebooks and the Log are time-savers and CyberButtons have a great deal of flexibility, there is an even more compelling aspect of Cyberdog that no other browser can match: the ability to embed Internet sites directly within a document.

Here's how it works. If you drag a CyberItem for a Web page into an OpenDoc document, you don't get a button or icon that can take you to that site — you get a browser view of the site itself, live and in person. Same for an FTP site or newsgroup location. Close the document, and reopen it later. The sites update automatically. You can put as many of these live links into a document as you like.

Sounds like Navigator frames? Somewhat. But Navigator frames are stuck in the Navigator browser. Embedded Cyberdog browsers can go anywhere, at least within the currently limited panoply of

**STUPID CYBERDOG TRICKS**

**THE OPENDOC ENVIRONMENT** in which Cyberdog runs contains no applications in the traditional sense. This can make the dimension in which OpenDoc documents and traditional applications coexist pretty bizarre.

Try this: Open the Cyberdog Starting Point document; you'll notice that the File menu becomes the Document menu. Pull down that menu; although there's no Quit option, there is an item labeled Close Cyberdog Starting Point. OK, it's a document, not an application, so that makes sense.

Or does it? Examine the Application menu on the far right of the menu bar. You'll see Cyberdog Starting Point, not Cyberdog, listed. Click on the Notebook button in the Starting Point document; a notebook window entitled First Notebook opens. Now check out the Document menu again, and you'll see Close First Notebook. Close Cyberdog Starting Point is gone. Hmm. Just for kicks, go back to the Application menu — Cyberdog Starting Point is still the lone document (application?) listed. It gets better. Click on the Cyberdog Starting Point window to make it active. Go back to the Document menu, and select Close Cyberdog Starting Point. Now make sure the First Notebook window is still open, and then click on the Application menu. What do you see? Cyberdog Starting Point. That's kink.

Here's one last stupid Cyberdog trick. Open the Cyberdog Starting Point document again. Click on several buttons to get a bunch of windows open. Now go to the Application menu, and select Hide Cyberdog Starting Point. All the windows you just opened vanish, just as if Cyberdog Starting Point were an application, not a document. But try to close all these windows at once, as you would by quitting a normal application — try to quit Cyberdog Starting Point — there's no way to do it.

Ah, well, that's what updates are for, right?
OpenDoc container apps.

Figure 2 shows a simple example of the kinds of documents you can create with this capability; the container application for the document is an early prototype of the upcoming OpenDoc-based version of ClarisWorks. The document has three CyberButtons pointing to various Apple Web pages and a live FTP browser view linked to Adam Engst's FTP site of Mac Internet goodies. Cyberdog's FTP browser has an interface that is much better than those of Fetch or Anarchie. Like the Finder, Cyberdog's FTP browser lets you expand an FTP site's directory hierarchy by clicking on triangles that represent different levels of the hierarchy. Furthermore, the Cyberdog FTP browser is fully integrated with the Finder: To download a file from an FTP site, drag it to the desktop or to a hard-disk icon.

But the possibilities for Internet embedding go far beyond this basic demonstration. Imagine, for example, an astronomy lesson. In an OpenDoc container document, the teacher has placed some text describing a research assignment, a live browser window linked to a Web site maintained by NASA, and a custom OpenDoc part that can use data gathered from the site to create a map of the space shuttle's orbit. Sure, you could provide the same functionality with a monolithic application that had these capabilities. But who wants to program a text editor, a Web browser, and a mapping utility for a single assignment? The advantage of the OpenDoc/Cyberdog approach is that you can construct an infinite variety of customized documents with components from many sources.

PAPER TRAINING FOR OPENDOC

For the moment, the Cyberdog vision far outstrips the reality. OpenDoc is still in its infancy, and Cyberdog has both the distinction and the burden of being its first real raison d'être. Although OpenDoc is supposed to elevate the Mac's ease of use to new heights, it's equally likely to cause a great deal of confusion in the interim.

Plus, Cyberdog/OpenDoc is a total memory hog. Just launching OpenDoc and opening the Cyberdog Starting Point document causes the system to swallow over 5 MB of RAM. The system wants nearly another megabyte to open a browser window and half a megabyte more to open the Notebook. That's 6.5 megas. Did someone say something about component software being small and lightweight?

Neither OpenDoc nor Cyberdog is widely available. OpenDoc isn't slated for inclusion in Apple's System 7.5.3 retail product until about the time this article appears. Although Cyberdog 1.0 is expected to be finalized around the same time, it will not be included in the initial System 7.5.3 retail product. In fact, as we went to press, Cyberdog was still in beta and worked only on PowerPC-based Macs. Apple probably won't make it commercially available until later in the year, when enough other OpenDoc parts and containers are available to create a viable working environment.

When Cyberdog is ready for prime time, expect Apple to go all out to get it into as many users' hands as possible. It will be available free online and from user groups. It will be bundled with Macs. And don't be surprised if Apple uses it as the justification for releasing a new System 7.5 update, followed by a new System 7.5.x retail product.

Still, Cyberdog is intended to be "exampleware." Apple's not trying to compete with Netscape or Microsoft for dominance in the browser market. Quite the contrary: Apple is encouraging third parties to develop more-powerful alternatives to its Cyberdog parts. Eric Jackson, of Amplified Intelligence, is already at work on a browser part that will support VRML and QuickDraw 3D, which Cyberdog's browser part does not now support. Virtus is reportedly working on similar technology.

MY DOG'S BETTER THAN YOURS

Apple has been hyping the OpenDoc/Cyberdog combo for so long now that it's starting to feel like YAFAT (yet another forgotten Apple technology). But don't be lulled into disinterest by the deafening lack of promotion. True, OpenDoc has been available to developers for nearly six months now. And, no, there still isn't a single piece of OpenDoc software worth loading on your Mac, let alone paying for.

But that's gonna change. Apple did itself a serious disservice by the way it initially presented OpenDoc to the world. By making it look as if OpenDoc did little more than provide a way to edit graphics in place, Apple created the impression that DTP-oriented users were the only ones for whom OpenDoc was of interest. When none of the leading vendors of graphics or page-layout software stepped forward to embrace OpenDoc — Adobe's initial endorsement was weak at best — its main purpose in life appeared to have evaporated.

Apple has chosen wisely in making Cyberdog the centerpiece of its reinvigorated OpenDoc strategy. With Cyberdog, the company has found a way to take some leadership in what is arguably the hottest market in the computer industry today — not by jumping in two years too late with another Apple me-too product but by developing as core OS technology a whole new approach to cybersurfing.

OpenDoc could be the biggest system-software sleeper Apple has had in years. 

Henry Bortman is MacUser's technical director.
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Sunglasses optional.
In the race to deliver the fastest Macs money can buy, Apple has been struggling to keep pace with Power Computing. Once again, the premier Mac-clone maker has blown past Apple, with the PowerTower 180, which is at least 14 percent faster than Apple's latest offerings.

Power Computing first distinguished itself last November as the company best able to produce the fastest PowerPC machines when it shipped the 150-MHz 604-based PowerWave 150. At the time, Apple's fastest model was the Power Macintosh 9500, which topped out at 132 MHz. It wasn't until the end of April that Apple made its move to catch up, "speed bumping" the Power Mac 9500 to 150 MHz. But Power Computing once again zoomed past, this time with two new Power Macintosh clones, clocked at 166 and 180 MHz.

The high end is not the only place where changes took place in the spring. Along with a 150-MHz 9500, Apple released 150- and 132-MHz versions of the 8500. The 7500 was replaced by the 7600, reflecting a jump from a 100-MHz 601 CPU to a 120-MHz 604. And at the low end, Apple beefed up the processor in the 7200 to a 120-MHz 601.

The 7200 was previously available with either a 75-MHz or a 90-MHz PowerPC 601.

At the same time, Power's product line underwent dramatic change. The company's top-end PowerWave systems, which came with 120-, 132-, or 150-MHz processors, have been replaced by the PowerTower, a three-slot minitower. This system comes with a 166- or 180-MHz 604 onboard. Also gone from the Power price list is the entry-level PowerCurve series, which featured a 120-MHz 601. It has been replaced by the PowerCenter, which is available with a 120-, 132-, or 150-MHz CPU. Unlike Apple, Power no longer uses PowerPC 601 chips.

Power Grabs the Pole Position

The most exciting of this latest round of Mac contenders is, without a doubt, the PowerTower 180. At the heart of Power's top-of-the-line machine lies the fastest PowerPC chip available, a 180-MHz 604. On our MacBench tests of near-final systems, the PowerTower 180 clocked in at 14 percent faster than Apple's new 150-MHz top-of-the-line system. Before you sneer at a mere 14 percent, note that Apple's

By Henry Bortman
own speed-bump of the 9500, from 132 MHz to 150 MHz, yields a 17-percent boost in processing speed, according to MacBench. The PowerTower 166, as expected, finished between the new 9500 and the PowerTower 180, about 5 percent faster than the former.

One reason the PowerTower doesn't do even better is that its motherboard design doesn't support interleaved memory, as the Apple 9500 and the PowerWave boards do. Why would Power abandon a superior memory architecture in designing a high-end machine? That's an interesting story. The PowerTower's motherboard is based not on Apple's high-end Tsunami architecture, used in the 9500, but on the cheaper Catalyst architecture, used in the 7200.

This may seem like an odd choice, but there's a good reason. The Tsunami motherboard has a maximum processor bus speed of 50 MHz. Because the current 604 chip can run no faster than three times the speed of the processor bus, Tsunami-based systems can't go above 150 MHz. This won't change until the PowerPC 604e chip becomes available, later this year. With a 604e processor, Apple will be able to push the 9500 to 200 MHz.

Curiously, the processor bus in the lower-end Catalyst architecture can be pushed to 60 MHz. That's why Power chose this design for its superfast PowerTower systems — the same design, incidentally, on which it bases its PowerCenter (formerly PowerCurve) systems.

Although Apple's specs for the 9500, other than the processor speed boost, haven't changed much, Power has made some nice improvements over its previous high-end systems. The PowerWave shipped with the same ATI Xclaim GA card as the 9500/120. This time out, Power has chosen a faster card, the IMS TwinTurbo-128M. On our MacBench Graphics Mix and Publishing Graphics Mix tests, the PowerTower/TwinTurbo combination outpaced the 9500/ATI twosome by 31 percent to 49 percent. And the TwinTurbo has 4 MB of VRAM, twice what Apple ships with the 9500's ATI card. That means users can work in 24-bit color at much higher resolutions.

The high-speed Micropolis AV drive in the PowerTower also beat the 9500/150's Seagate drive. Curiously, although the AV drive is designed for the high throughput typical of digital-video and publishing applications, the PowerTower's drive ran neck and neck with the 9500/150's in MacBench's Publishing Disk Mix test. It was on the standard Disk Mix, which mimics the small-block access typical of business applications, that the Micropolis drive stood out — it was more than 1.5 times as fast as the 9500/150's Seagate.

Power bundles Connectix's Speed Doubler with the PowerTowers, which features a RAM cache that helps small-block transfers far more than throughput-intensive large-block transfers.

The PowerTower's speed on the MacBench CD-ROM Mix test was nothing short of astonishing. This, too, is attributable to Speed Doubler, as well as to the FWB CD-ROM ToolKit driver Power includes. When we installed these enhancements on Apple's 9500/150, we saw CD-ROM speed that equaled that of the PowerTower.

The PowerTower's impressive speed credentials shed light on an...
APPLE INITIALLY SHIPPED the Power Mac 7500 with a 100-MHz processor. It now sells 120- and 132-MHz 604 processor upgrade cards for speeding up your system. Using MacBench 3.0, we compared the speed of the 7500/100 with that of a unit upgraded with each of the faster processors. The 7500/100 had no L2 cache installed; the upgraded systems had 256K of L2 cache. All tests were run with System 7.5.3. All MacBench 3.0 scores are relative to those of an Apple Power Mac 6100/60 with an internal 250-MB Quantum drive.

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<th>Processor</th>
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<th>Disk Mix</th>
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The 8500 passes on the turn

If the edge goes to Power at the high end, Apple's 8500, now available in 132- and 150-MHz models, is a strong contender for the midrange. What distinguishes the 8500 is its integrated digital-video input and output; no other desktop computer on the market, Mac or PC, can match it. If you need top-notch broadcast-quality video, the 8500's built-in circuitry will come up short, but for more-casual use — in-house corporate use, educational use — it's a winner. Power Computing, although it promised months ago to offer low-cost PCI-based digital video, has yet to deliver on its commitment.

The 8500 also holds up well in terms of raw speed. Compared to PowerCenter systems with similar processors, the 8500s were about 10 percent faster on MacBench's Processor test. This is probably due to their use of interleaved memory, a feature they have in common with the 9500 but that PowerCenter systems lack. The 8500s also do significantly better in terms of disk speed — some 50 percent better — than PowerCenter systems with equivalent processors.

On the MacBench graphics-subsystem tests, the PowerCenters...
**CPU SHOOT-OUT**

The difference is not in the 8500’s drive, however. Power ships the FWBD-ROM Tool Kit driver, along with Connectix’s Speed Doubler, preinstalled on the hard disk, which improves CD-ROM performance by caching large amounts of data in memory. When we installed the same software on a 9500/150, its CD-ROM Mix scores shot up as well.

and 8500s got a split decision: The 8500s led by 13 to 16 percent on the Graphics Mix test, but they fell behind by 12 to 13 percent on the Publishing Graphics Mix test. This was due largely to the poor performance of the 8500’s built-in video circuitry in accelerating the drawing of vertical lines.

Since we’ve praised the 8500 for its video skills, it seems only fair to raise the small matter of price. The 8500/150 we tested was nearly $1,450 more than the PowerCenter 150. The 8500/132’s sticker price was $1,200 above that of the PowerCenter 132. Granted, the 8500/150 had a 2-GB drive and the 8500/132 a 1-GB drive, whereas the PowerCenters had only 850-MB drives. Still, that’s a huge price difference.

**CRASH-TEST DUMMIES?**

In any new set of CPU announcements, the excitement is always at the high end. The bulk of sales, however, are found at the other end of the spectrum, where the cost-conscious part with their cash.

Power’s lowest-end system, the PowerCenter 120, available at $1,899, distinguishes itself as the lowest-cost 604-based system (if you’re bold enough to confront today’s bloated software offerings with only 8 MB of RAM, that is). Apple’s comparable offering, the PowerTower 130, costs around $450 more for a similar configuration. It also offers digital-video input, which the PowerCenter 120 doesn’t. Both systems sport 120-MHz 604 processors.

Although it might appear at first glance that the PowerCenter 120 is the better deal, a closer examination of the 7600/120’s test results shows that the 7600/120 bested the PowerCenter 120 on most MacBench tests, particularly on the Processor and Graphics Mix tests. The Disk Mix and Publishing Disk Mix tests, on which the 7600/120 also did better, are heavily dependent on the drive mechanism; presumably the PowerCenters would do better with higher-capacity, faster drives than the 850-MB unit we tested.

Is an extra $450 a fair increment for a performance edge, digital-video input, and the Apple logo? Unless you know you won’t want the video capability somewhere down the road, we’d say yes.

Bringing up the low end of Apple’s lineup is the Power Mac 7200/120, a speedier version of the original 7200/75 and 7200/90. It costs only $120 less than a PowerCenter 120 for similar configurations (if you consider the $100 keyboard, it’s a wash), and its processing speed falls below that of Power’s low-end offering. Furthermore, the 7200 has no processor-upgrade slot. For this reason, we question Apple’s wisdom in even bothering to keep this car on the track.

**UPGRADE PIT STOP**

Apple appears to have conceded the severe limitations of the 7200 by offering a logic-board upgrade for 7200/75 and 7200/90 owners. This $1,300 upgrade will turn your limping 7200 into a sparkling new 7600/120, complete with a processor-card upgrade slot and digital-video input. There is a catch, however: You have to spend another $600 on a 120-MHz processor-upgrade card. In other words, to upgrade to a working system, you have to spend nearly $2,000.

And that’s a bare-bones system. The original 7200 shipped with only 8 MB of RAM; if you want a more reasonable complement of 16 MB, figure in another $250. And throw in an extra $125 for 256K of Level 2 (L2) cache, which the 7200 lacked and which is highly recommended. We won’t mention the fact that the 7200 came with a 500-MB hard-drive drive. The grand total: nearly $2,300, just $250 shy of the expected street price of a brand-new 7600/120. Hmm.

Apple’s 8500 logic-board upgrade, for $1,799, may prove a more attractive offer. It can upgrade a Quadra 800 or 840AV or a Power Mac 8100. Again, you have to purchase a processor-upgrade card in addition: $599 for the 120-MHz 604, $899 for the 132-MHz 604. Even if you go for the faster processor, your total will be nearly $1,000 less than the cost of a new 8500/132. However, proceed with caution if you’re upgrading from a Quadra model — you can’t move your Quadra RAM into a Power Mac.

