

MARCH 1995 / \$3.95

MacUser

THE BEST NEW PRODUCTS

10th Annual Editors' Choice Awards

PLUS

Laser Printers Should Your Next One Be Color?

Top-Notch Charts

7 Packages That Can Make Your Data Sizzle

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Cover photo / Giampiero Benvenuti

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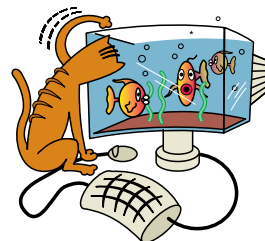
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SPECIAL REPORT

The 10th Annual

Editors' Choice Awards

MacUser's annual salute to the year's best and brightest Mac products and to the people behind them.

DESPITE SUCH MONUMENTAL CHALLENGES as a switch in CPUs, a dearth of development tools, and maturing markets, third-party developers pulled through once again with a slew of spectacular products. Here are the finest achievements of 1994, and the promising contenders for 1995.

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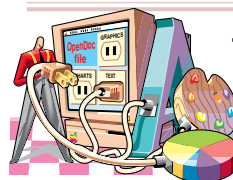
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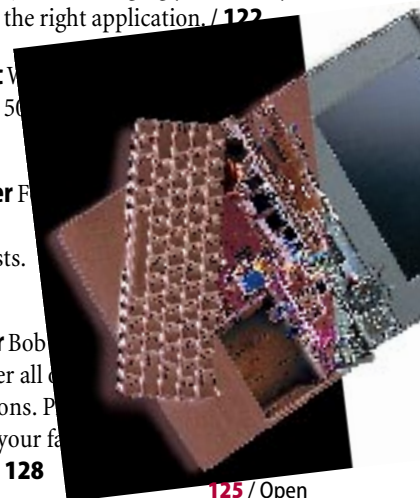
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MacUser ZD LABS Make your numbers talk with a charting program. There are several to choose from, offering varying levels of complexity. Here we review seven.

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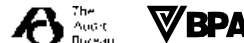
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In memory of **John J. Anderson** 1956 – 1989
and **Derek Van Alstyne** 1967 – 1989



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LETTERS

Four-Letter Word

I MUST DISAGREE with your decision to award four mice to Word 6.0 (Reviews, December '94, page 43). A four-mouse product is one that is just short of perfect on many fronts.

I believe that a word processor can't possibly have a wide appeal when it really runs best on 68040 Macs. The additional requirements of at least 8 MB of RAM and 10 to 25 MB of disk space for a "typical" install are simply ridiculous for a word processor. This isn't Photoshop — it is a text-generation program.

Despite the plethora of features — given the lofty memory requirements, sorry performance, and compatibility problems — I could not in good conscience give Word 6.0 a rating better than 2.5 mice.

Noah P. N. Iliinsky
noah.iliinsky@reed.edu

IN RECENT YEARS, the commitment of *MacUser* reviewers to the idea of maintaining the standard Mac interface appears to have declined. Microsoft used to give us, in MS-DOS, function keys that had a different use in every program and were difficult to memorize. They now give us similar-looking icons that have different meanings, and different icons that have the same meaning, in different programs.

It should be a severe mark against a Mac

Write to Letters

c/o *MacUser*
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program that its dialog boxes depart from the standard interface. Rather than receiving praise for a spiffy new 3-D look, as in your review of Word 6.0, Microsoft should be criticized for encouraging departures from the standard interface. Praising it may encourage departures by other programmers who also think they know how to do things better.

Peter Hartley
hartley@ruf.rice.edu

/ Apple, as a forward-looking company, has clearly moved on to the next-generation platform — the RISC-based Power Mac. Word 6.0, as a forward-looking application, has clearly been engineered for Power Mac-class machines. Nevertheless, we understand the frustration of trying to run Word 6.0 on 68030 and lower-end Macs, and our review clearly warned owners of those machines that they could expect less-than-optimal performance. But to take the feature-rich Word 6.0 to task for looking forward rather than backward did not seem in keeping with the spirit of our industry. / SJ

Disc Us

THANKS FOR PUTTING the proper emphasis on vendors' tech support in your comparison of CD-ROM drives ("Built for Speed," December '94, page 76) and for making the phone calls necessary to determine the ratings. I am outfitting a new Power Mac and have had trouble getting good vendor service, what with newly unbundled support policies, interminable telephone holds, and unhelpful and unknowledgeable people at the other end of the line.

I think *MacUser* should make the quality of customer support part of every review. Customer support has been too important an issue to continue to get short shrift in Mac publications.

Eric P. Stewart
Catonsville, MD

Hot for Teaching

I REALLY ENJOYED your guide to Children's Software ("Learning Power: Software for Kids," December '94, page 90). I have a four-year-old who loves to sit and make things happen with the computer and a



OPEN FOLDER

When intrepid columnist Andy Ihnatko devoted an entire column ("Paper Chase," December '94, page 23) to his favorite magazines, we knew we'd get inundated with reading suggestions. Readers recommended periodicals ranging from the high-brow *The Economist* to the electronic *Inside Mac Games* to the conservative *Dartmouth Review* — even *Motorcycle Magazine*. It gave us the idea for a new spin-off: *Andy Illustrated* (a.k.a. *AI*), a monthly Ihnatko pictorial. And with every paid subscription, readers will receive a lovely Andy Ihnatko collector's plate from the Franklin Mint!

If a picture is worth a thousand words, then we're speechless. Young Timothy L. Merkel writes via the Internet: "I hear you guys print people's [e-mail addresses] for them. I thought I would go one step further and see if you guys would print my picture." Enclosed in his message was a color GIF image of what we can only assume is Tim himself. No dice, Tim — you're going to have to get your own magazine.

Gee whiz, kids. Tim wasn't the only precocious teen to give us a piece of his mind. "I am shocked and sadly disappointed that *MacUser* continues to insult the intelligence of any reader under 20," writes J.D. Barillari, of Winchester, Massachusetts, pointing out that his idea of intellectual stimulation is writing programs, not playing the "far from challenging" *Carmen Sandiego* series. More upbeat is Mike Hayes, who boasts via the Internet that "I'm your not-so-average Mac whiz kid. I know more about Macs probably than anyone in the town — the teachers love me." Mike spends his time rendering 3-D objects on his LC III. These kids today.

Play time is also important to Michael Sturm, who asked via the Internet if we knew "of any package that could provide computer control of a train set with the Mac." A choo-choo CPU? We bet Tim, J.D., and Mike could help out on that one . . .

ASK DR. POWER MAC

SOMETHING SEEMS A BIT OFF in your news about the PowerPC 620 (New on the Menu, December '94, page 35). The 620 is *only* 3 times as fast as a 601? I'd heard rumors that the 604 was 6 to 12 times as fast as the 601. Where does the 604 stand in all of this? Also, what's after the Pentium for Intel?

Jay Harper

71062.1024@compuserve.com

/ We use SPECmark ratings for the various chips to compare raw speed. With those ratings, the 133-MHz 620 is about 3 times as fast as the 100-MHz 601. In general, real-world applications are going to be even faster than esoteric benchmark tests indicate. The 133-MHz 604 should be about twice as fast as the 100-MHz 601. If the 620 were to run at over 200 MHz, it might provide up to 6 times the speed of a 601, but a 12-times performance gain seems unlikely.

Intel will provide 125- or 133-MHz Pentiums by the second quarter of 1995 that will slightly outperform the 601. The P6, Intel's next-generation chip, will not be widely available until the end of 1995 and will likely equal the 604's speed.

I NEED TO PURCHASE a new Mac. Do programs from older Macs still run on Power Macs? And what are the advantages of a Power Mac over a 680x0 with equal memory?

Ryan Salah

SALAHIRA@ctrvax.vanderbilt.edu

/ Most applications that run on 680x0-based Macs will run on a Power Mac at about the speed of a Quadra 605. An exception: 680x0 applications geared for tasks such as 3-D modeling require the 680x0's FPU chip, which the Power Mac does not emulate. A Power Mac runs native applications from two to four times as fast as it runs the equivalent 680x0 versions with the same amount of RAM. However, Power Mac applications generally require more RAM, so you'll want to get 16 MB to maximize speed on the Power Mac.

SHOULD I BUY an AV Power Mac or just get a Power Mac and attach a third-party AV card? I hope to create AV teaching programs or tutorials with it. Would a Quadra AV Mac be a more cost-effective machine?

Charles Chen, M.D.

CCHEN@radiology.ab.umd.edu

/ If you're doing serious video, get a used Quadra 840AV and a third-party card. The quality you'll get with a Power Mac's built-in AV card is 15 frames per second (fps) at 320 x 240 pixels or 30 fps at 160 x 120. The SpigotPower AV card, from Radius, provides a significant boost in quality and frame rate over the standard AV Power Mac, but you need to have an AV Power Mac to use it.

two-year-old who is just learning how the mouse works. Your guide will be a big help for sorting through software for them.

Lonnie Hatman
via ZiffNet/Mac

YOUR SUGGESTIONS TO parents are useful — especially the age-appropriate caution, the two sources for reviews, and the parent-involvement advice — but there isn't anything in the article about the learning children are supposed to experience while using these products, other than that three or four experts say interactivity is good.

Would it have hurt to say something about how educators feel about these products? There are a lot of teachers out there who are using software as a part of their repertoire. And there are a lot of experts working on developing the best kind of computer learning environments. It would be nice to hear from some of them.

Laurie Dieffenbach, Ph.D., New York University
ldieffen@aol.com

We Can't Relate

I AM VERY DISAPPOINTED with your article "The Database Dilemma" (December '94, page 143). Your article misrepresents the reasons for using relational databases and oversimplifies the difference between flat-file and relational databases.

None of your reasons for considering a switch from a flat-file database to a relational database are valid. You say that the use of repeating fields is an indication that you may need a relational database, but virtually all FileMaker Pro users use repeating fields. They are an integral and unique feature of FileMaker Pro. You mention that users should consider moving to a relational database if their database is too slow or too large. But there are relational-database programs that are slower than FileMaker Pro, and nothing about the relational model helps solve either of these two problems.

Of course, nobody expects to see FileMaker used for banking transactions or airline reservation systems, but your article merely reinforces inaccurate stereotypes instead of debunking myths about the differences between flat-file and relational databases.

Anthony Jackson
San Francisco, CA

YOUR ARTICLE managed to be wrong on virtually every point. Most flat-file databases haven't required duplicate data entry since punch cards and garlic were considered high-tech — lookups work fine and are easy to specify. FileMaker Pro is not limited to a single file structure. We commonly use two or more files tied together with lookups and scripting to show and handle the same data completely differently.

Flat-file forms do not have to be "unprofessional" because of "blank fields and duplicate records." FileMaker's "slide" function gets rid of blank fields, and using multiple layouts or data-driven layout techniques allows the creation of forms completely adapted to the specific data in every record.

The step up to the relational products mentioned is a huge one when it comes to time, cost, and dependence on a specific developer. Users interested in getting work done, rather than becoming programming hobbyists, should stick with flat-file. Your statement that moving to a relational product is a way to "preserve your sanity" terrifies me beyond sensible comment.

**Michael Harris, Watertechnics Consultants
Watsonville, CA**

/ We stand by our contentions that repeating fields generally waste space, that lookups are not as powerful as relational links, and that some relational databases (although not all of them) can offer speed advantages over flat-file databases with many records. We regret that we did not have room to explain how features such as FileMaker's lookups can be used to create more-complex structures than that of our example flat-file structure. We did emphasize that, as you point out, switching to a relational database is not a step to be taken lightly or without programming expertise. Users who are not ready to take this step would be well advised to fully explore the capabilities of their flat-file database before abandoning it. / KO

Internet till You Drop

I WAS VERY GLAD to see your article "Shopping for Internet Access" (December '94, page 133). It is encouraging to see that this major Mac magazine is keeping its readers informed about what is current in the computer world. However, I feel that you did your readers a disservice by comparing the archaic text-based shell-account interface to the hip graphical SLIP/PPP account. You failed to mention a wonderful product

called The Internet Adapter. This gem of a program allows you to convert a UNIX shell account into a MacTCP-based account, giving you graphical access to all Internet features. This requires adding an extra layer of software but can be practical for people who can get a shell account much more cheaply than a SLIP/PPP account.

**Jonathan Rynd
jrr7@cornell.edu**

/ Right you are. You can reach SoftAware, maker of The Internet Adapter, at 310-314-1466, or via e-mail at softaware@marketplace.com. / SB

Out of Sync

I WAS DISAPPOINTED to read in your Mobile Mac section ("New for the Road," December '94, page 147) that Sharon Aker feels that because she and her colleagues do not use any file-synchronization programs, the category is of little importance.

The people at our company, which produces PowerMerge, think the category is pretty important. Apple thinks it's worthy enough to bundle its own file-synchronization program with every PowerBook that goes out the door. To dismiss the entire category because the writer doesn't use one of the programs seems a little grandiose.

**M. Nelson Greenwood, Leader Technology
Newport Beach, CA**

GX Wrong

IN THE ARTICLE "Golly GX" (December '94, page 119), you mention a text editor from Apple called GXWrite that supposedly comes with the System 7.5 upgrade. Am I missing something? I bought the 7.5 CD-ROM and couldn't find it anywhere on the disc using the new Find command. What gives?

**Matt Widener
74643.230@compuserve.com**

/ The GX scene is even bleaker than we thought: GXWrite was available only with beta versions of the System 7.5 CD-ROM, because Apple feared including this test application in the shipping product would have led to too many demands on its tech-support staff. Apple says it's working on ways to make GX more accessible to users "in the future." / PP

A Reason for Dvorak

JOHN DVORAK'S COLUMN "Time's A-Wasting" (December '94, page 222) just justified his entire career as a columnist.

As an Apple II and Mac user and promoter since the late 70s, I have seen Apple screw up so many grabs for market share: It tried to milk the aging 6502 with the Apple III just as the IBM PC was being designed, tried to sell the Lisa for \$12,000, and hobbled the first Mac. Everything it made was oddball: the floppy drives, the printers, the video scheme.

Apple is, as Dvorak states, a software company — it has consistently skimmed on its overpriced hardware by assigning tasks to a single overburdened processor.

I used to think Apple's slogan "The computer for the rest of us" referred to people who did not want to be technogeeks. I now realize that it means "the rest of us" are a deluded elite who are willing to pay through the nose to avoid running with the herd.

**Alex Funk
via the Internet**

Push the Button, Frank

I WAS STARTLED — and tickled — to find tucked in among the engaging and informative reviews and articles in your December '94 issue not one but *two* references to my all-time favorite TV show: Comedy Central's ongoing forum of hysterical genius, *Mystery Science Theater 3000*.

Not only did Michael Swaine's piece on OLE and OpenDoc (December '94, page 29) lift its title and subhead from *MST3K*'s theme song but the column itself also sported references throughout. And then there was the entry on handwritten fonts (Help Folder, page 153), which included a figure presenting text featuring *MST3K* characters TV's Frank and Dr. Forrester.

I'm very happy to see that your contributing editors are people of such refined taste.

**Tavia Fortt
RegencyElf@aol.com** 

CORRECTIONS

Our guide to children's software incorrectly listed the format of Great Bear Technologies' Willy Wabbit & His Magical Books (December '94, page 102). That product is available only on CD-ROM.

The phone number listed for Brøderbund Software (New on the Menu, January '95, page 35) was incorrect. The correct number is 415-382-4400.

The toll-free number listed for Apple Computer (December '94, page 86) was incorrect. The correct number is 408-996-1010.



10 Years of Excellence

HE STANDS 18.5 INCHES TALL and he weighs 10 pounds wet or dry (and that's solid bronze).

Sculpted by Mac artist Mike Saenz, he was named in 1985 by *MacUser's* art and design director, Lisa Orsini. Since then Eddy has remained basically the same, except that in 1989, we upgraded the 128K machine in his hands to a Mac SE.

This issue marks the tenth anniversary of the *MacUser* Editors' Choice Awards. Each year, the editors survey the hundreds of new products introduced during the year, hold them up against a year's worth of lab tests, and vote for the top products of the year. From the very beginning, the Eddy Awards have gone to products that represent the innovation and excellence on which this industry was founded.

The awards, which now encompass both hardware and software, began as software-only in 1985. (Back in those days, there really wasn't much hardware besides Apple-labeled products available, and there wasn't very much of that, either.)

Rather than recap each year's awards, I thought I would go out on a limb and say what I think have been the most important products in the history of the Macintosh. Here goes:

Aldus PageMaker. Started the desktop publishing phenomenon.

Microsoft Excel/Microsoft Word. Real business apps for real businesspeople; the Mac's first pin-striped software.

Apple LaserWriter. Another pioneering DTP product, producing business communications in startlingly crisp high resolution, for just slightly less than a new Audi sedan.

Radius Full-Page Display. Sweet relief from that little 9-inch screen.

Adobe Illustrator. A PostScript drawing program for grown-ups.

Apple Mac Classic. Apple's first break with its

tradition of gouging people who want a better interface — or, in nicer terms, Apple's first true low-cost computer.

Connectix's RAM Doubler. With each new Microsoft product, we appreciate it more!

MacroMind Director. This pioneering desktop-video product put the gleam in the eye of the budding multimedia industry.

Adobe Photoshop. Became an industry unto itself as the software that opened the digital darkroom up to the world.

Apple PowerBook. The notebook that showed the rest of the industry how, albeit only after the debacle of the Mac Portable.

Apple Remote Access. The industry has yet to catch on to this mission-critical application.

Apple Power Mac. Enough said.

And let me mention one more product that isn't really for Macs, although Apple would be quick to point out that some Macs can run it:

Microsoft Windows. Validated the GUI and, at the same time, forced Apple to wake up and smell the competition.

People Behind the Products

Two Eddys, the John J. Anderson Distinguished Achievement Award and the Derek Van Alstyne Rising Star Award, are especially important to the *MacUser* editors, because they honor two of our colleagues who

were killed during the 1989 Loma Prieta earthquake. I did not know John and Derek personally, but they are fondly remembered by the *MacUser* staff for their passion for technology, their dedication to excellence, and their generous spirits. Although he was only 33 at the time of his death, John was already a legend in computer publishing — both for his wit and for his acumen. Derek, who was 22, had

impressed *MacUser* staffers with his desire to create something truly significant that would stand the test of time. The project they were working on was part multimedia experiment, part on-line service, and all visionary. Reality has just begun to catch up with what they hoped to do.

The special awards named for Derek and John honor the people behind the products; without those visionaries and innovators,

this would be a very dull business indeed. Over the years, I have been pleased to see several of the "rising stars" who have won the Derek Van Alstyne Award go on to do great things. Perhaps the most prescient of these awards went in 1991 to Rand and Robyn Miller, the authors of some relatively obscure HyperCard stacks. Now everyone knows them as the creators of the phenomenal, best-selling *Myst* CD-ROM — a brilliant and beautiful piece of programming as art and art as programming that John Anderson and Derek Van Alstyne would instantly have recognized and recommended for the Eddy Award it received last year. ☒

From the very beginning, the Eddy Awards have been given to products that represent the innovation and excellence on which this industry was founded.



As The Word Turns

IT'S TIME TO SAY GOODBYE TO a trusted companion. Pour yourself a nice hot cup of tea, sit back, and

relax while I vent a little.

This won't come as a fantastic surprise to many of you, but the naked truth is that columnists are a superstitious, cowardly lot, accustomed to lives of comfort and ease. When you meet them in person, they don't have the physical bearing of people who make their living through good, honest toil. Their hands don't bear the calluses of the stonemason; their arms lack the sinews of the lumberjack; and if they didn't have to walk out on the porch every morning to meet the UPS man, their skin wouldn't get any exposure to sunlight at all. Suffice it to say, if you missed yesterday's episode of *Animaniacs*, the first person you should call up and ask for a synopsis would be a columnist. What else would they have been doing on a weekday afternoon? Working?

That's why I and others of my ilk loved Microsoft Word 5.1 so much; it relieved us of yet another distraction from our Sega machines. The question "Which word processor should I use?" is asked often enough, and in Word 5.1, I had a ready and enthusiastic answer. No matter what you do for a living and which Mac you own, the word processor of choice was the same: "Buy Word 5.1, me laddie, and let naught stay your hand," was my standard response.

After all, I've used Word exclusively for *eight years*. Other word processors have come and gone, and although there was much I liked about many of them, I always came right back to Word. The dang thing just kept getting better with every new version — bigger, too, and requiring increasingly impressive hardware, sure. However, all the good reasons for using it continued to be good reasons for using it.

Then along came the latest version.

The crushing fall began before I even cracked the shrink-wrap, when I read the compatibility chart and saw that it wouldn't even run on my PowerBook 100, Lilith. I bought Lilith for a song, when the model had been discontinued and Apple was testing whether or not America was willing to pay next to nothing for a Mac notebook. The answer was yes. In any case, although Lilith is the perfect beach, bed, and vacation computer, it is also just a plain old 68000 machine, so my disillusion was brief. Installation on my desktop machines proceeded anon. My office (which has been accurately likened to the bridge of the Millennium Falcon) contains a boatload of Macs; would I have guessed in a million years that Word 6 would run well on just *one* of them? Compared to Word 5.1 (about which I had no complaints), the new-and-improved Word ran just fine on the Quadra 840. But it was sluggish on the Quadra 650; slow on the Power Mac 7100 (because I didn't have the native version); and unusable on the most important Mac of all, the Performa 400, which is dedicated to word processing. The thing couldn't even keep up with my typing. . . . Word 6 was always about two seconds behind me.

To be fair, after doing some performance tweaking (turning off a bucketful of features), I got it running acceptably, and in many areas (search-and-replace, for instance) it beats the competition handily.

But do I have the right to be angry that on

my Performa, my Main Ax, my lone writing tool for years, Word needs *eight* minutes to launch and is still far too torpid for me to use any but its most basic features? The Performa's 16-MHz 68030 is old, sure, but is it *really* so broken down that it can't format text in three columns any more? Or did I leave KPT Bryce running in the background and forget about it?

These performance issues are all fine fodder for debate, with the delegation representing the Stick a Crowbar in Your Wallet and Upgrade Already, You Deadbeats crowd squaring off against the team from Geez, I Didn't Realize

I'd Need a Computer Like the One That Ran *Jurassic Park* Just to Write a Stupid One-Page Letter. If you're satisfied, I'm happy for you. That's not my main beef.

My main beef is that Word 6's user interface is disgusting. It's a *disgrace*. I've held on to this manuscript far longer than I should have, in order to be certain I'm not missing something about Word; I always question myself before I use such an absolute superlative. But still, I keep coming back to the same opinion: It's a complete and utter *disgrace*. Word will always have its roots in its more popular Windows incarnation, of course, and 5.1 was a nice (if not completely successful) mating of Word For Windows' general structure to the Mac interface. But what happened between 5.1 and 6.0? Has Microsoft forgotten that you cancel an ongoing process by pressing Command-period and not the Escape key? Did they decide that the entire rest of the world was wrong and that the best place to put a progress indicator was to hide it at

PROBLEM:

Which word processor should you use?

SOLUTION:

It's time to look beyond Microsoft Word 6.0.

the bottom of the screen? And that, actually, putting things in a fixed, immovable strip was better than using a palette? Why is Word the only major Mac product that *doesn't* use the Chicago font for its buttons, dialog boxes, and whatnot?

I could go on for hours here. I can't remember the last time I saw menus that ran nearly the height of the screen and contained nothing but items leading to dialog boxes. What excuse can Microsoft possibly offer us? This is *not* Word for Macintosh. This is undeniably Word for Windows for Macintosh. Look, I kid around about Windows, but in the end, I think people should use whatever operating system they're the most comfortable with. Microsoft, however, seems to have forgotten that the fact that we own Macs means we *prefer* the Mac. What do I think of Microsoft simply porting the Windows version directly, without even making cosmetic changes to make it more consistent with the Mac's user interface? It's the most supreme display of arrogance in a software publisher I have ever seen. With Word 6, Microsoft appears to be making a

clear statement: We have a huge staff of some of the most talented people in the industry. We have vast resources and vision. It's not that we can't create a true Mac version of Word; it's just that we don't *want* to. You're not *worth* it. *You will be assimilated.*

Don't get me wrong; I don't see a vast conspiracy in this. I'm not Oliver Stone, and this column isn't *JFK* ("Notice that even though all other Mac programs draw a pull-down menu down and to the right of the mouse pointer, Word draws it *back* . . . and to the *left*. *Back* . . . and to the *left*. *Back* . . ."). Nonetheless, I've had it. I don't need this, especially when so many great Mac word processors are coming into their own.

Look at WordPerfect. It has its interface problems (Palettes, people! Palettes! Not immovable boxes!), but the program was written with the Mac interface in mind and is slick, professional, and responsive. Nisus Writer, like a young adult, has shed the awkwardness of its adolescence and has developed into a studly power tool for writing. Although parts of its interface are cumbersome, it's a Mac product through and

through. It was a close call, but I've settled into *Nisus* as my new Main Ax for word processing. It runs nice and fast on *all* of my Macs right out of the box and is loaded with goodies and niceties geared toward wordslingers. I wish Claris would get on its horse and bring MacWrite Pro into the mid-'90s — Claris has a gift for creating clean, friendly interfaces — but for now I'm as happy as a pig wallowing in that stuff pigs are fond of wallowing in.

As for Word, I'd like to continue to use 5.1 (it's still the best Mac word processor ever), but I need the modern features of System 7.5. For the first time in eight years, Word is gone from my Mac, wiped off all of my hard disks except the one that stores my "reference" software. A completed novel; a nearly completed Mac book; dozens of short stories, articles, and columns-in-progress — nearly 400,000 words in all — have been converted from Word format and will stay that way.

So see you later, Word. It's been nice knowing you. Write if you get a clue. You broke my heart in 6.0 places. ☹️

NEW ON THE MENU

STORAGE SYSTEMS /

The Future Is Removable

Fast cartridge drive and dual-purpose device boast high data capacity.

REMOVABLE-STORAGE SYSTEMS are convenient, but current technologies are limited both in how much data the media can hold and how quickly the mechanism can access that data. Now two new removable-storage systems from Nomai and Panasonic are tackling these problems with the latest technologies. Nomai's MCD (Magnetic Cartridge Drive) delivers fast speeds and the highest capacity ever in a 3.5-inch removable cartridge at a low price, and Panasonic's PD mechanism offers a quad-speed CD-ROM reader and 650 MB of rewritable optical storage in the same device.

Nomai MCD. Nomai (best known for delivering 5.25-inch cartridges for SyQuest drives), in cooperation with partner IBM and others, has come up with a new kind of storage device called the MCD. Depending on the mechanism, an MCD stores either 540 or 680 MB of data on a single 3.5-inch cartridge. To achieve such high capacity, the MCD employs technologies new to removable-media systems: PRML (partial response maximum likelihood) data channels, which provide more-reliable writes, and MR (magneto-resistive) heads (in the 680-MB mechanism only), which allow for greater data density. A laser servo aligns the heads by tracking a reflective strip embedded in the media, so more data tracks can be packed on each disk. These high-capacity technologies, combined with data-transfer rates that rival those of a fast hard drive (as high as 8.5 MB per second), mean that you can store digital video and play it back from removable media.

The 540- and 680-MB drives and media are not interchangeable,

but Nomai intends to offer higher-capacity backward-compatible drives: A 750-MB drive that reads 540-MB cartridges and a 1.2-GB drive that can use 680-MB cartridges will be available in 1996.

Nomai's 540- and 680-MB drives are expected in the second quarter of 1995, at a street price of less than \$600 and with media costs under \$70 per cartridge. Drives from IBM and European licensees may appear in 1995. 407-391-1216.

Panasonic PD. While Nomai has been making great strides with magnetic media, Panasonic has been taking on the challenge of bringing optical-storage technology to the masses. The PD is a 5.25-inch half-height mechanism that reads and writes 650-MB optical cartridges and reads CD-ROMs. Insert a CD-ROM into the drive, and the PD operates as a quad-speed (600-kilobyte-per-second) CD-ROM drive that reads all common formats, including audio and Photo CD. Insert one of Panasonic's rewritable cartridges, and the drive, which employs Matsushita's phase-change optical technology, reads and writes data in a single pass. At 870 kilobytes per second, the data-transfer rate for the cartridges is slightly higher than that for CD-ROMs.

Panasonic has not announced OEM partners, but a PD drive should list for less than \$1,000. Compared to a 5.25-inch magneto-optical drive, a PD drive will offer half the capacity (650 MB versus 1.3 GB) but at half the cost. Considering that the PD doubles as a quad-speed CD-ROM reader, it's quite a deal. 800-742-8086 or 201-348-7000. / Sean J. Safreed



PHOTOGRAPHY / FRED STIMSON

INTERNET /

Global Village Connects Small Businesses to the Net

COMPLEX AND FRUSTRATING often describe getting your business connected to the global computer network known as the Internet. Now Global Village's OneWorld Internet makes the process a lot easier. The OneWorld Internet provides everything a business needs to set up full connectivity to the Internet, including e-mail services and access to vast stores of information.

The OneWorld Internet product combines hardware that

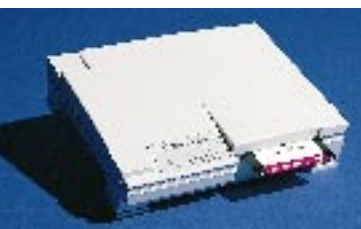
supports 28.8-kbps or ISDN connections to Global Village's GlobalCenter service and software that provides e-mail gateways and IP services.

Critical to connecting to the Internet is the product's software, called GlobalCenter, which includes gateway software for QuickMail and Microsoft Mail that installs directly on the mail-server host. Users then add all Internet addresses as special addresses to their address books. GlobalCenter acts as a store-and-forward mail connection and also provides domain name services, so a small business can have a custom name such as surfshop.com.

The GlobalCenter software lets any Internet

software connect to the Net. Because the OneWorld Internet hardware acts as a network connection, users simply launch applications such as Netscape Communications' Netscape Navigator (see related story, next page), and the GlobalCenter software automatically connects them to the Internet.

The OneWorld Internet will be available in various models, depending on e-mail requirements and the connection speed (28.8 kbps or ISDN). Pricing for the OneWorld Internet package is expected to be less than \$2,000, with connection costs of \$6 to \$10 per hour. 800-736-4821 or 408-523-1000. / SJS



ACCOUNTING SOFTWARE /

Put Your Books in Order

QuickBooks for Mac simplifies bookkeeping.

RULING THE UNIVERSE of Mac personal-finance software isn't enough for Intuit, the maker of Quicken. Now it's setting its sights on the small-business accounting market with its introduction of QuickBooks for

order forms, which also look like their paper counterparts. You can define your own invoice styles, so invoices printed from QuickBooks can be personalized.

Like Quicken, QuickBooks includes



Macintosh (\$119) — and just in time for tax season.

QuickBooks 3.0 (so numbered to match up with the long-standing Windows version of QuickBooks) is Intuit's attempt to make accounting software as easy to use as Quicken. QuickBooks avoids using words such as *debit* and *credit*, instead replacing them with more-familiar terms such as *deposit* and *withdrawal*. Like Quicken, QuickBooks offers windows with checks and check registers similar to the ones you might find in your pocketbook. Additionally, QuickBooks has invoice and purchase-

categories, so you can begin entering and categorizing your financial data immediately, without having to spend time setting up a series of new account types.

The QuickZoom function makes getting an in-depth look at reports easy — zoom in on any field in a report, and find out what items generated that figure. And because QuickBooks includes a step-by-step audit trail, you can retrace your steps and find out just where you made a mistake. Once you've made a correction, the figures in all related categories are immediately updated. 415-322-0573. / Jason Snell



GAMES /

Top of the Charts

MUSIC-TRIVIA FANS, come on down, sign in please, and give the wheel a spin: Radio Active, a new CD-ROM from Sanctuary Woods, tests knowledge of pop music from the '60s, '70s, and '80s in a high-energy game-show format. Hosted by glib emcee Bobby Arpeggio, Radio Active is a challenging game for as many as four players. After spinning a wheel that determines your question category corresponding to a five-year period between 1960 and 1990, you select from three difficulty levels. Choose your answer from arrays of 16 multiple-choice options; fast responses are rewarded with bonus timer points. Two "special" categories — Videos and Song Puzzles — use music and audio clips to challenge your knowledge of personalities and songs. Fun, fun, fun. \$25. 415-286-6000. / Jim Shatz-Akin

INTERNET /

New Net Navigator Spins Support Web

THE INTERNET'S BEEN HYPED a lot recently, but most Internet software for the Mac is still freeware or shareware. That's a boon for individual Internet users, but it can be a problem for businesses that need the on-demand tech support commercial software publishers provide.

Bridging the gap is Netscape Communications' Netscape Navigator, a World Wide Web (WWW) browser and Usenet newsgroup reader that's available in both free and commercial

versions. Individuals can download Netscape Navigator from the Net for free (it's available at URL <ftp://ftp.mcom.com/pub/netscape/mac/>); businesses must buy the commercial version (\$99 for one user; site-license discounts available), which includes printed documentation and 90 days' free tech support. (Extensive Web-based documentation — featuring Mozilla, Netscape's green



lizard mascot — comes with it.)

Although Netscape Navigator's creators helped develop the popular NCSA Mosaic Web browser, this is a new application with new functionality. In addition to letting you surf the WWW and Gopher and ftp sites, Netscape can read Usenet newsgroups and access Internet WAIS database servers.

Setting Netscape Navigator apart are its speedy performance over 14.4-kbps modem links, the ability to decode GIF and JPEG-compressed images on the fly, and encryption functionality (an important feature for commercial transactions on the Net) licensed from RSA Data Security. It offers cross-platform compatibility with Windows and UNIX X Window systems.

Netscape Navigator also differs from other Web browsers in its support for extended styles and formatting. Although a Netscape-savvy Web page looks normal to users of Mosaic or MacWeb (both available free on the Internet), Netscape users can see centered text, flashing text, and a wide variety of font sizes, giving you more control over how your documents appear to readers on the other side of the Internet. 800-638-7483 or 415-254-1900. / JS

MACUSER/ZMAC UTILITY OF THE MONTH



Sounds Good to Me

LISTEN UP: If grabbing parts of a song off a CD and turning them into system beeps sounds good to you, then you'll want this month's ZMac Utility. ZMac's SoundSmith makes it easy to adjust the sampling rate of recorded sounds and trim the clip down to just the portion you want — for instance, converting a captured voice and cutting out the introductory *um*. This drag-and-drop utility can open and save files in almost any format, including Mac system sounds, Windows WAV files, and QuickTime audio tracks. You can even use it to open tracks on a music CD and save portions of them to your hard disk (for personal use only, of course).

Created by Jeff Moore, ZMac's SoundSmith is available exclusively from the ZiffNet/Mac service on CompuServe (GO ZMC:MACUSER), ZiffNet Selections on AppleLink, and ZiffNet/Mac services on eWorld (Shortcut: MacUser). / Mark Simmons

POWER MAC UPDATE

Power Macs Go for Broke

But new models won't break the bank.

MORE BANG for the buck is what Apple's latest crop of Power Macs is all about. Apple is replacing the 6100/60, 7100/66, and 8100/80 with new models that provide faster speeds and larger hard drives — at lower prices. The new 6100/66, 7100/80, and 8100/100 are identical in terms of available ports and NuBus slots (one in the 6100, three in the 7100 and 8100) to the machines they replace.

The 601 chip in the new entry-level Power Mac, the 6100/66, runs at 66 MHz, as opposed to its predecessor, which ran at 60 MHz. Like all the new Power Macs, the 6100/66 includes a 256K cache SIMM that speeds up many tasks. Although the price of a system with 8 MB of RAM and a 350-MB hard drive remains \$1,819, the 6100/66 is a better deal, thanks to the included cache (it was a \$299 option for the previous 6100 and 7100 Power Macs) and a larger hard drive (the 6100/60 came with a 250-MB model).

Apple's new midrange Power Mac, the 7100/80, runs at 80 MHz. The base configuration includes 8 MB of RAM and a 500-MB hard drive and costs \$2,899 — the same price as the 7100/66, although the new machine includes the cache. The 7100/80 runs as fast as the previous high-end 8100/80, but it's \$1,350 cheaper.



Crowding the high end, Apple is offering a better value in the 8100/100. Based on the same 601+ chip as the high-end 8100/110, the new 8100/100 runs at 100 MHz, just shy of the clock speed of the top model (see New on the Menu, January '95, page 31). Unlike the 8100/110, however, the 8100/100 comes in a variety of configurations, starting with a base model that includes 8 MB of RAM and a 700-MB hard drive and costs \$3,699 — about \$550 less than the previous base configuration, which had a 500-MB hard drive. Like the 8100/110, the 8100/100 includes the new NuBus controller that allows for high-speed block transfers and chassis expansion.

The net result? Apple's low-end system is now more attractive. On average, it's 38 percent faster than the 6100/60, thanks to the cache. Similarly, the 8100/100 represents a much better deal than the 8100/80, offering 13 percent higher speed and a better NuBus system at a lower price than its predecessor. If you're looking for a high-performance machine, the 8100/100 will do nicely; unless you absolutely must have the fastest Mac available, there's little reason to spend the extra \$2,680 for the 8100/110. 800-776-2333 or 408-996-1010. / Sean J. Safreed

Maximize Memory with 64-MB SIMMs

THE POWER MAC 8100 can hold only 256 MB of RAM, right? Wrong. Thanks to new 64-MB SIMMs available from SimmSaver Technology, you can expand your Mac's RAM to in-your-dreams levels — double the amount specified by Apple. For instance, you can pack the Power Mac 8100 with 512 MB of RAM. Special decoding circuitry used on these 72-pin composite parts allows most Power Macs and Quadras (except the Quadra 660AV and 840AV) to double the maximum RAM allowed per SIMM slot.

You'll pay handsomely for each 64-MB SIMM, however — \$2,995 apiece. Double that amount for Power Macs — they require SIMMs to be added in pairs. For those who aren't quite ready to take out a second mortgage, SimmSaver offers more-affordable 5-, 20-, and 48-MB SIMMs.

For owners of older 30-pin SIMMs, SimmSaver has modules that combine multiple 30-pin parts into a single 72-pin SIMM. A low-profile version for the Power Mac 6100 and 7100 fits into either model and costs \$59. Owners of current machines looking for flexible upgrade options can get modules that combine multiple 72-pin SIMMs into a single 72-pin part. And if you'd prefer to trade in your old SIMMs, you can use SimmSaver's trade-up program. 800-636-7281 or 316-264-2244. / Jeffy Milstead

NATIVE POWER MAC APPLICATIONS

THE FOLLOWING IS a list of recently shipped native Power Mac applications.

Multimedia		
MediaFactory 1.0	Nuts Technology	408-441-2166
Publishing/Graphics		
KPT Bryce 1.1	HSC Software	805-566-6200
3-D/CAD		
Electric Image 2.1	Electric Image	818-577-1627
Other		
LabVIEW 3.1	National Instruments	512-794-0100

MacUser **2D** LABS



Power Mac Time Trials

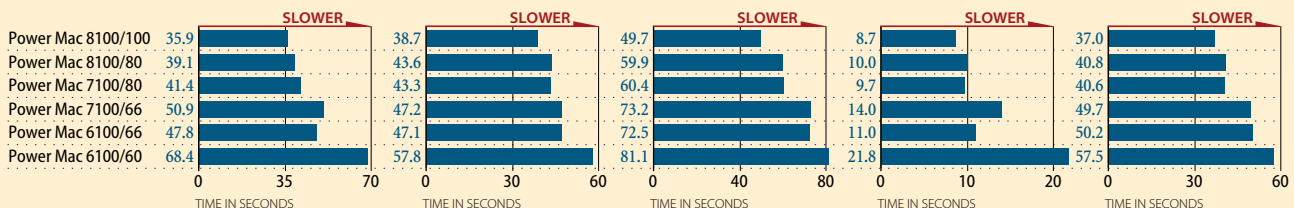
Adobe Photoshop 3.0
Rotating a 6-MB color image was 90 percent faster on the 8100/100 than on the 6100/60.

Aldus PageMaker 5.0
The 8100/100 changed point size in a long document 50 percent faster than the 6100/60.

Fractal Design's Painter 2.0/X2
The Apply Lighting filter ran 63 percent faster on the 8100/100 than on the 6100/60.

Macromedia FreeHand 4.0
The 8100/100 redrew a complex graphic 150 percent faster than the 6100/60.

Microsoft Excel 5.0
A complex stock-analysis macro ran 55 percent faster on the 8100/100 than on the 6100/60.



MONITORS /

Put Your Mac on Display

Color screens debut in all sizes for all budgets.

LOWER PRICES, more controls, higher performance, fewer parts — that pretty much sums up this latest round of monitors.

Nanao FlexScan series. Nanao has announced an entire new family of monitors with an advanced, all-digital, on-screen control system. From the \$564 15-inch F2•15 to the \$2,957 21-inch FX2•21, all the members of Nanao's family of nine monitors feature ScreenManager, which lets you control contrast and brightness; ScreenManager Pro, a stand-alone utility that lets you adjust various functions from your Mac, is optional. The 21-inch models, the FX2•21

and the F2•21, also feature digitally corrected convergence that's calibrated at the factory. All these displays sport a new, all-digital chassis

designed with fewer parts to cost less. Nanao's optional FlexColor Color Calibrator provides excellent color matching. Nanao's universal Mac adapter is now free of charge. 310-325-5202.

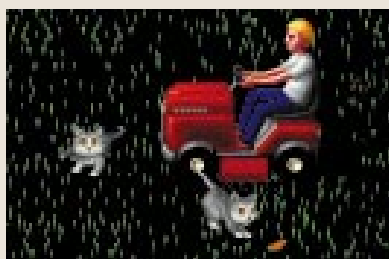
NEC XV15. NEC's new Value series debuts with the XV15, the company's lowest-cost 15-inch display. It features analog controls, a tube with a .28-millimeter dot pitch, and support for Mac resolutions as high as 1,024 x 768 pixels. The \$460 price tag includes a Mac adapter and DPI-on-the-Fly software. The 14-inch XV14 (\$330) and the 17-inch XV17 (\$860) complete the line. Both feature digital controls, and the XV17 also includes an on-screen manager. NEC Technologies. 800-632-4636 or 708-860-9500.

Samsung SyncMaster 20GLs. Samsung now has a 20-inch offering for the Mac at the unheard-of low price of \$1,599 list. The SyncMaster 20GLs features a .28-millimeter dot pitch; an antireflective, antistatic screen coating; an Invar shadow-mask tube with dynamic focus; and digital on-screen

controls — all the features you'd expect on a much more costly "big" monitor. Samsung Electronics America. 201-229-4000.

Mitsubishi DiamondPro series. Mitsubishi has been hard at work refining its DiamondTron offerings. There's an improved 21-inch model, the \$2,275 DiamondPro 21TX, which now supports resolutions as high as 1,600 x 1,200 pixels at a 75-Hz refresh rate. Also, Mitsubishi is shipping a 17-inch DiamondTron tube in the \$1,199 DiamondPro 17TX, which features a 0.25-millimeter dot pitch tube and support for resolutions as high as 1,280 x 1,024 pixels at a 75-Hz refresh rate. Both aperture-grille tubes feature a new chassis that's smaller and uses fewer parts, for higher reliability. DiamondControl adjustment software is available for both models. Mitsubishi Electronics America. 800-843-2515 or 714-220-2500.

Sony Multiscan 17sf. Sony is shipping its 17-inch Multiscan 17sf display, with all-digital controls and a SuperFine Pitch Trinitron tube with a .25-millimeter dot pitch. It offers resolutions as high as 1,024 x 768 pixels. The 17sf lists for \$999, and a Mac-View adapter is \$19. Sony Component and Computer Products Group. 800-352-7669 or 201-368-9272. / Jeffrey S. Pittelkau



DIVERSIONS /

Gross, Yucky, Cool!

PRETTY FISH, cuddly kittens, and staid TV or movie stars are grist for screen savers. Now Berkeley Systems shows its dark side with the Totally Twisted Screen Saver. This collection of 14 oddball modules includes Free Fall (a lady and a Scotsman plummet down your screen, skirts flapping), Mowin' Boris (a lawnmower and a cat are locked in mortal combat), Mime Hunt (annoying street mimes face a deserved fate), and Flying Toilets. Most frightening is Coming Soon, a module displaying fictitious Berkeley Systems products even sicker than this one. \$30. 510-540-5535. / Jason Snell

LASER PRINTERS /

Lexmark Manages Network Printing

THAT STYLISH SWOOP doesn't belong to an athletic-shoe maker but to the laser printers in the new Optra series, from Lexmark, the former IBM subsidiary's first line of self-labeled printers. The Optra printers target corporate environments with their fast engines, some rated at 12 ppm and others at 16 ppm; resolutions as high as 1,200 dpi; and a host of network and paper-handling options.

The Optra R (\$1,739) and the Optra L (\$2,299) are rated at 12 ppm; and the Optra Rx (\$2,399), Optra Lx (\$2,999), and Optra Lxi (\$3,699) are all rated at 16 ppm. In addition to the standard 300 dpi and 600 dpi, all offer 1,200 dpi, but at that resolution, the engine speed drops to 8 ppm. All five of the PostScript Level 2 printers have a 25-MHz RISC processor.

The primary differences among the five units are the amount of RAM (the L ships with 2 MB, the Lxi with 8 MB,

and the rest of the units ship with 4 MB, but all are expandable to 64 MB), the amount of paper they handle (200 sheets standard for the R and the Rx, 500 sheets standard for the L and the Lx, and 1,000 sheets standard for the Lxi), the interfaces they include (all ship with a parallel port, and the R, Rx, and L ship with a serial port too), and the network protocols they support (Ethernet is standard on the Lxi and optional for the rest). Token ring and LocalTalk connections are options for all five Optra-series printers, as are duplex printing and flash memory.

With Lexmark's MarkVision software, network administrators can check the printer configuration, monitor printer traffic, and track usage. An external printer server, the MarkNet XLe, provides support for more than 18 network protocols. Prices range from \$519 to \$699. 800-891-0331 or 606-232-2000. / Pamela Pfiffner



COLOR PRINTERS /

NEC Enters Low-Cost-Color Fray

Dual-technology unit costs less than \$1,000.

SEEKING ITS PLACE in the low-cost-color-printer market, NEC Technologies has introduced a compact dual-technology printer that targets the niche between low-cost inkjet printers and more-expensive thermal-wax printers.

The SuperScript Color3000M produces both thermal-wax and dye-sublimation output at 300 dpi. When using the thermal-wax mode, users can opt to print with a variable-dot dither pattern, which boosts the number of printable colors to 274,000 (65 gray levels), from 17,500 (26 gray levels). The NEC-developed engine is rated at 10 minutes per page for variable-dot and dye-sublimation printing and 1 page per



minute for standard thermal-wax printing. Paper is fed through the top into a slot that holds as many as 50 thermal-wax and 20 dye-sub sheets at a time. Per-page costs are 61 cents for standard thermal-wax, 81 cents for variable-dot, and \$3 for dye-sublimation output.

The SuperScript is a QuickDraw printer that connects through the serial port (an adapter cable ships with the printer). With an estimated street price of \$999, the SuperScript costs several hundred more than color inkjet printers but about half the price of the Fargo Primera Pro, another low-cost QuickDraw dual-technology printer. Unlike the Fargo Primera Pro, however, the NEC printer does not currently have a PostScript option. 800-632-4636 or 508-264-8000. / Pamela Pfiffner

HOME SOFTWARE /

Adobe Wants to Put Designs on You

HOME IMPROVEMENT may be Tim Allen's territory, but a group of new products from Adobe's Consumer Products Group (formerly the Aldus Consumer Division) attempts to give the rest of us more power in designing everything from a backyard to a letterhead for a home office.

Adobe Designer. With a simple interface based on a bookshelf metaphor and drawing on IntelliDraw technology, Adobe's new Designer products let users sketch home improvements without touching a pencil. Home Designer takes an overhead perspective, allowing you to choose walls, windows, doors, and furniture — all drawn to scale — to create a floor plan. Landscape Designer provides you with a palette filled with vegetation, patio furniture, fences, and other outdoor items. A season-control button shows how a summer outdoor setting will appear in the fall. Interior Designer offers a three-dimensional view of a room and comes with a collection of furniture designs, fabrics,



wall coverings, and carpets, so you can see what that carpet will look like in your living room before you buy it. \$49 each; \$79 for all three on a CD-ROM.

Adobe QuickPublish. An offshoot of Adobe Home-Publisher, the three Quick-

Publish packages (\$29 each) are designed to let users create and print attractive materials without needing much design expertise. The QuickPublish Letterhead & Forms package includes letterhead templates, forms, and samples for such items as invoices and press releases. It also has a collection of clip art. The QuickPublish Brochures & Flyers package includes templates, sample text, and clip art for brochures, mailers, signs, and flyers. QuickPublish Cards & Invitations includes templates for creating greeting cards and invitations of all kinds. The package also includes blank card stock and envelopes, so you can print and mail your card creations. 415-961-4400. / Jason Snell

CD-ROMS /

The World on a Disc

IF YOU'VE EVER WISHED that you could travel more, read more, or watch more on PBS, check out the following CD-ROMs.

The Way Things Work. Ever wondered how dampers in a grand piano work? Now you can take a peek behind the ivories — and delve into other inventions — with this CD-ROM based on David Macauley's best-selling book. Charmingly animated, this CD-ROM invites hours of exploration — with the help of a woolly mammoth. \$99.95. Dorling Kindersley Multimedia. 800-225-3362 or 617-272-1500.

A Brief History of Time. If the thought of physics alternately frightens and fascinates you, why not take a lesson from the distinguished astrophysicist Dr. Stephen Hawking? This disc contains the full text of his book of the same name but takes it one step further with animations, video, and narration. You can watch Hawking himself plummet into a black hole. \$60. Scientific American. 800-777-0444 or 515-246-6671.

Material World: A Global Family Portrait. What do your possessions say about you and your cultural background? Narrated by Charles Kuralt, this CD-ROM gives you a glimpse into diverse cultures of the world simply by examining what the average family holds dear. Travel to such far-flung locales as Thailand, Israel, and Bosnia, and discover the people behind the statistics. \$60. StarPress Multimedia. 800-782-7944 or 415-274-8383. / Kristen Balleisen



POWERBOOK BATTERIES /

Technöggin Recall

POWERBOOK USERS who use batteries in Technöggin's PowerPlate series should be wary of leaking acid. In November, Technöggin ceased selling the batteries and advised its customers to stop using the PowerPlates. Owners who have not sent in their registration cards are encouraged to mail or fax them to Technöggin. 513-321-1777; 513-321-2348 (fax).

Although some of VST Power Systems' ThinPack batteries are from the same source as the PowerPlates, VST says it hasn't had any significant problems. VST is offering a rebate for Technöggin customers toward the purchase of a battery in the VST Thin-Pack series. 508-287-4600; 508-287-4068 (fax). / JS

NEW & NOTABLE

HARDWARE /

Microtech Genesis 230. The latest addition to Microtech's Genesis drive line, the Genesis 230 is a 3.5-inch magneto-optical drive with a 230-MB storage capacity. It's available in external (\$1,167) and internal (\$1,125) configurations. 203-468-6223.

▼ **ASF Associates NCL 480.** For PowerBook users who have a hard time using a backlit screen, this portable light attaches to the PowerBook screen and runs on NiCd rechargeable batteries. \$40. 800-771-3600 or 516-868-3638.

QMS 3825 Print System. Rated

at speeds as high as 38 ppm, this 600-dpi printer can print on paper sizes as large as 11 x 17 inches. The 3825 Print System offers emulated PostScript Level 2 and

PCL 5; duplex printing; and simultaneous parallel, serial, and LocalTalk connections, with optional Ethernet (\$799) and token-ring (\$899) connections. \$21,999. 800-523-2696 or 205-633-4300.

Sharp XG-E650U. This 24-bit-color active-matrix LCD projector is intended for multimedia presentations. It can project images that measure 30 to 150 inches diagonally at a resolution of 640 x 480 pixels and is compatible with Mac-, PC-, S-Video-, and composite-video signals. The unit weighs just 19.5 pounds. \$7,995. 201-529-8731.

MicroNet Master CD. This CD-ROM recorder doesn't require a dedicated hard drive and offers a drag-and-drop interface for CD mastering. It features a 1.2-MB cache and records in Macintosh, ISO 9660, CD-ROM XA, Mac/ISO Hybrid, audio-CD, and other formats. \$2,495. 714-453-6100.

Optical Access International CD/

Maxtlet 4x. A quad-speed CD-ROM server, the CD/Maxtlet 4x allows access to seven quad-speed CD-ROM mechanisms simultaneously, via one SCSI connection. Caching techniques let multiple users simultaneously access any of the CD-ROMs, making this product an option for workgroups that need to have access to the same discs. \$7,395. 617-937-3910.

SOFTWARE /

PowerMerge 2.5. New features in this upgraded file-synchronization utility include automated timed file transfers, automatic backup of files when a volume is mounted, and support for the synchronization of multiple Macs across

a network. \$149; upgrade, \$35. Leader Technologies. 714-757-1787.

Read-It! OCR 5.0. Boasting a new optical-character-recognition engine, the latest version of this OCR package offers improved accuracy, optimization for faxes and other low-resolution output, the retention of a document's font sizes and character styles, a table-reading feature, and even a "speak text" function that uses Apple's text-to-speech engine. \$395; upgrade, \$59. Olduvai. 305-670-1112.

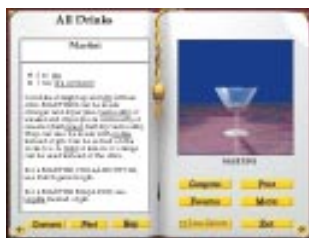
Understanding Breast Cancer. This CD-ROM includes animations of proper breast self-exam techniques, with optional voice narration; video showing breast-cancer diagnostic procedures; and text-search features. \$80. ISM. 410-560-0973.

AlphaBnk Farm. This package for children ages 4 and up includes a CD-ROM, a book of poetry, and a poster. The disc includes poems, stories, and games set on a farm and hosted by a frog, a parrot, a pig, and Farmer Bonk himself. Subjects covered include agriculture, biology, foreign languages, history, and zoology. \$35. Headbone Interactive. 800-267-4709 or 206-323-0073.

Instant Replay. This utility lets users capture screen activity — either full screens or smaller areas that move with the cursor — in QuickTime movies. \$99. Strata. 801-628-5218.

Imagination Express. Developing children's storytelling and writing skills is the goal of this CD-ROM. Included is a group of backgrounds, character "stickers," and other clip media that let children create scenes and stories on-screen. \$40. Edmark. 800-426-0856 or 206-556-8400.

▼ **Complete World Bartender Guide.** For the party host who can't tell the difference between a Rumrunner and a Rob Roy, this CD-ROM version of the popular bartending book contains over 2,500 drink recipes, including ones for nonalcoholic and low-calorie beverages. A large wine section is also included, and a Find



function allows hosts to match the contents of their bars with potential drink recipes. \$30. InSoft. 800-709-7773 or 404-892-1268.

Tabula Rasa. Busi-

nesses that need to design and use data-collection forms are the target of this package, which lets users create custom forms (including forms that change depending on the answers given) on a Mac and then download them to a Newton MessagePad for data collection. Information can be sent back to the Mac for processing. Starter package, \$275; additional licenses vary in price. Brand X Software. 800-356-8040 or 804-355-0374.

MACINTOSH PRICE INDEX

THE UNITED COMPUTER EXCHANGE index reflects average sales prices of new and used Macs as of December 5, 1994. Prices (except those for compact models and Performas) do not include a monitor or a keyboard. The United Computer Exchange is a national clearinghouse of used micro-computer equipment.

Mac Model	New	Used
SE/30 (5/40)	•	\$550
Classic II (4/40)	•	\$475
Color Classic (4/80)	•	\$700
LC II (4/40)	•	\$375
LC III (4/80)	•	\$475
Performa 475 (4/160)	\$1,299	\$950
Performa 550 CD (5/160)	\$1,599	\$1,375
Performa 575 CD (5/250)	\$1,849	\$1,550
IIsi (5/40)	•	\$400
IIfx (5/80)	•	\$600
IIfx (8/160)	•	\$875
IIfx (4/80)	•	\$825
Quadra 605 (4/80)	•	\$625
Quadra 610 (8/160)	•	\$975
Quadra 650 (8/230)	•	\$1,625
Quadra 660AV CD (8/230)	•	\$1,400
Quadra 700 (8/230)	•	\$1,350
Quadra 800 (8/230)	•	\$2,100
Quadra 840AV CD (8/230)	•	\$2,300
Quadra 900 (8/230)	•	\$1,700
Quadra 950 (8/230)	\$3,599	\$2,350
Power Mac 6100 (8/250)	\$1,749	\$1,450
Power Mac 7100 (8/250)	\$3,349*	\$2,100
Power Mac 8100CD (8/250)	\$4,699*	\$3,350
PowerBook 145 (4/40)	•	\$825
PowerBook 145B (4/80)	•	\$800
PowerBook 150 (4/120)	\$1,449	\$1,300
PowerBook 160 (4/80)	•	\$1,275
PowerBook 165 (4/80)	•	\$1,350
PowerBook 165c (4/80)	•	\$1,425
PowerBook 170 (4/40)	•	\$1,300
PowerBook 180 (4/80)	•	\$1,700
PowerBook 180c (4/80)	•	\$1,950
PowerBook 520 (4/160)	\$2,099	\$1,800
PowerBook 520c (4/160)	\$2,699	\$2,275
PowerBook 540 (4/240)	•	\$2,625
PowerBook 540c (4/320)	\$4,499	\$4,000
Duo 210 (4/80)	•	\$750
Duo 230 (4/120)	•	\$900
Duo 250 (4/200)	•	\$1,475
Duo 270c (4/240)	•	\$1,875
Duo 280 (12/240)	\$3,099	\$2,550
Duo 280c (4/320)	\$3,599	\$2,775

* = Discontinued model. *For 16/500 configuration.