Apple will also sell its 120- and 132-MHz 604 processor-upgrade cards to 7500 and 8500 owners; Power Computing will market only a 120-MHz 604 card. The good news: At $295, Power’s card will sell for exactly half the price of Apple’s 120-MHz offering. The bad news: Power has not yet decided to make it available to Apple Mac owners. To order one, you have to provide Power with the serial number of your PowerCurve 601/120.

Later this year, Power will offer 132- and 150-MHz 604 upgrade cards, for $495 and $695, respectively. With prices like those, Power can expect Apple Power Mac customers to be beating down the door to get at its upgrades. But Power is still unsure about whether it can support the demand such cheap upgrade cards would generate.

**THE CHECKERED FLAG**

A mere two years ago, it looked like Apple would keep the Mac OS a single-entrant race and that the Mac faithful would forever cast their collective gaze toward Cupertino for the latest round of new Mac models. Clones seemed a distant possibility, and real competition for Apple seemed even more distant. The notion that twice in one year, it would be a clone vendor — not Apple — that would push the Mac performance envelope was positively heretical.

Apple is no longer the only contender in this competition, and a Mac doesn’t get the pole position just because it has a multicolored logo on the case. In the latest lap, Power Computing has fielded some killer machines. Apple will be hard-pressed to catch up.

Henry Bortman is MacUser’s technical director.
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Large-format flatbeds handle bigger originals than standard scanners, as well as *more* originals for batch scans — a big plus for production environments. They can’t beat the drums — drum scanners, that is — but two come darn close.

**Batch Scanning is Where It’s At** for high-volume, deadline-pressured prepress houses, service bureaus, and art departments. For users working in those environments, the standard 8-x-14-inch scanning area of most flatbed scanners is just too small. For starters, it can’t handle large-sized original images. More important, if you want to save time by scanning multiple originals simultaneously, you’re limited in the number of items you can fit on the scanning area.

Traditionally, prepress users who require the ultimate in image quality and scanning productivity have relied on expensive drum scanners for batch jobs. But not everyone needs the image perfection offered by a drum scanner and not everyone can afford the $40,000-to-$80,000 price tag. Enter large-format flatbed scanners, cost-effective alternatives to mid-range drum scanners that offer a scanning area of approximately 11 x 17 inches. In the past year, the number of vendors offering large-format scanners has grown, and several of the new products boast aggressive prices. To see how the current crop of large-format flatbed scanners measures up, MacUser Labs tested and evaluated the five scanners in the $7,000-to-$30,000 price range. We scrutinized each scanner’s image quality, scanning speed, software tools, and overall ease of use. By and large, we found that each can be a viable production tool, but in the end, you get just what you pay for.

**By Roman Loyola**
What we found was that although all the scanned images required adjustment, some needed much more work than others — an important consideration for users working in time-sensitive production environments.

The scanner that produced the best-looking raw scan was the new $29,950 Scitex SmartArt 320. It was the most expensive scanner we tested but was also the newest and least expensive addition to the Scitex SmartArt line. Printouts were consistent with what we saw on-screen, and colors were well saturated. Although highlights showed a slight cyan cast and skin tone had a bit too much magenta, these problems were barely noticeable and were easy to correct with the software tools. The number of artifacts was almost nil, and the Scitex scanner was the only one that was able to reproduce the original’s gray gradient background without a hitch.

Second in line for image quality was the $15,900 Howtek Scansmaster 2500. Although the colors weren’t as vibrant as those of the Scitex scanner, the Howtek scanner boasted good color consistency between screen and output, good reproduction of details in shadow areas, and very few artifacts. As with the Scitex scanner, only minor image adjustments were necessary.

Placing third on the image-quality scale, the $17,995 Agfa Horizon Ultra produced images that had a pronounced yellow cast, and some image areas were blurred. We were able to eliminate the cast and sharpen images by using the scanner’s software tools, but these adjustments required more work than the adjustments of the images from the Scitex and Howtek scanners.

Not surprisingly, images scanned by the two lowest-cost scanners, the $12,995 PixelCraft Pro Imager 8200 and the $6,995 UMAX Mirage D-16L, required the most adjustment. Although the PixelCraft scanner did a good job of reproducing the gray gradient background, colors were overly dense and there were many artifacts. The UMAX scanner’s images suffered from a pronounced yellow cast that blew out the highlights, made the gray background look brown, and gave skin tones an unnatural look. However, using each scanner’s software tools, we were able to dramatically improve the images, although achieving the results we wanted took two to three times as long as with the Scitex and Howtek scanners.

One image-quality factor you’ll want to consider is bit depth. The higher the bit depth a scanner supports, the more color information it captures and the more data you have to work with when tweaking an image. The UMAX scanner captures 10 bits of data per color (red, green, and blue), whereas the Agfa, Howtek, PixelCraft, and Scitex scanners each capture 12 bits of data per color.

**WIN, PLACE, SHOW**

Although you can fit more originals onto the bed of a large-format scanner than you can onto that of a standard-sized one, you’ll find that each scan takes longer to perform than with a standard flatbed scanner, because of the larger scanning area. However, within the set of large-format scanners we tested, we discovered a wide variation in scanning speed. To compare the scanners, we first timed a raw scan of a single original — the 5-x-7-inch GATF color transparency — at 300 dpi and then timed a raw scan of multiple originals at 300 dpi. Our scanning times did not include times for prescans or the time required to make image adjustments.

The Howtek and Scitex scanners let you scan directly in the CMYK color space and make adjustments there — a big plus for prepress
Features of LARGE-FORMAT FLATBED SCANNERS

| Company          | List price | Bit depth | Optical resolutions | Max. interpolated color resolution | Max. scanning area (reflective) | Max. scanning area (transmissive) | Vendor-rated dynamic range | One- or three-pass scanning | Bundled software driver/tools | Separate Photoshop plug-in | Built-in transparency adapter | Standard on-site training | Money-back guarantee | Toll-free tech support | Warranty | Extended-warranty cost | Company          | List price | Bit depth | Optical resolutions | Max. interpolated color resolution | Max. scanning area (reflective) | Max. scanning area (transmissive) | Vendor-rated dynamic range | One- or three-pass scanning | Bundled software driver/tools | Separate Photoshop plug-in | Built-in transparency adapter | Standard on-site training | Money-back guarantee | Toll-free tech support | Warranty | Extended-warranty cost |
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| Agfa             | $17,995    | 36 bits   | 1,200 x 2,000 dpi   | 2,000 dpi                        | 11.7 x 16.5 in.                 | 9.5 x 13.4 in.                  | 3.4                             | three                      | FotoFlavor, FotoLook, FotoTune | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 90 days               | $2,365 for 1 year       | Agfa Division, Bayer  | $17,995    | 36 bits   | 1,200 x 2,000 dpi   | 2,000 dpi                        | 11.7 x 16.5 in.                 | 9.5 x 13.4 in.                  | 3.4                             | three                      | FotoFlavor, FotoLook, FotoTune | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 90 days               | $2,365 for 1 year       |
| Horizon Ultra    | $15,900    | 36 bits   | 600 x 1,200 dpi     | 4,800 dpi                        | 13 x 18 in.                     | 13 x 18 in.                     | 3.4                             | one                       | Trident                      | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 90 days               | $895 for 1 year         | Howtek               | $15,900    | 36 bits   | 600 x 1,200 dpi     | 4,800 dpi                        | 13 x 18 in.                     | 13 x 18 in.                     | 3.4                             | one                       | Trident                      | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 90 days               | $895 for 1 year         |
| Scitex           | $12,995    | 36 bits   | 1,400 dpi at 11.7 x 17 in. | 4,000 dpi                        | 11.7 x 17 in.                   | 8.5 x 12 in.                    | 3.6                             | one                       | ColorAccess, QuickScan      | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 180 days              | $995 per year           | Scitex America       | $12,995    | 36 bits   | 1,400 dpi at 11.7 x 17 in. | 4,000 dpi                        | 11.7 x 17 in.                   | 8.5 x 12 in.                    | 3.6                             | one                       | ColorAccess, QuickScan      | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 180 days              | $995 per year           |
| Smart 320        | $29,950    | 36 bits   | 1,000 dpi at 8.5 x 11 in. | 800 dpi                          | 12 x 17 in.                     | 10.3 x 17 in.                   | 3.2                             | one                       | MagicMatch, MagicScan       | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 3 months              | $270 per month          | UMAX Technologies    | $29,950    | 36 bits   | 1,000 dpi at 8.5 x 11 in. | 800 dpi                          | 12 x 17 in.                     | 10.3 x 17 in.                   | 3.2                             | one                       | MagicMatch, MagicScan       | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 3 months              | $270 per month          |
| Mirage D-16L     | $6,995     | 30 bits   | 400 dpi at 11 x 17 in. | 800 x 1,600 dpi                   | 8.5 x 17 in.                    | 12 x 17 in.                     | 3.6                             | one                       | MagicMatch, MagicScan       | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 1 year                 | NA                    | UMAX Technologies    | $6,995     | 30 bits   | 400 dpi at 11 x 17 in. | 800 x 1,600 dpi                   | 8.5 x 17 in.                    | 12 x 17 in.                     | 3.6                             | one                       | MagicMatch, MagicScan       | ●                                           | ●                                           | ●                                           | ●                                           | ●                                           | 1 year                 | NA                    |

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 pros. The UMAX scanner can scan in CMYK, but because you can use the color-correction tools that come with the scanner only in the RGB color space, you'll have to work in Photoshop if you want to make adjustments in CMYK. The Agfa and PixelCraft scanners work only in RGB, so prepress professionals have to convert their final scans to CMYK and adjust them in Photoshop.

Although its images required a lot of adjustment, the UMAX Mirage D-16L boasted the fastest raw scans for the single and the batch scan. In our single-image test, it finished in just under 50 seconds. The PixelCraft Pro Imager 8200 ranked second in the single-image test, finishing in a little more than 1 minute. The Agfa Horizon Ultra finished in 1 minute, 40 seconds. The Agfa and the PixelCraft scanners were surprisingly fast, given that each is a three-pass scanner (the only two of that type we tested).

The Howtek Scannmaster 2500 and the Scitex SmART 320 finished last in the single-image test, with the Howtek scanner finishing in 3 minutes and the Scitex unit in close to 4. But keep in mind that although these scanners took the longest to perform the scans, each scans directly in CMYK.

We got slightly different results for our batch-scan test, which consisted of scanning four 4-x-5-inch transparencies and one 6-x-6-centimeter transparency. The PixelCraft scanner finished 10 seconds behind the speedy UMAX Mirage D-16, which took a little more than 4 minutes to perform the batch scan. However, there's one caveat with the PixelCraft scanner: When you scan in transparency mode, the maximum scanning area is reduced to 8.5 x 12 inches. Because we couldn't fit all five of our originals onto the PixelCraft scanner's transparency scanning area, its batch-scanning time is based on scanning only three of the five originals. The Agfa and Scitex scanners also have scanning-area limitations for transparencies, but each was able to accommodate all five originals.

The Howtek scanner finished its batch scan of the five originals in slightly less than 5 minutes. The two slowest scanners — the Agfa and the Scitex SmART 320 — each took more than 8 minutes. We expected better results from the Scitex scanner, but it was slow because it calibrates itself after it has scanned each original in the batch. The good news is that you can always be sure of calibrated scans; the bad news is that scanning times are relatively long for production environments. The Scitex scanner also requires the use of a special plastic mask that blocks out extraneous light, which can degrade image quality. However, before you scan, you must cut a hole for each original and tape the original to the mask.

One note about batch scanning: The Howtek and Scitex scanners can accommodate reflective media and transparencies in a single batch scan. The UMAX scanner can too, according to the company, but UMAX doesn't recommend combining media. The Agfa and PixelCraft scanners can scan in either reflective or transparency mode; you can't scan the two types of media at one time.
 SOFTWARE TOOL KITS

Another way to distinguish one scanner from another is to look at the software tools that come in the box. The scanners we tested came with two main types of tools — those that work in CMYK and those that work in RGB. We favor software that lets us scan and make adjustments to our images in CMYK, the colors used for printing. We also like software that lets us make as many adjustments as possible to our prescan images. That way, we're working with all the bits of color captured by the scanner (30- or 36-bit color, depending on the scanner). When you have to make adjustments to an image in Photoshop or a color-separation package, you're stuck working with only the bits that were saved in the image after the final scan (24-bit color).

The Howtek Scanmaster 2500 and the Scitex SmART 320, which let you scan and adjust in CMYK, provide the most-robust software tools. But the flip side of the software tools' power is a steep learning curve — be prepared to spend several days learning the ins and outs. Once you're familiar with the software, however, you'll appreciate the flexibility and power each set of tools offers.

Howtek's Trident software, the same as what comes with the more expensive Scanmaster 7500 drum scanner, offers three main palettes for image adjustment — one for tweaking highlights and shadows, one for adjusting color cast, and one for unsharp masking. We liked the level of control these palettes provide: You can enter numeric values and selectively adjust areas of an image. The one drawback is that the tools lack keyboard shortcuts.

Scitex's SmART Color software uses a similar series of palettes, but what makes Scitex's software noteworthy is the handy and well-designed Color Correction tool, which lets you fine-tune a selected color. One important feature we missed, however, is the ability to rotate and invert images — for such a powerful set of tools, this is a surprising omission.

The Agfa Horizon Ultra comes with FotoLook, a Photoshop plug-in that handles images in RGB. You can scan in CMYK by using FotoLook, but you first have to do some time-consuming prep work that involves scanning an IT8 color-calibration target and using it to create a reference file in Photoshop. The reference file, which FotoLook uses to work in CMYK, is based on CMYK curves you create in Photoshop. But because so many variables are involved in creating the curves — including proper calibration of the monitor, calibration of the output devices, and the veracity of the scanned calibration target — the process leaves lots of room for error.

The PixelCraft Pro Imager 8200's software divides the scanning process into two parts. The first phase involves QuickScan, a Photoshop plug-in that captures images in RGB. We found that this phase went without a hitch, but if you want to create color separations, you have to go on to the second phase — bringing the images into ColorAccess, PixelCraft's color-separation software. Not only is the software confusing but we were also never able to get it to work properly — once we'd created and saved a CMYK image in ColorAccess, we weren't able to open it.

The UMAX Mirage D-16L comes with MagicScan, a Photoshop plug-in, and MagicMatch, a stand-alone application. We couldn't discern any differences between the plug-in and the application. Moreover, the software offered the most simplistic level of control over images of any of the scanner software we looked at.

GET THE PICTURE

Belying the claims of several vendors of large-format scanners, none of the scanners we tested produced results that were as good as those of the Howtek drum scanner. The Howtek and Scitex flatbed scanners came quite close, however, and their accompanying software tools are more than up to the job of making the necessary image corrections.

Considering these two high-quality contenders, we feel that the Howtek scanner offers the best overall combination of image quality, speed, powerful software tools, and price. It's not the fastest scanner we tested, but it will save you considerable time making image
You'll want to consider the Scitex SmART 320. You'll appreciate its power. If you're looking for top-drawer image quality but you're not prepared to pay top dollar for a drum scanner, you can apply changes to fine-tune shadows and highlights. The Selective Gradation palette (top) lets you select a color from your image and tweak the CMYK values. The Color Control palette (bottom) is for making changes to an entire image. The Before and After displays in each palette are particularly helpful for getting just the right shades.

These two palettes round out the main controls for the Howtek scanner's software. The Selective Gradation palette (top) lets you fine-tune shadows and highlights and adjust tones for printing based on ink coverage. The UnSharp Masking palette (bottom) boasts the ultimate in sharpening controls. It divides an image into five regions, and you can apply changes to selected areas rather than globally.

Adjustments, because it can scan directly in CMYK and the quality of its raw scans is so good. When you do need to make adjustments, Howtek's Trident software provides all the tools you'll need. Learning to use the software takes time, but once you're familiar with it, you'll appreciate its power. If you're looking for top drawer image quality but you're not prepared to pay top dollar for a drum scanner, you'll want to consider the Scitex SmART 320.

Scanning Ahead / More options for buyers

The Large-Format-Scanner arena continues to heat up. Veteran scanner vendors ScanView and Linotype-Hell have each announced a new offering in this category, but ScanView's entry won't be available until about the time this article appears and Linotype-Hell's product will make its first foray into the large-format scanner arena with the ScanMate F8. A pricey offering (it will cost $30,000 to $40,000), the scanner is intended for use by newspapers, commercial printers, and service bureaus. What's different about the ScanMate F8 is its design — it's a freestanding floor model. It has a maximum scanning resolution of 4,000 dpi and the ability to scale scanned images destined for a 150-line screen at 1,333 percent. The ScanMate F8 can handle positive and negative film as well as color, grayscale, continuous-tone, and halftone images and line art. The scanning area is 11 x 17 inches for reflective media and 8 x 10 inches for transmissive media.

With a dynamic range of 3.6, the scanner can acquire images at 48 bits per pixel when used with ScanView's ColorQuartet image-acquisition software. ColorQuartet is designed not only for acquisition but also for color correction and color separation.

The UMAX Mirage D-16L offers a good alternative for users on a budget. But be aware that what you save in dollars, you pay in image-correction time.

In the old days, associate editor Roman Loyola's ThunderScanner made him assemble an image from small pieces he'd scanned. MacUser Labs project leader Rick Oldano managed the testing for this report.

At the opposite end of the price spectrum is the Opal, from Linotype-Hell (800-799-4922 or 516-434-2700), a company that is also known for its successful line of drum scanners. Priced at just under $10,000, the Opal has a maximum scanning area of 12 x 17 inches for reflective and transmissive media.

The Opal captures data at 10 bits per channel (RGB), using a one-pass, trilinear CCD (charge-coupled device). For the 12-x-17-inch scanning area, the Opal supports 400-x-800-dpi resolution, scalable from 10 to 300 percent; for the 6-x-17-inch area, it supports 800-x-1,600-dpi resolution, scalable from 10 to 600 percent. The larger scanning area can interpolate to 6,400 x 6,400 dpi and the smaller to 9,600 x 9,600 dpi.

The Opal ships with Linotype's powerful LinoColor prepress scanning and color-separation application, which is based on the company's Color Technology. LinoColor, which requires a Power Mac or compatible to run, makes full use of Apple's ColorSync 2.0 color-management system. For those who prefer to acquire images in Photoshop or who own a 68000 Mac, the Opal comes with the ScanLite Photoshop plug-in. In the scanner package, you also get a full edition of Photoshop, the Canto Cumulus Desktop Image Database, and Linotype's Fonts Just in Time CD-ROM.

Rick Oldano
BREAD-AND-BUTTER PRODUCT SETS for Quick Labs are monochrome laser printers, high-capacity hard drives, and monitors. We review a slew of these products in each issue, so you can stay informed and up-to-date on the flood of new hardware that hits the street every month. Most of the products we review in Quick Labs are solid performers, but a few truly stand out.

This month, a new monitor from Apple wins a special round of applause. It boasts a good-looking display, a time-saving calibrator, and well-designed software controls. If this monitor looks familiar to you, you're right. It's a version of Apple's AppleVision 1710Av multimedia monitor aimed at users who can live without the AV model's built-in speakers in order to save some money.

Okidata's trio of monochrome laser printers covers both ends of the business spectrum — from small businesses and home offices to workgroup environments. All three are solid workhorses that can be counted on to get the job done.

For storage, La Cie's pair of stylish-looking Tsunami drives proves that image isn't everything. What counts most is rugged reliability and convenience — both areas in which the new Dynatek drive has a slight edge over La Cie's offerings.

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### THREE NEW PRINTERS

In the printer spotlight this month is Okidata, with its latest lineup of monochrome PostScript laser printers. Two of the new printers, the OL610e/PS (pictured) and the OL810e/PS, are tailor-made for small businesses. The third, the OL 1200/PS, is designed for workgroups that have relatively high-volume printing needs.

Priced at $949, the OL610e/PS has a 6-ppm engine and comes with 2.5 MB of RAM, expandable to 18.5 MB. The printer's standard print resolution is 300 dpi, but for better-looking output, it can print at 600 dpi by using interpolation. Because of its relatively slow engine and limited paper capacity (100 letter-sized sheets of paper), this printer is best used in small businesses and home offices.

Moving up the price scale, the $1,439 OL 810e/PS is faster and can hold more paper (250 sheets) than the OL 610e/PS. The OL 810e/PS has an 8-ppm engine and comes with 3 MB of RAM, expandable to 19 MB. Intended for medium-to-large workgroups, the $1,839 OL 1200/PS has a 12-ppm engine and 6 MB of RAM, expandable to 34 MB. It can hold 500 sheets of paper and prints at 600 dpi. An Ethernet card costs an extra $479.

The print quality of all three Okidata printers was just OK. Overall, the most distinguishing characteristic was heavy, dark images and text. When we printed grayscale images, for example, the results from all three printers lacked detail in shadows. And on our text document, printed characters weren't as finely reproduced as those from some other printers we've tested.

Of the three, the OL 1200/PS produced the best-looking documents. Graphics and text weren't quite as heavy as those printed by the other two devices.

**REVIEWER / ROMAN LOYOLA**  **TESTER / JIM GALBRAITH**

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<th>/ ACCEPTABLE</th>
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<tr>
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<td>GRAPHICS QUALITY</td>
<td>PAPER HANDLING</td>
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*Interpolated: standard resolution is 300 dpi.

LISTING IS ALPHABETICAL WITHIN GROUPS OF EQUAL MOUSE RATINGS.
Hard-drive design has come a long way since the early days of computing. In contrast to the nondescript boxes that housed the first drives available for the Mac, two of the drives tested this month boast sleek, stylish cases.

However, although the La Cie Tsunami 1280 (pictured) and the Tsunami 2160 look good, they use dated technology. The Tsunami case material isn’t as rugged as it should be, and the drives have DIP switches for setting SCSI IDs — lose the manual or forget how to set a new ID, and you can end up in a SCSI version of Russian roulette. If you’re looking for a more rugged case design from La Cie, check out its Joule-drive line. La Cie bundles its Silverlining driver software with all of its drives. If you’re using System 7.5.3, make sure you have Silverlining 5.6.3, which installs the necessary SCSI Manager 4.3-compliant drivers. The Silverlining upgrade can be downloaded from La Cie’s Web site (http://www.lacie.com).

Dynatek’s newest offering, the Orion HDA 2.215D-M1, has a more modern case design. The case is large (2.3 inches high, 6.4 inches wide, and 9.8 inches deep), but it’s sturdy, has a clean design, and uses the more conventional push wheel for setting the SCSI ID. Its cost per megabyte is also lower than that of its closest rival in this product set, the La Cie Tsunami 2160. The Dynatek drive’s software, Compass Pro 3.0, does a good job, but it lacks an initializing feature, standard in most formatting software.

All MacBench 3.0 Disk Mix scores are relative to that of a 1-GB Quantum internal drive in a Power Mac 7500/100, which has a score of 10.

**LISTING IS ALPHABETICAL WITHIN GROUPS OF EQUAL MOUSE RATINGS.**

### THREE NEW HARD DRIVES

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*Direct price.

### ONE NEW MONITOR

This month Apple’s 17-inch AppleVision 1710 gets our unaided attention. It’s the same model as the AppleVision 1710AV but with two key differences — it doesn’t have speakers, and it’s about $200 cheaper. The 1710 teams excellent image quality with flexible, well-designed software controls and automatic color calibration.

The monitor’s software controls are installed as a control panel that replaces your system software’s Monitors control panel. The software controls communicate with the monitor through the ADB port (don’t worry about losing your ADB port — the monitor’s base has ADB ports into which you can plug your keyboard or mouse) and let you control the monitor’s geometry, convergence, and color. White point, gamma, and even ambient-light settings can be saved, so if you have favorite settings you use for various kinds of documents or lighting conditions, you can easily call them up. You can also import and export ColorSync profiles.

The 1710 uses DigitalColor, a technology developed by Apple that automatically calibrates your monitor. How does it work? Each 1710 is calibrated at the factory, and the data created during calibration is stored in memory inside the monitor. When you do your calibration of the 1710, it measures its own red, green, and blue values. If they don’t match the data in the monitor’s memory, the monitor recalibrates itself — a real time-saver compared to the typical calibration process with external equipment.

We liked the AppleVision 1710, but it is somewhat pricey. You can buy the ViewSonic 17GA, for example, for about the same price, and it comes with speakers.

Image-quality scores reflect the results of our tests for image sharpness, focus, brightness, uniformity, pincushioning, color range, color accuracy, and vibrancy. A score of 1.0 is considered acceptable.

**REVIEWERS / BRIAN FIKES AND ROMAN LOYOLA**

**TESTER / BRIAN FIKES**

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AppleScript for Artists

Leave the repetitive tasks to your Mac by using AppleScript, so you can get back to the more creative aspects of graphic-arts work. With this plain-English programming language, you can automate the time-consuming steps involved in such tasks as processing incoming scans, compiling catalogs, and moving printed documents to the World Wide Web. And because AppleScript works with many popular applications, you can very likely create your scripts by using applications you already have.

Here's a brief overview of AppleScript and some ideas on how to use it to streamline common graphic-arts processes.

What Is AppleScript?

AppleScript is a programming language that's both simple enough for nonprogrammers to learn (see the sample code in the "Photoshop Image Manipulation" figure) and flexible enough to perform pretty much any task users can with a keyboard. And it's ideal for taking over repetitive tasks while you're doing something else.

Some people think of AppleScript as a high-powered macro language, similar to QuickKeys or Tempo. But an AppleScript script can do more than select a menu item or click on a dialog-box button; it can manipulate many of a document's parts (called objects), such as fields in a database, paragraphs in a document, or values in a spreadsheet. Not only can AppleScript outdo a macro program but it can also outperform a user at a keyboard. That's because it can access properties of a document the user can't see (the name of a text box in QuarkXPress, for instance). A script can also be more methodical than even the most careful user at checking details.

Supporting Cast

AppleScript doesn't work alone. Part of what makes it so powerful is that it can manipulate one or many applications (on one or more Macs). So you can automate an entire job, whether it requires using a database application, a page-layout program, or a utility.

Unfortunately, not all applications are scriptable. For those programs that aren't, there's help: Prefab Player, from Prefab Software, lets you script the unscriptable (see the "Must-Haves" sidebar and the "Photoshop Image Manipulation" figure). Still, you can do the best scripting with programs that give you full scripting capability. Here's the lowdown on what you can expect from some representative publishing-program favorites:

QuarkXPress. QuarkXPress was one of the earliest and best supporters of AppleScript (it even shipped with a run-time version of another scripting language, UserLand's Frontier). Hundreds of complex routines have been developed with QuarkXPress as a base, partly because of its scriptability. Even some Quark XTensions (for example, XCatalog, from Em Software) are scriptable.

Adobe Photoshop. Adobe has been notably late to the scripting party, with only Fetch (inherited from Aldus) and some of the Prepress Division tools (ditto) being scriptable. Photoshop, an application that would benefit dramatically from scripting, continues to lack it. You can use Prefab Player as a workaround for creating scripts in Photoshop, but it's not as powerful as a scriptable version of Photoshop would be.

FileMaker and Cumulus. Two database programs heavily used in graphic arts — Claris FileMaker Pro, for text, and Canto Cumulus, for images and other media assets — are both scriptable. You can use them in concert with AppleScript to perform publishing tasks that require accessing or storing data.

By Chuck Weger
Apple Media Tool. Even Apple, long dormant in the area of scripting, is back in the act. The newest release of Apple Media Tool is not only scriptable but it’s also recordable, meaning that you can record a series of actions into a script rather than write the script from scratch.

**Suitcase.** For those of us who live in a font swamp — creating, loading, and unloading font suitcases — there’s good news: Suitcase 3.0, from Symantec, is also AppleScript-savvy.

**Working Scripts**

Here are some specific situations in which an AppleScript script or two can offload a good chunk of your repetitive work:

- **Preflight.** The process of checking files for correctness before they’re output to film or plate is a prime example of time-consuming, repetitive work. You can use an AppleScript script with Luminous’ Color Central to take over the checking of resolutions and color palettes and also to make sure a file includes the right graphics.

- **Desktop Color Separation (DCS).** Wherever the same set of operations must be performed on many files, such as in DCS, you should think scripting. For example, you could automate the creation of DCS files with Photoshop and Prefab Player and the e-mailing of the low-res master file to clients with Eudora or Claris Emailler.

- **Image input.** Another good use for AppleScript is in the acquisition of images from a scanner or digital camera (using Cumulus) and then the transformation of those images. To transform them, you could write a script that would instruct Photoshop to apply color separation, change resolution, and rotate them.

### Must-Haves / software for serious scripters

**WHY BE SATISFIED with creating average scripts? Here’s a list of software that will give you more scripting power, creating from scripts easier to use to helping you learn how to script:**

- **FaceSpan.** This is an interface builder that lets you build windows, dialog boxes, and menus for your scripts. Use it to make projects look and feel like other Mac applications. Software Designs Unlimited, 919-968-4567.
- **Prefab Player.** Many applications (Photoshop, for example) aren’t yet scriptable. Prefab Player lets you write scripts for those applications. It simulates such actions as making menu selections, clicking on dialog-box buttons, and just about anything users can do under script control. Prefab Software, 617-628-9025.
- **Scripting additions.** Commonly called OSAX (after the file type — the plural is OSAXen), these are plug-ins that extend AppleScript by adding new commands and new data types. There are hundreds of them, they’re all shareware, and most can be obtained from ScriptWeb (http://www.scriptweb.com/scriptweb/). Some popular additions include ACME Script Widgets, Jon’s Commands, GTO Scripting Library, and Script Tools.
- **Sal’s AppleScript Snippets.** This is a collection of QuarkXPress unlocked sample scripts (scripts with viewable code) written by Sal Soghoian, one of the world’s leading QuarkXPress scripters. Call the vendor, XChange (800-788-7537 or 707-225-2484), for this inexpensive ($39) and useful learning tool, or download it from Sal’s Web page (http://users.aol.com/nyhthawk/welcome.html).
- **Script editors.** For those who outgrow the script editor that comes with AppleScript, there are three commercial products that do more in terms of editing, debugging, and general utility tasks. Scripter (Main Event Software, 202-288-9595) is perhaps the most comprehensive. It’s great for beginners exploring scripting terminology. Another good script editor is Script Debugger (Late Night Software, 604-929-5578), which is fast and functional. Last, there’s ScriptWizard (Full Moon Software, 800-232-1550 or 510-843-6485).

- **Cataloging images.** Scripts are particularly useful when coupled with databases for performing such tasks as storing tagged images. Each step in this common procedure, which involves the manipulation of Photoshop files, can be performed by scripting: Move Photoshop files onto a server, using the Finder; resample them with Color Central to generate a low-res file for OPI (Open Prepress Interface) use; catalog them with Cumulus; and tag the cataloged images with information (such as a photo source or a product code) from a corporate FileMaker database.

- **Database publishing.** Scripts and databases are also useful in repetitive types of publishing, such as creating product catalogs. You can, for instance, automate the use of information from a FileMaker product database in order to create a page layout in QuarkXPress and then the copying of product shots from a Cumulus database into the layout (see the “Saving Time with AppleScript” figure).

- **Finding fonts.** AppleScript can also do something as simple yet time-consuming as checking for fonts. Using Suitcase and AppleScript, a service bureau can automate the process of analyzing an incoming file for required fonts and then locating and loading them.

**How to Learn Scripting**

There isn’t room in this article to teach you everything you need to know to take advantage of AppleScript. But we can point you toward the best books on the topic plus some crucial online resources (see the “AppleScript Library” sidebar).

You won’t really get AppleScript until you start scripting yourself, though. The best way to learn is by copying — er, shall we say, emulating — someone else’s work. Grab a script that works, and start playing with it. You can find a wide variety of scripts online (see the “Must-Haves” sidebar) or simply use the sample script that’s posted on MacUser’s FTP site (ftp://ftp.zdnet.com/macuser/graphic-artist-script.hqx), which automates the conversion of spot color to process color in QuarkXPress. (Be sure to download the accompanying read-me file and the file Jon’s Commands as well.) And remember: You can’t break anything, as long as you steer clear of dangerous commands such as the Finder’s Delete command.
you can write easy, English-like AppleScript code that simulates menu selections such as these in Photoshop and in other nonscriptable applications. (You can download the actual script for this process from MacUser’s FTP site at ftp://ftp.zdnet.com/macuser/graphic-artist-script2.hqx.)

The Future of AppleScript

If you put in the time to learn AppleScript, can you rest assured that you haven’t wasted your efforts on a technology without a future? Fortunately, AppleScript’s future looks bright. Besides the benefits graphic artists can reap, those who frequent the World Wide Web have plenty to celebrate. There’s a host of new scriptable applications — from mail client software such as Eudora and Claris Emailler to browsers such as Netscape Navigator and server software such as WebSTAR. Using AppleScript is one of the best ways to automate Internet-related work, including retrieving and filing mail. It’s also the simplest way to develop CGI (Common Gateway Interface) programs, those little gnomes that live on Web servers and help generate forms, databases, and interactive Web pages.