For more pricing information on these and other models, call 800-755-3033 or 404-955-0569, or find it on ZiffNet/Mac, in Library 1 (Special Reports) of the MacUser Forum (GO ZMC:MACUSER). On AppleLink, look for it in ZiffNet Selections:MacUser Software: Reference. On eWorld, go to shortcut MACUSER, in MacUser Software Library:MacUser Special Files.

REVIEWS & Quick Clicks



MacTools Pro and Norton Utilities for Macintosh / Powerhouse toolkits offer near-foolproof disk repair.

DISK DISASTERS ARE THE BANE of every computer user's existence, so it's nice having two data-recovery packages at hand to deal with emergencies. MacTools Pro and Norton Utilities for Macintosh have competed head-to-head for years, so it's no surprise to find their feature sets growing increasingly similar with each new release. The recent acquisition of MacTools by Symantec, maker of Norton Utilities, poses questions about the future direction of both data-recovery products. For now, however, we took a close look at the latest releases of

MacTools Pro and Norton Utilities — both of which run native on Power Macs — to see if there were any significant differences between them. What we found is two very capable disk-utility packages that differ only slightly in their ability to repair disks and recover data but that offer distinctly different interfaces.

MacTools Pro

Of the two packages, MacTools Pro offers the greater degree of hand-holding when it comes to identifying and fixing disk problems, which makes it an excellent choice for less experienced users. MacTools Pro 4.0 combines disk-repair and optimization tools, antivirus functions, diagnostic facilities, and file-recovery tools into one main window, called the MacTools Clinic.

By default, the first thing you see when you launch MacTools Clinic is the Quick-Assist dialog box, which is where you indicate the symptoms you're experiencing

(such as crashes, sluggishness, and lost files). MacTools then uses your choices to direct its disk-checking and -fixing operations. The Custom QuickAssist dialog box, which has a more detailed list of problems, is also available, but most expert users will probably find even Custom QuickAssist too elementary to be useful.

The best enhancement in this version of MacTools Pro is the speed of DiskFix, which performs disk checks and repairs. DiskFix's disk scans are much faster than in previous versions and finally rival the speed of Norton Utilities' scans.

A new feature is RAMboot, which saves time by letting you repair your startup disk from a RAM disk rather than from a floppy disk. However, you still need to keep an emergency disk on hand, in case your Mac won't start at all.

A welcome enhancement to MacTools' handy TrashBack feature, which lets you quickly and easily recover any files you've inadvertently deleted in the Trash, is a viewer for deleted files. MacTools' security features have been beefed up as well — a new DOD Wipe option permanently erases files according to U.S. Department of Defense specifications.

MacTools Pro is clearly based on the belief that an ounce of prevention is worth a pound of cure. The program's AutoCheck feature runs in the background and checks disk structure while your system is idle, allowing MacTools Pro to identify problems before they become serious. You can choose to have AutoCheck run at specified intervals or continuously. It fixes minor problems automatically, without requiring you to run DiskFix, and creates weekly or monthly reports on any problems it finds. Network administrators can use AutoCheck to compile reports on any networked Mac. One caveat: AutoCheck requires 500K of memory, and it can slow down your system.

MacTools Pro is the most comprehensive disk-utility package you can buy. Like Norton Utilities, it provides disk-repair, disk-optimization, and file-recovery facilities in addition to backup and disk-copy

Reviews Rating Key

- ★★★★★ Outstanding
- ★★★★ Very Good
- ★★★ Acceptable
- ★★ Poor
- ★ Seriously Flawed
- Dangerous

utilities. However, unlike Norton Utilities, it also provides networkable diagnostic reporting and antivirus capabilities.

Norton Utilities for Macintosh

Norton Utilities is easy enough for novices to use, but if you consider yourself a disk jockey — a hard-disk jockey, that is — then you'll feel especially at home with Norton Utilities. Like MacTools Pro, it fixes and optimizes disks, recovers files, and provides a backup utility (FastBack, formerly a Fifth Generation product), but unlike MacTools Pro, it offers less in the way of automated disk repair and assistance for basic tasks. On the other hand, it provides more control over advanced disk-repair functions than MacTools Pro does, making it the best choice for knowledgeable users.

For example, a newly added component in the latest release is Norton Disk Editor, which lets you examine and edit data anywhere on a disk. Experienced users can use Disk Editor to manually repair and recover low-level file-system data. You can access the bits and bytes of a file and view file contents in either hexadecimal or ASCII format. A search facility lets you search disks for phrases or sentences, and you can view the contents of documents without opening them. Disk Editor is an invaluable tool for sophisticated users but an extremely dangerous tool in the hands of novices. If you don't know what you're doing, steer clear of Disk Editor — you can potentially damage files and disks beyond repair.

FileSaver, Norton Utilities' facility for tracking deleted files, has been enhanced in the latest release to perform background disk scans at startup, shutdown, or idle time. It lets you know if it detects a problem,

but unlike the AutoCheck feature in MacTools Pro, it does not automatically repair the problem — you must do so manually, using Norton Disk Doctor. However, FileSaver requires only 80K of memory. It also lets you know when you need to optimize your disk or perform a backup.

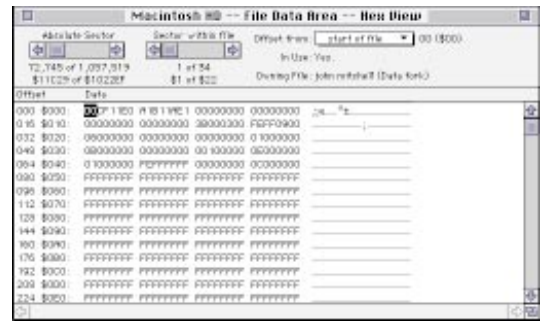
Also new in version 3.0 is System Info, a benchmarking utility that tests the speed of your CPU, floating-point unit, video monitor, and any writable-disk systems. The utility subsequently compiles a report and compares its findings with reference benchmarks for the Mac model you're testing.

Torture Tests

To test the effectiveness of MacTools Pro and Norton Utilities at fixing disks and recovering data, we used a 1-GB hard drive containing about 20,000 files. We first scanned the disk with each program to ensure that it was uncorrupted and then created an exact replica of it for test purposes. Using a sector editor, we placed a series of errors, typical of those most frequently encountered by users, on the test disk. Then we turned the disk over to each program for recovery.

We found that the programs were equally successful at disk repair. Each was able to recover lost file-directory entries, rebuild the master-directory block (a critical portion of the disk that includes pointers to all important disk structures), detect and correct problems in directory tables, and locate and repair inconsistent index nodes. Moreover, each program successfully detected cross-linked files (two files that appear to be on the same part of the disk) and detected and corrected minor problems with Finder attributes and file dates.

The second set of stress tests we devised was designed to simulate a variety of major, although rarely encountered, disk-corruption problems. Neither package was able to handle extremely large disk directories that included map nodes, although Norton Utilities made a slightly better attempt. When the entire master-directory block was offset by a single byte, MacTools gave up and Norton Utilities crashed — neither was savvy enough to find an uncorrupted copy of the critical data (stored elsewhere on the disk) and use it to recover the disk.



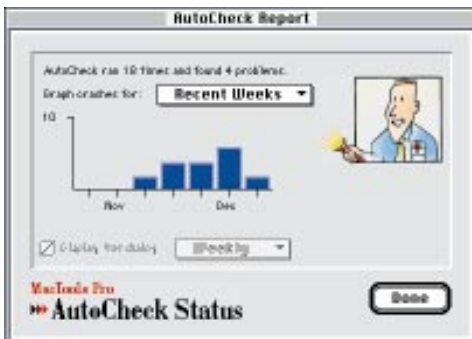
Expert users can take advantage of Norton Utilities for Macintosh's Disk Editor. When all else fails, the Disk Editor helps you repair heavily damaged files and view files in hexadecimal format.

When we erased an entire disk directory but left the file data intact, Norton Utilities did a much better job of recovering data from the volume. However, don't try this at home, folks, unless you're an expert — the process required a substantial amount of manual assistance from us.

The Bottom Line

If disk problems strike terror into your heart, you'll probably be better off with MacTools Pro, which offers automated repair; user assistance; and convenient tools, such as AutoCheck and RAMboot. On the other hand, for disk-savvy users, Norton Utilities provides more bells and whistles and gives expert users more control over the disk-repair and file-recovery process.

/ Susan Janus and John Mitchell



New reporting features in MacTools Pro 4.0 include a tally of the problems AutoCheck has uncovered and a graph of the system crashes you've experienced over a specified time period.

MacTools Pro 4.0

Rating: ★★★★★

Price: \$149.95 (list).

Pros: Background disk checks and automatic repairs. Improved disk-scan speed. Diagnostic reports for network administrators.

Cons: AutoCheck requires 500K. Volume-recovery facilities not as sophisticated as Norton Utilities'.

Company: Symantec, Central Point Division, Beaverton, OR; 800-964-6896 or 503-690-8088.

Reader Service: Circle #401.

Norton Utilities for Macintosh 3.1.1

Rating: ★★★★★

Price: \$149 (list).

Pros: More-powerful volume-recovery facilities. Excellent control over disk-repair functions. FileSaver requires only 80K.

Cons: No automated disk-repair functions.

Company: Symantec, Cupertino, CA; 800-441-7234 or 503-334-6054.

Reader Service: Circle #402.

MacInTax and TaxCut / Tax-preparation software takes you over the hurdles of filling out forms.

FOR MOST OF US, figuring out which tax forms we need and how to fill them out correctly is a daunting task. It's a lot easier, though, if you have one of the two tax-preparation programs for the Mac: Intuit's MacInTax or Block Financial Software's TaxCut, each of which has recently been updated and improved.

MacInTax

The latest version of MacInTax has a simple interface that makes tax-preparation disarmingly easy. As with previous versions of the program, you can type information directly into the tax forms or have MacInTax lead you through the process, using its EasyStep method. EasyStep is primarily an interview — you answer questions about your employment, filing status, and financial data in a series of dialog boxes, and

MacInTax puts this information into the appropriate forms.

This year, the main window for the EasyStep interview has a row of notebook-binder-like tabs that let you move forward or backward to any one of the seven main tax-preparation steps. In the interview section (where MacInTax does all of its fact gathering for your return), you can review any of the questions. For instance, if you want to look at how you answered the questions about your 1994 investment income, you can click on the Topics button and select the Investments topic.

You can also jump back and forth freely between the interview and the forms, which is useful if you're already fairly tax-savvy and find going through the interview too slow. When you come across a confusing line on a form, you can pop back into the

interview and let MacInTax gently prompt you for the necessary information.

Intuit has actually taken out features that were in the 1993 version. You can no longer generate graphs that show your tax and income data. Neither can you annotate individual lines in the forms with notes or audio memos.

Instead, Intuit has put its energy into adding features and enhancements that more users will find practical. For example, you can now magnify a form in order to read all the fine print for which the IRS is famous. Fifteen new forms and worksheets help you figure out specialized tax issues, such as interest income and medical deductions. Furthermore, Intuit has added state versions for Indiana, Louisiana, Nebraska, New Mexico, Oklahoma, South Carolina, Utah, and Wisconsin — bringing the number of states MacInTax supports to 28.

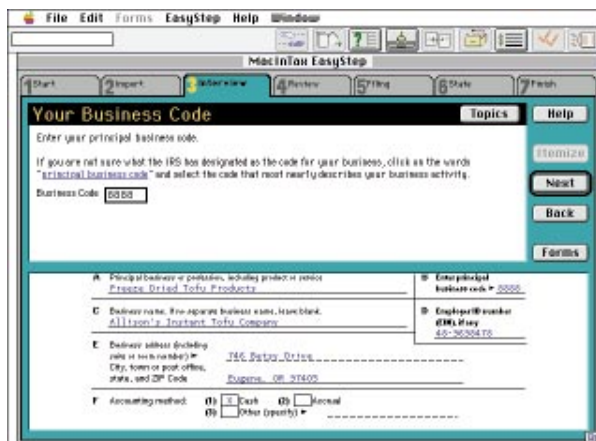
For those who want help deciphering the forms and worksheets, MacInTax provides the full IRS instructions together with its own instructions for each form. Most of the help is quite good, but beware of gratuitous plugs for Intuit products.

When you've finished your tax return, MacInTax scans it for problems. Unlike previous versions, which just gave you a list of any missing information, this year's MacInTax lets you jump directly to the line you need to fill in.

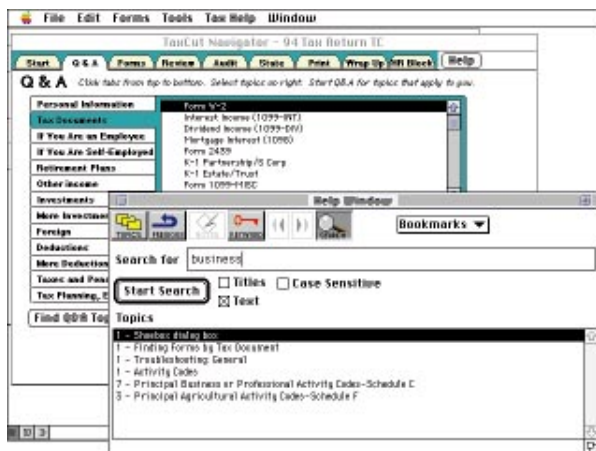
TaxCut

Like MacInTax, TaxCut lets you enter data directly into forms or takes you through an interview and it allows you to jump between the interview and the forms. It also uses notebook-binder-like tabs, each of which takes you to one of the program's tax-preparation steps. Once you've completed your tax return, TaxCut, like MacInTax, gives you quick access to a one-screen summary of your tax liability and an overview of your return. It can also give you a more detailed summary that lists all the entries you've made, or it can show you a pie-chart summary of your tax return.

Now that MECA Software has been acquired by H&R Block, the most noteworthy enhancement to TaxCut isn't the software but the support. When you buy TaxCut, you can get free advice on tax-related questions from any local H&R Block office. You don't even have to look in your phone book for



MacInTax's interview guides you through your tax forms via a friendly interface. If you have a hard time reading small type, you can magnify the forms.



Finding the information you need in order to complete your tax return is never a problem with TaxCut, which not only has a robust help function but also gives you free access to H&R Block.

the numbers, since TaxCut has a database in which you can find your local office by typing in your area code, state, and ZIP code. Furthermore, if you use TaxCut to file your final return and you subsequently get audited, H&R Block will help you prepare for the audit at no charge.

TaxCut's on-line help is strong as well. An entry-info icon, a tiny round button marked with an *i*, always appears next to the currently active field. When you click on the button, a dialog box pops up. From this box, you can choose to look at the IRS' or TaxCut's instructions for the form.

You don't have to sort your documents before you start preparing your return with TaxCut. In its Shoebox window, you select who sent you a form (for instance, your employer or a broker) and what it's about (for instance, your wages or dividends), and TaxCut automatically takes you to the appropriate form for the information.

Overall, TaxCut's interface is functional, but it's not as elegantly designed as MacInTax's. For instance, the Q&A interview has tiny windows that require far too much scrolling in order to read everything. Additionally, when you reduce the size of certain windows in the program, such as in the Summary Reviews window, lines of text crash into each other.

Unfortunately, TaxCut's assistance for state forms is limited — it still has state editions only for California and New York.

Unless you live in those states — or a state that doesn't make its residents pay income tax — you'll be back to using a pen and a calculator to figure out how much you owe.

The Bottom Line

Of the two tax programs available for the Mac, MacInTax is the more polished, and it comes with editions for most state tax

returns. TaxCut, on the other hand, has state editions only for California and New York, but it has a slight edge when it comes to support. However, either program can do a fine job with your return. Each is an easier alternative to filling out stacks of forms manually, and the price of the software is far less than the cost of hiring an accountant.

/ Joseph Schorr

MacInTax 1994 Edition

Rating: ★★★★★

Price: \$39.95 (list).

Pros: Polished interface. Can magnify forms. Twenty-eight state editions.

Cons: Gratuitous plugs for Intuit products.

Company: Intuit, San Diego, CA; 619-453-4446.

Reader Service: Circle #403.

TaxCut 1994 Edition

Rating: ★★★★★

Price: \$39.95 (list).

Pros: Free consultations with H&R Block. No sorting of documents required before starting tax return. Extensive help.

Cons: Tiny text windows in interview. Only two state editions.

Company: Block Financial Software, Fairfield, CT; 203-255-1441.

Reader Service: Circle #404.

Radius PhotoEngine / NuBus card gives Adobe Photoshop a welcome boost in speed.

SPEED IS AT THE TOP of every serious Adobe Photoshop user's wish list, and the new Radius PhotoEngine goes a long way toward making that wish come true. The PhotoEngine is a DSP (digital signal processor) card that accelerates a variety of Photoshop operations and is a must-have if you're processing big files or many small ones. The PhotoEngine provides the biggest boost in speed to Quadra owners, but Power Mac owners looking to squeeze every ounce of speed from Photoshop will also want to consider getting it.

Start Your Engines

The Radius PhotoEngine is a 7-inch NuBus card equipped with four AT&T 32-bit 66-MHz DSP chips. The software that comes with the card includes a driver and a Photoshop plug-in. The PhotoEngine supports both Photoshop 2.5.1 and 3.0, but it

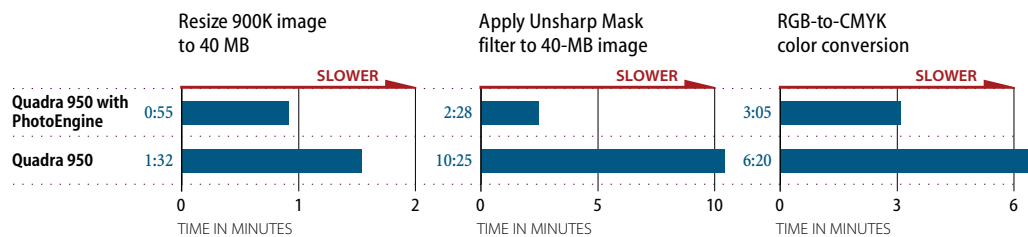
doesn't work with any Photoshop companion products, such as Fractal Design's Painter, or third-party filters, such as HSC Software's KPT plug-ins.

Installation is a snap. Once installed, the PhotoEngine card is active whenever you run Photoshop. A green indicator dot in the menu bar tells you when the card is actually processing data.

The Photoshop filters that the PhotoEngine accelerates are Blur, Blur More, Gaussian Blur, Motion Blur, Sharpen Edges, Sharpen More, Unsharp Mask, Despeckle,

The Engine That Could

The Radius PhotoEngine accelerator card significantly speeds a variety of Adobe Photoshop operations, especially for Quadra owners.



Emboss, Find Edges, Custom, and High Pass. We found one slight inconsistency when we used the Emboss filter — with some settings, it did not take advantage of the PhotoEngine's acceleration.

Color Conversions

Other operations that take advantage of the PhotoEngine include color-mode conversion (RGB, LAB, and CMYK), feathered-selection creation, operations that involve resampling (such as cropping, rotation, scaling, skewing, distortion, perspective, and image sizing), and the generation of preview icons.

Prepress users will appreciate the PhotoEngine's ability to speed Photoshop screen redraws when the program is in CMYK mode and the Smoother option is activated. You get a more accurate visual representation of CMYK images as well as faster zooming and scrolling.

If you opt for the PhotoEngine, you'll still need a substantial investment in RAM and fast hard drives for optimal Photoshop speed. The card is designed to take advantage of rather than replace additional system resources.

The PhotoEngine comes with excellent documentation and a lifetime warranty.

The Bottom Line

Adobe Photoshop users looking for a way to speed image processing will definitely want to check out the Radius PhotoEngine. The card is easy to install and works automatically to accelerate filter processing and other time-consuming Photoshop operations. We recommend it without reservation to Quadra owners, but even Power Mac owners running the native version of Photoshop will benefit from the PhotoEngine's speed boost. / David Biedny

Radius PhotoEngine

Rating: 

Price: \$1,099 (list).

Pros: Provides significant speed gains with Adobe Photoshop, particularly for Quadra users. Easy to set up and use.

Cons: Doesn't work correctly with the Emboss filter.

Company: Radius, Sunnyvale, CA; 800-345-9777 or 408-541-6100.

Reader Service: Circle #405.

LaserMaster DisplayMaker Professional

Large-format printer delivers stunning color and crisp images.

UNTIL NOW, if you wanted to print banners, point-of-purchase signs, and posters, you had to either send the job to a specialized service bureau and pay \$12 to \$15 a square foot or face the purchase of an expensive wide-format printing system. And even then, you were lucky if the colors came out correctly the first time around. But the new LaserMaster DisplayMaker Professional changes all that. It produces awesome color images in a variety of large-format sizes — and it costs tens of thousands of dollars less than its competitors.

Big Picture

The \$29,995 DisplayMaker Professional has five main components: a printer that's 5 feet long by 2 feet wide perched on a 4-foot-high rolling stand; the Advanced Color Server, a proprietary 66-MHz 32-bit computer with a floating-point unit; a high-capacity ink system; a color calibrator; and a color-management system.

The DisplayMaker's 300-dpi ink-jet engine can handle paper as large as 36 inches across and 18 feet long, and it can either use a manual feed or pull paper from a roll.

The Advanced Color Server receives print jobs through your LocalTalk or Ethernet network, processes the data, and sends it to the printer. The Advanced Color Server has 64 MB of RAM and a 540-MB internal hard drive that has a PostScript-compatible RIP, 235 Type 1 fonts, and its own software. The software provides color calibration, job management, job tracking of media and ink usage, spooling, and previews of print jobs.

The software color-management system gives you predictable, precise color and works closely with the hardware color calibrator, a densitometer connected to the server that reads color characteristics from a test image.

The DisplayMaker Professional's most intriguing component is its ink-delivery

system, which automatically replenishes the ink cartridges. The DisplayMaker's cartridges don't hold any more ink than Hewlett-Packard DeskWriter cartridges, but tiny clear hoses instantly replenish the cartridges from boxes of ink on the side of the printer. Each of these ink boxes contains 400 milliliters of cyan, magenta, yellow, or black ink. LaserMaster claims that the DisplayMaker can create 110 E-sized (36 x



Photo-realistic color output of large posters and displays is a cinch for the LaserMaster DisplayMaker Professional — a bargain at \$29,995.

48 inch) prints at 50-percent coverage with each set of ink boxes.

You can set several different parameters for different kinds of print jobs. To do so, you simply select the Add Port command in the server software and then set up parameters in the window that appears, using pop-up menus, and save each set as a port. Each port will appear in your Mac's Chooser as a different printer. Once you've selected a DisplayMaker port in your Mac's Chooser, you just issue the Print command to commence printing.

Some applications have maximum page sizes that are far smaller than what the DisplayMaker can handle, but you can get around this size discrepancy problem by using the downloading utility that comes

with the printer. You can launch it from your Mac and download TIFF and PostScript files directly to the server, from which you can print files in any size.

In a Dither

We printed more than 30 full-color poster-sized QuarkXPress, Adobe Illustrator, and Adobe Photoshop images on the DisplayMaker, each one of very high quality. From at least 8 feet away, the expected viewing distance, each image took on a photo-realistic quality, in part due to LaserMaster's proprietary diffusion dither, which produces smooth, consistent output. When you look at a printout from a closer distance, you can see the dots that make up the dither.

In our tests, printing a full-color 36-x-48-inch image took more than an hour. Processing time varies, depending on the document's complexity.

You'll need some time to study the DisplayMaker's software before you start using it. It has many configuration options, and we frequently had to consult the manual to make sure we'd set the correct orientation and page size for the results we wanted. Happily, both DisplayMaker manuals (there's one for the printer and one for the server) are clear and well written and have useful reference information in the appendixes.

The Bottom Line

Wide-format printing can give you gorgeous in-house printouts for displays and trade shows. You may even want to set up your own wide-format-printing bureau. With its stunning output and relatively low price, the LaserMaster DisplayMaker Professional is an innovative product with a great future. / Tony Bojorquez

LaserMaster DisplayMaker Professional

Rating:

Price: \$29,995 (list).

Pros: Stunning color output. Thorough, well-written manuals. Lower cost than competitors.

Cons: Server software takes time to master.

Company: LaserMaster, Eden Prairie, MN; 800-477-7714 or 612-944-9330.

Reader Service: Circle #406.

Metrowerks CodeWarrior / The premier development environment for native Power Mac applications.

SLASHING THE TIME required to develop applications on the Mac to a fraction of what it was previously, Metrowerks CodeWarrior made a name for itself even before its official release. Offering the fastest set of compilers available for generating both 680x0 and Power Mac-native code, CodeWarrior is an essential addition to any serious Mac programmer's toolbox.

Single Integrated Environment

In addition to speedy compilers, CodeWarrior offers programmers several other important advantages. Chief among them is its full range of functionality within a single environment. Shipping on a single CD-ROM (including documentation), it consists of compilers and integrated development environments (IDEs) for a total of three languages: C, C++, and Pascal. Each IDE includes a source-code editor and all essential project-management features.

Even more important, the CodeWarrior Gold Edition is currently the only development environment that runs native on the Power Mac and generates PowerPC code. The Gold Edition compilers run on the 680x0 platform, besides running native on Power Macs, and the compilers can generate 680x0 as well as PowerPC code from either platform.

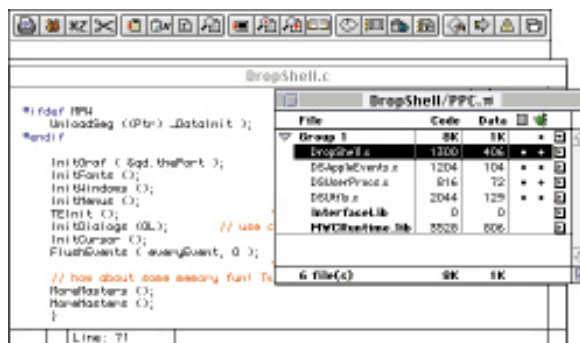
CodeWarrior's C compiler can be set to ensure that source code is ANSI C-compliant. The C++ compiler conforms closely to the ARM (*Annotated Reference Manual*) — the de facto C++ standards document — but one drawback is that the compiler doesn't support templates or exceptions. Metrowerks plans to correct this limitation in a future release.

CodeWarrior's C and C++ compilers are also provided in the form of Macintosh Programmers' Workshop (MPW) tools, so users who require MPW facilities, such as complex build scripts, can take advantage of the compilers' speed.

At review time, CodeWarrior's Pascal compilers weren't as evolved as those for C and C++ in that they were not fat-binary — in other words, a single compiler did not

contain both native Power Mac and 680x0 code. Metrowerks plans to remedy this in an upcoming version. The Pascal compilers themselves have one primary shortcoming — they support only procedural Pascal and not Object Pascal, which comprises much of the Pascal code in use today. According to Metrowerks, Object Pascal support is in the works for a future release.

Although CodeWarrior's speedy compil-



CodeWarrior's development environment presents programmers with familiar project windows and tools, but the compilers' ability to run native on the Power Mac and generate PowerPC code is unique.

ers and Power Mac support are unmatched by any other programming tool, the product's IDEs themselves aren't a major leap forward. Closely resembling Symantec's Think environments, CodeWarrior's IDEs present a familiar project metaphor for managing source files. The environment editors let you color-code keywords and comments to differentiate them from other source code.

CodeWarrior also includes two easy-to-use debuggers, one for 680x0 and one for native Power Mac software. The debuggers, which are identical except for processor-specific features, allow source-level debugging and provide standard features such as the ability to view variables and set breakpoints. CodeWarrior's compilers generate debugging information in Apple's standard formats, which the CodeWarrior debuggers can read.