The reception by the user community has been welcoming, and Apple is showing renewed interest. AppleScript is slated for inclusion in Copland and is scheduled to be PowerPC-native by the time you read this.

The AppleScript Library

There’s no shortage of places to read about AppleScript. Here are some popular ones:

Books


Online Resources

All the major online services have forums devoted to scripting, and many vendors, such as Quark and Claris, have forums with scripting sections. But the best resources are on the Web. Point your browser at http://www.scriptweb.com/scriptweb/.

With the support of the larger community of users taking advantage of it in order to streamline their work, AppleScript will help ensure that the Mac continues to be the best platform for getting real work done.

Chuck Weger is a MacUser contributing editor.

Steps for a task without AppleScript:
1. Open QuarkXPress layout.
2. Search for image in Cumulus database.
3. If you find multiple images, determine the correct one by checking information such as most recent date or image source.
4. Drag and drop image into QuarkXPress.
5. Switch to FileMaker Pro.
6. Search for text related to image.
7. Cut and paste text into QuarkXPress.
8. Edit text as needed in QuarkXPress.
9. Return to step 2 and repeat remaining steps for next image.

Steps for the same task with AppleScript:
1. First time only: Create an AppleScript script that performs the steps for this task.
2. Double-click on the script icon.
3. Come back to Mac when the script has finished running, and edit results in QuarkXPress as needed.

Chuck Weger is a MacUser contributing editor.
Painless Paper-Cut Effects

Use Painter 4 to turn flat EPS illustrations into virtual paper sculptures.

ORNATE PAPER SCULPTURES take a fine hand — and plenty of time — to create. However, digital illustrations with the look of cut and molded paper are simpler to create than you might guess. With Fractal Design’s Painter 4, you can take a flat, black-and-white EPS illustration and give it the distinct edging and three-dimensional look of a paper sculpture.

The key to creating these effects is to use the right settings for Painter’s surface and lighting controls. New options in Painter’s surface controls let you easily add beveled edges to any Floater — Painter’s term for a floating layer — by simply changing the softness setting of the mask; the result is a paperlike edging effect. Creating the same effect in previous versions of Painter meant changing the Feather controls in a separate palette. Don’t worry about converting shapes to Floaters. Painter 4 automatically changes shapes — Bézier-based Floaters — into bitmapped Floaters when you apply effects not possible with vector-based shapes. As for creating the 3-D look of molded paper, we chose not to paint in the highlighting by hand, which would have been a time-consuming process. Instead, we exploited the lighting controls’ color-enhancing capabilities, using lights to create the illusion of contours and gradations on the objects.

Sean J. Safreed is associate editor for graphics at MacUser and an ardent Painter aficionado.

STEP BY STEP

1. CLEAN UP THE ORIGINAL. To clean up the image (we chose an EPS illustration with a Fourth of July theme from T/Maker’s Incredible Image Pak 25,000), open it in Adobe Illustrator 6.0 and simplify the shapes into separate closed objects. Color the objects at this point if you want them colored, and then copy the illustration to the Clipboard.

2. PAINT WITH LIGHT. Open Painter 4, and paste (Edit: Paste: Normal) the EPS objects into a new Painter document. Painter 4 handles PostScript objects pasted from Adobe Illustrator as individual floating objects. You can edit the objects’ Bézier curves if you need to tweak shapes.

   To provide contours and highlights, you need to apply colored lights, using the Apply Lighting filter. Click on a Floater, using the Floater Adjuster tool, and open the Apply Lighting dialog box (Effects: Surface Control: Apply Lighting). This dialog box lets you bring out parts of your image as if it were sitting under a set of spotlights. The icons in the preview window represent the lights shining on the image.

   We also used the Apply Lighting filter on every Floater in our firecracker image to give it a graduated surface. We created the shaded highlights for the fuse in the image by setting three spotlights, two white and one red, to color the fuse’s Floater. We avoided creating overly bright highlights on the object by lowering the brightness setting for each light to about half its default value.

   Save each lighting setup, using the Save button, so you can return to the settings later.

3. ADD A BEVEL. To create a beveled edge around the shapes, use the Apply Surface Texture filter to create a blurred version of the mask surrounding each Floater.
Click on a Floater, and open the Apply Surface Texture (Effects: Surface Control: Apply Surface Texture) dialog box. The dialog box holds a formidable array of sliders for adjusting a surface’s look. Select the Mask option from the Using pop-up menu, and move the Softness slider to 6.1 (or a lower value, if the object is so small that it doesn’t have 6.1 pixels to blur at each border to create an edge). Softening the edge is just a matter of moving the Amount slider down; we chose a value of 30 percent. Finally, to create the dull highlight of a Paper surface, you must move the Shine slider down to 1 or 2 percent for each Floater.

**4. GIVE THE SURFACE A TEXTURE.** Once you’ve applied a bevel to the edge of each Floater, you still need to add paper grain to each object. First select appropriate paper settings. In the Art Materials: Paper palette, set the current paper grain to Fine Grain (from the More Paper Textures library included with Painter). Set the Scale slider in the Art Materials: Paper palette to 50 percent.

To apply these settings, click on a Floater and open the Apply Surface Texture dialog box again. Select the Paper Grain option from the Using pop-up menu. Slide the Amount slider to 60 percent and the Shine slider to 20 percent, and apply the settings to the Floater.

**5. APPLY A DROP SHADOW.** Paper sculptures exist in three dimensions. To add that illusion to each Floater, apply a drop shadow. Click on a Floater, and open the Drop Shadow dialog box (Effects: Objects: Create Drop Shadow). Set the x-offset to 4 pixels and the y-offset to 5 pixels. Change the opacity setting to 55 percent and the radius to 6.0 pixels. Not a masterpiece but an appreciably more eye-catching image than the original.
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Fonts: A Reprise

If you toil in type, check out these utilities.

Our column on font issues (“Font Fatigue,” January ’96, page 111) brought in more mail than most other topics we’ve covered. For example, our colleague Kathleen Tinkel wrote to chastise us for not pointing out that Symantec’s Suitcase can, in fact, show which printer font is required by a given screen font. So, fine, we made a mistake. “Let sleeping fonts lie” is our motto.

But time (and software) marches on, so we’ve decided to report on several major developments in the Mac font universe. For those of us who use more than a dozen fonts, 1996 could be the year all our dreams come true (we have very modest dreams).

First of all, Symantec (800-441-7234 or 541-334-6054) released an upgrade of Suitcase, its font-management utility, earlier this year. After years of lounging moribund in our Extensions folders, Suitcase is back with a vengeance. It works reliably with System 7.5.x; sports a redesigned user interface; and offers new features, including application-specific font sets that come alive only when needed.

What’s more interesting, Suitcase is now AppleScript-aware. You can write scripts to add fonts to suitcases (collections of screen fonts) as well as to open and close suitcases. So, for example, you can write a preflight script that opens a QuarkXPress file, asks QuarkXPress for a font listing, and then uses that listing to create a set of suitcases or to gather all the fonts into a single folder for transmission to a service bureau.

One drawback is that Suitcase no longer comprehensively reports on font-ID conflicts when you try to open a suitcase containing a font that’s already in use. Also, its windows have gotten overly large and there are some strange interface quirks, particularly with Macintosh Drag and Drop. Two steps forward, one step back. It’s still a worthwhile upgrade.

Not to be outdone, Alsoft (800-257-6381 or 713-353-4090) has upgraded MasterJuggler. Although the upgrade is not as dramatic as Suitcase’s reawakening (Alsoft’s utility has always worked on System 7.5), if you’re a fan of MasterJuggler, you should make sure you’re running the latest, PowerPC-native version.

And sorry, sports fans, but we’re not going to get into the Suitcase-versus-MasterJuggler debate here.

We also should mention a handy control panel called TypeTamer, from Impossible Software (714-470-4800). TypeTamer is like Adobe’s Type Reunion; it merges styles and thereby shortens your font menus, so you don’t see things such as BI Helvetica Bold Italic in a different spot on the menu from other Helvetica typefaces. TypeTamer also shortens an application’s font menu by showing only those fonts that are used in a document — a separate pop-up menu labeled All shows all the fonts installed in the system. Plus, TypeTamer lets you define your own “sets” (different from Suitcase sets), which show up on their own pop-up submenu on the Fonts menu.

Fonts and FONDier

Perhaps most important to those of us in the heavy-duty design and prepress worlds, a small company called DiamondSoft (415-381-3303) is working on a product called The Font Reserve. This is the world’s first (to our knowledge) production-quality Mac font organizer. Offering more capabilities than Suitcase or MasterJuggler, The Font Reserve can collect all your fonts into a database, analyze them, remove duplicates and corrupted files, and automatically load and unload fonts as an application calls for them. It also does much of the grunt work involved in prelighting documents for proper font output on an imagesetter. It has half a dozen ways of organizing fonts, including by font foundry, by customer, and by family. What’s more — here’s the really cool feature — it allows a network server to handle all the fonts for a workgroup.

If it works as promised, The Font Reserve will be a true time-saver for those of us with large font collections. DiamondSoft says the product should be out sometime this summer.

And for the complete font geeks among us, there is the recently revised utility called theFONDier (winner of our own personal Worst-Named Product Contest), from Rascal Software (805-255-6823). Despite its name, theFONDier is perhaps the best utility we’ve seen for peeking inside a font and looking at the important resources that make type happen on the Mac. It shows you when a font is likely to cause problems in your system and gives suggestions regarding what to do about it. The same company makes theTypeBook, a handy utility that inventories your fonts and prints type spec sheets.

The sleeper of the year, however, could be the agreement among Apple, Adobe, and Netscape to allow embedded fonts (read: real typography) on Web pages. It’s not clear as of this writing what will result from this partnership, but we think it will probably mean more font headaches before the dust finally settles. Ultimately, fonts on the Internet will be A Good Thing; as Netscape’s press release says, “People creating information for the Web will be able to choose from numerous fonts and ensure that users see their pages as they were originally intended to be seen.” Imagine that! But getting there, as they say, will be half the fun.

There are other font issues we’re bypassing for now, but that’s the Font Report for the summer of ’96. Good night, and good luck. 

Bob Schaffel is emerging-technologies consultant for R. R. Donnelley & Sons. Chuck Weger is a graphic-arts consultant and a partner in Genex Media, a company specializing in new media and Web design.
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CIRCLE 154 ON READER SERVICE CARD
To make your Web site a productive gateway between you and your customers, you need a CGI application — the right CGI application.

Gateway to Web Success

Creating a Mac-Based Web site is amazingly easy. With server software, a direct connection to the Internet, and the HTML pages and graphics that make up your site, you’re in business. Basic Web pages aren’t very interactive, though: They can provide links only to predefined pages, and they don’t allow users to conduct searches or send information to the site’s owner. If you want to perform business transactions on the Web or let users search your database, it’s time to take the next step: You need a CGI application.

If you’ve filled out an online form, clicked on a Web-based map, or bought anything from an electronic mall, you’ve probably encountered a CGI application. CGI stands for Common Gateway Interface. The CGI standard defines an interface through which information server software (such as Web server software) can communicate with other applications on the server or on the network. Software that exchanges data via this interface — a CGI application — gives Web servers new features, such as forms processing, image mapping, and linking to databases. You’ll find CGI applications running on almost all Web servers, including UNIX and Windows NT platforms and the Macintosh. To help you choose the right applications for your Web site, here’s a guide to using CGI applications, the issues you’ll face when working with them, and the key points to consider when making your choices.

What’s a CGI Application Good For?

CGI applications can bring life to your Web site, by adding features to the server software itself and linking the site to other applications.

Image-map processing is the most common example of a CGI application that adds to server software. It’s also one of the simplest. An image map is a Web-page graphic element that contains “hot spots.” When you click on a hot spot, a CGI application retrieves an HTML page that matches your request. You might, for example, click on a city on a map of the U.S. to view a page containing information about businesses in that city. Unlike standard HTML pages, image maps allow you to include a lot of hot spots within a single graphic element.

In addition to enhancing server software, CGI applications can link Web servers with database managers, statistical packages, and other applications in order to bring a wide variety of information to the Web. If, for example, you provide a searchable product catalog, a user can enter a keyword into an HTML form. The CGI application sends the request to a database program and tells it to return the results of the search as an HTML page. This CGI function is called HTML on the fly, because the application generates a new page each time the database is searched. Webmasters can also use CGI applications to count Web-page “hits” and send the data to a spreadsheet program for analysis and reporting.

Preparing for Problems

Although CGI applications add greatly to a Web site, they’re not without problems. You need to prepare for the impact on speed, security, and system stability when you add CGI applications to your Web server.

Slower response. When you use CGI applications with a Web server, you reduce the potential server speed. A single CGI application — particularly if it’s a simple one, such as an image-map processor — may not place much strain on the server, but speed can decrease as you add more CGI applications. Servers slow down because CGI applications compete with the Web server software for resources, including CPU time, disk access, and network bandwidth. The degree of resource competition varies widely among CGI applications.
Networking

How CGI Apps Work

Database access is one of the most important purposes of CGI applications on the Web. You can, for example, give customers access to a product catalog and track their information requests. If you're very ambitious, you can make sales right from your Web site.

Using a CGI application to publish an image map requires little server horsepower, but providing access to databases consumes disk-access and CPU time. You can minimize database-related slowdowns by storing database applications and files on a separate server, leaving the Web server to handle Web connections and CGI applications.

Security risks. While you're counting CGI applications, consider this: Every CGI application you add to the server is a potential security risk. That's because CGI applications can do things your server wouldn't normally allow users to do. Most server software has built-in security measures to protect files and folders. A well-designed server will provide a way for CGI applications to comply with these security measures before it returns a file to a user, but it is extremely easy for a CGI application to simply ignore these security measures and access whatever file it wants.

A less stable system. Like Web server software, CGI applications must be stable enough to deal with the demands of processing Web access requests. Even commercial CGI applications can be unstable at times, and when they crash, they can take your whole server with them. When you install a new CGI application, test the system exhaustively before making the site available to the public.

What to Look For

Several commercial and shareware Mac CGI applications are available — mostly distributed through the Web. If you're a programmer, you can write your own, although it's a good idea to check out the professionally developed options first (see the "Finding CGI Applications" sidebar). Selecting the proper CGI application to use on your server can be hard. In general, you should look for the following characteristics in CGI applications you buy:

- Fast, compiled language. CGI applications written in C or another compiled programming language are usually preferable to those written in a scripting language, such as AppleScript or UserLand's Frontier. Compiled CGI applications are faster and generally have more features and a better interface. Because they consist of a single file, they also tend to consume less memory, are easy to install, and are not subject to damage inflicted by a Webmaster's tinkering with the code. Many amateur and professional developers use AppleScript to create CGI applications, but these, unlike CGI applications written in a compiled language, are generally slower and more difficult to maintain; because they consist of multiple files that must be installed and configured in certain ways, one file out of place can cause the whole CGI-application framework to come undone. Frontier-based CGI applications offer some advantages over those written in AppleScript — they are often faster, for example.

- Responsive tech support. Support should be a major consideration when you're choosing CGI applications for commercial Web sites. Look for developers that provide mailing lists where users can discuss problems and suggest new features. The company may also make these lists searchable online or supply a FAQ (Frequently Asked Questions) list for new users. Because broken CGI applications can bring your Web site to a screeching halt, you should additionally look for developers that provide prompt response to problems, via phone and e-mail. A company that doesn't provide online support for its CGI application is a company to be avoided.

A track record. Given the Web's relative youth, it may seem strange to fault a CGI-application developer whose product is new to the market. There's a big difference, though, between a product that's been around for a year or more and one that was only recently introduced. Very few companies get it right the first time around — especially on the Internet, where technologies can change drastically in the time it takes to release a shipping product. If you find yourself choosing between an older product with an established user base and a newer product with more-exciting advertising, take the old-timer. Here's a tip: A company's mailing-list archives can also give you an idea of a product's reputation among its users. If you notice chronic user complaints or an unresponsive developer, look elsewhere.

CGI applications give you the tools to operate a useful and interactive Web site, but software is not a shortcut for an organized, well-designed set of pages. To get the most from CGI applications, plan the rest of your site as carefully as you seek out good software.

Jon Wiederspan is director of technical services for ComVista, an Internet consulting group in Redmond, Washington, and is coauthor of Planning and Managing Web Sites on the Macintosh (Addison-Wesley).