Also on the CD-ROM is PowerPlant, Metrowerks' C++-based object framework. The advantage of a framework is that it

provides a collection of basic components used by almost all types of Mac applications so programmers can make better use of their time by concentrating on application-specific features. One particularly nice aspect of PowerPlant is that it lets you choose single objects, whereas the Think and MPW object libraries make you use unnecessary ancillary code, because their objects come in conglomerates.

Metrowerks wins big points for its update strategy. The company is constantly tweaking the product to make it better and uses a subscription model for distributing CodeWarrior, continually sending users updates. Purchasers of CodeWarrior receive

the initial CD-ROM and a year's subscription to further CD-ROMs (at least three per year). Between CD-ROM releases, Metrowerks provides enhancements free of charge (other than the cost of the download) via all the popular on-line services and Internet archives.

The Bottom Line

CodeWarrior offers obvious advantages to Mac programmers. Not only does it provide the only compilers that run native on the Power Mac and can generate PowerPC code from either 680x0 Macs or Power Macs but its compilation speed is also nothing less than astounding for a Mac-based environment. If you're looking to write native Power Mac applications on a Mac, CodeWarrior is only the way to go.

/ Stephan Somogyi

Metrowerks CodeWarrior

Gold Edition CW4

Rating: ★★★★★

Price: \$399 (list).

Pros: Fast compilers. Runs native on Power Macs and generates native Power Mac code from either 680x0 Macs or Power Macs. Source-code debuggers available for both 680x0 machines and Power Macs.

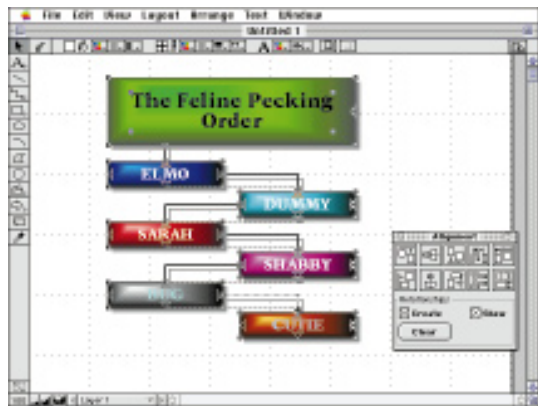
Cons: No Object Pascal support. No template and exception support for C++.

Company: Metrowerks, Austin, TX; 800-377-5416 or 512-346-1935.

Reader Service: Circle #407.

ClarisDraw / Versatile and simple, Claris' new draw program scrambles to catch up with the competition.

THE LATEST INCARNATION of Claris' venerable MacDraw draw program, ClarisDraw keeps the easy-to-use, stylish design we've come to expect from Claris products and has a bevy of well-implemented new features, many clearly culled from its rivals' feature lists. Streamlined and simple, it's tolerably fast on 680x0 Macs and downright zippy on Power Macs, on



Lines that stay connected to the boxes they're attached to and easy, precise positioning are some of ClarisDraw's best new features.

which it can run in native mode. But for the same price or less, Deneba's Canvas and Aldus' IntelliDraw have more features geared toward more-sophisticated illustration work.

Smart Design

Many of ClarisDraw's new features have *Smart* in their names — appropriate, because many of them emulate similar features in IntelliDraw, the first draw program that let you create links between objects to automatically keep alignment, proportioning, and other relationships in effect. But whereas IntelliDraw's brainy links can be bewilderingly complex, ClarisDraw's are simple and spare. For example, to use SmartAlign, you select two or more objects in your illustration and use the Alignment palette to choose the way you want them to be aligned with each other. As you move one object, the other objects remain aligned to it, according to the relationship you've set up between them.

SmartAlign isn't the only smart feature. SmartConnectors are lines that remain attached to objects — if you want to use ClarisDraw to create flowcharts, for instance, lines can remain connected between boxes no matter where you move the boxes on your chart. And if you need precise measurements, you can create AutoSize lines, which tell you how long they are. (We were disappointed, however, that you can't turn the SmartConnector lines into AutoSize lines.) SmartEmbossing and SmartShadow, just as their names imply, let you create rudimentary 3-D effects and drop shadows.

The PointGuide cursor, which changes its appearance when it's over an object's center or corners, and Guideliner, which provides guidelines that show you how objects align with other objects, are handy features for positioning items. ClarisDraw's Object Info palette lets you precisely reposition, rotate, and resize objects, using numerical values.

ClarisDraw ships with 2,400 pieces of clip art, called SmartSymbols. You can drag a SmartSymbol out of a library palette and drop it right into your document — repeatedly if you wish. You can replace any SmartSymbol with any other by using the Replace Clones command. It's somewhat like a Find/Replace command in a word processor, and although it's not as fast and elegant as IntelliDraw's method of automatically updating your documents, the Replace Clones command does get the job done.

Creative Writing

ClarisDraw has drastically improved text-handling tools compared with MacDraw's. You can bind text to a path on the inside or the outside of a closed shape and convert type into outlines, which you can reshape by using Bézier points and fill with gradients or patterns. You can link text boxes to

each other and wrap text around objects, both of which can be useful for simple, artistic desktop-publishing tasks, even though you can't kern or track type at all.

Although it's no substitute for Microsoft PowerPoint or Aldus Persuasion, you can also use ClarisDraw to prepare simple business presentations and slide shows. The program lets you use as many as ten different on-screen pointers and create fades between slides.

When it comes to color control, ClarisDraw will disappoint more-demanding users. It can import and export 24-bit-color images, which MacDraw never could, but it still has the 256-color palette that dates back to the days when most Macs had only 8-bit color, if any. It still doesn't support CMYK mode or popular color systems such as Pantone. Not surprisingly, ClarisDraw can't output color separations, although you can save documents in EPS for placement in, and printing from, more-color-savvy applications.

Besides providing the basic manipulation tools we've mentioned, ClarisDraw can lighten and darken images, distort them vertically or horizontally with a new shearing feature, and scale them by percentage. But unlike its competitors, it doesn't have envelope warping, shape extrusion, or cropping.

The Bottom Line

ClarisDraw is a versatile and easy-to-use draw program, but we found ourselves wishing it had more of the tools its rivals have. If you need to create basic graphics quickly and don't have the time to learn to use new tools, invest in ClarisDraw. But if you want more-sophisticated tools, other draw programs will give you more to work with for a similar price. / Eric Taub

ClarisDraw 1.0

Rating:

Price: \$399 (list).

Pros: Easy to use. "Smart" links for accurate positioning. Basic page-layout and slide-show features. Power Mac native.

Cons: Restriction to RGB and 256-color palette. Lacks features available in similarly priced competitors.

Company: Claris, Santa Clara, CA; 408-727-8227.

Reader Service: Circle #408.

MovieWorks / QuickTime-based presentation program is too slow to win points.

QUICKTIME IS ONE of the tightest image- and sound-compression formats around, and it also has sophisticated timing features. As a result, QuickTime presentations with 16- and 24-bit-color images and 16-bit sound can be played back on Macs with relatively modest amounts of RAM. And simultaneous events are just that — simultaneous. MovieWorks, completely QuickTime-based, makes the most of QuickTime 2.0's advantages for creating presentations. But using QuickTime has its drawbacks. Although MovieWorks-created stand-alone presentations play back nicely on almost any QuickTime-capable Mac, creating those presentations is a torturously slow process.

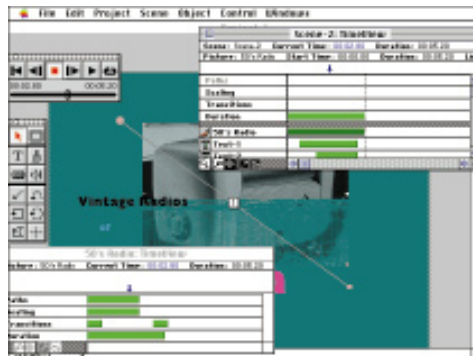
Five-in-One

Rather than being a single, all-in-one application, MovieWorks is a suite of five. You use the central application, Composer, to combine elements from other programs or ones you've created or modified in the Paint, Sound, and Text applications into presentations called projects. You can import TIFF, PICT, and MacPaint images; AIFF and SND audio; PICS animations; and QuickTime images, sounds, and movies into Composer and play your project, once you've compressed it into a QuickTime movie. When you convert this movie into a run-time version, the freely distributable Player application can play it back.

Because different functions are handled by different MovieWorks applications, you can choose to run only the applications you need, which is useful for those with limited RAM. However, closing and opening applications when working with a variety of file types can be cumbersome. Since Composer automatically opens the Paint, Sound, or Text applications for you whenever you double-click on an object created with one of them, you'll probably just leave all the applications open if you have the 8 MB required to run everything at once.

For text, MovieWorks provides a fairly

bare-bones text formatter, but both the Paint and Sound modules have a useful assortment of features. Paint has a standard variety of paint tools, and although it isn't a challenge to Photoshop, it's handy enough for quickly creating and modifying pictures. Sound lets you record and edit sounds and easily add simple effects such as echoes, fade-ins, and fade-outs.



Using a timeline to bring together the elements of a presentation, as MovieWorks lets you do, is easy, but the sparse manual won't teach you the program's subtler features.

Staccato Composing

The basic concept of the Composer application is easy enough to understand and master: You create a project file and combine sounds, pictures, and movies to create multimedia scenes. You use a simple timeline to control when and how long every object appears in the project, define visual fade-in and fade-out transitions, and draw animation paths for the objects. To create interactive presentations or programs, you can assign links to certain areas or buttons for interactive presentations.

There are two big problems with Composer, however. For starters, it's sluggish. Repositioning objects can take such a long time that it's a struggle to place them precisely. Although the anti-aliasing you can assign to text objects helps create high-quality images, you may tear out your hair in frustration when you position objects. Next, in order to play back a scene after you've modified it, you have to compress it into a QuickTime movie, which takes a long

time, regardless of the level or kind of compression you specify. And once Composer has compressed a scene, it does a poor job of actually playing it: Animations and movies are so jerky they're practically unviewable. You have to turn your project into a stand-alone file and play it back with the Player application to see how your presentation really looks.

MovieWorks' awkwardness is compounded by a truly poor user guide, which is at best a sketchy reference manual. If you have experience with multimedia presentation programs, you'll be able to get up and running quickly in spite of the manual, but newcomers will have a hard time comprehending the application's subtler aspects.

Interactive Solutions is aware of many of these problems and promises a rewritten user guide in future releases as well as a CD-ROM of tutorials and animations to supplement the 8 MB of files that come with the current version of MovieWorks. However, the company blames many of Composer's performance problems on QuickTime 2.0, even though many other programs that work with QuickTime 2.0 do so at an acceptable speed. Interactive Solutions also says it is working on a native Power Mac version of MovieWorks.

The Bottom Line

If you absolutely have to use compact, portable QuickTime-based presentations, get MovieWorks, the fastest Mac you can afford, and a ten-cup coffeemaker for all the breaks you'll have to take. Otherwise, consider Gold Disk's Astound or Pierian Spring Software's Digital Chisel (see review, January '95, page 56), which are faster and easier to use, offer more features with less aggravation, and come with user guides that actually instruct. / Eric Taub

MovieWorks 2.2

Rating:

Price: \$295 (list); 50-percent educational discount.

Pros: Creates compact, QuickTime-based presentations. Easy-to-use Composer application.

Cons: Frustratingly sluggish. Sketchy, poorly organized manual.

Company: Interactive Solutions, Pleasanton, CA; 800-668-4353 or 510-734-0730.

Reader Service: Circle #409.

WordPerfect Envoy / New portable-document software misses the mark.

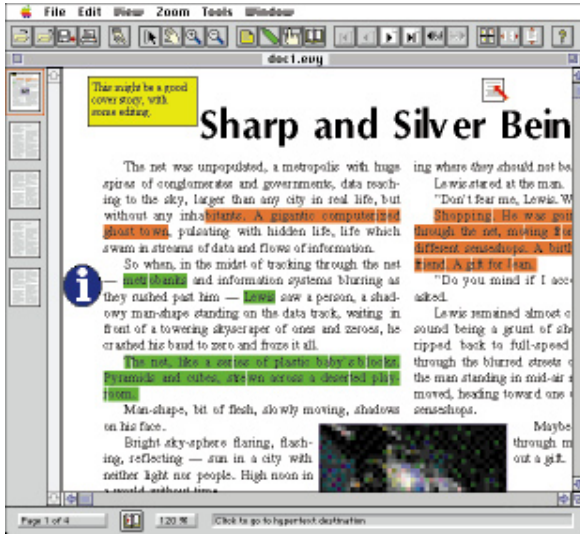
EXCHANGING ELECTRONIC documents with those who don't have the same fonts you do, much less the same applications, got easier with the release of three products:

Adobe Acrobat, No Hands Software's Common Ground, and Farallon's Replica. These programs are all able to create portable electronic documents. The most recent

entry in this field is WordPerfect Envoy, which has many of the same features as its competitors — but decidedly more quirks.

Envoy uses a Chooser extension, which you select instead of a printer. You can then convert any document into Envoy's format by issuing the Print command. Unfortunately, this conversion process can be a nightmare if you use page-layout programs. Incompatibilities with PageMaker's print architecture make converting PageMaker documents a completely undocumented process that lets you convert only a few pages before memory errors cause the entire procedure to abort. Converting simple QuarkXPress documents is no problem, but printing files with embedded graphics requires multiple steps. If you want to share files containing embedded PostScript graphics, you'll be disappointed with their quality in Envoy — the graphics are displayed as low-res bit maps. WordPerfect says it will include a PostScript-to-Envoy translator in a future release.

Unlike Acrobat, Envoy doesn't require you to install SuperATM to view files; it

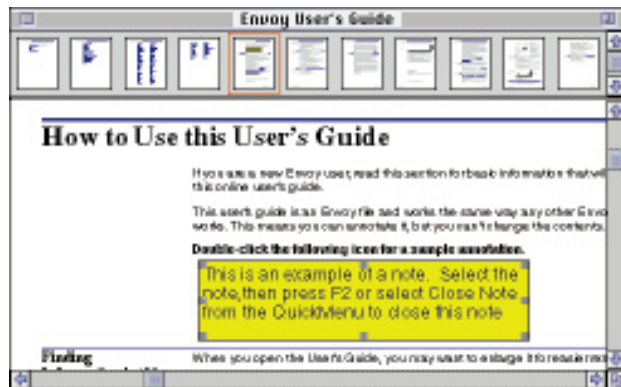


A disappointment overall, Envoy does have one noteworthy strength — its annotation features, which include hypertext links, text notes, and color-coded highlighters.

works by itself and takes up only 350K of disk space. But if you use uncommon fonts, you may have trouble with Envoy's font-handling method. Unlike Acrobat, which creates facsimiles of unavailable fonts, Envoy uses whatever available font is most similar to the original.

A quick-reference card is the only printed documentation in the Envoy box. The full documentation exists only as an Envoy file with hypertext links, so it can be frustrating to navigate, particularly for first-time Envoy users.

Envoy does have good annotation features — hypertext links, text notes, and color-coded highlighters — which you and the people you share files with can use to mark up documents. It even has a clever Import Annotations feature that lets you combine everyone's annotations into one file. Although Envoy can embed a run-time version of itself with its portable documents (at the cost of an extra 350K), a stand-alone viewer, such as the ones that ship with Acrobat and Common Ground, is not yet available.



Except for a quick-reference card, Envoy's documentation is available only as an Envoy file and can be quite confusing.

The Bottom Line

If you just need to distribute word-processing documents with rudimentary graphics, Envoy's small size and good annotation features may make it a reasonable alternative to Acrobat and Common Ground. However, Envoy's problems with printing from page-layout applications and its weak documentation make it a dubious choice for creating portable electronic documents.

/ Jason Snell

WordPerfect Envoy 1.0

Rating: 🍌🍌

Price: \$189; upgrade from competitive products, \$99 (list).

Pros: Good document-annotation features. Readers can view files without installing extra software.

Cons: Problems converting PageMaker and QuarkXPress files. Weak documentation. PostScript graphics convert to bit maps. Primitive font-replacement technology.

Company: WordPerfect, Novell Application Group, Orem, UT; 800-861-7270 or 801-228-9929.

Reader Service: Circle #414.

Agfa StudioScan II and UMAX Vista-S6

Agfa's affordable scanner gets the nod for best color image quality.

PRICED AT LESS THAN \$1,000, two new color flatbed scanners make it more affordable than ever to add scanned color images to your documents. Like its predecessor, the \$995 Agfa StudioScan II gets high marks for color image quality and software controls. We were less impressed with the quality of the \$945 UMAX Vista-S6's color images, but the UMAX scanner excels in speed and line-art quality. Both scanners are easy to set up and use, which makes them an attractive buy for novices.



Agfa StudioScan II

The hardware specifications of the StudioScan II include an optical resolution of 400 x 800 dpi and a maximum interpolated resolution of 2,400 x 2,400 dpi. The maximum scanning area is 8.5 x 14 inches.

Where the StudioScan II really shines is in its software. For novices, the simple-to-use FotoSnap plug-in handles a variety of tasks automatically — it calibrates density, sets the scanning area and resolution, and performs color correction based on a prescan and profiles of your monitor and printer. Experienced users can opt for FotoLook, which provides sophisticated features such as white- and black-point settings, unsharp masking, and DMin/DMax.

The FotoTune Light color-management program lets you fine-tune the process of color matching between your scanner and your monitor or printer.

In addition to StudioScan II's feature-rich software, one other strong point is the black, nonreflective inner surface of the scanner's lid, which reduces light bounce and keeps moiré patterns to a minimum.

UMAX Vista-S6

The Vista-S6 has an optical resolution of 600 x 300 dpi and a maximum interpolated resolution of 4,800 x 4,800 dpi. The maximum scanning area is 8.5 x 11.7 inches.

For software, the Vista-S6 comes with a limited edition of Adobe Photoshop and the VistaScan plug-in, which provides controls for gamma, highlights/shadows, light/dark, and other options. If you want to use VistaScan without running Photoshop, you can run it as a DA. We found VistaScan straightforward and easy to use, but it doesn't provide the same level of automation as FotoSnap, the StudioScan II's plug-in. For color correction, the Vista-S6 comes with MagicMatch, a simple color-calibration program that works with Apple's ColorSync software.

The Vista-S6 and the StudioScan II each come with OmniPage Direct OCR software, an optional 50-page document feeder, and a transparency adapter.

To see how the Vista-S6 and the StudioScan II compare in image quality and speed, we scanned three different test

documents. Two were color photographic images with distinctly different color ranges and intensities. We printed each color image to a Tektronix Phaser 480 dye-sublimation printer. The third test document, which we printed to a GCC SelectPress 1200 laser printer, consisted of line art.

With both types of color images, the StudioScan II provided the best results. The first image tested the scanners' ability to accurately capture a range of skin tones, shadows, and colors. The image captured with the StudioScan II was very consistent with the original — it showed excellent skin tones and good detail in shadow areas. The Vista-S6 produced an image with acceptable skin tones, but the overall quality was not as good as that from the StudioScan II.


Our second test image was characterized by bright colors and a gradient background. Again, the StudioScan II outperformed the Vista-S6, producing an accurate, sharp image with well-saturated colors and smooth gradients. The Vista-S6 also produced well-saturated colors, but the gradient was not as

smooth and the colors not as accurate as those in the StudioScan II's image.


Test results from our line-art image showed the Vista-S6 to be the top performer, but not by a very wide margin. When we examined the images with a loupe, the Vista-S6 image boasted cleaner lines and fewer jaggies. However, you'd be hard pressed to judge the difference without magnification. To test the speed of the two scanners, we used one of the color photographic images. We found the Vista-S6 to be faster by far — it scanned our image in 46 seconds, compared to 90 seconds for the StudioScan II using the FotoLook plug-in and a whopping six minutes for the StudioScan II using the FotoSnap plug-in. Keep in mind, however, that FotoSnap performs color correction automatically as you scan an image, whereas with VistaScan and the UMAX scanner, color correction is a separate, manual process.

The Bottom Line

The cost of color scanners continues to drop while the quality keeps improving. Of the

two scanners reviewed here, we recommend the StudioScan II for those who plan to work frequently with color images. If color scanning isn't critical, the Vista-S6 is a speedy alternative. / Roman Victor Loyola 

Agfa StudioScan II

Rating: 

Price: \$995 (street).


Pros: Affordable. High-quality color scans. Full-featured software controls.

Cons: Single SCSI port. Slow.

Company: Agfa Division of Miles, Wilmington, MA; 800-685-4271 or 508-658-5600.

Reader Service: Circle #412.

UMAX Vista-S6

Rating: 

Price: \$945 (list).

Pros: Affordable. Fast. High-quality line-art scans.

Cons: Single SCSI port. Mediocre-quality scans for midtone ranges.

Company: UMAX Technologies, Fremont, CA; 800-562-0311 or 510-651-8883.

Reader Service: Circle #413.

Aquazone and El-Fish / Digital desktop aquariums

ALTHOUGH AFTER DARK'S fish screen-saver modules give brain-locked workers a colorful diversion, their flat fish leave a lot of room for improvement. Tecsyes Computers' Aquazone and Maxis' El-Fish have leaped into this digital fish vacuum and created two very different kinds of aquarium simulations.

Aquazone. Aquazone attempts to re-create the home aquarium experience: Its digital aquariums require heating, filtration, and water-conditioning chemicals. You have to feed the fish and check them for disease. Exhaustive reports on your fish and your tank help you maintain your aquarium, as does Aquazone's wonderful manual — which, due to the accuracy of the simulation, is a solid primer on real-world fish keeping.

Fail to check on your fishy friends in Aquazone, and they die — and you have an inventory of only 40 fish with which to stock your tank (although you can cheat and reinstall the program to get a new stock of fish). Events take place in real time, whether the program is running or not: After neglecting Aquazone for a week, we discovered that our fish had tragically died of hunger. You can speed up the simulation or pause it completely. As a nice touch, Aquazone can replace your desktop with a fully functional aquarium that runs behind all your open applications.

El-Fish. El-Fish ambitiously uses artificial-life algorithms to try to create a better kind of fish. Aquazone ships with only two fish species; El-Fish has over a dozen colorful artificial ones. And if you get



tired of those, you can go fishing in an ocean and catch some new specimens or you can create new species by splicing together fish genes. (Aquazone fish reproduce the old-fashioned way — they lay eggs.) El-Fish then renders and animates the new fish in 256 positions. The results are visually stunning, but one fish can take anywhere from ten minutes to ten hours to render, depending on the speed of your Mac.

El-Fish's aquarium isn't as satisfying as Aquazone's, or even After Dark's. The fish move flatly, whereas Aquazone's seem quite aware of each other and their environment. Worst of all, the El-Fish aquarium extends far beyond the boundaries of your screen. Minutes often passed without a single one of our tank's eight fish swimming into view. El-Fish also bears every last fingerprint of its Windows origins, to the extent of apparently believing the screen is only 400 pixels high.

If you want to splice genes, get El-Fish; if you want an engaging simulation, get Aquazone. And if you think it makes more sense to scoop out the insides of your old compact Mac and fill it with real water and fish, look for my MacQuarium plans on ZiffNet/Mac. The resulting tank might smell a bit and it's not as easy to maintain as Aquazone, but it is the cheapest way to get Power Mac performance — at least when it comes to fish — on a Mac Plus. / Andy Ihnatko

Aquazone 1.0 ★★★★★ / Price: \$49.95 (list). Company: Tecsyes Computers, Newport Beach, CA; 714-955-4968. Reader Service: Circle #415.

El-Fish 1.0 ★★ / Price: \$39.95 (list). Company: Maxis, Orinda, CA; 800-336-2947 or 510-254-9700. Reader Service: Circle #416.

HouseCall / Diagnosis at your fingertips

FOR THOSE WHO HAVE ever lain awake at night puzzling over the origin of an ache, pain, or sniffle, HouseCall, from Applied Medical Informatics, brings sound medical advice to the Mac. And although the company is the first to assert that nothing can replace a doctor's diagnosis, the program is an excellent addition to anyone's home software library.

Developed in conjunction with 40 physicians, HouseCall is a powerful medical reference many users will find both useful and practical. Using plain English, the software provides in-depth information on more than 1,100 diseases, such as Alzheimer's and AIDS, as well as on more-common ailments, such as influenza and chicken pox. Each entry in its extensive, cross-referenced database provides clear definitions of the conditions as well as causes, symptoms, common treatments, and alternative names. HouseCall has an elegant, easy-to-use interface that includes a window with hints on using the program.

Additionally, HouseCall gives you details on common tests and on nearly 3,000 prescription and nonprescription drugs. The drug-interaction feature lists the possible side effects of a drug when used alone or with other medications and potential reactions when used with caffeine or alcohol.

Digital Diagnoses. The symptom-analysis feature first asks which part of your body is ailing and then runs through a series of questions, with each question based on the answer to its predecessor. The program then provides a list of possible diagnoses, listed by percentage from most probable to least. For a common headache, for example, the software offers a variety of causes, ranging from the most likely — stress — to the least likely — a tumor.

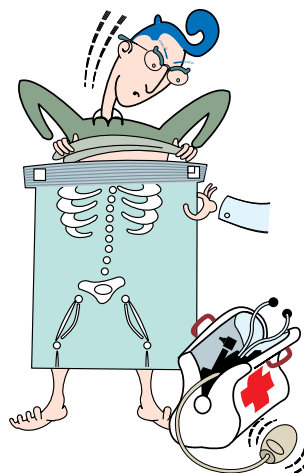
The symptom-analysis feature is helpful in diagnosing problems, but we wouldn't be surprised if it alarmed those with hypochondriacal tendencies.

Although HouseCall provides well-researched diagnoses for all kinds of problems, the manual always reminds users to consult with their doctor.

Updates to the program will be offered several times a year, keeping users current with the latest medical information. At present, the program consists of four disks and requires 11 MB of hard-disk space; a CD-ROM version should be available soon.

HouseCall is a great reference tool to have on call, especially when your doctor is hitting the links. / Steve Rubel

HouseCall 1.0 ★★★★★ / Price: \$89.95 (list). Company: Applied Medical Informatics, Salt Lake City, UT; 800-584-3060 or 801-464-6200. Reader Service: Circle #417.



Special Delivery 2.0 / Presentation program makes you jump through hoops

THE ORIGINAL VERSION of Special Delivery had a convoluted interface and no animation features, but its slide-based approach to creating interactive presentations showed real potential. Unfortunately, instead of giving Special Delivery the overhaul it needed, Interactive Media has made only modest changes, such as giving you the ability to highlight buttons and adding a run-time player. As a result, Special Delivery 2.0 is hardly better than its earlier version.



Multimedia Gateways. To create a presentation, you add media elements by drawing frames, called portals, on each presentation slide in Layout View.

Then you import the pictures, sounds, text, and movies you want and place them in a portal.


After you've created your layout in Layout View, you switch to Button View and use the Button tool to draw links between the portals on each slide. If you want the slide to contain buttons that allow users to interact with the presentation, you draw portals for those in the Layout View. Then in the Button View, you might link a button portal with a portal that has a QuickTime movie. When you're playing the Special Delivery presentation, you click on the button to play the QuickTime movie.

The buttons let people viewing your presentation play movies or sounds, adjust the volume settings, and move to any other point in the presentation. You can also set up the buttons to trigger themselves automatically, so you can create kiosk-style self-running presentations. You can even add pop-up buttons that not only let users flip to different slides but also let them switch to another presentation or even to another application altogether.

Tale of Two Views. Setting up these links and triggers is exasperating, however. When you're creating links between portals in Button View, you can't move or resize the portals or in any other way edit them. And when you move to Layout View to change your portals, you can't adjust, or even see, the interactive links. Even though you have the option to see the Layout View behind the Button View, you have to constantly jump back and forth between the views as you work on your slides.

As a general multimedia tool, Special Delivery is still quite limited. There are no path-animation tools, and although you can apply transitions between slides and portals, they aren't very elegant. A portal may have a transition effect as it appears on-screen but not as it exits, which means portals pop off the screen rather ungracefully. As a workaround, you can apply an exit transition by using the Clear Data command; however, this actually purges your data from the portal and does not hide the portal itself. And there's no zoom tool — a glaring omission in a program for creating graphic layouts.

You can create professional and powerful integrated presentations with Special Delivery, but navigating the interface and setting up links is simply too much work for most people. If you're looking for an entry-level multimedia tool, consider instead Gold Disk's Astound, which has a simple, elegant interface and gives you more animation options for the same price. / Joseph Schorr

Special Delivery 2.0  / Price: \$399 (list). Company: Interactive Media, Los Altos, CA; 415-948-0745. Reader Service: Circle #418.



VirtualDisk / Automatic disk cataloging

WITH CONTINUUM SOFTWARE'S VirtualDisk, even the organizationally challenged can easily keep track of all the files on any removable media, including floppy disks, SyQuest cartridges, and magneto-optical discs. Whenever you eject a cartridge or disk from the desktop, VirtualDisk automatically creates a catalog of its contents. VirtualDisk can also catalog the contents of CD-ROMs, hard disks (fixed or networked), compressed archives, Retrospect backups, and disk images created by Apple's Disk Copy or Continuum Software's own — and excellent — DiskDup+.

Click and Find. The VirtualDisk catalog shows up on your desktop as a volume, and each disk or cartridge for which VirtualDisk has created a catalog shows up as an icon within the volume. When you double-click on the icon for a disk, you see aliases of all the files and folders on that disk. When you double-click on a file alias, VirtualDisk prompts you to insert the disk containing the original file.

Each VirtualDisk catalog starts out needing at least 1 MB of free hard-disk space, which is enough room for about 8,000 entries. The catalog file can grow large enough to hold as many as a million aliases. You can create as many VirtualDisk catalogs as you need.

VirtualDisk is fast and easy to use, and if you frequently keep files on floppies or removable disks and cartridges, it can save you more time than almost any other productivity tool. / Eric Taub

VirtualDisk 2.0.1 ★★★★★ / Price: \$79.98 (list). **Company:** Continuum Software, Portland, OR; 800-603-7446 or 503-848-7112. **Reader Service:** Circle #419.

Living Album / Electronic photo album

LIVING ALBUM LETS you look through digital pictures and QuickTime movies just as you would with pictures in a photo album. Instead of the impersonal dialog boxes and links you get in traditional presentation programs, archives, and databases, each album you create with Living Album shows you an album page with a full-screen picture bordered by 36 thumbnail pictures. You can add text or link other files and AIFF sound files to any picture and search for pictures by using keywords you've added to them. When you click on one of the thumbnail pictures, it becomes the full-screen picture on the album page.



You can import an entire folder full of pictures or QuickTime movies with a single keystroke. Living Album doesn't actually use the original pictures: It makes a copy of each one (or of the first frame of a QuickTime movie) and compresses it into one frame of a platform-independent QuickTime movie.

Floppies to Swap. You can share Living Albums with your friends and family. Living Album ships with a free, distributable Viewer application that fits on one high-density floppy disk and can accommodate an album with as many as 36 pictures.

Living Album does have a couple of drawbacks: The program can't display TIFF files, and linking files can be a bit confusing. We were able to run Living Album with less than the 5 MB of RAM suggested, but it runs more smoothly with more. / Ken Gruberman

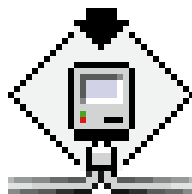
Living Album 1.2 ★★★★★ / Price: \$79.95 (list). **Company:** QuickMedia Labs, Santa Clara, CA; 408-749-9200. **Reader Service:** Circle #420.

SAM Administrator / Flexibility for network administrators

COMBINING EASE OF USE with a high degree of configurability, Symantec's SAM (Symantec AntiVirus for Macintosh) Administrator is strictly a vehicle for network distribution of SAM and updates to it. It works by sending packages containing components of SAM to client machines. These packages contain scripts that automatically place the component files in the correct locations on the client's hard disk. Transporter and Transporter Assistant, also from Symantec, must be installed individually on each client before the packages can be sent.

Easy to Configure. SAM Administrator's strength is its configurability. Users are always grouped automatically by their network zone, but with SAM, a network administrator can create groups, using any criteria. The administrator can also set passwords for individual clients, all clients within a network zone, or a group. The administrator can choose to have the packages automatically installed on the clients or just sent to them, allowing each user to install them at a convenient time.

Also useful are SAM Administrator's flexible scheduling capabilities, which allow for installations and updates after-hours. SAM Administrator also includes a handy log feature called the Distribution Manifest, which allows an administrator to check whether packages have been transferred successfully — and then resend or cancel those that were not received by the client machines.



One of the features SAM Administrator lacks is the ability for administrators to define their own packages. New versions of SAM or Virus Definitions Files (VDFs) can be substituted only into a predefined package, and the entire package must be resent to each client — you can't send just the updated files. Also, unlike Datawatch's Virex Administrator, SAM Administrator cannot initiate virus scans on clients remotely and compile reports based on the results of those scans.

Slightly Slower. On a range of Macintoshes, from an LC II to a Power Macintosh 7100, a virus scan with SAM took from 20 to 40 seconds, whereas the same scan took two to four minutes with Disinfectant, the widely available freeware antivirus program. Virex was slightly faster, taking only 14 to 25 seconds.

Like Virex, SAM offers users a choice of options, such as whether to scan a floppy when they insert it into a drive.

Overall SAM Administrator offers more flexibility than other administrator programs, including the ability to schedule calls to Symantec's free BBS and automatically download the latest VDF for eliminating new viruses. / Alan M. Chan

SAM Administrator 4.0 ★★ / **Price:** Available with ten-packs of SAM 4.0, \$792 (list). **Company:** Symantec, Cupertino, CA; 800-441-7234 or 503-334-7474. **Reader Service:** Circle #423.



Demo versions of selected programs mentioned in Quick Clicks are available in the MacUser and ZiffNet/Mac areas on CompuServe and eWorld. See page 4 for instructions regarding on-line access.

Four Paws of Crab / Culture and cuisine CD-ROM


THAI CUISINE IS CURRENTLY as hot a food fad as the tiny chilies that characterize many of its dishes. And there's no better way to become introduced to this sublime cuisine than through the exquisite CD-ROM Four Paws of Crab.

Four Paws of Crab is organized into four areas: Recipes, Happy Market (ingredient descriptions), Mirrors (a comparative look at Thai and American cultures), and Time Romp (a look at 300 years of Thailand's rocky political history). Although the Recipes section of 44 dishes is sparse compared to most printed Thai cookbooks, the dishes, appetizers, and desserts are classics such as Phat Thai and Sticky Rice with Mango.



Recipes and More. The best ethnic cookbooks do more than provide just a catalog of recipes. Part cookbook, part travelogue, they transport you into another culture. Four Paws of Crab accomplishes the same admirable feat in a CD-ROM by making exceptionally good use of pictures, narration, and text, even though the QuickTime movies are often choppy. Exploring all that Four Paws of Crab has to offer is as easy as clicking your mouse.

Four Paws of Crab is a visual feast for both the cook and the culturally curious. / Gregory Wasson


Four Paws of Crab 1.0  / Price: \$44.95 (list). Company: Live Oak Multimedia, Emeryville, CA; 800-454-7557 or 510-654-7480. Reader Service: Circle #421.



Autoscore / Composing by voice

AUTOSCORE, A SOFTWARE pitch-to-MIDI converter, transforms the single notes you sing or play into your Mac's microphone into MIDI events within a compatible MIDI-host program. If, for example, you'd like to sing a little ditty — or play it on your saxophone — and have it appear as a notation in Coda's Finale, activate Autoscore in the Autoscore menu and start recording in Finale. Each of the notes you produce appears on the staff. To increase the likelihood of pitch accuracy, Autoscore allows you to constrain the notes you make to a particular scale — for instance, select Constrain to D Major if you want to sing "Ode to Joy" from Beethoven's Ninth Symphony.

Sound Scoring. Autoscore tracks your input surprisingly well, although it is somewhat more accurate when used with notation programs such as Finale than with sequencer programs. In fact, Autoscore does not support the most popular sequencers — Mark of the Unicorn's Performer or Opcode's Vision 2.0 — at all. Although it can work with all instruments, it can't recognize chords. Additionally, we found some bugs, including a general slowdown in performance on Macs with accelerator cards. Wildcat Canyon says it will have addressed these problems by the time you read this.

In spite of its problems, Autoscore represents an important and exciting technology for novice computer musicians who prefer to record into MIDI acoustically. / Christopher Breen 

Autoscore 1.0  / Price: \$150 (list). Company: Wildcat Canyon Software, Berkeley, CA; 510-527-5155. Reader Service: Circle #422.

The 10th Annual Editors' Choice Awards



What a year. In 1994 Mac users witnessed the dawn of the Power Mac era, Apple's next-generation RISC hardware architecture. Software developers scrambled to revise their products to take advantage of the PowerPC chip's muscle, creating a midsummer lull in the market. Rocked by an uncertain economy, companies synonymous with innovation and independence combined forces through mergers and acquisitions. And then, the incredible happened: Apple decided to license the Mac operating system to other computer makers.

With such fundamental changes shaking the Mac universe, it's easy to overlook the great products that shipped for the Mac in 1994. But not for the editors of *MacUser*. This year, as in every year for a decade, the *MacUser* editors recognize the best new products with the MacUser Editors' Choice Awards, a.k.a. the Eddys.

The Eddys are not the result of a popularity contest. We spend months evaluating and arguing the merits of all the products released during our eligibility period. In picking Eddy finalists, we look for utility and value as well as innovation and overall quality.

In addition to choosing the best overall hardware and software products of the year, we give three special awards. We reward the year's best new technology, one that will have an impact on future product development. And we recognize individual contributions to the industry with the John J. Anderson Distinguished Achievement Award and the Derek Van Alstyn Rising Star Award. And now, the envelope, please

By the Editors of MacUser

Business Tools



Fast and easy — that best describes business tools in 1994. Applications that harnessed the Power Mac's horsepower enabled busy executives to work faster, while simplified interfaces, active assistance, and just-add-data templates made creating documents and presentations a snap for corporate types as well as home-office workers.



Word-Processing Tool

WordPerfect 3.1

The success of the Power Mac depends on excellent native software, and Version 3.1 was actually the *second* native version of **WordPerfect** to ship last year. On the Power Mac, this is one word processor in which everything happens as fast as your thoughts permit. In addition, WordPerfect 3.1 offers a full suite of power features; Apple Guide support; and ease-of-use goodies such as QuickCorrect, which fixes mistakes on the fly.

Finalists

Although a native Power Mac version isn't yet available, **Nisus Writer 4.0** took a giant step forward in its new version with significant speed gains and a completely redesigned interface. Xerox's **TextBridge 2.0** offers powerful OCR features (such as the ability to distinguish between word and numerical patterns) at a bargain price.

Data-Management Tool

MapInfo 3.0

By displaying information geographically, **MapInfo 3.0**, from MapInfo, succeeds



where spreadsheets fail at analyzing complex corporate data. From demographic studies to environmental analyses, MapInfo offers the most powerful and sophisticated set of desktop mapping tools available to Mac as well as PC users at an affordable price.

Finalists

FileMaker Pro has long been the standard for flat-file-database management on the Mac. With the introduction of **FileMaker Pro Server 2.0 v1**, Claris has significantly boosted the program's performance in multiuser environments. Excellent data-management tools, a vastly improved charting module, and helpful Wizards make **Microsoft Excel 5.0** a must-have for spreadsheet dilettantes and jockeys alike.



Integrated Application

ClarisWorks 3.0

ClarisWorks 3.0 adds expert "assistants" that not only guide you through complex tasks but also supply appropriate document formats — and even sample content — based on your goals. As in previous versions, the word-processing, spreadsheet, database, presentation, drawing/painting, and communications modules are supremely integrated. Plus, to the relief of home users, ClarisWorks' disk-space and RAM requirements remain modest compared to those of its main competitor.

Finalist

Greatly improved integration made **Microsoft Works 4.0** a strong challenger to ClarisWorks this year — no more switching back and forth from one module to another. Version 4.0 adds a calendar; an address book; paint tools; table and slide-show creation; and WorksWizards, which help you create newsletters, greeting cards, and certificates.



and a jargon-free help system. In addition, opening screens clearly illustrate the relationships among the various modules. New features include automatic backup; professional invoicing; and expanded reporting, job-tracking, and payroll functions.

Finalists

Kudos to two high-end client/server programs. Great Plains' **Dynamics C/S+**, a distributed-processing application, is highly customizable, has a graphical interface, and is widely supported by consultants.

Maconomy 2.3, from Maconomy NE, is fast, flexible, and secure and offers multidimensional activity-based accounting.



Presentation Software

Microsoft PowerPoint 4.0

There's never enough time in a business day, so any program that helps you accomplish more in less time is a godsend.

Microsoft PowerPoint 4.0 is one of those programs — never has it been faster and easier to pull together an effective business presentation. Need to present the board of directors with up-to-the-minute information? From design to content, PowerPoint provides the tools that get the job done.

Finalists

Aldus Persuasion 3.0, from Adobe Systems, is a feature-rich presentation-software program that offers several special talents, including the ability to create interactive slides and basic animations. The most complete business-charting tool available,

ClarisImpact 1.0 features a slide-show module, so you can chart and present your information with a single program.

Accounting Software

M.Y.O.B. 5.0

M.Y.O.B. 5.0, from Best!Ware, makes small-business accounting easy and — dare we say it? — even fun. To help you get started, M.Y.O.B. includes a brief interview, 100 templates you can use as is or customize,

Hardware Product of the Year

Power Macintosh 6100/60 / Apple made history in 1994 when it broke away from the pack and offered the first personal computers fueled by the power of RISC technology. The aptly named Power Macintosh series, based on PowerPC microprocessors from the Apple/IBM/Motorola consortium, provides a startling level of computing power at prices unimaginable only a few short years ago. As we go to press, nearly 400 native Power Mac applications have been released by a broad range of developers and Power Macs are finding their way into offices, graphics and DTP shops, homes, and educational institutions across the country and around the world. The Power Mac has arrived — and is prospering.

While acknowledging the success of all three members of the Power Mac series, our nod for Hardware Product of the Year goes to the Power Macintosh 6100/60. At street prices hovering at around half of the \$2,495 eagerly paid a decade ago by early 128K Macintosh enthusiasts, the 6100/60 delivers a powerful 1-2 punch of low price and high performance.

Apple achieved the affordability of the Power Macintosh 6100/60 without sacrificing engineering excellence and design elegance. The computer's now familiar "pizza box" case contains not only a muscular 60-MHz PowerPC 601 microprocessor but also — as with the other Power Macs introduced so far — a sophisticated motherboard design that keeps the 601 humming and a rock-solid 68040LC emulator that protects users' software investments.

Apple created a dozen new support chips for the Power Mac series that enable snappy DRAM-based video, improved I/O management, 16-bit stereo audio input and output, and efficient memory and cache management. In addition, the 6100/60's 7-inch NuBus slot stands ready to accept Apple's upcoming Macintosh DOS Compatibility Card, an Intel 486DX2/66-based option for Mac users who need Microsoft Windows performance beyond that provided by Insignia Solutions' SoftWindows.

With the introduction of the Power Macintosh 6100/60, the vanguard of the RISC revolution became accessible to every user — reason enough for us to vote the 6100/60 our Hardware Product of the Year for 1994.



Desktop Publishing and Graphics



Innovation is still the watchword in the Mac's most mature market, especially in the areas of image processing and color matching. Image collections on CD-ROM grew in number and quality; it's easier than ever to add great-looking graphics to publications. Pulling it all together is a snap too, thanks to key native Power Mac applications that shipped last year.



Imaging Software

Adobe Photoshop 3.0.1

Several worthy contenders tried to dethrone the champ last year, but **Adobe Photoshop 3.0.1** answered the competition with multiple floating layers, redesigned customizable palettes, and drag-and-drop between open files — features that make composing images in Photoshop more flexible and less tedious. Improved color-correction tools and enhanced filters with previews make this upgrade a must-have for anyone who works with images.

Finalists

HSC Software's **Live Picture 1.5** presents a radical new way of manipulating images, making it possible to work with huge color images in near real time. With the addition of animation tools and an innovative feature dubbed the Image Hose, Fractal Design's **Painter 3.0** expanded its reach beyond the natural-media painting for which it's justly famous.

Drawing Software

FreeHand 4.0

Users may balk at new interfaces, but in the case of **FreeHand 4.0**, change is definitely for the better. This venerable illustration tool (formerly from Aldus but developed by Altsys, now Macromedia) helps you work faster by running native on

Power Macs and offering such features as a centralized command center called the Inspector, drag-and-drop color handling, and screen-saving palettes. FreeHand also handles oversized pages (up to 54 inches square) and lets you work on multiple pages at a time, making it powerful enough to double as a page-layout program.



Finalists

Illustrators who dabble in 3-D artwork will like **Adobe Dimensions 2.0**, which sports a reworked interface. **Adobe Illustrator 5.5** improves the few weak areas of this drawing tool, including new text-handling capabilities and a trapping filter.



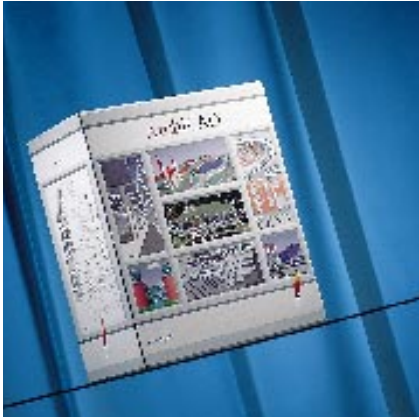
Prepress Product

Colortron

Imagine the ability to work with color in such a way that it remains consistent across media and lighting conditions, from T-shirts to plastic tchotchkes, from print to television. That's the achievement of the **Colortron**, a futuristic-looking handheld device from Light Source that combines the abilities of a calibrator, light meter, densitometer, and spectrophotometer and ultimately promises device-independent color.

Finalists

From input to output, DayStar Digital's **ColorMatch 1.0** offers the caliber of color calibration professional users demand by incorporating Eastman Kodak's high-end color-matching technology. **TrapWise 2.1**, from Adobe Systems, not only receives a welcome speed boost by running native on Power Macs but it also offers excellent automation capabilities and supports both process and spot color.



Computer-Aided-Design Software

ArchiCAD 4.5

In **ArchiCAD 4.5**, Graphisoft adds new capabilities that make this program a great tool for every step of the architectural process. Included in this version are true-2-D solids modeling, expanded materials listings, and texture-mapping in the renderer for creating more-realistic fly-throughs. Less expensive tools offer some of the features of ArchiCAD, but its cross-platform functionality and the professional quality of all its components make it the architect's choice.

Finalists

Graphisoft's **MiniCad 5.0**, for all types of computer-aided design, offers a new plug-in architecture that lets you find just the right tool. **PowerCADD 5.0**, from Engineered Software, continues the tradition of easy-to-use drafting software, with a revised interface and better isometric-drawing tools.

Graphics/Publishing Utility

Cumulus PowerPro 2.0

Exploiting System 7.5's Drag and Drop functionality to the max, Canto Software's

Cumulus

PowerPro 2.0

catalogs images quickly and easily. Almost every function, from assigning keywords to performing complicated searches, can be accomplished

with Drag and Drop. Cumulus PowerPro transforms the task of creating a usable, searchable library of images into a simple, intuitive process. And searching through that library later, even across a network, is even easier.

Finalists

Perfect for portable documents, Ares' **FontChameleon 1.0** uses a revolutionary technology that stores entire typefaces as tiny "font descriptors"; use it to create custom typefaces too. The king of Photoshop-plug-in collections, **Kai's Power Tools 2.1**, from HSC Software, offers Power Mac-native speed, a revamped interface, and a bevy of valuable filters.

Visual Resource

TextureScape 1.5

Graphic artists who prefer their own backgrounds and textures will like Specular International's **TextureScape 1.5**, the best of several texture generators released this year. With it you can combine ready-made patterns and then add

lighting, beveling, bumpiness, transparency, and other effects. Multimedia artists can even morph one texture with another and save the result as a QuickTime movie. Best of all, it's Power Mac-native.

Finalists

Of the uniformly excellent CD-ROM image collections released by PhotoDisc this year, its **Signature Series** of high-resolution, color-corrected images is noteworthy for composition and quality. Xaos Tools' **Terrazzo 1.0** puts a new twist on pattern generation by letting you snip patches from an existing image for stitching into a tiled pattern based on quilt symmetries.



Software Product of the Year

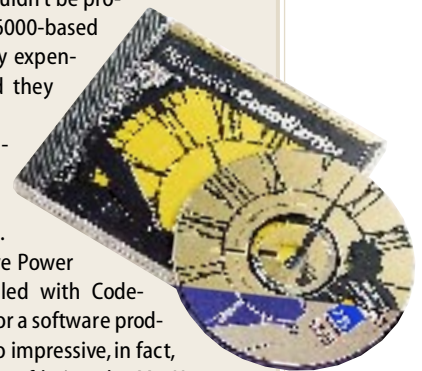
CodeWarrior / In the normal course of events, a compiler is an unlikely candidate for Software Product of the Year. A compiler is a special program that lets application developers convert the code they write, in a human-comprehensible language such as C or Pascal, into instructions a computer can understand. Compilers are esoteric, behind-the-scenes stuff.

But 1994 was not a normal year for Mac users. That was the year when the Power Macs made their debut. If there's one thing everyone knows about Power Macs, it's that they're fast. If there's a second thing everyone knows about Power Macs, it's that to take advantage of their speed, you need software compiled specifically for their PowerPC processors.

Apple, of course, had a PowerPC compiler of its own. A slow one. A really slow one. So slow that most developers found they couldn't be productive with it. And then there was IBM's RS/6000-based compiler. It wasn't slow: It was expensive. Really expensive. So expensive that most developers found they couldn't afford it.

Metrowerks' CodeWarrior saved the day. Without CodeWarrior, most of the native Power Mac applications available today would still be under construction. And Power Macs would be a flop. All but a small handful of the hundreds of native Power Mac applications available today were compiled with CodeWarrior. That's a pretty impressive achievement for a software product that many Mac users have never even heard of. So impressive, in fact, that we decided that it deserved the distinction of being the MacUser Editors' Choice for Best Software Product of the Year.

After all, a great hardware platform is only as good as the software that runs on it. Thanks to CodeWarrior, Power Mac users can count on a robust supply.



Multimedia



Nowhere was the impact of the Power Mac's horsepower felt more keenly than in multimedia and 3-D rendering, where daylong operations were cut to hours. Although buggy in its initial release, Apple's QuickTime 2.0 opened up opportunities for full-motion, full-screen video on the Mac. The number of multimedia CD-ROM titles exploded for both Macs and PCs, but the Mac remains the platform of choice for developing titles.



3-D-Modeling Software

Alias Sketch! 2.0

Alias Research is well respected in the workstation world for special-effects software that can create realistic dinosaurs and fantastic spaceships. Now **Alias Sketch! 2.0** brings much of that modeling power to the average desktop in an interface any illustrator who works in two dimensions can understand. A familiar Bézier-path tool, new path-extrusion and lofting tools, and a killer lighting preview make Sketch! 2.0 the best tool for creating just about any three-dimensional shape.

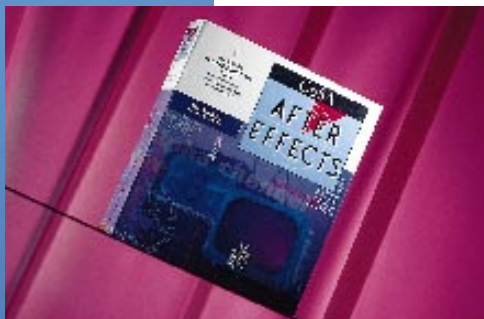
Finalists

Ray Dream Designer 3.1 is a great choice for graphic designers who want to try out three-dimensional software, because it runs well on LCs and Power Macs alike. If you're looking for animated warping tools and metaball modeling, look no further than Strata's **StudioPro 1.5**, a hot upgrade to last year's finalist.

Animation Software

After Effects 2.0

If two-dimensional animation is part of your business, you had better own **After Effects 2.0**, now from Adobe Systems. The first version of the program was so



powerful that animators bought Macs for the sole purpose of running After Effects and Photoshop. After Effects 2.0, with its easy-to-use timeline, Power Mac acceleration, and exciting new plug-in effects, is more accessible than ever.

Finalists

Professionals will appreciate many of the new deformation features in Electric Image's **ElectricImage Animation System 2.0**, and new users will find this version more approachable. Besides running native on the Power Mac and sporting an improved interface, **VIDI Presenter Pro 3.0**, from VIDI, includes a timeline window for controlling simultaneous animations and features astounding sound.



Multimedia Software

Digital Chisel 1.2

Digital Chisel 1.2, from Pierian Spring, may not be the most powerful multimedia authoring application available on the Mac, but its ease of use, smart set of features, and liberal licensing scheme make it an obvious choice for educational and home use. Its streamlined interface makes creating multimedia projects simple. Digital Chisel's database helps teachers keep track of students' progress, and the company encourages students to make a free copy for use at home and pay only \$20 for a manual.



Finalists

Apple Media Tool 1.1 offers improved interactivity, supports styled text, includes dissolve effects, and more. The de facto standard for authoring, completely rewritten by Macromedia, **Director 4.0** sports a revamped interface, improved scripting, and an application compiler.



Special-Effects Software

Typestry 2.1

Flying titles and logos can add spice to a presentation or pack a wallop on television, thanks to Pixar's **Typestry 2.1**. Professionals and amateurs alike will love the power to create waving flags and sparkling letters and rendering them with the professional's choice, Renderman. Typestry's new Score window makes animation much easier than before, and the rendering is more flexible with the program's built-in Looks editor. Another plus: It supports GX fonts.

Finalists

Elastic Reality brings us **Elastic Reality 1.2**, morphing software that offers precision Bézier curves and Power Mac speed that rivals that of a Silicon Graphics Indy. Last year's finalist MetaFlo' offered humorous warping effects on static images; now **MovieFlo' 1.05**, from The Valis Group, goes a step further with morphing and warping of QuickTime movies as well.

Desktop-Video Product

Avid Media Suite Pro 3.0

The **Avid Media Suite Pro 3.0**, from Avid, continues to set the standard for a reliable Mac video-editing system that delivers professional results. The latest

version adds significant new features, such as a QuickTime CODEC, 60-field resolution, support for Photoshop plug-ins, true timeline editing, and pan and audio-volume control. Overall, Avid has delivered a program that can transform a Mac into a fast, sophisticated video-editing tool — great news for anyone who wants to create video on the desktop.

Finalist

Favored by Hollywood types, **Radius VideoVision Studio 2.0** was the first video-capture board to deliver 60 fields of interlaced video per second and still offers the best picture quality.

Music Product

Vivace

This technically astonishing hardware/software combination provides students of brass and woodwind instruments with smart orchestral accompaniment that



adapts to the speed of their performances. Unlike earlier single-tempo, ensemble-minus-one accompaniment tools, Coda Music Technology's **Vivace** and its extensive library of classical selections enable the "orchestra" to slow down to let students work on tricky passages, or to subtly vary tempo along with the student.

Finalists

Mark of the Unicorn's **Freestyle 1.0** is an innovative songwriting tool that packages a MIDI sequencer and accurate notation software with a new, intuitive interface. **Practica Musica 3.06**, a music-theory and intonation training system from Ars Nova Software, offers an easy-to-use interface plus rhythm training and other useful new features.

Breakthrough Technology of the Year

QuickTime VR / The number of CD-ROM titles exploded last year. Too bad so many of them are lackluster. Realizing the full potential of CD-ROM requires something more than just converting movies to QuickTime clips. What's needed is a breakthrough such as Apple's QuickTime VR.

Although considered an extension of the QuickTime architecture, QuickTime VR owes more of its technology to static photography than to dynamic data streams. QuickTime VR allows developers to create, from a series of photographs, a seamless, 360-degree panorama. The user is then able to navigate around the scene as if located *inside* it.

The QuickTime VR toolkit can take a series of 35mm photos and stitch them together, taking into account the perspective changes from one photo to the next. Once the photos are stitched together, the QT VR toolkit allows developers to assign hot spots or jump points to which other images can be attached.

Finally, the file is compressed — a single panorama takes up less than 1 megabyte of memory. The QT VR player decompresses the image on the fly as the user scrolls across it, also correcting for perspective distortion. It's a rich, all-encompassing experience in which the user is immersed in the scene but the technology doesn't intrude.

Simon & Schuster Interactive's CD-ROM *Star Trek: The Next Generation Interactive Technical Manual* is a beautiful example of what is possible thanks to QuickTime VR technology. This disc lets users travel throughout the Starship Enterprise and explore in detail the original sets from the television series.

That's just one example. QuickTime VR opens up new vistas for more-worldly objectives, from teaching history to traveling distant lands to exploring the creative mind. It fulfills the promise of CD-ROM and beyond.