Finding CGI Applications

Several organizations offer CGI tutorials and maintain lists of Mac CGI applications. Here are some of the best resource collections:

- ComVista (http://www.comvista.com/tut): Tutorials on writing CGI applications, plus links to a wide variety of Mac Internet tools.
- Mac OS WWW Page (http://www.ape.com/webstar): An unabashed evangelism site for Mac Web servers and tools, including CGI applications.
- Macintosh WWW FAQ (http://www1.carleton.ca/mac/): Comprehensive list of Web client, server, and CGI tools.
- Web66 (http://web66.coled.umn.edu): Web development resources and tutorials geared toward educators. / Shelly Brisbin
If you’re sending PostScript graphics to an Apple StyleWriter printer, you need StyleScript to smooth the jaggies. With StyleScript, you can turn an Apple StyleWriter into an affordable, sharp, high-quality PostScript printing machine. StyleScript is an amazing product that utilizes genuine Adobe PostScript Level 2 software, and works easily with your Apple StyleWriter. Combine the two and you get the ability to print crisp, clear images. StyleScript maximizes the output quality of your PostScript graphics to your printer’s best resolution. So you get the same result as if you used a PostScript printer — all for less than $150.

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Smarten Up Your Browser

Your browser can show movies, play music, and read to you with the right helpers and plug-ins.

You're clicking from site to site like a loco flamenco dancer, trying to locate that one cartoon or video diversion that can get you through another shift in the hold of the good ship Commerce, when suddenly you're stopped in your clicks by the Spanish Inquisition:

"This page contains information of type basura/x-vil that can be viewed only with the appropriate plug-in. What do you want to do?" Searching in vain for the "How should I know?" button, you mutter under your breath, "Do I need this?"

You don't need the aggravation, but maybe you do need that basura/x-vil information. You can't help wondering that this obscure message might be trying to alert you to something you actually care about. New technologies are turning up on the World Wide Web almost daily — live video, talking pages, CD-quality music that plays while you work — all flowing from that same spigot you opened when you began your quest. Granted, you could probably live without the singing commercials and strangers' home videos, but how about tiny movies that show how to form words in sign language? Or Spanish-language lessons using text-to-speech?

Fortunately, you can get the Spanish without the Inquisition. By downloading and installing a few well-chosen tools now, you can head off most of the basura/x-vil-like dialog boxes and smarten up your browser so you don't miss out on the cool stuff. Here's how to pack your utility belt before you leave the cave.

Hafta-Have Helpers. Your browser can handle any data type your Mac can, including PICT and TIFF images, MIDI music, text read as speech, virtual-reality worlds, 3-D models, CAD designs, movies, and PostScript documents. Actually, your browser doesn't know the first thing about these data types, but it does know how to hand them off to a helper application that does — once you've told the browser which helpers read which data types.

Shareware and freeware applications are available to read most data types used on the Web. You'll find loads of helpers at the usual Mac archive sites and at ftp://ftp.ncsa.uiuc.edu/Mosaic/Mac/Helpers.

The procedure for activating helpers varies from browser to browser, but it typically goes something like this: Find General Preferences on the Options menu, and pick Helpers. You'll see a list of data types in the form video/quicktime, image/pict, or maybe basura/x-vil. For the recognizable data types, just pick an application on your hard disk that can read that data type (SimpleText for PICT images, for example). If you want to watch video and listen to sound over the Web, you need at least Sparkle and SoundMachine, available at NCSA and elsewhere. Your browser may already have many data types paired with popular helper apps.

Plug-in Play. With version 2.0 of Navigator, Netscape introduced an alternative to helper apps: plug-ins, which integrate browsers more closely with external software. Whereas helpers put multimedia files into a separate window, plug-ins display them right on the Web page. Plug-ins are installed in a folder adjacent to your Web browser. They aren't clickable applications but are activated when you click on a file the plug-in supports. At press time, only Navigator and Microsoft's Internet Explorer supported plug-ins, but any browser released this year is likely to be plug-in-friendly.

Common plug-ins bring formatted documents, video, and sound to the Web. PDF (portable document format) readers such as Tumbleweed Software's Envoy (http://www.twcorp.com/plugin.htm) and Adobe's Acrobat Amber (http://www.adobe.com/Amber/) bring WYSIWYG documents to Web sites. Several plug-ins put video and animation onto the page (check out Macromedia's Shock-wave, at http://www.macromedia.com/Tools/Shockwave/sdc/Plugin/). Count on Web sites becoming noisier as well, with Progressive Networks' nice RealAudio plug-in (http://www.realaudio.com/products/ra2.0/); text-to-speech plug-ins such as Talker, from MVP Solutions (http://www.mvpolutions.com/PluginInSite/Talker.html); and MIDI music plug-ins just around the corner.


By the way, basura/x-vil is Spanish for Microsoft Windows.

Don't Know GIF from Gab?

MacUser maintains a list of frequently asked questions (FAQs) about the Internet, MacUser itself, and this column specifically. Send mail to faq@macuser.com. MacUser's address on the World Wide Web is http://www.zdnet.com/macuser/. You can reach me at traveler@macuser.com.

Illustration: Leslie Newman

July 1996 / MacUser 101
To make sure they're highly-skilled, we make our employees pass an intense screening process.  
(So intense it usually tells us more about those who fail.)

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For some up-to-date job listings, visit our web site at http://www.mactemps.com.
Now that Open Transport networking software is ready for almost any Mac, are you ready for it? Let this quick course help you prepare.

Open Transport 101

If you've been excluded from using Open Transport, Apple's latest networking system software, you're not alone. Until recently, only those who owned certain Power Mac models could use this software, which makes network setup simpler. Recently, however, Apple updated Open Transport to version 1.1, opening up its use to PowerPC and non-PowerPC systems alike.

Now that Open Transport is available to just about every Mac user, it may be time to consider whether this new part of the system software can benefit you. Here are insights on who should buy in and some troubleshooting tips to get you out of minor jams:

**Why Buy In?**

If you own a PCI-based Mac, you have to use Open Transport in order to get networking technical support from Apple. On the other hand, Open Transport isn't compatible with 68000 and 68020 Macs. For users of all other Macs, using Open Transport is an option, and it's an attractive option, for several reasons:

**Simple interface.** Part of what Open Transport does is replace Apple's complicated Network and MacTCP control panels with a simpler control panel called TCP/IP (see figure 1). You don't have to enter as much arcane information in the new control panel, and you don't have to understand as much about low-level networking protocols to configure TCP/IP.

Also, user-configurable options appear automatically. So, when you install a networking service such as PPP (Point-to-Point Protocol) or SLIP (Serial Line Internet Protocol), that service automatically appears in Open Transport's TCP/IP control panel. All you have to do is select an option from a pop-up menu in the control panel to use the service.

**Speed.** Using Open Transport 1.1 on PowerPC systems should be faster than using previous Apple networking system software, since version 1.1 is PowerPC-native.

**Easy configuration switching.** One of the most compelling reasons to use Open Transport is that it can make it easier to change major aspects of your networking configuration, such as whether you're using PPP or Ethernet to connect to the Internet. For the first time, you can make such changes without having to restart your Mac — a real time-saver for PowerBook users, since they're likely to periodically need to switch configurations.

Quick switching is also useful if you need to switch among Internet providers or if you need to change connection methods on a desktop machine. For instance, a desktop Mac that usually connects to an AppleTalk network over Ethernet may occasionally need to hook up to, say, a PowerBook 170 that can communicate only over LocalTalk.

To switch among settings, all you are required to do (once you have created your

![Figure 1](image-url)
HANDS

settings) is select one from the Configurations dialog box (see figure 2), accessible from the TCP/IP control panel.

Troubleshooting Tips

Open Transport should make networking easier. Even so, the process of setting up and using new software can always have snags. Here are some typical problems with Open Transport and likely solutions:

PROBLEM: I can't make a connection.

SOLUTION: Start with the basics — check to see if your TCP/IP control panel is set up correctly. The exact settings vary with the software you're using for connection and with your Internet service provider's setup, but there are some basic guidelines:

The type of connection you use doesn't necessarily show up as the default setting in the TCP/IP control panel. You have to find the setting on the pop-up menu at the top of the control-panel window and select it (see figure 1). It's simple — if you're connecting to the Internet via your Mac's Ethernet or AppleTalk connection, choose either Ethernet or AppleTalk (MacIP). If you're using a dial-up account, select the name of the software you use with that account (such as MacPPP) from the list.

What can be confusing is not finding your dial-up account on the list at all. If your connection software is completely missing from the menu, the software may not be installed correctly. Try reinstalling it.

The second part of the control panel you should check if you're not able to make a connection is the Configure pop-up menu. The default settings, even on machines upgraded from MacTCP to Open Transport, may be incorrect. The correct option to select from that menu depends on your connection method. If your Internet service provider gave you a fixed IP number, select Manually from the menu. In the field that appears, enter your IP number if it's not already filled in for you. If you're using a dial-up SLIP or PPP account, the choice is easy: Choose either Using SLIP or Using PPP Server.

In most cases, you won't be able to make connections if you don't enter at least one IP address in the area labeled Name Server Addr. A name server is a server that finds Internet addresses for you. It's a good idea to enter more than one name-server address, just in case the first one's unavailable. If there are no addresses in this field, ask your Internet provider for them.

PROBLEM: My Macintosh crashes when I use Internet-connection software.

SOLUTION: If you are using MacPPP or FreePPP (both freeware) and you crash, make sure you're using version 2.5 or later of either program.

If you use commercial software and you're experiencing crashes, it could be because the third-party software is incompatible with Open Transport. Current versions of most commercial PPP and SLIP implementations — including Intercon's InterSLIP, InterPPP, and InterPPP II; Hyde Park Software's MacSLIP; Synergy Software's VersaTerm SLIP; and Sonic System's SonicPPP — are compatible with Open Transport. If the product you use is not among those listed, contact the vendor to find out if there's an Open Transport-compatible update.

PROBLEM: I must use incompatible software.

SOLUTION: Just because you must use incompatible software, such as the Microsoft Mail 3.1 client or Apple's LaserWriter Bridge or LocalTalk Bridge (version 2.0.1 or earlier of either one), it doesn't mean you can't ever use Open Transport. It just means switching back and forth between Open Transport and "classic" networking. To simplify the process, you'll need a copy of Apple's Network Software Selector. It comes with System 7.5.3 and System 7.5 Update 2.0 (see the "Finders Keepers" sidebar for information on obtaining this system software and the update).

Finders Keepers / how to get Open Transport

IF YOU'VE MADE THE DECISION to install Open Transport, first you have to find it. It comes with System 7.5.3, which is included with all new Macs. It's also available for free from Apple via the Internet and online services, as part of System 7.5 Update 2.0 (which updates any version of System 7.5 to 7.5.3). You can download it from Apple's Internet site at ftp://ftp-support.apple.com/pub/apple_sw_updates/US/mac/system_sw/System_7.5_Update_2.0/. If you're not interested in downloading the entire System 7.5 Update, you can buy Open Transport separately from retail stores for about $50. As always, it's a good idea to back up your data before installing new system software.

The only PowerPC machines excluded from the Open Transport 1.1 users club are the Power Mac 5200, 5300 (desktop), 6200, and 6300, but at press time, Apple planned to ship an update, Open Transport version 1.1.1, specifically for those machines. It should be available now from the Apple support areas online.

PROBLEM: I don't have enough memory to run Open Transport.

SOLUTION: If there's a disadvantage to Open Transport, it's the amount of RAM each protocol can require. On a PowerPC system, Open Transport can require as much as 1.5 MB of RAM; on a non-PowerPC system, as much as 500K. Using virtual memory or RAM Doubler will allow you to recover some memory, but there's a catch, since some connectivity software — including pre-2.5 versions of MacPPP and FreePPP — isn't fully compatible with virtual-memory schemes.

Rather than use virtual memory, you can conserve RAM by disabling protocols you aren't using. For instance, if you don't need AppleTalk, you can disable it by opening its control panel; choosing User Mode from the Edit menu; selecting Advanced User Mode from the resulting window; clicking on the Options button; and, finally, clicking on the Inactive radio button.

An Open-and-Shut Case

Is Open Transport 1.1 worth it? If you're happy with your current networking setup, especially if you're already running low on memory, the answer may be no. But if you need to switch configurations periodically, want a faster networking system for PowerPC systems, or just want a simpler networking interface, the answer is almost certainly yes. And as more and more software becomes Open Transport-savvy, running Apple's new networking system software may be the only way to make sure developers will support your Mac.

Geoff Duncan is a Macintosh and Internet consultant as well as the managing editor of TidBITS (http://www.tidbits.com), an online Macintosh weekly newsletter.
Help Folder
Mac common sense, word-processing nostalgia, and mysterious dialog boxes.

Mac No-Nos
Q. I desperately need your help! I installed Snitch (a free utility that lets you modify several attributes from within a file's or folder's Get Info window) and selected Get Info on my Games folder. I checked the Invisible box. Now I can't find the folder! How do I get it back?

Name withheld for obvious reasons via the Internet
CHRIS: Hmm, how can I put this delicately?
BOB: Watch it. We've got a subscription renewal at stake.
CHRIS: Fear not. The master of positive spin is on the case. Ya know, Mr. or Ms. Withheld,

BOB: Before Chris lets loose with the sermon, I'll provide the way out. You need a utility that can make the folder reappear, such as Evan Gross' $20 shareware utility collection, DiskTools (see figure 1). Open DiskTools, locate your Games folder in the scrolling list, click on the second button from the left (it's not labeled), and uncheck the Invisible box. Your folder is now back in business.

By the way, DiskTools is worth downloading for the main program alone, but you also get a killer calculator replacement, a wonderful note pad, and a couple of other nifty DAs.

CHRIS: Bob and I — in our never ending search for truth — have committed just about every fatheaded sin a person can perpetrate on a Mac. Perhaps we can save our readers a little grief by pointing out areas where we've ventured and where more cautious beings should fear to tread.

BOB: I'll take software and start with the lesson learned from the experience of our anonymous questioner. Don't flirt with danger! Clicking on boxes marked Invisible or selecting menu options reading Erase, Delete, or Clear without knowing how to restore files or folders to their original state is a bad idea. Memorizing the keyboard shortcut for Undo (Command-Z) is a must. Don't count on its working every time, though.

Leaving yourself an escape hatch is particularly important when using ResEdit. We've said it before, and we'll say it again — when modifying a file with ResEdit, always work on a backup copy.

CHRIS: The following hardware tips may seem obvious to some, but ignoring them could land you smack-dab in the chowder. Likewise, plugging and unplugging cables while your Mac is switched on is a formula for disaster, particularly when messing with ADB cables. One pin bent in the wrong place, and k zap! — your ADB controller is a crispy critter.

And finally — I know this sounds bizarre, but I swear I've seen it done — covering your Mac, hard drive, or printer with a blanket to muffle the sound can also apply deep, penetrating heat to the hardware's components. The vents are there for a reason. Keep 'em clear of blankets, external peripherals, and your scrapbook full of old Help Folder columns.

Promised PPC PowerBook
Q. Why can't I find an Apple PowerPC upgrade board for my 500-series PowerBook? Is this another unrealized Apple promise?

Mike Mierau
via AOL
CHRIS: Unrealized promise? Well, no and yes. BOB: No because Apple has supposedly been providing PowerPC upgrades for the 500-series PowerBooks since last December.
CHRIS: And yes because Apple has kept a very low profile with regard to these upgrades and users have reported great difficulty in tracking them down.

That fading red sticker on your PowerBook that says "Ready for PowerPC Upgrade" isn't false advertising — the PowerBook 500s are indeed upgradeable. If you want your PowerBook to jam, however, the upgrade you get will probably bear the Newer Technology label.
PowerPC upgrades from Apple and Newer consist of a daughterboard with a PowerPC 603c processor. The Newer upgrades start at $600 (estimated street price after you've traded in your old daughterboard). You can get the upgrade with 0, 4, or 8 MB of RAM. Newer's boards contain a 117-MHz processor, and Apple's come with the 100-MHz variety.

**Handson**

**PowerPC upgrades from Apple and Newer consist of a daughterboard with a PowerPC 603c processor. The Newer upgrades start at $600 (estimated street price after you've traded in your old daughterboard). You can get the upgrade with 0, 4, or 8 MB of RAM. Newer's boards contain a 117-MHz processor, and Apple's come with the 100-MHz variety.**

**Users of the Duo 200 series haven't been left out — although they'll have to fork over lots more cash to speed up their portables, since the upgrade consists of a completely new motherboard. The $1,299 Apple board contains a PowerPC 603c processor with 8 MB of RAM soldered on. I know it's expensive, but it does have one significant advantage over the 500-series upgrades: It will run the Copland operating system.**

**CHRIS: Hey, Bob, what's the name of that noisy program you say is so wonderful in your New & Improved Stupid Mac Tricks book/disk collection (San Diego, California: AP Professional, 1995)?**

**Bob: You must mean TappyType, a control panel that adds the clickety-clack sound of a manual typewriter — complete with the kerchunk-ding bell sound of a carriage return — to your Mac.**

**CHRIS: TappyType is "Gumbyware" by Colin Klipsch. Try it for 30 days. If you like it, show your support by wearing a handkerchief on your head, clenching your fists, and strutting around your neighborhood shouting "WHOOSH!" at interesting bits of cement.**

**In other words, TappyType is free.**

**Bob: I'm using Susan's Smith Upright font and Colin's TappyType. There's something surprisingly wonderful about making thousands of dollars worth of Mac and printer look and sound like $10 worth of '40s pawnshop junk.**

**Really Retro Writing**

**BOB: Jammin' RAM**

**Q. Is it true that my Power Mac's RAM will run 10 percent faster if I install DIMMs in pairs?**

**Simon Y. Chang**

**Providence, RI**

**BOB: I had a hunch that what you've heard is true, and upon consulting my expert sources, I learned why. It has to do with interleaving — a process in which bits of data "ping-pong" between two banks of DRAM to speed things up.**

**CHRIS: I might add that interleaving works only if same-sized DIMMs are plugged in at the right locations. So check your manual (it's different for each model).**

**Bob: Last but not least, not every PCI-based Power Mac and compatible supports memory interleaving. (The Power Mac 7200, for example, does not support RAM interleaving.) Make sure yours does. And even if it doesn't, look on the bright side — you now have the option of adding RAM one module at a time, something you couldn't do with earlier Mac models, which forced you to add memory modules two at a time.**

**Tips / Recordable CDs**

**Choosing Discs**

**Not all discs are created equal when it comes to protecting your data. To help guarantee a disc's reliability, seek out a brand that offers an optional protective resin layer. This extra layer guards against such hazards as the chemicals from ink and the pressure you apply when you write with a pen on a disc. (Eastman Kodak and Mitsui/MTC are among the companies that make discs with an extra layer.) You should be able to tell if there's an extra protective layer by reading the fine print on a disc's packaging.
The New PD Standard is Here

It's the Phasewriter Dual with PD technology from Toray and it transcends existing standards with more flexibility than any other optical drive. Phasewriter Dual reads CD-ROMs at quad speed and reads or writes to optical disks at a blistering .87 MBytes/second transfer rate. Just drop a CD-ROM into our new Phasewriter Dual or switch to a 650 MByte single-sided rewritable disk for portable data exchange. The Phasewriter Dual is setting new standards with higher capacity and CD-ROM compatibility at a much lower cost.

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email: info@toray.com  Internet: http://www.toray.com
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BOB: Either way, it's a good idea to rebuild your Desktop file every month or so, whether you think you've had problems or not.

Know the Code

Q. When my Mac locked up recently, I tried to use the Command-Control-power-key shortcut to restart it. By mistake I used the wrong key sequence, and a blank dialog box with an angle bracket (>) in the top left corner appeared on the screen. What is this dialog box used for?

Cramer51 via the Internet

BOB: Sounds like you missed a keystroke. Command-power-key brings up that white dialog box. Adding the Control key to the sequence restarts the Mac.

That dialog box is the Mini-Debugger. Like the Wizard of Oz pulling levers (pay no attention to the man behind the curtain), it's a part of the Mac you're not supposed to see. It's used for the most part by programmers for testing and debugging parts of their programs.

CHRIS: In the old days, there was no keyboard sequence for restarting your Mac or bringing up the Mini-Debugger: Almost all Macs came with a plastic doohickey (called a programmer's switch) that you could install and use to rescue a frozen system. It consisted of a plastic switch containing two buttons: the Reset button (usually marked with a triangle) and the Interrupt button (usually marked with a circle or dot).

BOB: Many newer Macs have built-in Reset and Interrupt buttons. Pushing the Reset button restarts your Mac instantly; the perfect cure for a freeze.

CHRIS: Pushing the Interrupt button, on the other hand, causes the Mini-Debugger dialog box to appear.

BOB: Here's where it gets interesting: Not all Macs have Reset and Interrupt buttons. Instead, keyboard commands are necessary. These commands also work on machines that have Reset and Interrupt buttons.

CHRIS: To make the Mini-Debugger disappear, press the G key and then Return. Depending on how badly your Mac is hung, crashed, or frozen, this sequence may allow you to exit the Mini-Debugger gracefully.

BOB: If that doesn't work, you'll have to restart. Press the Reset button, or use the Command-Control-power-key shortcut.

CHRIS: Here's one last thought before we leave this topic: The Reset button is not a substitute for the Restart command on the Special menu. Using Restart is kinder and gentler to your Mac than using keyboard shortcuts or the Reset button. An abrupt reset can damage system files.

Missed Manners

Q. HEY! I CAN'T FIND THE THING YOU GUYS MENTIONED IN LAST MONTH'S COLUMN ANYWHERE!!! YOU KNOW THE ONE I MEAN. WHAT KIND OF IDIOTS ARE YOU??! I'M PAYING FOR MY TIME ONLINE, AND I CAN'T SPEND ALL DAY LOOKING FOR THIS STINKING FILE!!! WHERE THE HECK IS IT???

A Vocal Minority via AOL

BOB: Whoa! Did we really get a message like that?

CHRIS: No, not exactly. I boiled a couple of readers' messages down to their basic components to present this lesson in online manners.

BOB: You mean netiquette?

CHRIS: Right-o.

Friends, the Internet has swollen with a torrent of new users, many of whom don't understand the proper rules of behavior. Of course, none of our subscribers would be guilty of such atrocious behavior, but I suspect that there are a few ill-mannered non-subscribers reading this for free in an oral surgeon's office prior to undergoing an agonizingly painful root canal and that these people may be unaware of the proper way to comport themselves online. Yeah, we mean you, Mr. I-Don't-Have-Time-To-Floss.

Let's start with an easy one: Don't type in all capital letters. That's read as shouting and will anger the message's recipient.

BOB: Here's another basic one: Include your name at the end of the message if you're writing to someone for the first time. The user name "hsrgszuw666@zlo.com" in the message header is the next-best thing to being anonymous. Nobody likes getting anonymous mail.

CHRIS: Don't send files via e-mail unless the recipient has requested them. That 753K screen dump may look totally gnarly to you, but the person on the other end is paying to download it. Ask first.

BOB: Don't expect others to be your personal librarian. If you want information or a file, try to find it on your own. When you've done your best and have still come up empty, politely ask others for help.

CHRIS: Try to refrain from using educational FTP sites during business hours. People using these sites are trying to get some work done. Even though many university sites include directories full of fun stuff, downloading a 4-MB game demo in the middle of the day could deny access to people who are doing their jobs.

BOB: Last and probably least, a pet peeve: Avoid participating in chain-mail threads. Honestly, the sky will not cave in because you trash this junk.

Here's a tip: If simply breaking the chain is too passive a way to express your disgust at this waste of bandwidth, try Dr. Bob's patent-pending Chain-Breaking System (infomercial in the works). Test the faith of those who send chain letters by forwarding the letters right back up the chain. Sure it's rude, but you'll ferret out the true believers in a hurry.

Tips / Hidden Keystrokes

Control Strip

When I started using the Control Strip utility, I was unhappy with its position at the bottom left corner of the screen. Applications always seem to open their documents aligned to the left side of the screen, so the documents were being partially obscured by the strip. I recently discovered that pressing the Option key as you select the tab of the Control Strip lets you move the strip not only vertically but also to the other side of the screen.

Chris Connors via the Internet

Launcher

You can shrink or enlarge the Launcher's buttons by holding down the Command key and clicking anywhere between the buttons. Choose among small, medium, and large buttons for each category.

To view the Launcher's secret About box, hold down the Option and Command keys and click anywhere between the Category buttons. To open a Category folder on the desktop, hold down the Option key and click on the Launcher's corresponding Category button.

Marvin Panganiban via the Internet

Netscape Navigator

For the ichthyologically attuned, Netscape Navigator offers a hidden treat. Pressing Control-Option-F calls up a page on Navigator's server featuring a picture of a fish tank — updated anywhere from every 30 seconds to every five minutes in JPEG and GIF formats. Look for the image of FishCam creator Lou Montulli in the tank's reflection.

Derek Jacobs via the Internet
100%-tested guaranteed-compatible Macintosh memory upgrades.

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Ride the new wave of productivity. With VisionTek’s full line of high quality memory modules for your PowerBook, Power Macintosh, or MacOS compatible. Guaranteed compatible and supported with our toll-free Tek-Support, Tek-Fax, Tek-BBS, and Tek-Web technical and customer assistance. And our exclusive Corporate Assistance Program makes VisionTek the only choice for your MacOS systems. For Macintosh memory and the VisionTek reseller nearest you, call 1-800-360-7185.

CIRCLE 25 ON READER SERVICE CARD
Drag and Drop or Not

Q. I used to be able to drag files from the 
Items Found window in Find File. Not any­
more. What did I mess up?

E. Drucker
via the Internet

BOB: I boldly predict that our friend E. (may I 
call you E.?) has lost or disabled the all­
important Clipping Extension (included with 
System 7.5) or the Macintosh Drag and Drop 
extension (included with earlier versions of 
System 7).

CHRIS: Very good. Now tell the nice person how 
to fix it.

BOB: Sure. Just reinstall your system software 
from the original disks, and Drag and Drop 
will return to Find File and other programs.

CHRIS: If you’ve merely disabled the Clipping 
or Drag and Drop extensions, return them to 
the active Extensions folder and restart the 
Mac.

I Mean Really Erase

Q. I must return a borrowed PowerBook G4c. 
How can I quickly return the hard disk to 
pristine condition and delete files I don’t want the 
next user to have?

Cate Gable
via the Internet

BOB: You’re right to worry. Items dragged into 
the Trash — even after the Trash has been 
emptied — can be recovered by a clever user, 
with nothing more sophisticated than a copy of 
Symantec’s Norton Utilities or MacTools 
Pro. The easy way to avoid such skulduggery is 
revert the entire disk, initialize and refor­ 
mat it, and then reinstall only Apple system 
software before turning it in.

Tips / Saving Money

Graphic Online Expense

AOL has a wonderfully rich graphic environment, 
but waiting around while the service downloads 
graphic after graphic may not be the most 
efficient way to spend your time or money.

Bill Karsh has developed ArtValve, a terrific 
control panel that allows you to turn off 
the automatic downloading of AOL graphics. When 
AOL queries the software to see if you have a 
picture, ArtValve intervenes; responds, 
“Got it, thanks all the same”; and substitutes a not 
terribly attractive default graphic in its place. If 
you can’t live without those beautiful graphics after 
all, you can turn ArtValve off.

Frequent visitors to AOL will find that this $5 
shareware program pays for itself in a matter of 
weeks.

Christopher Brenn
MacUser contributing editor

CHRIS: I suppose you 
want me to tell her 
how to do it.

BOB: Yep. Since you’re 
the junior member of 
this writing team, 
I think that’s only 
appropriate.

CHRIS: OK. The hard 
way is to grab a pro­ 
gram that mangles a 
file so badly that it is, for all in­ 
tents and purposes, 
unrecoverable. This allows you to selectively 
delete specific files or folders instead of hav­
ing to erase the entire disk.

You’ve got a couple of choices: the free way, 
as represented by Greg Koenig’s elegant File 
Fire, or the pay way, à la Symantec’s Norton 
Utilities.

Now don’t discount File Fire just because it 
was written by a 13-year-old. It overwrites 
file multiple times and can also 
change a file's name, size, type and creator 
codes, and creation date. With a simple drag­
and-drop onto File Fire, your file, folder, or 
volume is toast.

If your utility needs are broader — or you 
already own the darned thing — Norton Utili­
ties’ Wipe Info (see figure 3) is the way to go.

BOB: Not only does Wipe Info permanently de­
tele your data but it’s also bundled with the 
wonderful Norton Utilities package, which 
includes such gems as the Disk Doctor diag­
nosis-and-repair utility and Floppier, a fast 
flippy copier.

Faster! Faster!

Q. Like many other users, I am always in 
search of ways to increase the speed of my 
machine. I have a fairly fast Power Mac with 
16 MB of RAM, but it’s not enough.

What can I do to soup up my Mac?

R. Christian Alperin-Lea
New Orleans, LA

CHRIS: Buy an old Mac Plus, and work with it 
exclusively for a couple of weeks. I guarantee 
you’ll be as giddy as a schoolgirl (which you 
may actually be) when you return to your 
Power Mac.

Barring that fatuous solution, there are a 
few tricks for giving the goose to your com­
puter’s performance.

BOB: You can speed up your Mac without 
spending a nickel, just by managing it cor­
rectly. For example, you’ll get a speed benefit 
from disabling extensions and control panels 
that slow down your Mac. Also, try running 
your Mac in black-and-white and choosing 
Small Icon from the View menu. And if you 
have enough memory, try a RAM disk (you 
can use System 7.5’s Memory control panel to 
set one up).

If you don’t have it already, you should con­
sider using Connectix’s Speed Doubler. It won’t 
do much for your PowerPC-native applica­
tions, but non-native programs will shine 
when doubled.

CHRIS: Of course, if you’re willing to throw 
money at the problem, you have plenty of good 
options:

• Accelerators: Clock chippers, faster pro­
cessors, and graphics-accelerator cards will zip 
things up mightily.
• Cache cards: You can see as much as a 40­
percent speed increase with one of these plug­
in babies.
• Fast SCSI-2 cards with Fast SCSI hard drives: 
Technically they won’t make your Mac faster, 
but they sure will suck the data off your disk 
in a hurry.
• Additional RAM: With a ton of RAM, pro­
grams such as Photoshop — which resort to 
virtual-memory schemes in low-memory 
situations — will perk right up.

BOB: Don’t forget those utilities that let you 
work faster: macro programs, navigation en­
hancers such as Now’s SuperBoomerang, and 
CD-caching software such as FWB’s CD-ROM 
ToolKit. ☺

Bob LeVitus is director of evangelism for Power 
Computing. Christopher Brenn recently coauthored 
The Macintosh Bible Guide to Games, published by 
Peachpit Press.

You can find the shareware and free programs referenced in this article on 
MacUser’s Web page (http://www.zdnet.com/ 
macuser/); you can also find them in the MacUser 
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The Couch-Potato Mac

Watching TV is so early '90s. Renting videos is so pre-Web. Let's face it — if you're going to veg out in the post-GUI era, why not use your Mac to transform your passive couch-potato lifestyle into a more interactive mouse-potato paradigm? Your Mac is just itching to help you turn those hours wasted vegging out in front of the tube into quality time vegging out in front of the tube.

Video Visionaries

Plunking down a couple of bucks to rent a new video release or punching up a cable pay-per-view selection is like playing the slots in Las Vegas — except that Vegas gives better odds. Here's a safer bet: Invest in a good movie guide, and it will quickly pay for itself by steering you to just the right selection. You can check what your favorite reviewer thought of a particular flick, search for movies that fit your mood, or even get recommendations based on your own personal history of picks and pans.

Overall, Cinemania ($35 estimated street), from Microsoft (800-426-9400 or 206-882-8080), is your best bet. This updated version of last year's Eddy-nominated product has over 20,000 reviews from Roger Ebert, Pauline Kael, and Leonard Maltin; free monthly online updates; exhaustive cast and credit lists; movie stills; and audio and video clips. Hypertext links abound, letting you explore connections among actors, directors, genres, and themes. Sure, you can get lost in all its links, but the journey is bound to unearth a few discoveries for your next video-store run.

In contrast, get lost in Corel All-Movie Guide ($24.95 list), from Corel (800-772-6735 or 613-728-8200), and you'll be just plain lost. Sure, it boasts the biggest database of any movie guide — and Waterworld had the biggest budget of any movie in 1995. Using All-Movie Guide is like having a C++ programmer as your movie maven. The information in its unintuitive database not only varies dramatically in quantity and quality from movie to movie but it's often inconsistent within a selection as well. The 1971 film The Canterbury Tales, for example, is flagged as both an "okay family film" and "not for children." Still, All-Movie Guide does have data on over 90,000 films and offers a few neat features, such as a timeline showing the chronology of the movies that match your search criteria and a plot finder that lets you search for movies matching a wide variety of thematic descriptions (such as "Aliens, bad," "Aliens, good," or " Aliens, sexy"). It also lets you order videos online. But if all you want is a big database of movie reviews, you're better off checking out the Internet Movie Database (http://www.missstate.edu/Movies/).

Blockbuster Video Guide to Movies & Videos ($20 estimated street), from Creative Multimedia (800-262-7668 or 503-241-4351), has a simple, streamlined approach that can help you find what you want quickly without drowning you in movie trivia. Its search capabilities aren't quite as forgiving as Cinemania's, though; you have to enter an exact and complete word to find a match, whereas the Cinemania search engine narrows down your search with every letter you type. And although it can search for themes and plot elements in its 21,000 reviews, you have to know how to look. The 1967 film Bedazzled (a satirical retelling of Faust) turns up if you search for devil but not if you look for Satan, Faust, or satire. Online updates are available for $3 per month or $30 per year.