Connectivity and Communications



Internet mania swept the newsstands of America, and everyone seemed to plug in. Making connections is easier and faster than ever too. New groupware applications and remote-access hardware improved the usefulness of LANs as well, whether for people working at home or for those collaborating with coworkers via the office network.

Communications Software

Eudora 2.1

Managing Internet e-mail is a joy with Qualcomm's **Eudora 2.1**. You can reach your dial-up or network-based Internet account



from this flexible mail reader, which includes such advanced features as message filtering, APOP and Kerberos security, and support for Apple events. With a refined interface and simplified mail sorting, Eudora brings the often arcane world of Internet access to the desktop.

Finalists

Mail is also a strength of SoftArc's **FirstClass 2.5**, a BBS system with sophisticated new e-mail-routing features and support for DAL- and SQL-database queries.

TCP/Connect II 2.0, from InterCon Systems, provides integrated Internet access. You get mail, news, ftp, Gopher, and directory services plus several terminal-emulation modules.

Best Connectivity Product

RunShare 1.0.2

If you're waiting megaminutes to transfer multimegabyte files over a network, **RunShare 1.0.2**, from RUN, is for you.

RunShare simply and transparently speeds network file transfers by a factor of 5 to 7, reducing a minute-long file transfer to under ten seconds. RunShare is completely invisible to the user too — you drag and drop files to mounted Finder volumes as you normally do. Best of all, it's compatible with standard network protocols.



Finalists

The **DaynaLink ARA Server 1.1**, from Dayna Communications, is an innovative ARA server that has a RISC processor for fast communications and works with as many as eight PCMCIA modems. Shiva's

LanRover/PLUS 3.0 is a high-end ARA server that supports more network protocols than any other server, allowing Macs and PCs to dial in to a mixed network.

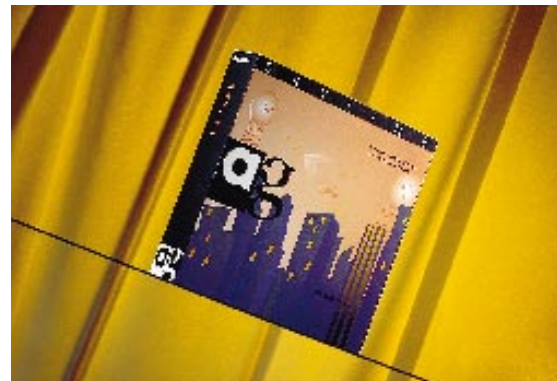
Network-Management Product

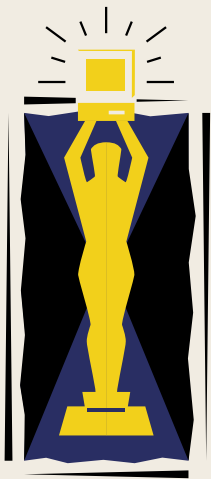
Skyline/Satellite 1.0

Skyline/Satellite 1.0, a brand-new, innovative package from the ag group, pairs an application for archiving network traffic (Satellite) with a graphic network-traffic display-and-analysis application (Skyline). Skyline/Satellite monitors current and past network activity, including utilization as well as byte and packet counts. It also supports an impressive number of protocols.

Finalists

FileWave 2.0, from Wave Research, provides a holistic approach to automated software distribution and management, with an interface that's tightly integrated with the Finder. Neon Software's network-mapping and -analysis tool, **LANSurveyor 2.0**, now features IP support, improved reporting, and the ability to customize maps.





This issue marks the fifth anniversary of the John J. Anderson Distinguished Achievement Award and the Derek Van Alstyne Rising Star Award, named after two *MacUser* editors who were killed during the 1989 Loma Prieta earthquake. John served as *MacUser*'s senior features editor for many years before he formed an advanced projects group with Derek, a new employee acting as John's right-hand man. The two saw potential in fledgling technologies that have become today's hot topics — multimedia and on-line services. John created multimedia presentations that were as artful and thought-provoking as any of today's CD-ROM titles. While he was working on what later became ZiffNet/Mac, John's vision encompassed putting multimedia as well as advertising on-line, developments we are just beginning to see realized today.

These awards embody the creative spirit of John and Derek, which we hope will inspire today's developers.

Special-Achievement Awards

John J. Anderson Distinguished Achievement Award

Douglas C. Engelbart

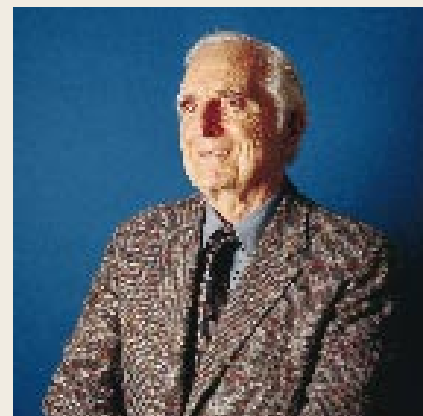
Ask what made Macs different from their command-line predecessors, and the average person will probably name two features first: mice and windows. Press a little harder, and a savvy user might point out that from the very start, Macs were designed to be used together; they contained built-in network circuitry before any software existed that could connect them to one another. How extraordinary, then, that all these innovations — mice, windows, and personal computers as communication devices — were originally invented or envisioned by a single man, Douglas C. Engelbart.

When Doug began his research at the Stanford Research Institute in the late 1950s, computers were enormous; expensive; exclusive; isolated; and, to the uninitiated, incomprehensible as well. During the next 20 years, however, he began a lifelong quest to match the real

potential of computers — a potential it sometimes seemed only he could see — to the needs of humans. He was the first to see that computers could be more than giant adding machines, that they could be tools for change of the most profound sort.

If Steve Jobs is the father of the Mac, then surely Doug Engelbart is its great-uncle. The connections between Doug's research, Xerox PARC's Alto computer, and the Mac are easy to trace. A short list of Doug's breakthroughs includes the mouse (which he patented in 1963), on-screen windows, real-time collaboration, teleconferencing, and hypertext. It's impossible to imagine using a personal computer today or tapping into worldwide networks such as the Internet without his contributions.

Doug's greatest dream, however, has yet to be fully realized. It is that people can learn to use computers to create a whole that's greater than the sum of its parts. Collaborative or workgroup



computing — which is just now beginning to be realized through applications such as Mosaic (itself a descendant of Doug's pioneering work with hypertext) and Lotus Notes — promises a better way to develop and share knowledge. We hope that computer science will catch up soon — for Doug himself is still moving ahead with new ideas. People everywhere would reap the benefits.

Derek Van Alstyne Rising Star Award

Peter N. Lewis



The Internet may be the hottest thing in computing these days, but Mac users trying to surf the Net would be much poorer if it weren't for Peter N. Lewis. From his

home in Perth, the remote capital of Western Australia, this 26-year-old has written more than a dozen applications that improve the way Mac users interact with the Internet.

Peter's most notable achievement may be Anarchie, which began as a simple means of

searching for files on the Internet. Since then, it's grown into an intuitive Internet file-transfer application that makes moving files onto and off the Internet a drag-and-drop process.

But that only scratches the surface of the many contributions — most of them freeware or shareware — Peter has made in just the past four years. He wrote FTPd, which allows Macs to act as file servers on the Internet; MacTCP Watcher, a powerful tool for debugging Mac Internet connections; several file-decoding utilities; and even an extension that speeds up your CD-ROM-drive performance.

Although supplemented by shareware payments from his programming efforts, Peter's

main job is as a computer-support staffer at a small research center just off the campus of Curtin University in Perth. After spending his day advising Mac users, Peter turns to writing software (and consulting long-distance with programming peers such as last year's Eddy winner John Norstad and Eudora author Steve Dorner). He even pays Curtin University for the after-hours use of its equipment.

Especially considering the explosive growth of the Internet, Peter Lewis' youth, productivity, and creativity suggest that he's a face we'll be seeing a lot more of in the years ahead — either in person or on the other side of a distant Internet connection.

Hardware



Mac users no longer have to pay a premium for Apple's plug-and-play advantage. Prices for Mac hardware in 1994 declined to PC levels, while quality and performance improved. Multiple-frequency monitors became a commodity, CD-ROM drives became mainstream accessories, color printers became affordable, and high-capacity hard drives became a reality for PowerBook users.

Color Printer

LaserMaster DisplayMaker Professional



What's the next big thing? Poster-sized printing, and a clear choice among large-format color printers is the **LaserMaster DisplayMaker Professional**. Using its multiplatform Advanced Color Server and Big Ink Delivery System, this complete four-color system outputs beautiful, richly colored, high-quality prints as large as 36 inches wide by

18 feet long. The integration of hardware and software makes large-format printing a snap.

Finalists

Of the many color inkjet printers that came out in 1994, the **Epson Stylus Color** stands out, with 720-dpi resolution and unparalleled image quality at a price that's right for most home users. For photo-realistic printing, the quick **Tektronix Phaser 440** brings together glossy dye-sublimation color with full-bleed letter-sized output.

Storage Product

Nakamichi MBR-7



Choosing the best storage product can be like selecting the best toaster — it's hard to differentiate one from another. But the **Nakamichi MBR-7** — Nakamichi's first Mac product under the company's name — has all the things you hope to see in a Mac peripheral.

This CD-ROM changer enables you to load seven discs at once — no caddies required. Best of all, it's a breeze to hook up, the software is solid, and the price tag is not easy to beat.

Finalists

The **FWB SledgeHammer3500FMF II** RAID system integrates fast hard-drive mechanisms, well-engineered SCSI host adapters, and elegant software. The next step in a family of high-speed storage systems, the **MicroNet RavenPro 3600 PDS** has two separate Fast and Wide SCSI-2 channels, making it possible to create a RAID disk array from a single host-adaptor card.



Monochrome Printer

Xanté Accel-a-Writer 8200

For flexibility, you can't beat the **Xanté Accel-a-Writer 8200**. Its versatile paper handling includes gatefold printing on paper as large as 11.75 x 25 inches. With resolutions of 600, 800, and 1,200 dpi, it can serve as a business printer or a plain-paper typesetter. When it comes to speed, it's no slouch either: The 8200's RISC processor speeds letter- and legal-sized output to 16 ppm. Halftone and fine-line output are outstanding too, a boon for graphic artists.

Finalists

The **Apple LaserWriter 16/600 PS** cranks out 17 letter-sized pages per minute and produces stunning 600-dpi gray-scale-enhanced images. Another winner in the company's long line of printers, the **Hewlett-Packard LaserJet 4MV** gives you rapid output at 600 dpi with enhanced gray scale and support for tabloid-extra output — at an unbeatable price.



Display Product

NEC MultiSync XE17

A monitor that's easier to use with a Mac than Apple's own? That's what you get with the **MultiSync XE17** from NEC. Its on-screen menu controls are animated, so you can see what they'll do before you make adjustments. Unlike most third-party monitors, the XE17 comes with all Mac essentials inside the box, including a cable adapter, software for resolution switching, and automatic power-down.

Finalists

The **Proxima Desktop Projector 2800** combines great image quality and convenience in a smart-looking LCD-based multimedia projection system with built-in speakers and optional Cyclops capability. The **Radius SuperMatch 21T-XL** features a 21-inch Mitsubishi DiamondTron aperture-grille tube, for a sharp, bright picture at resolutions as high as 1,600 x 1,200 pixels.

Accelerator Product

Newer Technology Power Clip

Extract maximum speed from the Power Mac with the **Newer Technology Power Clip**. To increase



the speed of the Power Mac, you simply clip this replacement crystal-clock oscillator onto the back of the one installed by Apple. Newer didn't invent "clock chippers," but the compact design of the Power Clip allows it to work with most Power Mac models, and its programmability allows a range of operating frequencies.

Finalists

Harnessing the power of four DSP processors on a single 7-inch NuBus card, the **Radius PhotoEngine** accelerates key Photoshop functions to speeds beyond those of even the fastest Power Mac. Accelerated RGB-to-CMYK conversion, integrated QuickDraw, and Photoshop acceleration make the **Radius Thunder II GX-1600** a good display card for graphic designers.

Scanner

Epson ES-1200C

Scanners used to be a luxury, but the **Epson ES-1200C** gives you 600-x-1,200-dpi resolution at a bargain price. Low-cost, high-resolution scanning doesn't stop there either: You also get interpolated resolution as high as 4,800 dpi, plus 30-bit color, Adobe Photoshop, and Second Glance's



versatile ScanTastic plug-in and DA. Of the many excellent flatbed scanners on the market this year, the **ES-1200C** is the best all-around package.

Finalists

When flatbed scanners won't do, turn to the **Kodak Professional RFS 2035 Film Scanner**, which scans slides and film quickly with great quality. The **PixelCraft Pro Imager 4000** provides the excellent accuracy and color-separation capabilities found in the company's high-end, big-ticket scanners.



Input Device

SoftBoard

Corporate types have a real time-saver in the **Microfield Graphics SoftBoard, Model 201**. You no longer have to

scramble to copy whiteboard notes during meetings or lectures if you have the SoftBoard. Whatever is drawn on this large digital whiteboard appears on the screens of connected Macs. You can save, play back, and edit the images and send them to other Mac users.

Finalists

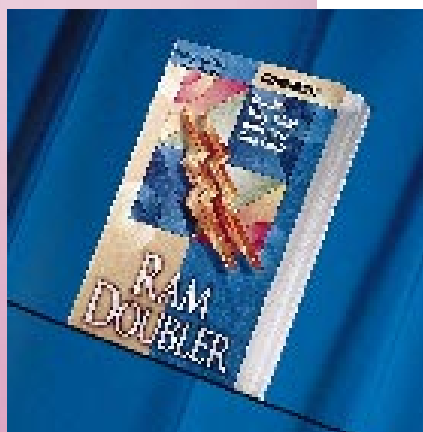
Not only can you mouse around without strain when you use the **Kensington Thinking Mouse** but you can also program

any of its four buttons to print a document, double-click on a selection, and so on. The **Connectix QuickCam**, a 4-bit gray-scale digital-video camera about the size and shape of a cue ball, is one of the best bargains of the year — and the ultimate desktop accessory.

Personal Macintosh



Hot-selling Performa models with built-in CD-ROM drives brought the Mac experience home, fueling the demand for products that appeal to everyone's desire to make a personal statement with their Macs. You can't turn around without bumping into wacky screen savers, time-saving PIMs, hair-raising games, and educational and entertaining CD-ROMs. Easy-to-use utilities help you master your Mac when the wild and wacky wreak havoc.



System Enhancement

RAM Doubler 1.5

Finally, something that's not too good to be true: Connectix's **RAM Doubler 1.5** really does double your RAM, almost transparently, and — surprisingly — without serious problems. As applications continue to place greater demands on your machine's memory, RAMDoubler helps you get more mileage out of your Mac. For less than \$60, it's one of the cheapest upgrades you can get.

Finalists

Easy-to-use locking and encryption features combined with welcome emergency unlocking make Symantec's **Norton DiskLock 3.0** ideal for basic security. Accessing files and folders is easier and faster than ever with **Now Utilities 5.0**. Now Software's updated classic features old favorites such as SuperBoomerang and snazzy new ones such as FolderMenus.

Diagnostic Utility

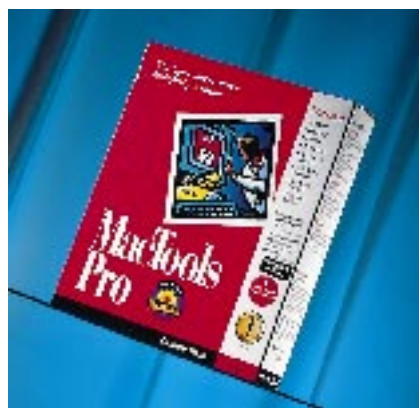
MacTools Pro 4.0

Novice and power users alike appreciate the easy-to-create RAM startup disk and

diagnostic features in **MacTools Pro 4.0**, from the Central Point Division of Symantec. MacTools efficiently diagnoses and repairs disk problems, and you can use it to recover erased data (or trash data irrevocably) as well. If you're having hard-disk problems, running MacTools Pro 4.0 is the place to start.

Finalists

Extension- and control-panel-conflict tester **Conflict Catcher II 2.1**, from Casady & Greene, now spots slowpokes on your Power Mac by telling you which startup files have non-native code. In addition to checking your Mac's speed, Symantec's disk-diagnostic tool **Norton Utilities 3.1** plays bookie by giving you the odds on successful file recovery.



Best Desktop Diversion

Star Trek: The Next Generation Screen Saver

Although Trekkers might take their favorite show very seriously, the joy of Berkeley Systems' **Star Trek: The Next Generation Screen Saver** is its sense of humor. Highlighted by Lieutenant Worf's

hyperactive weapons-training session and Commander Data's instructive dance lesson, this collection of 13 After Dark modules is a hoot for hard-core and casual *Trek* fans alike.

Finalists

Berkeley Systems' **After Dark 3.0** is an update of the old favorite — complete with even more-intricate Flying Toasters and Fish (and an unfortunately unforgettable karaoke anthem) plus a Power Mac-native module. Delrina's **The Far Side Screen Saver** is both bizarre and beautiful, featuring 256-color paintings depicting the history of Earth through the cracked worldview of Gary Larson.



Personal-Organizational Tool

Claris Organizer 1.0

A simple yet powerful integrated personal information manager, **Claris Organizer 1.0** offers a refined, intuitive interface and easy linking among personal information, calendar events, and items in a to-do list. And with all of its functionality, it doesn't use a lot of RAM or disk space. For users who want to go electronic with their personal information, Claris Organizer is a great choice.

Finalists

Common Knowledge's **Arrange 2.0** is a high-end PIM for people who need to carefully organize large amounts of personal information in any number of combinations. The program that made tracking personal finances easy, Intuit's **Quicken 5.0** adds a paper-tape calculator, graphing capabilities, and the ability to download stock information from CompuServe and automatically update your portfolio.

Reference Software

Microsoft Bookshelf '94

If **Microsoft Bookshelf '94** were simply what its name implies — seven reference books (including a dictionary, a thesaurus, an encyclopedia, an atlas, and an almanac) packed onto one CD-ROM — it would already be a huge time- and space-saver. But Bookshelf goes further: It adds an intuitive interface for easy searching, a strong collection of multimedia elements, and enough book-to-book links to make exploration of any topic a joy.

Finalists

Microsoft Cinemania '94 includes more than 20,000 movie reviews from respected critics, plus links to stills, songs, video clips, and film lore. IVI Publishing's **Mayo Clinic Family Health Book** is an excellent home resource on health and medicine, with detailed anatomy drawings and animations linked to clearly written text.

Best Edutainment Software

Cartoon History of the Universe

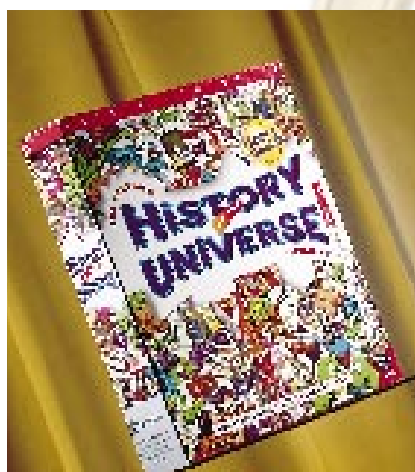
Ever wanted to see the inside of the Great Pyramid of Cheops? Putnam New Media's

Cartoon History of the Universe gives you that and more — 13 billion years of history, including topics ranging from the Old Testament to the origin of sex. Putnam enhanced Larry Gonnick's comic-book series with animations, sound, games, creative graphics, and no-brainer navigation. Adults and kids alike will find this a fun and engaging way to learn history.

Finalists

Freak Show, from The Voyager Company, features writing, music, and characters by the performance group The Residents that are every bit as strange as the carnival sideshow it depicts. You don't have to be a Trekker to enjoy exploring the Starship Enterprise, using one of Apple's latest technologies, QuickTime VR, in Simon & Schuster Interactive's **Star Trek: The Next Generation Interactive Technical Manual**.

continues ►



Personal Macintosh

Children's Software

Odell Down Under 1.1

When your kids play **Odell Down Under 1.1**, from MECC, learning sneaks up on them from behind — like the predators they're trying to avoid. In this colorful simulation game, they start out as tiny, nearly defenseless fish and then work their way up the food chain by digesting a rich bouillabaisse of undersea ecological facts. If your kids learn what to eat, what's eating them, and which fellow fish they can count as allies, they'll achieve their goal: sharkdom.



Finalists

Brøderbund's **Math Workshop** provides a witty collection of challenging games that teach reasoning and pattern recognition at skill levels ranging from elementary to parent-befuddling. **Thinkin' Things Collection 2** is the latest proof that its publisher, Edmark, is the acknowledged leader in inspiring imagination through astonishingly inventive play.

Best Game

SimCity 2000 1.1

Did last November's election leave you voting for the lesser of two evils? With Maxis' **SimCity 2000 1.1**, you can be mayor, city planner, and every other elected official wrapped into one. The gorgeous 3-D graphics are enough to instill civic pride, and the new ability to build a water system, highways, and subsimulations will keep you meddling in pseudopolitics for months.

Finalists

Find treasures in abandoned mines in Dynamix's revamped classic arcade-style game, **Lode Runner: The Legend Returns**. Battle your evil twin and, once again, save the beautiful princess in Brøderbund's **Prince of Persia 2: The Shadow & the Flame**.



Eddy Watch:

Canvas 4 (Deneba): If rumored plans bear fruit, a redesigned interface plus GX and OpenDoc support may position Canvas to siphon users away from Illustrator and FreeHand.

Citizen PN60 for the Macintosh (Citizen America): PowerBook-toting travelers will want this flashlight-sized printer for churning out color or monochrome pages on the road.

FreeHand 5.0 (Macromedia): Wrested away from Adobe by its developer, Altsys (which then merged with Macromedia), FreeHand 5.0 is taking on Illustrator with a vengeance, with the addition of plug-in tools and filters plus the ability to use Illustrator 5 filters.

The Journeyman Project 2: Buried in Time (Sanctuary Woods/Presto Studios): This sequel promises a richer story as you once again protect the past from evildoers with live-action video, advanced sound, and killer 3-D graphics.

Marathon (Bunjie Software): A network-playable game that puts you into an alien spacecraft surrounded by enemies, it offers better graphics, sounds, and excitement than current champ Doom.

1995 Contenders

As soon as we rip open the envelopes to announce this year's winners, we're already scoping out potential nominees for next year's awards. Here are some products that have caught our eye.

Media 100 2.0 (Data Translation): A previous year's Eddy finalist, this hardware/software package will offer tighter integration with QuickTime and component-video input/output that adds up to better looking videotapes.

Now Contact 3.0 and **Now Up-to-Date 3.0** (Now Software): This tightly integrated tag team manages your personal information while keeping you current with events back at the office.

OneWorld Internet (Global Village): The OneWorld Internet server promises an easy way to connect your site at 28.8 Kbps or over ISDN with full support for QuickMail and Microsoft Mail users who need to send and receive mail across the net.

PaperPort (Visioneer): Scanning and OCR combine in one portable device that allows tight integration with a variety of products. You get scanning and document storage without pressing a button.

PD (Panasonic): PD drives play conventional CD-ROMs but also accept cartridges that contain the 120-millimeter discs for CD-ROM drives that use phase-change technology to write and store

data. This inexpensive mechanism delivers 650 MB of data storage that's expected to be built in to systems in 1995.

Phaser 540 (Tektronix): The first round of color laser printers has fallen short on image quality, but Tektronix will deliver a color laser printer that offers continuous-tone printing for when you need to print more than a simple pie chart.

QuickBooks for Mac (Microsoft/Intuit): This easy-to-use accounting package may finally come to the Mac, if the proposed Microsoft/Intuit merger doesn't delay it.

Radius VideoVision Telecast (Radius): An upgrade to Radius VideoVision Studio, this hardware/software combination may squeak by video-editing behemoth Avid's Media Suite products. This system is designed to meet the needs of broadcast professionals.

SimTown (Maxis): SimCity for the grammar-school set. Kids can create and populate a town, allocate resources (natural, human, and industrial), and even visit households and workplaces to see how their "subjects" spend their days.

Taxi (News Electronic Data): When you're in a strange town, this package helps you find a hotel or dining spot based on the well-known Zagat rating system. Maps and directions guide you to your destination in several large U.S. cities.

TextureMaker 1.0 (Adobe): Second in the Aldus/Adobe Accessories line, it creates interesting, useful textures quickly and easily at a bargain price.

Toshiba MK 2728 (Toshiba): Toshiba will deliver the first 1-GB, 2.5-inch drive mechanism, which should be the perfect companion for multimedia presentations on a PowerPC-based PowerBook.

Total Distortion (Rocket Science): This long awaited CD-ROM combines an interactive exploration/quest game and arcade-style diversions with tools for creating your own music video with a library of music, video clips, and effects as well as footage you "shoot" as you explore several virtual worlds.

Turbo 601 (DayStar Digital): At last Mac IIci owners can get the benefit of PowerPC acceleration, which pushes the IIci to speeds rivaling those of Power Mac

6100s, without buying a new machine.

UltraStor Drives (IBM): IBM promises a whopping 10.1-GB, 3.5-inch mechanism with blistering speed. It may not be cheap, but it will offer the capacity necessary to accommodate minutes of digital video or years of your company's records. **UniQorn** (SoftPress Systems) and **VivaPress Professional** (Interpress Technologies): Two fresh takes on page layout, these newcomers offer features and capabilities currently lacking in PageMaker and QuarkXPress, such as full support for Apple's GX technology (UniQorn) and free-form frame creation (VivaPress Pro).

XRes (Fauve Software): This image-editing program promises to challenge the heavyweights with its Live Picture-like ability to deal with large images and the natural-media tools of Painter while requiring just 4 MB of RAM.

Zip Drive (Iomega): Iomega returned to the drawing board to deliver Bernoulli technology in a 3.5-inch form factor. A \$200 list price and a 100-MB disc that costs only \$20 could finally make backup painless, at least on the pocketbook.