Criterion Goes to the Movies ($24.95 list), from Voyager (800-446-2001 or 212-431-5199), covers a comparatively scant 140 movies, but it includes a...
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thoughtful essay and a video clip from each — far more video clips than any of the others include, and they’re all classics. Although it’s just a catalog for the acclaimed Criterion Collection of laserdiscs, it’s still an invaluable addition to any film buff’s CD-ROM collection.

I Like to Watch
Someday, when digital videodisc replaces videotape, you may be able to watch any movie on your own Mac screen. For now, you can choose from a handful of full-length QuickTime movies on CD-ROM, generally supplemented with behind-the-scenes goodies. The best of these — including This Is Spinal Tap, Comic Book Confidential, and A Hard Day’s Night — are from Voyager’s Ephemerical Films (四周; $29.95 list) is perhaps the best suited to CD-ROM; it’s a campy collection of social-propaganda and industrial-promotional films that were the forerunners of today’s infomercials. No thigh busters, psychic hotlines, or Apple Performas hawked here, but you will find A Wonderful New World of Fords; Dating: Don’ts and Do’s; and a young Mike Wallace narrating as an even younger Dick York struggles with the difficulties of fitting in, in the 1947 classic Shy Guy.

As Seen on TV
Television, it’s been said, is a vast wasteland. A visit to tvland (http://www.tvland.com/) may not make it any less of a wasteland, but it certainly makes the wasteland vaster. While you’re online, be sure to stop and stock up at Bubblea’s BBQ Chip Collecting (http://users.aol.com/bheason/bbqchips.html). But don’t just watch another Star Trek rerun when you can boldly go where no Mac has gone before, thanks to Star Trek: The Next Generation Interactive Technical Manual (四周; $60 estimated street), from Simon and Schuster Interactive (800-910-0099). Thanks to the 3-D magic of QuickTime VR, you can explore practically every nook and cranny of the USS Enterprise from every possible perspective. And Star Trek Omnepedia (四周; $50 estimated street), also from Simon and Schuster Interactive, can help you find just about every bit of Star Trek trivia from the original series, The Next Generation, and Deep Space Nine.

Only one TV-related CD-ROM, however, deserves to be called Monty Python’s Complete Waste of Time (四周; $50 estimated street), and perhaps no other CD-ROM has ever so delightfully lived up to its promise as does this celebration of all things Pythonesque, from 7th Level (800-884-8863 or 214-498-8100). Among the skits included are the naughty bits from “Nudge, Nudge,” the naughty bits from “The Argument Clinic,” and some cheesy video from “The Cheese Shop.” You can sing along to Spam!, customize your Mac with the Desktop Pythonizer, or play pointless games involving flatulent fowl. If “penguin on the telly” holds a special meaning for you, don’t miss this disc.

Ultimate Potato Accessories
No mouse potato is truly complete without two final items. First, what is the remote control to the couch potato, the EZ-CD CD opener ($3 list) is to the mouse potato. This low-tech lifesaver from MacTec Products (818-702-6979) effortlessly slices open all CD-ROM packaging materials. Thanks to the magic of analog technology, it even works on audio CDs too.

And if you’re out of breath from the exertion of sitting open all those CD-ROMs, maybe you’ve embraced the potato lifestyle a bit too vigorously. Check out Active Trainer (四周; $44.95 list), from Laser Media (800-639-0628 or 416-977-4320). This surprisingly slick fitness program is so inspiring you’ll practically burn calories just by watching its instructional videos. Featuring expert advice and QuickTime videos on weight, aerobics, diet, and lifestyle training, the Active Trainer CD-ROM even comes with a tape measure and a handy fat caliper for measuring your progress from spudly to studly.

The Two Dads
BY RIK MYSELEWSKI AND JIM SHATZ-AKIN

RIK & JIM: ... happy birthday, dear Baileyyyy ... happy birthday to you! JIM: Blow out the candle, Bailey. RIK: Jim, it’s her first birthday — she can’t follow instructions yet. JIM: Sure she can. Watch, Bailey, smash your hands into the cake and rub them all over your face. [Bailey chuckles as she does so.]

RIK: Now hose her down so she can tear open this birthday present: Knowledge Adventure’s JumpStart Toddlers. JIM: Great gift, Rik. Knowledge Adventure has done a terrific job on its JumpStart line of early-learning software. RIK: When Bailey’s 3, she’ll graduate to JumpStart Preschool, then onto JumpStart Kindergarten and JumpStart 1st Grade and JumpStart 2nd Grade. Beginning this fall, 3rd Grade and 4th Grade will also be available — and they’ll link up with Knowledge Adventure’s Web site.

JIM: There’s a lot to be said for leading a kid through a well-thought-out, grade-based sequence of activities. RIK: And the JumpStart series is quite rich — 1st Grade and 2nd Grade each include enough activities to fill a full school year.

JIM: I like the wide variety of activities: everything from the three Rs to the three As: art, arcade-style games, and astronomy.

RIK: Not to mention brain-teasers, geography, and music — all age-appropriate, all fun.

JIM: Practical too: Each title tracks how well your kids’ doing and then adjusts its difficulty and suggested activities accordingly.

RIK: From Preschool on up, you get a progress report that details your kids’ proficiency in several areas. You can track as many as 99 kids at a time — perfect for teachers with multiple classes.

JIM: Good manuals, good online documentation, songs you can play on your audio-CD player — what’s not to like?

RIK: Well, navigation can be confusing, and some of the music is cloying.

JIM: But you can’t fault the life lesson taught in Toddlers’ “Duck Song”: “I quack in the morning. I quack at night. I quack until I get it right.”

JumpStart Preschool

Ages: 3 – 5
A new software category: popware. With your help, your little one will learn basic computer skills along with number, shape, and letter recognition. Fewest activities in the series.

JumpStart Kindergarten

Ages: 4 – 6
A solid group of games and activities — BeBop the hamster’s hide-and-seek game alone is worth the price of admission. Don’t bother with the lame painting module, however.
The Game Room
BY BOB LEVITUS

AS IN REAL LIFE, this month’s selection of games gives you more than one way to move through your adventures — you either walk, drive, or fly your way into entertainment-landia.

In System Shock, you go by foot (mostly) on an adventure that requires mindless destruction as well as thoughtful puzzle-solving. Comanche Mac also satisfies an appetite for destruction but requires a different type of skill — flying a military helicopter. Al Unser Jr., Arcade Racing offers cars rather than carnage, in a racing game that’s much like those you’d find in an arcade.

System Shock
This game succeeds by balancing mindless shoot-'em-up action with thought-provoking challenges.

Your goal in System Shock — surprise, surprise — is to save the world. The twist here is your role: You play the world’s most notorious cyberspace thief. After being busted for hacking, you get a rare “cyberjack” brain implant that helps you save the space station you’re on, which is swarming with cyborgs, robots, and human mutants. Your brain implant feeds you clues to help you figure out how to destroy SHODAN, a ruthless artificial-intelligence center that controls the enemy army.

Although the theme of saving the world isn’t new, System Shock’s well-designed user interface makes the game uniquely fun to play. Whatever you need — regardless of when you need it — is a mouse click or key press away. For instance, a dermal stamina patch is stored on the side of your viewing window so you can access it anytime.

For a shoot-'em-up, System Shock is also unique in that there’s little mayhem and almost no gore. To take up the slack, you have mental exercises — such as puzzle solving and code breaking — that get more interesting as you progress.

Another nice touch is that you can adjust the difficulty levels for any of the game’s parts — combat, the mission’s plot, the puzzles, and the cyberspace experience (the portion of the game in which you enter a make-believe Internet) — making System Shock suitable for a wide variety of players.

The only drawbacks I found were its hefty requirements (a Power Mac 7100/80 or greater with 16 MB of RAM and a Level 2 cache) and chunky, ported-from-DOS graphics.

Comanche Mac
I’m a sucker for flying games, so it should come as no surprise that I think the helicopter flying game Comanche Mac is the coolest thing since propellers on beanie caps.

Comanche Mac is ideal for those who find flight simulators such as A-10 Attack! and F/A-18 Hornet too finicky to be enjoyable.

As the pilot of an RAH-66 Comanche attack chopper, you’re in command of a deadly piece of military hardware that can achieve high speeds at altitudes as low as 50 feet. You’re armed with an ample supply of missiles, rockets, cannons, and other weaponry, providing a plethora of pyrotechnics in every mission.

Comanche’s first ten missions act as a tutorial to let you learn skills you’ll need in the real missions. Once you’ve completed the tutorials — which should take 10 to 20 hours — you get 90 other missions that take place in a variety of regions, from Antarctica to South America. To add more variety, the missions present you with several conditions, including reduced-visibility situations such as night flying.

Comanche Mac has some interesting effects, such as translucent smoke, snow, haze, and reflective water. One particularly intriguing effect can be seen during night flight when you use your handy FLIR (forward-looking infrared) — this device lets you amplify moonlight and casts a weird green glow.

The controls are simple. All you have to worry about is steering, controlling your altitude and speed, aiming, and shooting. There is one problem with the game’s controls, though: You can’t realign them to whatever keys you want. You’re stuck with the default settings.

Comanche gets kudos for running decently on 68030 Macs, although on those machines, you have to turn down the graphics resolution, put up with some jerky motion, and miss out on lots of cool effects.

Al Unser Jr., Arcade Racing
Take an Indy-style racing game out of the arcade and put it on your Mac, and you’ve got Al Unser Jr., Arcade Racing (pictured below). Sure, you lose the cool steering wheel, but you have the game at your fingertips and you save lots of quarters.

GAME POINT
System Shock is a sci-fi game with just the right balance of destruction and puzzle solving. The helicopter simulation Comanche Mac is a happy medium between a complex flight sim and a simple arcade game. Al Unser Jr., Arcade Racing is just like arcade racing games, but don’t expect the thrilling crash scenes.

System Shock
Price: $40 (estimated street).
Company: Origin Systems, Austin, TX;512-434-4263.
Reader Service: Circle #420.

Comanche Mac
Price: $50 (estimated street).
Company: NovaLogic, Calabasas, CA; 800-858-1322 or 818-880-1997.
Reader Service: Circle #421.

Al Unser Jr., Arcade Racing
Price: $40 (estimated street).
Company: Mindscape, Novato, CA; 800-866-5967 or 415-897-9900.
Reader Service: Circle #422.

Bob Levitus is a MacUser contributing editor and Power Computing’s director of evangelism.

The Tip-Off
System Shock
If you’re about to face a hairy battle (in harder settings only), apply several medi-patches to yourself before the fracas begins.
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<td>4094MB</td>
<td>N/A</td>
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These products are performance-matched for optimal performance in the PowerPC environment.

APS HIGH-PERFORMANCE DRIVES

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity_MB</th>
<th>Internal Performance</th>
<th>Price</th>
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IDC POWERBOOK DRIVES

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<td>Fujitsu</td>
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<td>$3800 rpm</td>
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<td>Fast ATA2</td>
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**30 Day MBG on all Magic Drive**

#### Media Blowout

**SyQuest 200 Cart**

**Price:** $54

**16 MB DIMM**

**Price:** $249

---

#### Memory

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<th>Type</th>
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<td>8MB DIMMs</td>
<td>$149</td>
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#### Global Village

- **Teleport Platinum 28.8 V.34**: $149
- **Powerport Gold PC**: $182
- **Powerport Mercury 98100**: $329
- **Powerport Platinum PC**: $355
- **Powerport Platinum Pro Card**: $496

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#### Wacom

- **ArtPad II 4x5**: $138
- **ArtZ II 6x8 w/Ultra Pen**: $309
- **ArtZ II 12x12**: $429
- **ArtZ II 12x18**: $675

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#### Syquest Media

- **Jaz 1.0GB Disk**: $125
- **200/270mb Syquest cart**: $54/57
- **256mb Optical Cartridge**: $14
- **250mb Optical Cartridge**: $59
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#### How to Buy a Magic RAID

1. Choose the size of RAID drive you want.
2. Choose the SCSI II card you want. This will depend on your Mac type (PCI or NuBus), and preferences.
3. Select the RAID controller software which matches your SCSI II card, or your current preferred driver.
4. Finally, buy the RAID case. We’ll do the rest.

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#### Quality Awards

- **Magic 5.3GB**: 11/95
- **Magic SyQuest 270**: 2/95
- **Magic SyQuest 200**: 2/95
- **Magic 2GB 6/95
- **Magic 4GB RAID**: 12/95

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**PowerMac 8500/150**
16MB/2GB/CD $4599

**PowerMac 9500/150**
16MB/2GB/CD $4699

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### Syquest Drives

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<td>Magic Syquest 270MB Drive</td>
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<td>Magic Syquest 200MB Drive</td>
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### Umax

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<td>PowerLook II</td>
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<td>PageOffice</td>
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### Apple

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### Office Essentials

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<td>Emailer</td>
<td>$59</td>
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<td>PageMaker</td>
<td>$499</td>
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<tr>
<td>Photoshop</td>
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### Great Deals on New Apple Products

**PowerBook 190cs**
$1699

---

### PowerBooks

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<td>PB 5300CS 8/500</td>
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<td>PB 5300C 6/500</td>
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<td>PB 5300C 6/750</td>
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<td>PowerBook 190cs</td>
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### PowerBook Memory

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<tr>
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<td>$999</td>
</tr>
<tr>
<td>320mb P6 Memory</td>
<td>$999</td>
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</table>

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### Systems

When your thinking of buying a system call us first!

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**Top 10 List**

1. Jaz Drive $589
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6. PaperPort VX $269
7. Magic 4gb Raid $1999
8. Jaz Media 1.0gb $125
9. HP 5MP $999
10. Quick Cam $98

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<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
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<tbody>
<tr>
<td>Radius Thunder IV GX 1152</td>
<td>$BELOW COST</td>
</tr>
<tr>
<td>Radius Thunder II GX 1360 &amp; 1600</td>
<td>from $999</td>
</tr>
<tr>
<td>Radius Thunder IV GX 1360 &amp; 1600</td>
<td>from $1599</td>
</tr>
<tr>
<td>Radius Thunder 24/GT (accepts PhotoEngine)</td>
<td>$CALL</td>
</tr>
<tr>
<td>Radius ThunderColor 30/1152 &amp; 1600</td>
<td>$599</td>
</tr>
<tr>
<td>IMS Twin Turbo 128M (AMT with MPEG)</td>
<td>$CALL</td>
</tr>
<tr>
<td>Radius PrecisionColor 8/1600</td>
<td>$499</td>
</tr>
<tr>
<td>EA Research EAsycolor 1600/16</td>
<td>$CALL</td>
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#### VIDEO CARDS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radius PrecisionColor Pro 24X</td>
<td>$699</td>
</tr>
<tr>
<td>Thunder 8 &quot;Fastest 8 bit card ever&quot;</td>
<td>$CALL</td>
</tr>
<tr>
<td>Thunder 24 (DSP available)</td>
<td>$CALL</td>
</tr>
<tr>
<td>Radius LeMans GT</td>
<td>$799</td>
</tr>
<tr>
<td>SuperMac Ultura LX</td>
<td>$999</td>
</tr>
<tr>
<td>RasterOps Horizon 24*</td>
<td>$999</td>
</tr>
<tr>
<td>RasterOps 24XLTV</td>
<td>$999</td>
</tr>
<tr>
<td>Radius PrecisionColor 8XJ</td>
<td>$499</td>
</tr>
</tbody>
</table>

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- **21 Inch DiamondTron Monitor**
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  - Macintosh by Sony
  - Industrial Grade Trinitron CRT
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- **SuperMac SuperMatch 20 Plus**
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  - From $1999* (Compare at $2399)

- **PrecisionView 17**
  - From $1999* (Compare at $2399)