1994 Product Directory

Adobe Dimensions 2.0

\$199
Adobe Systems
800-833-6687
415-961-4400

Adobe Illustrator 5.5

\$595
Adobe Systems
800-833-6687
415-961-4400

Adobe Photoshop 3.0.1

\$895
Adobe Systems
800-833-6687
415-961-4400

After Dark 3.0

\$50
Berkeley Systems
510-540-5535

After Effects 2.0

\$1,995
Adobe Systems
800-833-6687
415-961-4400

Aldus Persuasion 3.0

\$495
Adobe Systems
800-833-6687
415-961-4400

Alias Sketch! 2.0

\$695
Alias Research
800-447-2542
416-362-9181

Apple LaserWriter 16/600 PS

\$2,500
Apple Computer
800-776-2333
408-996-1010

Apple Media Tool 1.1

\$795
Apple Computer
800-776-2333
408-996-1010

ArchiCAD 4.5

\$4,495
Graphisoft
800-344-3468
415-266-8720

Arrange 2.0

\$349
Common Knowledge
800-954-3800
415-325-9900

Avid Media Suite Pro 3.0

\$9,995
Avid
800-949-2843
508-640-6789

Cartoon History of the Universe

\$40
Putnam New Media
703-860-3375

Claris Organizer 1.0

\$49
Claris
408-727-8227

ClarisImpact 1.0

\$399
Claris
408-727-8227

ClarisWorks 3.0

\$129
Claris
408-727-8227

CodeWarrior

\$399
Metrowerks
512-346-1935

ColorMatch 1.0

\$239
DayStar Digital
800-962-2077
404-967-2077

Colortron

\$1,195
Light Source
800-231-7226
415-925-4200

Conflict Catcher II 2.1

\$80
Casady & Greene
800-359-4920
408-484-9228

Connectix QuickCam

\$149
Connectix
800-950-5880
415-571-5100

Cumulus PowerPro 2.0

\$1,495
Canto Software
800-332-2686
415-431-6871

DaynaLink ARA Server 1.1

\$2,995
Dayna Communications
801-269-7200

Digital Chisel 1.2

\$159
Plerian Spring
503-222-2044

continues ►

1994 Product Directory

Director 4.0

\$1,195
Macromedia
800-945-4061
415-252-2000

Dynamics C/S+

\$4,000 - \$50,000
Great Plains Software
800-456-0025
701-281-0550

Elastic Reality 1.2

\$349
Elastic Reality
608-273-6585

ElectricImage Animation System 2.0

\$7,495
Electric Image
818-577-1627

Epson ES-1200C

\$1,499
Epson
800-289-3776
310-782-0770

Epson Stylus Color

\$699
Epson
800-289-3776
310-782-0770

Eudora 2.1

\$65
Qualcomm
619-587-1121

The Far Side Screen Saver

\$40
Delrina
800-268-6082
408-363-2345

FileMaker Pro Server 2.0 v1

\$1,499
Claris
408-727-8227

FileWave 2.0

\$895
Wave Research
510-704-3920

FirstClass 2.5

\$95 server software plus
\$395 five-user pack
SoftArc
905-415-7000

FontChameleon 1.0

\$295
Ares
800-783-2737
415-578-9090

Freak Show

\$40
The Voyager Company
800-446-2001
914-591-5500

FreeHand 4.0

\$595
Altsys/Macromedia
800-945-4061
415-252-2000

Freestyle 1.0

\$195
Mark of the Unicorn
617-576-2760

FWB

SledgeHammer3500FMF II
\$7,599
FWB
415-474-8055

Hewlett-Packard

LaserJet 4MV
\$3,549
Hewlett-Packard
800-752-0900

Kai's Power Tools 2.1

\$199
HSC Software
310-392-8441

Kensington Thinking Mouse System 1.0

\$100
Kensington Microwave
800-535-4242
415-572-2700

Kodak Professional RFS 2035

Film Scanner
\$7,995
Eastman Kodak
800-242-2424
716-253-0740

LanRover/PLUS 3.0

\$4,999
Shiva
800-458-3550
617-270-8300

LANSurveyor 2.0

Five zones, \$399;
unlimited zones, \$695
Neon Software
510-283-9771

LaserMaster DisplayMaker Professional

\$29,995
LaserMaster
800-950-6868
612-944-0522

Live Picture 1.5

\$3,495
HSC Software
805-566-6200

Lode Runner: The Legend Returns

\$46
Dynamix
800-326-6654
503-343-0772

M.Y.O.B. 5.0

\$140; with payroll, \$240
BestWare
201-586-2200

Maconomy 2.3

\$9,500
Maconomy NE
508-460-8337

MacTools Pro 4.0

\$150
Central Point
800-445-4208
503-690-8090

MapInfo 3.0

\$1,295
MapInfo
800-327-8627
518-285-6000

Math Workshop

\$40
Broderbund
800-521-6263
415-382-4400

Mayo Clinic Family Health Book

\$60
IVI Publishing
800-432-1332
612-996-6000

Microfield Graphics SoftBoard, Model 201

\$2,995
Microfield Graphics
503-626-9393

MicroNet RavenPro 3600 PDS

\$8,595
MicroNet
714-453-6000

Microsoft Bookshelf '94

\$99
Microsoft
800-426-9400
206-882-8080

Microsoft Cinemania '94

\$80
Microsoft
800-426-9400
206-882-8080

Microsoft Excel 5.0

\$329
Microsoft
800-426-9400
206-882-8080

Microsoft PowerPoint 4.0

\$300
Microsoft
800-426-9400
206-882-8080

Microsoft Works 4.0

\$100
Microsoft
800-426-9400
206-882-8080

MiniCAD 5.0

\$795
Graphsoft
410-290-5114

MovieFlo' 1.0S

\$699
The Vallis Group
800-825-4704
415-435-5404

Nakamichi MBR-7

\$649
Nakamichi
310-538-8150

NEC MultiSync XE17

\$1,060
NEC
800-632-4636
708-860-9500

Newer Technology Power Clip

\$245
Newer Technology
800-678-3726
316-685-4904

Nisus Writer 4.0

\$495
Nisus
800-922-2993
619-481-1477

Norton DiskLock 3.0

\$129
Symantec
800-441-7234
408-253-9600

Norton Utilities 3.1

\$149
Symantec
800-441-7234
408-253-9600

Now Utilities 5.0

\$90
Now Software
503-274-2800

Odell Down Under 1.1

\$60
MECC
800-685-6322
612-569-1500

Painter 3.0

\$499
Fractal Design
408-688-8800

PixelCraft Pro Imager 4000

\$2,995
PixelCraft
800-933-0330
510-562-2480

PowerCADD 5.0

\$795
Engineered Software
910-299-4843

Power Macintosh 6100/60

\$1,819 - \$2,499
Apple Computer
800-776-2333
408-996-1010

Practica Musica 3.06

\$140
Ars Nova Software
800-445-4866
206-889-0927

Prince of Persia 2: The Shadow & the Flame

\$35
Broderbund
800-521-6263
415-382-4400

Proxima Desktop Projector 2800

\$8,995
Proxima
800-447-7694
619-457-5500

Quicken 5.0

\$40
Intuit
800-624-8742
415-322-0573

Radius PhotoEngine

\$1,099
Radius
800-227-2795
408-541-6100

Radius SuperMatch 21T-XL

\$2,599
Radius
800-227-2795
408-541-6100

Radius Thunder II GX-1600

\$3,999
Radius
800-227-2795
408-541-6100

Radius VideoVision Studio 2.0

\$4,849
Radius
800-227-2795
408-541-6100

RAM Doublor 1.5

\$99
Connectix
800-950-5880
415-571-5100

Ray Dream Designer 3.1

\$395
Ray Dream
415-960-0766

RunShare 1.0.2

Two-user version, \$299;
five-user version, \$749
RUN
408-353-8423

Signature Series

\$299 each
PhotoDisc
800-528-3472
206-441-9355

SimCity 2000 1.1

\$55
Maxis
800-336-2947
510-254-9700

Skyline/Satellite 1.0

\$795
ag group
800-466-2447
510-937-7900

Star Trek: The Next Generation Interactive Technical Manual

\$70
Simon & Schuster Interactive
212-373-8142

Star Trek: The Next Generation Screen Saver

\$30
Berkeley Systems
510-540-5535

StudioPro 1.5

\$1,495
Strata
800-678-7282
801-628-5218

TCP/Connect II 2.0

\$495
InterCon Systems
703-709-9890

Tektronix Phaser 440

\$7,995
Tektronix
800-835-6100
503-627-7111

Terrazzo 1.0

\$199
Xaos Tools
415-487-7000

TextBridge 2.0

\$99
Xerox
800-248-6550
508-977-2000

TextureScape 1.5

\$195
Specular International
800-433-7732
413-253-3100

Thinkin' Things Collection 2

\$40
Edmark
800-426-0856
206-556-8400

TrapWise 2.1

\$4,995
Adobe Systems
800-833-6687
415-961-4400

Typetry 2.1

\$175
Pixar
800-888-4856
510-236-4000

VIDI Presenter Pro 3.0

\$1,995
VIDI
818-358-3936

Vivace

\$2,295
Coda Music Technology
612-937-9611

WordPerfect 3.1

\$395
WordPerfect,
Novell Applications Group
800-321-4566
801-225-5000

Xanté Accel-a-Writer 8200

\$6,995
Xanté
800-926-8839
205-476-8189

The Color-Laser

The all-in-one advantage of a color laser printer is finally affordable — but should you invest in one today?

Promise

By Tony Bojorquez

TODAY'S WELL-EQUIPPED OFFICE has at least two printers: a monochrome laser printer for fast, high-volume printing of text, line drawings, and gray-scale graphics and a color printer for slower, low-volume printing of charts, presentations, and photographic images. For years, business users have been waiting for the day when the speed, affordability, and convenience of laser printing could expand into the world of color output and when the two essential office printers could merge into one. Today, with the advent of three color laser printers in the \$10,000 range from Hewlett-Packard, QMS, and Xerox, that day has finally come — but we recommend that you keep the champagne on ice.

Because color laser printers are based on the same technology as the monochrome laser printers found in nearly all offices, you'd think they would function just like those familiar workhorses — with the bonus of producing color output. You should be able to connect a color laser printer to your network quickly and easily; toss in some color toner along with the standard black toner; fill the paper tray with your current stock of paper; and tell everyone to start pumping out color reports, presentations, memos, and scanned images. And, of course, the printer should hum along at printing speeds of 8 ppm or faster while producing the sharp text we've come to expect from monochrome laser printers and the high-quality color we've come to expect from thermal-wax printers.

Unfortunately, the reality of this first crop of color laser printers is not as rosy as the promise. The printers failed to win kudos from us



in nearly every important area — output quality, speed, cost, and ease of use. Yet all is not lost. Each product provides an appealing all-in-one, plain-paper printing solution that, for some offices, may outweigh any disadvantages. And since the printers we tested are first-generation products, they should improve over time. Until then, here's our report on the pitfalls and promises of color laser printers.

The first affordable color laser printers: the HP Color LaserJet, the QMS *magicolor*, and the Xerox 4900.

First Impressions

When you first see the HP Color LaserJet, the QMS *magicolor* Laser Printer, and the Xerox 4900 Color Laser Printer, you'll be struck by how big they are. Each weighs over 100 pounds and is about the size of a small office refrigerator. That's significantly larger than an Apple LaserWriter and even bigger than most thermal-wax and dye-sublimation printers.

Pop open the top of any of these printers, and you'll be greeted by some pretty complex innards (see the "How a Color Laser Printer Works" sidebar). Installing and maintaining these printers is a job best left to your office's network technician. To help out, QMS will send a technician to your site for \$99 to set up its printer. HP and Xerox don't offer a similar service, but unlike QMS, they do provide clear, well-written manuals that help you through the installation.

Unlike monochrome laser printers or thermal-wax or dye-sub printers, color laser printers have a multitude of parts that must be installed and replaced at regular intervals. You can't just replace a spent toner cartridge or color ribbon with a new one and be done with it. The QMS *magicolor* and the Xerox 4900 (which each have a Hitachi print engine) have 12 consumable components apiece; the HP Color LaserJet (which has a Konica print engine) has 9. That's a lot of supplies to keep on hand.

Although monochrome laser printers have the toner, the developer, and the OPC drum contained in one handy cartridge, color laser printers require a separate toner bottle or cartridge for yellow, magenta, cyan, and black; a separate developer base for each color; and a separate OPC drum. These are the parts you'll replace most frequently. HP estimates that each toner bottle lasts for about 2,000 prints (or one to two months) in a typical business environment. The developer and drum should last for about 30,000 to 40,000 prints.

The HP Color LaserJet is the easiest to maintain, since HP's toner comes in sealed bottles you insert into position. Pressing a lever inside the printer removes the seal on the toner bottle, thereby allowing the toner reservoir to fill up without any toner spilling out. You'll find it much easier to spill toner with the QMS *magicolor* and the Xerox 4900.

About every 80,000 prints, you also need to replace the transfer belt and fuser system. Again, we had problems installing all these parts. For example, with the QMS *magicolor* and the Xerox 4900, it took our experienced technicians several attempts to properly install the photoreceptor module — a specially coated component that is supposed to slide into the printer and fit snugly. We hate to burst your bubble, but this first generation of color laser printers are

a far cry from being plug-and-play peripherals.

In spite of the number of consumables and their high cost (the total price of replacement parts for the Xerox 4900, for example, is \$2,585), the price per page for output is relatively low compared to that of other color printers, mainly because color laser printers use plain paper. A monochrome page printed at 5-percent coverage (typical coverage for a memo) costs only about 2 cents, comparable to the cost per page for output from a monochrome laser printer. A four-color page at 5-percent coverage for each color (typical coverage for a financial chart) costs between 15 cents and 20 cents — significantly lower than the cost per page for thermal-wax and dye-sub prints.

Getting to Know Them

Let's suppose you don't have to worry about maintenance or installation — after all, that's what the computer technician at your company gets paid to do. If the output quality is good enough, then a color laser printer — with its plain-paper output and all-in-one approach to printing business graphics — might be worth a few maintenance headaches.

All three printers support a resolution of at least 300 x 300 dpi. The QMS *magicolor* can also print at 600 x 600 dpi, and the Xerox 4900 can achieve 600 x 300 dpi and 1,200 x 300 dpi. To get these higher resolutions with the QMS *magicolor* and the Xerox 4900, you need to add more RAM. Fortunately, each printer uses standard SIMMs, so adding more memory is a reasonably priced option.

In spite of its "lowly" 300-dpi resolution, the HP Color LaserJet produced the best monochrome text and line art of the three printers. Like its monochrome cousins, the Color LaserJet uses HP's RET (Resolution Enhancement technology) to smooth the jagged edges of text and lines. Still, none of the three printers can match most monochrome-only laser printers of comparable resolution in text output quality. Blacks were solid and well saturated, but letters and lines showed noticeable jagged edges and lacked sharpness. In short, the text output quality is fine for memos, reports, and business correspondence, but your documents won't show fine detail.

Color output quality ranged from quite good to nearly unusable. We printed documents that contained only solid colors — memos, clip art, charts, presentations, and other business graphics — as well as documents that contained complex drawings and scanned, photographic images. Both the QMS *magicolor* and the Xerox 4900 produce glossy printouts; the output from the HP Color LaserJet has a more subdued, matte look, reminiscent of inkjet-printer output. Your preference will depend on taste more than on any tangible quality issues. No matter whether the output is glossy or matte, however, prints do not smear, fade, peel, melt, or rub off onto other pages, as they do with other color-printing technologies.

When printing solid colors, none of the printers produces consistent color. Colors varied enormously from printer to printer; they even varied when printed at different resolutions on the same printer. For example, the Xerox 4900 produced colors that were more saturated at 1,200 x 300 dpi than at 300 or 600 dpi, but at the higher resolution, the colors looked muddier and the neutral areas took on a reddish-brown tint.

Only the Xerox 4900 produced acceptable gradations. The QMS *magicolor* displayed slight banding problems at 300 dpi and serious

The Bottom Line

MacUser **LABS** THERE'S NO CLEAR WINNER among the three color laser printers we tested: None received our seal of approval. Instead, we recommend that you wait for the second generation of these promising products. That said, you may find that having all-in-one printing outweighs any drawbacks these products might have. If so, choose the Xerox 4900 Color Laser Printer for business graphics or the QMS *magicolor* Laser Printer for desktop publishing. If ease of use is your top priority, the HP Color LaserJet is your best bet.

	PRICE/ PERFORMANCE	CUSTOMER SERVICE	OUTPUT QUALITY	PRINTING SPEED
HP Color LaserJet	⊖	⊕	⊖	●
QMS <i>magicolor</i> Laser Printer	⊖	⊕	⊖	●
Xerox 4900 Color Laser Printer	⊖	⊕	⊖	●

Listing is alphabetical.

Output Quality Compared / what you can expect to get

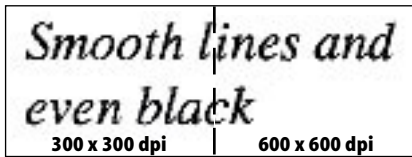
Everyone's familiar with the output you can get from monochrome laser printers and from color thermal-wax printers. So how does the output from color laser printers compare to these standards? Unfortunately, not too well.

To test output quality, we printed a variety of documents, from text to simple color graphics to complex scanned images. We printed the images at various resolutions and on several types of laser-printer paper. Here's a look at the best of the lot.

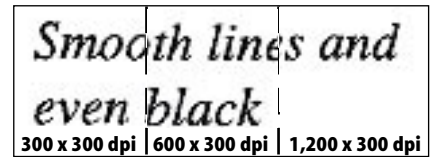
COMPARING TEXT QUALITY



HP Color LaserJet



QMS *magicolor* Laser Printer



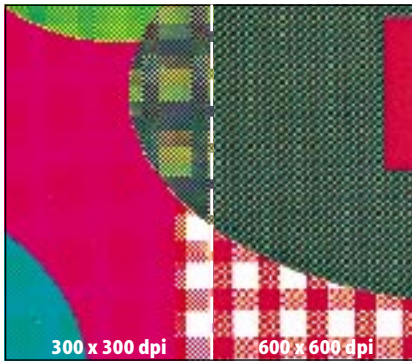
Xerox 4900 Color Laser Printer

FOR MEMOS, REPORTS, AND STANDARD CORRESPONDENCE, the text output quality produced by color laser printers is fine, but it isn't as sharp as that from monochrome laser printers. Of the three color laser printers, the HP Color LaserJet produced the highest-quality text, thanks to HP's proprietary REt (Resolution Enhancement technology). The QMS *magicolor's* text output was noticeably better at 600 x 600 dpi than at 300 x 300 dpi. Likewise, the Xerox 4900's text was better at 600 x 300 dpi than at 300 x 300 dpi, but there was little improvement at 1,200 x 300 dpi.

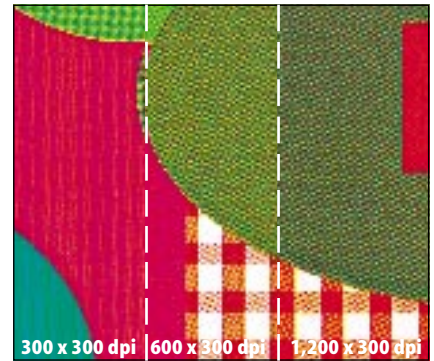
COMPARING COLOR QUALITY



HP Color LaserJet



QMS *magicolor* Laser Printer



Xerox 4900 Color Laser Printer

THE SOLID COLORS produced by color laser printers can look correct, but they are not consistent and they don't match the colors on your screen. Note the variation in color in all the samples above. The HP Color LaserJet's halftoning algorithm makes colors look grainy. The QMS *magicolor's* colors are marred by halos and misregistration. The Xerox 4900 also exhibits problems with halos and misregistration, and at 1,200 x 300 dpi, colors become muddy.

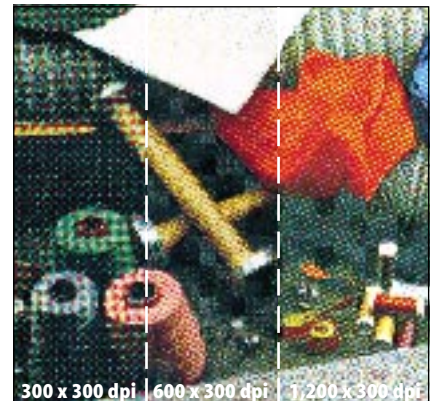
COMPARING PHOTOGRAPHIC IMAGES



HP Color LaserJet



QMS *magicolor* Laser Printer



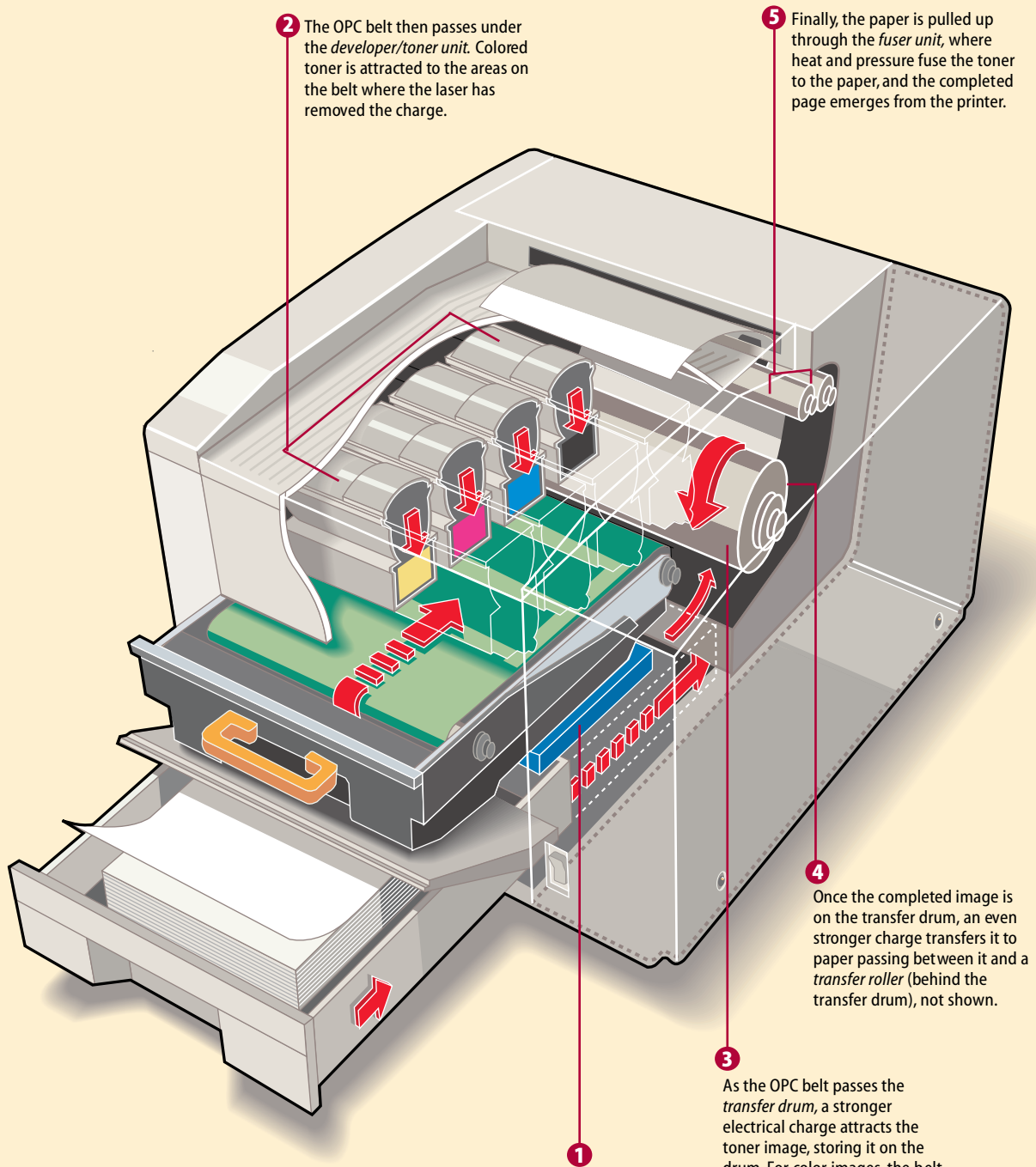
Xerox 4900 Color Laser Printer

FOR PHOTOGRAPHIC OUTPUT, you'll still need a thermal-wax or dye-sub printer. Once again, the HP Color LaserJet's halftoning algorithm makes output look grainy, with a significant loss of detail. Of the three color laser printers, the QMS *magicolor* produced the best photographic-image output, although it didn't handle light areas well. Output produced by the Xerox 4900 lacked detail, and once again, colors looked muddy when printed at 1,200 x 300 dpi.

How a Color Laser Printer Works / a peek inside

It all starts when you click on the Print button. First your Mac sends PostScript image data to the color laser printer, and then the printer's microprocessor-controlled RIP, or *raster-image processor*, converts that data into instructions that enable the printer to produce the grid of

colored dots that will form the output. The illustration below shows how the QMS and Xerox color laser printers print a color page; the Hewlett-Packard Color LaserJet uses a different method, which places the image directly on the transfer drum.



2 The OPC belt then passes under the *developer/toner unit*. Colored toner is attracted to the areas on the belt where the laser has removed the charge.

5 Finally, the paper is pulled up through the *fuser unit*, where heat and pressure fuse the toner to the paper, and the completed page emerges from the printer.

1 A *precharger unit* puts an even charge across the moving *OPC* (organic photoconductor) *belt*. A pulsing laser beam then scans the belt from below, removing the charge where it strikes the OPC belt.

4 Once the completed image is on the *transfer drum*, an even stronger charge transfers it to paper passing between it and a *transfer roller* (behind the transfer drum), not shown.

3 As the OPC belt passes the *transfer drum*, a stronger electrical charge attracts the toner image, storing it on the drum. For color images, the belt repeats the image-making cycle four times: once each for yellow, magenta, cyan, and black toner.

ones at 600 dpi. The HP Color LaserJet's cluster (or pattern) halftoning algorithm also produced banding; the scatter halftoning algorithm produced noticeably grainy output. On the other hand, the HP Color LaserJet had the best registration and was the only printer that did not exhibit a halo effect on the border between overlapping colors.

Our results with scanned images were even more disappointing. The HP Color LaserJet's halftoning algorithm once again produced grainy images. The QMS *magicolor* and the Xerox 4900 produced more-solid-looking prints, but even images printed at the highest resolutions lacked detail. In fact, when we used the Xerox 4900 to print at 1,200 x 300 dpi, patterns and lines appeared fuzzier than at 300 dpi.

Our verdict? Output quality is a serious disappointment with these printers. Instead of getting the best of two worlds — monochrome text and color graphics — you get acceptable text, fair business graphics, and poor scanned images. Some people, however, may find that the idea of using a single printer for both monochrome and color printing overpowers their need for high-quality output. Those folks should opt for the Xerox 4900 if producing color business graphics is most important and for the QMS *magicolor* if reproducing photographic images is most important.

The Bright Spot

OK, so color laser printers are hard to set up and maintain. The output is disappointing. But when it comes to printing speed, these products can keep up with monochrome laser printers and, in some

cases, outpace thermal-wax ones — no minor feat when you consider that these printers must transfer toner four times (once each for yellow, magenta, cyan, and black) instead of once, maintaining accuracy all the while.

Specifications for each printer list an engine speed — the maximum speed at which a printer can grab a piece of paper and run it through the print engine with either one or four colors. To find out just how close each printer can come to its rated engine speed, we printed a 25-page monochrome text-only document. The Xerox 4900 finished at the head of the pack, achieving almost 8.5 ppm at resolutions of 300 x 300 and 600 x 300 dpi (the Xerox 4900's rated engine speed is 12 ppm). At 1,200 x 300 dpi, the Xerox 4900 slowed to barely 5 ppm; text output quality, however, did not improve noticeably over that at 600 x 300 dpi.

The HP Color LaserJet and the QMS *magicolor* didn't reach their rated engine speeds either. The HP Color LaserJet came in at 8 ppm (its engine-speed rating is 10 ppm). At both 300 x 300 and 600 x 600 dpi, the QMS *magicolor* achieved about 6.5 ppm (its rating is 8 ppm). Text output quality was definitely higher at 600 x 600 dpi.

Our other tests were designed to show how well each printer fared when printing a variety of real-life color documents. For business documents, all the printers kept up respectable paces, comparable to those of their thermal-wax counterparts. For example, we recorded printing speeds of around 1 ppm for a business document that contained text, a company logo, and a pie chart. Presentation graphics such as a 5-page PowerPoint document with a color gradated background took 3 to 5 minutes to print on plain paper.

figure 1

Checking Out Color Laser Printers / what the printers offer

	HP Color LaserJet	QMS <i>magicolor</i> Laser Printer	Xerox 4900 Color Laser Printer
List price	\$8,463*	\$10,999	\$8,495
Street price	\$6,876*	\$10,348	\$8,155
Resolutions	300 x 300 dpi	300 x 300 dpi, 600 x 600 dpi [†]	300 x 300 dpi, 600 x 300 dpi, 1,200 x 300 dpi [§]
Rated engine speed (monochrome)	10 ppm	8 ppm	12 ppm
Rated engine speed (four-color)	2 ppm	2 ppm	3 ppm
Standard RAM	8 MB	12 MB	12 MB
Maximum RAM	72 MB	64 MB	48 MB
Duty cycle	15,000 pages/month	5,000 pages/month	15,000 pages/month
Maximum print area (color)	8.2 x 13.7 in.	8.5 x 11 in.	8 x 10.5 in.
Maximum print area (monochrome)	10.7 x 16.7 in.	8.2 x 13.7 in.	8 x 10.5 in.
SCSI port		●	
LocalTalk interface	● [◊]	●	●
Parallel interface	●	●	●
Serial interface		●	●
Ethernet interface	● [◊]	● [◊]	● [◊]
Token-ring interface	● [◊]	● [◊]	● [◊]
Includes 35 Type 1 fonts	●	●**	●
Includes 250-sheet paper tray	●	●	●
Optional 250-sheet paper tray	●	●	●
Energy Star-compliant	●		
Extended on-site support available	●	●	●
Toll-free tech support			●
On-site warranty	1 year	90 days	1 year

*Price includes the Adobe PostScript Level 2 SIMM and HP JetDirect card, required for this printer.

[†]Requires at least 24 MB of RAM.

[§]Requires additional RAM.

[◊]Optional.

**Includes 65 fonts.

And Now for Something Completely Different / the Tektronix Phaser 540

WE REALLY DID TRY to get a shipping model of the Tektronix Phaser 540 color laser printer in time for this story. But alas, Tektronix wasn't ready. So, for now, all we can give you are our first impressions of the new, second-generation-technology Phaser 540, based on a prerelease unit.

The Phaser 540 (\$8,995 list) has several features in common with the other color laser printers. It sports a resolution of 600 x 600 dpi, includes Adobe PostScript Level 2, and comes standard with 20 MB of RAM. The printer weighs around 100 pounds, has nine consumable components, and claims printing speeds of 14 ppm in monochrome and 3.5 ppm in color. **The Phaser 540 has some important differences** from the other color laser printers. First, it's easy to maintain. It uses four cartridges that each contain both toner and developer. These cartridges slide into the printer easily, just like those for monochrome laser printers.