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<table>
<thead>
<tr>
<th>Model</th>
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</tr>
</thead>
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<tr>
<td>Video Vision Studio 2.5.1</td>
<td>$9999*</td>
</tr>
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<td>Video Vision Studio Array</td>
<td>$9999*</td>
</tr>
<tr>
<td>Video Vision Telecast</td>
<td>$2999*</td>
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</tbody>
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<td>800-246-0000</td>
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<td>800-375-9123</td>
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<td>DT-420B</td>
<td>Quantum</td>
<td>1 ms</td>
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<td>5 yrs</td>
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<td>5 yrs</td>
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<td>DT-4221</td>
<td>Micropolis</td>
<td>8.0 ms</td>
<td>5 yrs</td>
<td>$650</td>
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<tr>
<td>2.1 GB</td>
<td>DT-2250A</td>
<td>Seagate Barracuda</td>
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<td>5 yrs</td>
<td>$705</td>
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<tr>
<td>4.3 GB</td>
<td>DT-2435</td>
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<td>4.4 GB</td>
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<td>9.0 GB</td>
<td>DT-1991</td>
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<td>12 ms</td>
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<tr>
<td>9.0 GB</td>
<td>DT-10800A</td>
<td>Seagate Elite 9</td>
<td>11 ms</td>
<td>5 yrs</td>
<td>$1,999</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Capacity</th>
<th>Model No.</th>
<th>Mechanism</th>
<th>Seek</th>
<th>Warranty</th>
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<tbody>
<tr>
<td>2.1 GB</td>
<td>DT-2250W</td>
<td>Seagate Barracuda 2LP Wide</td>
<td>5 yrs</td>
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<tr>
<td>2.1 GB</td>
<td>DT-4221W</td>
<td>Micropolis 4221 Wide</td>
<td>5 yrs</td>
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<tr>
<td>4.3 GB</td>
<td>DT-3150W</td>
<td>Seagate Barracuda 4 Wide</td>
<td>5 yrs</td>
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<td>4.3 GB</td>
<td>DT-3243W</td>
<td>Micropolis 3243 Wide</td>
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<td>Micropolis 1991 Wide</td>
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<td>DT-19910W</td>
<td>Micropolis 1991 Wide</td>
<td>5 yrs</td>
<td>$2,100</td>
<td></td>
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<tr>
<td>9.0 GB</td>
<td>DT-41080W</td>
<td>Seagate Elite 9 Wide</td>
<td>5 yrs</td>
<td>$2,500</td>
<td></td>
</tr>
</tbody>
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<thead>
<tr>
<th>Capacity</th>
<th>Media No.</th>
<th>Price</th>
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<tbody>
<tr>
<td>88 MB</td>
<td>SQ150C</td>
<td>$299</td>
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<td>200 MB</td>
<td>SQ150C</td>
<td>$410</td>
</tr>
<tr>
<td>270 MB</td>
<td>SQ150C</td>
<td>$410</td>
</tr>
</tbody>
</table>

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<td>164</td>
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<td>Programming Tools/Languages</td>
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How smart people communicate™

Rated #1 for network reliability by the Wall Street Journal's Smart Money Magazine
<table>
<thead>
<tr>
<th>SIMMs</th>
<th>DIMMs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 MB</td>
<td>72/70...$55 4 MB 168/70...$109</td>
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<tr>
<td>8 MB</td>
<td>72/70...$105 8 MB 168/70...$129</td>
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<td>16 MB</td>
<td>72/70...$225 16 MB 168/70...$229</td>
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<tr>
<td>32 MB</td>
<td>72/70...$475 32 MB 168/70...$479</td>
</tr>
<tr>
<td></td>
<td>64 MB 168/70...$1049</td>
</tr>
</tbody>
</table>

### Lifetime Warranty

- L1-CACHE: PB RAM 530/190/2300
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6215CD 8/1GBCD 1479
6200CD 8/1GBCD 1569
6205CD 8/1GBCD 1659
6205D 8/1GBCD 1659
6300CD 16/1.2GBCD 2139
6320CD 16/1.6GBCD 2559

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720/120 16/800CD 2199
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720/120 16/1.6GBCD 2799
720/120 16/2GBCD 2999
720/120 16/2.5GBCD 3199
720/120 16/3GBCD 3399
720/120 16/4GBCD 3599
720/120 16/5GBCD 3799
720/120 16/6GBCD 3999
720/120 16/8GBCD 4199
720/120 16/10GBCD 4399
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720/120 16/12GBCD 4799
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ExpressPCI-SC PCI
SiliconGraphite

FWB $359
PDC ThunderJack Hammer Accelerator

DayStar
100MHz PowerPro 601/1159 $1499
Quadra 410, 730, 930, 950, Centris 610,
610 (900 needs adapter)
100MHz Turbo 610 $1159 $3459
IC, ISA, ISA-RAM, ISA-PCI
100MHz PowerCard 610 $919 $4488
Portable, Macintosh 510, 610, 730, 950

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Acus II $179 $5162
DuskScan $269 $15487

MICROTEK
ScanMaker Series
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GolemMaker E3 $197 $9540
ScanMaker SG $189 $9541

UMAX
Mirage (11x17) CALL $589.50
PowerLook II CALL $1899
PowerLookPro + $1129 $9549
Vista 55 E $999 $9549
Vista 712 LE $1299 $9549
Vista 712 Pro $1699 $9545

Polaroid
SuperScan 3 $139 $1999
EZ-135Drive WiCa $159 $1999
200MB Removable $159 $1999

Nikon
Electronic Imaging
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SuperCool II $919 $8590

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PowerPort Gold PC 14.4, $1155 $9512
PowerPort Gold PC 14.4, $1155 $9512
PowerPort Gold PC 14.4, $1155 $9512
PowerPort Gold PC 14.4, $1155 $9512

SupraExpress 14.4 $179 $1906
Fax/Modems 28.8 $349 $1906

SupraExpress 28.8 $114 $1906

PowerBooks

PowerMac 6100/30
PowerMac 6100/40
PowerMac 6100/60
PowerMac 7500/100

PowerBooks

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ApplePrinters

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MultiScan 200 $1599 $479
MultiScan 300 $1599 $479
MultiScan 500 $1599 $479

Apple Monitors

Monitor Display Labs

SnyWitter 1200 $1599 $479
SnyWitter 1500 $1599 $479
SnyWitter 2000 $1599 $479
SnyWitter 3000 $1599 $479
SnyWitter 5000 $1599 $479

SONY

Sony 17SF2 $869 $950
Sony 20SF2 $1679 $950

VACOM

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PowerMac 7500/100

PowerMac 7500/100

PowerMac 7500/100

PowerMac 7500/100

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3500 & 190

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Dardell $699 $479
Dardell $699 $479
Dardell $699 $479
Dardell $699 $479
Dardell $699 $479
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## Workgroup Servers

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>PowerMac 8500/150</td>
<td>$5199</td>
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<tr>
<td>PowerMac 9500/150</td>
<td>$4589</td>
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<tr>
<td>PowerMac 8500/132</td>
<td>$3699</td>
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</table>

## Video Cards

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerMac 520 2X Write Read 4X</td>
<td>$799</td>
</tr>
<tr>
<td>PowerMac 5200 2X Write Read 4X</td>
<td>$999</td>
</tr>
</tbody>
</table>

## PowerBooks

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerMac 7600/120</td>
<td>$2849</td>
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<tr>
<td>PowerBook 5300CS</td>
<td>$1979</td>
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## Memory

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4MB DIMM 8/500/CD</td>
<td>$1069</td>
</tr>
<tr>
<td>8MB DIMM 16/500/CD</td>
<td>$1829</td>
</tr>
<tr>
<td>32MB DIMM 32/1.1GB</td>
<td>$3799</td>
</tr>
</tbody>
</table>

## Printers

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color StyleWriter 2400</td>
<td>$289</td>
</tr>
<tr>
<td>Color StyleWriter 1200</td>
<td>$189</td>
</tr>
</tbody>
</table>

## Hard Drives

<table>
<thead>
<tr>
<th>Model</th>
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</thead>
<tbody>
<tr>
<td>PowerMac 9500/150</td>
<td>$899</td>
</tr>
</tbody>
</table>

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Includes 100 labels, includes Mac Software, includes Alignment Device

NOW ONLY $799

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<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4MB</td>
<td>Simms 72 Pin</td>
<td>$55</td>
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<tr>
<td>6MB</td>
<td>Simms 72 Pin</td>
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<td>8MB</td>
<td>Dimms 128 M</td>
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<td>16MB</td>
<td>Dimms 128 M</td>
<td>$150</td>
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<td>32MB</td>
<td>Simms 256 M</td>
<td>$230</td>
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<tr>
<td>64MB</td>
<td>Simms 256 M</td>
<td>$250</td>
</tr>
<tr>
<td>128MB</td>
<td>Simms 512 M</td>
<td>$250</td>
</tr>
</tbody>
</table>

**DIMMS & V-RAM**

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<td>Simms 256 M</td>
<td>$230</td>
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<tr>
<td>64MB</td>
<td>Simms 256 M</td>
<td>$250</td>
</tr>
<tr>
<td>128MB</td>
<td>Simms 512 M</td>
<td>$250</td>
</tr>
</tbody>
</table>

**SCANNERS**

- **Paperannes:**
  - EADFA: StudioScan 11i, $799
  - Umax: Vista 6LE Scanner, 499
  - Fujitsu: ScanSnap 4C, 499
  - Umax: Vista 62 LE Scanner, 499
  - Umax: Powerlook 2 Mac Pro, 2785
  - 1200C Mac Pro Vision, 2785
  - Nikon: Super Cool Scan 9000, 99
  - Nikon: ScanTouch AX1200, 99
  - Epson: 1200C Color Scanner, 99
  - Visicom: Papercraft, 299
  - UMAX: Paper Page Office, 299

**Printers/Monitors**

- **Apples:**
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  - Stylewriter 1500, $199
  - Stylewriter 2400, $199
  - Laserjet Stylus, $199
  - Multisync 15" Monitor, $199
  - Multisync 17" Monitor, $199
  - Sony: 15" Monitor, $199
  - Canon: 17" Monitor, $199

**MISC/SOFTWARE**

- **Pinecone:**
  - RDC 1000, $999
  - RDC 2000, $999
  - RVision, $999
  - Targa 2000, $999

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</tr>
<tr>
<td>128MB</td>
<td>Simms 512 M</td>
<td>$250</td>
</tr>
</tbody>
</table>

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  - Visicom: Papercraft, 299
  - UMAX: Paper Page Office, 299

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  - PowerMac Memory, 16MB, 2599.99
  - Epson: 1200C Color Scanner, 99
  - Visicom: Papercraft, 299
  - UMAX: Paper Page Office, 299

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- Powerbook 190/300Mhz, 999
- Epson: 1200C Color Scanner, 99
- Visicom: Papercraft, 299
- UMAX: Paper Page Office, 299

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- **SUSPENSE:**
  - 10GB, 2599.99
  - 20GB, 5499.99
  - 40GB, 10499.99
  - 80GB, 20499.99
  - 120GB, 30499.99

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- **Supra:**
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  - Supra: 24pin Parallel, 299
  - Supra: 24pin Serial, 299
  - Supra: 9pin Parallel, 299
  - Supra: 9pin Serial, 299

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- **Croma:**
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  - 2800, 399
  - 3400, 499
  - 5400, 799

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- **CROMA:**
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  - 7200, 1299

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- **AEG:**
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  - 9pin, 499

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- **Supra:**
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  - Supra: 24pin Parallel, 299
  - Supra: 24pin Serial, 299
  - Supra: 9pin Parallel, 299
  - Supra: 9pin Serial, 299

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  - 2800, 399
  - 3400, 499
  - 5400, 799

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- **Croma:**
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  - 2800, 399
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  - 5400, 799

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- **SUSPENSE:**
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  - 17" Monitor, 2999.99

**MONITOR SPECIALS**

- **SUSPENSE:**
  - 15" Monitor, 1799.99
  - 17" Monitor, 2999.99

**MONITOR SPECIALS**

- **SUSPENSE:**
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  - 17" Monitor, 2999.99

**MONITOR SPECIALS**

- **SUSPENSE:**
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  - 17" Monitor, 2999.99
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Personal NT to NTR printer upgrade exchange $69
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Quadra 665av to PowerMac 6100/60 exchange $499
Quadra 800/840av to PowerMac 8100/80 exchange $999
Quadra 800 to Quadra 840av exchange $299
Quadra 650 to PowerMac 7100/65 exchange $699
Quadra 850/860 and Centris 650 exchange $299
Perofora 630 to PowerMac 6200 exchange $699

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- LC550 4/160/CD $499
- Performa 578 8/200/CD New... $1199
- Performa 651 8/500/CD $699
- Performa 657 8/350/CD $699
- LC400/30S 12/500/CD $799
- Performa 6100 8/900/CD $799
- Centris 650 4/0 $649
- Quadra 605 4/100 New... $679
- Quadra 660av 4/0 $799
- PowerMac 6200/650c $1499
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<tr>
<th>Model</th>
<th>Display Size (Diagonal)</th>
<th>Resolution</th>
<th>Price</th>
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<tbody>
<tr>
<td>PM14T</td>
<td>25.5&quot;</td>
<td>1280x1024</td>
<td>$329</td>
</tr>
<tr>
<td>PM15T</td>
<td>25.5&quot;</td>
<td>1280x1024</td>
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<tr>
<td>PM17T</td>
<td>25.5&quot;</td>
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<td>PM20T</td>
<td>31.2&quot;</td>
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<td>$1749</td>
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Lonely Hearts Club Bandwidth

It was the most beautiful wedding I've ever attended and, having four sisters, I've been to a few. Erin and Allan, all decked out in the traditional finery, exchanging tender vows of peace and love in front of the world. It was enough to move this columnist to the occasional tear, and I don't normally cry at weddings. Of course, I don't normally attend a wedding dressed in a Mac-RenderMan T-shirt and shorts either, but unlike the stick-in-the-mud family that Sister #2 inexplicably married into, the Crains had no objections to a pants-optional ceremony. Theirs was held in a live online conference room.

It comes as no surprise to people who can see the photo above that I am indeed a major geek, and therefore in my interludes with women, the phrase "like a brother" comes up with disturbing frequency. But Allan's wedding renewed my hopes. Clearly he pegged the needle on the ol' Geek-Meter too, and yet through the miracle of modern digital technology, he'd managed to get Erin to sign on the dotted line. Is that the secret? Could megahype supercool technology help random geeks attract members of the preferred target gender (in my case, chicks)? Can a PowerBook 5300ce do for single guys in the '90s what a customized van and a quart of Hai Karate did for them in the '70s? Clearly it was a question that could be answered only through strict empirical methods, by consuming many gin and tonics in many downtown bars over a period of months.

Field Trial 1. The Place: The Miracle of Science bar and grill, Central Square, Cambridge, MA. The Attractant: PowerBook 5300ce. Located mere blocks from MIT, the MOS has established itself as one of the bars of choice for the geek element to meet and interface. Confident that I have brought the right hardware to the right place, I open the PowerBook and begin some idle work. I am ignored. I order another drink. I maintain my invisibility. With the third drink, I realize the idiocy of bringing a hot notebook to a place where people go to take a break from Class 12 exposure to technology, and after the fourth and fifth, I fire up Speech Recognition and spend the rest of the evening having "Victoria" tell me knock-knock jokes. The Verdict: Success — I was, technically, talking to a woman — although limited.

Field Trial 2. The Place: The Ginger Man bar, just a few short steps from Wrigley Field, Chicago, IL. The Attractant: Newton MessagePad 100. In a word, Jackpot. I get myself a drink and retire to the rear section of the bar. I take a seat along one of the three pool tables, torch my Sty-Lite Illuminated Stylus, and begin taking notes. Almost instantly, I am approached by a comely young lady, who asks about the illuminated pen. I describe the device and its purpose while she grins heavily. I make considerable progress, and she is very interested in learning where I've come from, where I'm staying, and how long I'll be in town. Ultimately, she makes overtures indicating her being amenable to interludes of a more personal nature. I'm about to award the Newton the coveted Barry White Trophy when she lets slip that she loves my music. I get a slightly nauseated feeling and through a series of questions determine that she believes me to be John Popper, lead singer of Blues Traveler. I break the news to her, and she returns to the gaggle of girlfriends whence she came. The Verdict: Just the ticket for overweight men with sideburns and not the barest hint of scruples. John Popper, you owe me one.

Field Trial 3. The Place: Au Bon Pain, Harvard Square, Cambridge, MA. The Attractant: IBM ThinkPad 701C. Under the impression that the way-cool "Butterfly" keyboard of the 701 series might prove to be, like its namesake, a more colorful and therefore effective communication of the desire to mate, I open the lid and prepare to fire up a game. But Windows can't find the sound hardware. After an hour of troubleshooting, I realize that I have garnered the attention of three other patrons (1F 2M). I motion to them, and they each make suggestions regarding my .WIN, .JN1, and .SYS files. After another half an hour's work, the game's opening strains come ringing out. Conversation ensues, and e-mail addresses are exchanged. The Verdict: Success, but it's a relationship forged in combat against a mutual enemy and consequently a bogus foundation for romance.

Field Trial 4. The Place: Johnny D's music club, Davis Square, Somerville, MA. My empirical data being mixed at best, I decide I need a nontechnological attractant as a control. Therefore, I approach the bar, order a beverage, take a 5-pound bag of potting soil out of my satchel, and perch jauntily atop my coat on the seat next to me. The sight of a man with a bag of dirt sparks one's curiosity, and by the end of the evening, I have two solid prospects, one of which leads to four very nice dates. The Verdict: Unqualified success. I suspect that it won't work for you unless you can answer the inevitable first question by saying you're writing a magazine column, but hey, I mean, who cares about you?
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