Second, the Phaser 540 offers *continuous-tone* printing — the print engine can change the intensity of each dot of color. You can print in three modes: Fast (300 x 300 dpi with the continuous-tone option), Enhanced (600 x 600 dpi with continuous tone), and Standard (600 x 600 dpi without continuous tone). We tested only the Fast and Standard modes; at press time, the Enhanced mode was still in development. **We were impressed** with the early output-quality results for text and

solid colors. In Fast mode, this printer produced monochrome text that was crisper than that produced by any of the other color laser printers. In Standard mode, it produced text whose output quality rivaled that

of high-quality monochrome laser printers. In Fast mode, it produced brighter and more saturated primary colors than those produced by the other color laser printers, and the colors it printed in Standard mode were as rich as the colors produced by thermal-wax printers.

The photographic images were disappointing, however. (Note that we tested a prerelease unit and that we were unable to test the Phaser 540's Enhanced mode.) Printed in Fast mode, colors frequently looked unnatural, and in Standard mode, patterns were often distorted. The continuous-tone output a shipping model of the Phaser 540 will produce is unlikely to rival that from a dye-sublimation printer.

Tektronix is also releasing the Phaser CopyStation, a flatbed scanner that connects via the SCSI port on the Phaser 540. You can scan im-

ages into the CopyStation and then print them on the Phaser 540. The CopyStation implements common copier features such as image-size reduction and enlargement, color and contrast adjustment, and the ability to select the number of copies desired. Tektronix, Wilsonville, OR; 800-835-6100 or 503-682-7377; 503-682-2980 (fax).

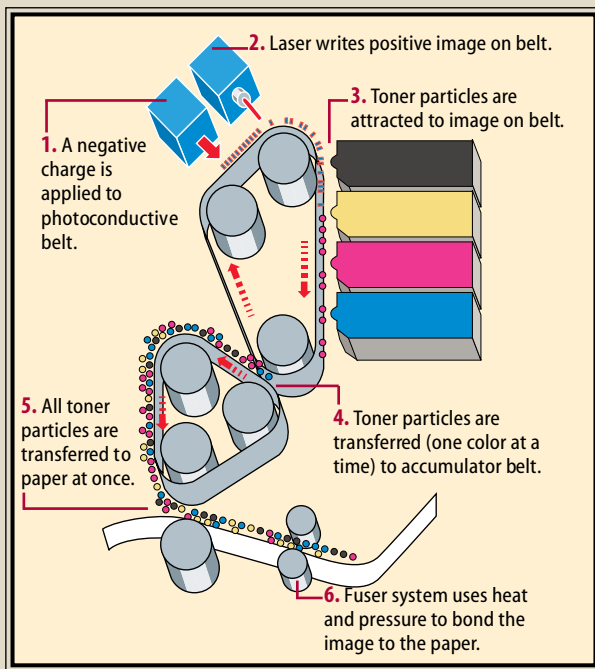


ILLUSTRATION / DAVID PUCKETT

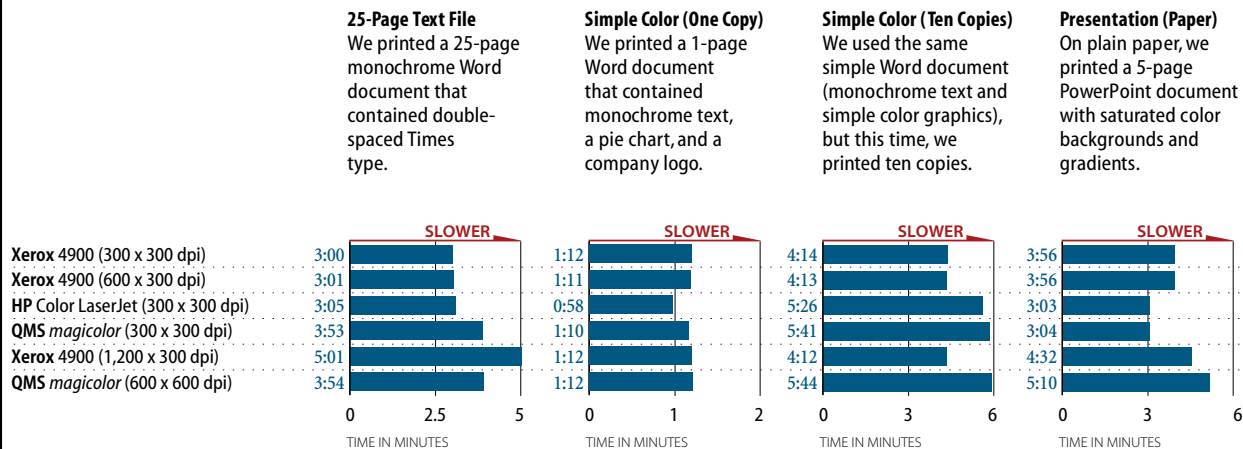
figure 2

MacUser ZD LABS Snappy Printing / color laser printers compare favorably

You'll be quite happy with the printing speeds you can get from these color laser printers. When printing monochrome-only documents, all three can hold their own against monochrome laser printers. And when

printing color documents, they are generally faster than thermal-wax, dye-sublimation, and inkjet printers.

All three printers slowed considerably when printing our overhead



Overhead transparencies took significantly longer.

These three RISC-processor-powered printers also impressed us with their ability to quickly print complicated PostScript images. Again, printing speeds were comparable to those of thermal-wax printers. At 300 x 300 dpi, the QMS *magicolor* took less than three minutes to print a complex Illustrator image that contained several color blends, rotated text, and a color graphic. It took 3 minutes, 23 seconds to print the same image at 600 x 600 dpi. The Xerox 4900 took a longer, but still impressive, 4 minutes, 52 seconds to print the image at 1,200 x 300 dpi.

Large bit-mapped images were another story, however. When we printed a 16-MB Photoshop file, the Xerox 4900 won the race hands down. It took around 14 minutes to print the image at any of the printer's three resolutions. Its closer competitor, the HP Color LaserJet, took nearly twice as long. The QMS *magicolor*, however, had us tearing our hair out in impatience — this printer took 1 hour, 10 minutes to print the image.

Finding the Extra Touches

Given the many flaws we found with these printers, it's nice to know that HP, QMS, and Xerox have done a good job with the little extras. Each printer comes with the necessary driver software and application-specific files (PDF files for QuarkXPress and PPDs for older versions of PageMaker and FreeHand as well as LaserWriter 8.x PPDs). For desktop-publishing pros, the QMS *magicolor*'s driver even provides specialized options such as the ability to set line screens and gamma.

HP and QMS include utilities that allow network administrators to change items such as the printer's name, zone, and configuration. Xerox's administration software shows you a representation of the printer, with corresponding statistics such as toner level and the number of pages that have been printed — especially handy for gauging when to replace various consumables. All three printers

also display messages on their front panels when consumables are running low. (In some cases, such as when the fuser oil is out, the printers simply refuse to work.)

Finally, each of the three printers gives you a handful of options. You can get additional paper trays that increase the printer's paper capacity and trays that increase the paper size the printer can accept from letter to legal. (Note, however, that none of the units can print in color on an entire legal-sized page.) You can choose from a variety of network interfaces, including Ethernet and token ring. And each vendor offers plans for extending on-site service: HP charges \$2,000 for an additional two years, QMS charges \$1,998 per additional year, and Xerox charges \$1,200 per year for an additional two years.

To Buy or Not to Buy?

Mom once said, "If you can't say anything nice, don't say anything at all." Good advice for a mouthy little kid, but that advice doesn't exactly work for us. So, much as we hate to ignore Mom's advice, we're going to have to do it this time.

We were surprised by the sheer number of consumable parts these printers contained. Not only does the complexity of these printers make them hard to maintain but stocking the consumables can take considerable storage space and tie up a lot of money in inventory as well. Fortunately, some of the parts are recyclable, so you can at least be environmentally friendly. The HP Color LaserJet is also Energy Star-compliant.

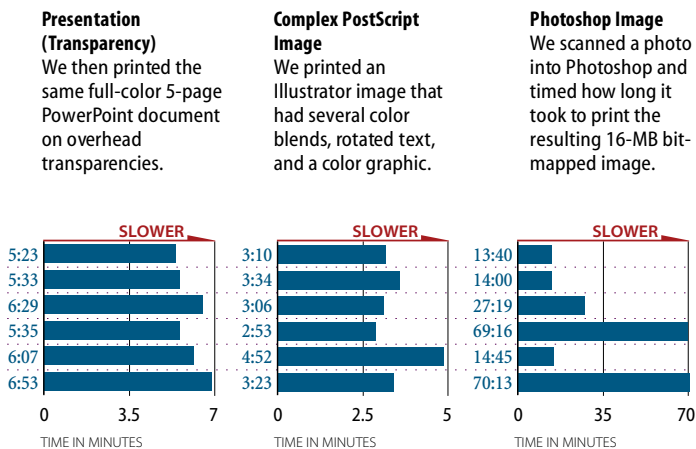
Still, we could live with some upkeep discomfort if the output quality and print speeds impressed us. Unfortunately, they didn't. Color output was noticeably inferior to that from the best thermal-wax printers, and in some cases, scanned images were inferior to those we've printed with \$600 inkjet printers. Color-printing speeds were snappy compared to those of thermal-wax, inkjet, and dye-sub printers, but they weren't awe-inspiringly so. Even plain-text output didn't measure up to that from monochrome laser printers, although at least printing speeds were comparable.

If you must be on the cutting edge of technology, then one of these first-generation products is for you. After all, they do offer speedy, all-in-one printing — one box can print a range of documents for a variety of users quickly. And because these printers can print on plain paper, the cost per page for color is quite low.

But frankly, we think you are better off waiting for Round 2 (and spending your \$10,000 on a thermal-wax or inkjet color printer and a monochrome laser printer in the meantime). The technology shows promise, and the allure of color laser printers is extremely strong. When the print-quality problems are solved, we'll be one giant step closer to our one-printer-does-it-all dream product. ☒

Tony Bojorquez is a MacUser Labs project leader. James Galbraith, MacUser Labs' administrator, managed the testing for this report.

transparency. But they really bogged down when printing our 16-MB Photoshop image. The QMS *magicolor* was especially slow — and QMS' tech-support staff couldn't tell us why.



Directory / vendors of color laser printers tested

Hewlett-Packard	QMS	Xerox
Boise, ID	Mobile, AL	Rochester, NY
800-752-0900	800-523-2696	800-275-9376
800-333-1917 (fax)	205-633-4300	716-256-4446
	205-633-4866 (fax)	716-256-4499 (fax)

TOP of the CHARTS

If a picture's worth a thousand words, a well-made chart is worth a thousand numbers — and a chart makes the numbers a lot easier to understand at a glance. But what's the best charting program for your individual needs? **By Joseph Schorr**

Even before the Mac — or any other computer, for that matter — people who had to make sense out of mountains of numerical data realized the remarkable power of charts. Whether you draw it on paper, project it on-screen, or animate it in a multimedia presentation, a well-designed chart can prove your point better than any stream of numbers, numbers, and more numbers.

In choosing the right chart-making tool, you need to consider not only the complexity of the charts you want to produce but also how you wish to view the results: Some programs, such as CA-Cricket Graph III and Microsoft Excel, are designed primarily (although not exclusively) for printed output. Applications such as Claris-Impact and DeltaPoint's DeltaGraph Pro can create paper-based presentations as well as on-screen, slide-based ones. Microsoft PowerPoint and Aldus Persuasion, from Adobe Systems, are geared more toward the creation of on-screen presentations or 35mm slides, as is Gold Disk's Astound, which even supports animation and sound.

But before you rush out and buy the latest, greatest business-graphics package, first look in your Applications folder: There's a good chance you already own a serviceable charting application — and you may not realize how powerful it is. For instance, all the popular integrated-software packages — ClarisWorks, Symantec's GreatWorks, Microsoft Works, and WordPerfect Works — include charting modules. Pull the long-neglected manual down from the

shelf, and look up *charting* in the index; you may be surprised at the features that are available.

No integrated application can produce the kinds of dazzling charts you can create with a stand-alone charting program or even with a full-fledged spreadsheet program such as Excel. However, they all allow you to chart spreadsheet data, using all the basic chart types — bar, column, pie, line, and scatter — without having to buy or use any other software. For details on which integrated applications offer the best charting power, see the "Charting the 'Works'" sidebar.

Putting Your Charts on Paper

If you're looking for charts with serious boardroom polish, it's time to switch to a more powerful charting application. If you simply want to produce graphs and charts on paper — in reports, handouts, and the like — your primary options are Microsoft Excel and CA-Cricket Graph III.

Microsoft Excel 5.0 — the newest version of the Mac's most popular number-crunching program — is as powerful a charting application as most folks are likely to need. You can choose from 15 major chart types and dozens of preformatted subtypes, and best of all, they're only a mouse-click away. You don't have to export your spreadsheet data and feed it to another program: You simply select a range of cells on a worksheet and then click on the ChartWizard



button in order to produce a new chart.

Excel 5.0's charting functions can be a little confusing at first, but the ChartWizard provides exactly what most users need — a helping hand in making the journey from spreadsheet to chart. With the ChartWizard, you build a chart one step at a time, using a series of dialog boxes. First, Excel confirms your selection of a range of cells. It then asks what type of chart you want to make and lets you choose from several subtypes (the user guide includes a practical section on how to select the type of chart most appropriate to your data). Subsequent dialog boxes ask how you want the data plotted, if you want to include a legend, and what your choices are for axis labels and the title.

The ChartWizard is particularly useful, for two reasons: First, it gives you visual feedback as you make decisions. For example, when you're deciding which series of data should be plotted on which axis, the ChartWizard provides a thumbnail view of your chart in progress, so you can tell if you're headed in the right direction. Second, you can easily backtrack through your steps at any time to undo your work and replot the chart. By the time Excel actually draws your chart, you can feel confident you're going to get what you expected.

Once Excel has created your chart, you just double-click on it to access the chart-editing features (you don't need to open the chart in a separate window to edit it, as you did in earlier versions of the

program). Excel's chart-editing controls are extensive — you can adjust everything from the thickness of bars in a bar chart to the style and alignment of data labels. For quick formatting, you can apply an AutoFormat — a predefined combination of characteristics for a particular type of chart. If your chart is three-dimensional, you can swivel the chart in any direction by dragging its corner handles.

Here's one of Excel 5.0's slickest features: Even after you've formatted an existing chart, you can pop additional data into it simply by dragging and dropping the cells containing the new data series directly onto the chart. The chart instantly updates to reflect the new data — one of the coolest implementations of drag-and-drop technology.

Despite these conveniences, Excel's charting capabilities have some significant limitations: You can't create pictographs (graphs consisting of stacked pictures instead of bars or columns); charts can be saved only as PICT files or transferred to other documents via the Clipboard or OLE (Object Linking and Embedding); you can't use gradient fills on chart elements; and you can align tick-mark labels vertically or horizontally, but you can't set them at an angle. These limitations probably won't be serious problems for most users, but if you want your charts to be presentation-quality works of art, you might want to consider investing in a dedicated chart-making program, which can handle subtle formatting tasks

more elegantly than Excel and has presentation tools built-in.

CA-Cricket Graph III is a stand-alone charting program that, like Excel 5.0, provides no built-in presentation tools. It's strictly a chart-making tool, with a few basic drawing tools thrown in so that you can add embellishments to your finished charts. You can export CA-Cricket Graph III charts as PICT or EPS files for use in other applications.

Like all the other charting programs described here, CA-Cricket Graph III starts you out with a data sheet. This particular data sheet is actually like a scaled-down spreadsheet; you can even enter mathematical functions into cells for automatic calculation. After selecting the data you want to include, you pick the New Chart command, select a row or column of data to be charted, and pick your chart type.

CA-Cricket Graph III's charting engine can handle 12 types of charts; 64 preset styles are available within those general types, but none of them are all that inspiring. However, CA-Cricket Graph gives you plenty of control over chart elements. For example, you can drag items such as the legend and the chart title anywhere on the page, set the distance between the axes and the labels for tick

marks, and set the axis labels at an oblique angle for a better fit and easier reading.

Your enthusiasm for all this flexibility, however, will be quickly dampened when you face CA-Cricket Graph's user interface, which is quirky and entirely too dialog-box-intensive. For example, you can't select and edit certain elements of a chart by clicking on them — clicking on a bar in a bar chart does nothing. Instead, you have to choose Graph Attributes from the Chart menu; navigate to the Plot Element submenu; and then open a dialog box that lets you change colors, patterns, and other characteristics. Accessing the color palettes is particularly tedious; you have to pick colors in a screen-obscuring dialog box.

You can add depth to a chart for a pseudo-3-D effect, but you have to set the depth level by typing a numeric amount (in inches) and the program doesn't give you any visual feedback. The same holds true with the predefined chart styles; you have to apply them by picking their names from a submenu with absolutely no visual clues to their appearance. (The names aren't very descriptive either. A typical name is Div. 644 line.fmt.)

In short, CA-Cricket Graph III has the tools you need in order to tweak a chart into shape, but it takes entirely too much effort to navigate through the maze of submenus, dialog boxes, and numeric fields to get the results you want.

The Bottom Line

THERE'S NO SIMPLE WAY to approach the challenge of choosing the right business-charting application. First you need to consider how you're going to present your charts: on paper, on-screen, or in a multimedia presentation. Then you need to decide whether you need a stand-alone charting powerhouse such as DeltaGraph Pro or if the charting capabilities included in a spreadsheet, presentation application, or comprehensive business-graphics package can do the trick. Our recommendations are based on the charting capabilities of the applications we tested, but the mouse ratings take into account all the capabilities of the products.

- ⊕ = OUTSTANDING
- = ACCEPTABLE
- ⊖ = POOR

PRICE/
PERFORMANCE
EASE
OF USE
CHART
STYLES
TOOLS

★★★★½ Aldus Persuasion 3.0 ⊕ ⊕ ⊕ ⊕
For on-screen presentations and slides, Aldus Persuasion's impressive selection of chart types, styles, and formatting tools will best meet your charting needs — although Astound's animation and Microsoft PowerPoint's overall ease of use make them strong contenders.

★★★★½ DeltaGraph Pro 3.5 ⊕ ● ⊕ ⊕
DeltaGraph Pro is your best choice for reports and other printed documents. Its library of 60 chart types and 200 styles is the most extensive available, and its precise control over type and other chart elements make it ideal for desktop publishers.

★★★★	Astound 1.0	⊕	⊕	●	⊕
★★★★	Microsoft Excel 5.0	●	●	⊕	⊕
★★★★	Microsoft PowerPoint 4.0	⊕	●	⊕	⊕
★★★★	ClarisImpact 1.0	⊕	⊕	●	⊕
★★★★	CA-Cricket Graph III 1.5	⊕	●	●	⊕

Listing is alphabetical within groups of equal mouse ratings.

Charting for Paper and Presentations

If there's a good chance you'll be presenting charts both on paper and on-screen, you'll want to take a good look at ClarisImpact and DeltaGraph Pro 3.5.

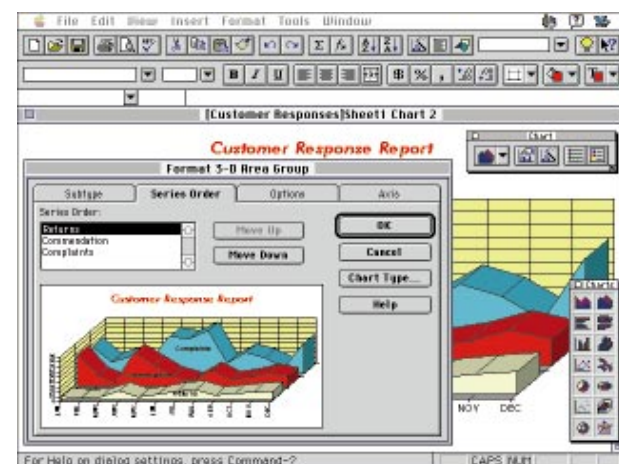
ClarisImpact is more than a charting program: It's a rich business-graphics package that handles graphs, organization charts, tables, timelines, and calendars. ClarisImpact's strongest attribute is its uncluttered simplicity; although it lacks some of the sophistication of Excel — there are fewer chart types, it has no 3-D-graphing tools, and the formatting options are less precise — it makes quick work of setting up and formatting business charts for use in paper and on-screen presentations.

Not surprisingly, ClarisImpact looks and feels similar to ClarisWorks; in fact, it offers the same 12 basic chart types for plotting data. Also, like ClarisWorks, it takes an all-in-one approach: Word-processing and slide-presentation tools are included in the program, so you don't have to export your charts to another application to create a finished product. As soon as you open a new ClarisImpact document, you're asked if you want to create a printed report, a presentation (either on-screen or for output to 35mm slides), or a drawing for use in another application. You construct your charts right within the presentation slides or report pages — a time-saver when you have to pull together a report at the last minute.

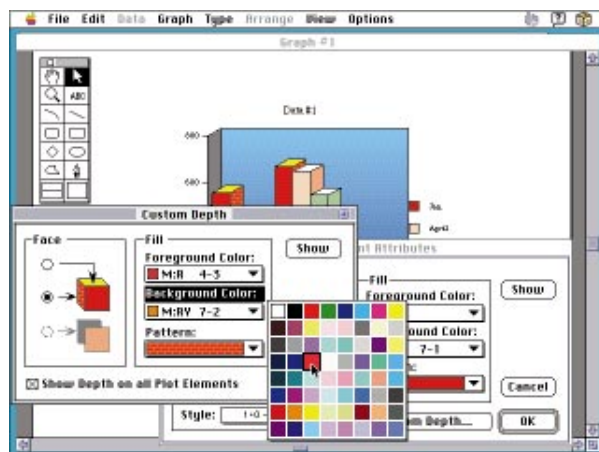
When you start a new chart in ClarisImpact, you can choose from 21 ready-to-use chart styles with predefined color schemes, fonts, and layouts or you can format your own chart from scratch. You enter your data in a minispreadsheet at the bottom of the chart window. (You can hide or show this data sheet at any time by clicking on a button in the window.)

Formatting with ClarisImpact is completely intuitive; you simply click on a chart element — a pie slice or a bar, for example — and

PAPER-BASED PRESENTATIONS



▲ **Creation of 3-D charts has been streamlined in Excel 5.0**, thanks to tabbed dialog boxes that make charting controls easy to access. Another Excel plus: Thumbnail views of charts within dialog boxes let you preview charting options before you apply them.



▲ **CA-Cricket Graph III makes you burrow** through layers of dialog boxes to access many of its chart-editing features. As shown here, choosing colors and patterns for one of the program's pseudo-3-D charts requires you to open two overlapping dialog boxes that obstruct your work.

then use standard line, fill, gradient, and color palettes to change the formatting. You can adjust the location and appearance of tick marks, labels, the legend, and the chart title in a single dialog box equipped with buttons you click on to access the various options.

To make formatting easier and more consistent within your documents, you can use ClarisImpact's cleverly designed Element Styles palette. Element styles are to chart making what style sheets are to word processing. With the Element Styles palette, you can save the characteristics of a particular chart element — line weight, fill pattern, color, and so on — under a unique name and then apply those characteristics to a specific data series in any other chart. The palette can display element styles by name or as thumbnails.

Given these features, ClarisImpact is the perfect solution for quick-and-dirty charting. No, it doesn't offer nitty-gritty control over each piece of a chart. You can't control the space between bars on a graph or adjust the thickness of pie slices, and you can't change the font of data labels or the style of the dotted data grid. Also, as mentioned earlier, 3-D chart styles aren't available at all. However, few applications make it easier to simply type in data and plug a nicely formatted chart directly into a document. In addition, for those who don't already own a word-processing or slide-presentation program, ClarisImpact is an economical, self-contained package; you don't need to use any other software to write simple reports, prepare on-screen presentations, or create slides or overhead transparencies.

If you're really serious about creating fine-tuned charts, bypass CA-Cricket Graph III and ClarisImpact and take a look at DeltaGraph Pro 3.5, which is equipped with design tools lacking in the less sophisticated programs described previously. This is not the application to use when your boss asks for a sales report in an hour,

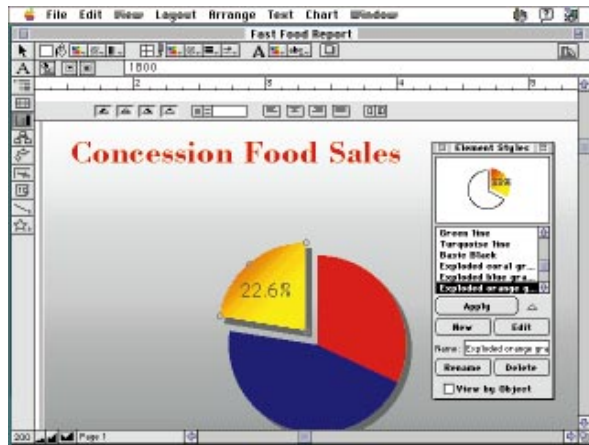
though: The sheer number of options can be overwhelming and, like CA-Cricket Graph III, DeltaGraph Pro has a few odd interface features. However, the program does allow you to create complex charts and gives you incredibly precise control over each element. It also offers the richest selection of chart styles you'll find anywhere — 60 chart types and more than 200 subtypes.

Fortunately, DeltaGraph Pro provides assistance in navigating through all those choices, in the form of the Chart Advisor, a dialog box that helps you zero in on an appropriate chart type for your data. In the Chart Advisor, you define the general characteristics of the chart you want to make, and DeltaGraph intelligently displays a menu of only the chart types that fill the bill. For example, if you tell the Chart Advisor that you're plotting financial rather than statistical data, that you're graphing a trend rather than a comparison, and that you'd like a high level of detail in a 3-D chart, it will fish through its library of chart styles and display the ten styles that seem appropriate to your description.

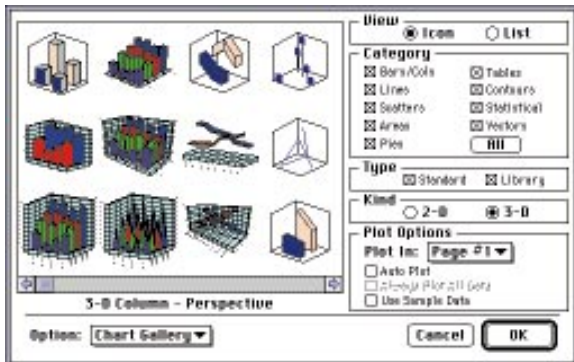
To get started on a DeltaGraph chart, you can import data directly from Excel worksheets, import SYLK or WKS spreadsheet files, or enter data directly into a DeltaGraph data sheet. Once you've imported or entered the data and selected a chart type, using the Chart Advisor, you drag out a rectangle to define the size of the chart and it appears plotted with the data you selected in the data sheet. You can then click on various chart elements to format them.

DeltaGraph is a great tool for turning out first-class 3-D bar, column, area, and line charts. You can display data in 3-D ribbons, cylinders, pyramids, or bars. With the controls in the 3-D View dialog box, you can swivel charts a full 360 degrees horizontally and as much as 180 degrees up or down and adjust the depth of perspective to arrive at the perfect viewing angle. A small preview window

PAPER- AND PIXEL-BASED PRESENTATIONS

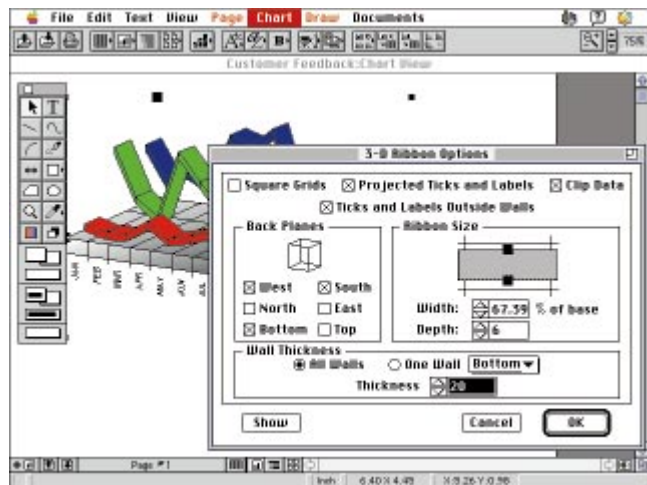


▲ **ClarisImpact speeds up routine business charting** with its Element Styles palette, a library of preformatted chart components that can be applied to individual chart elements (such as the gradient-filled, exploded pie slice shown here) for quick customizing.

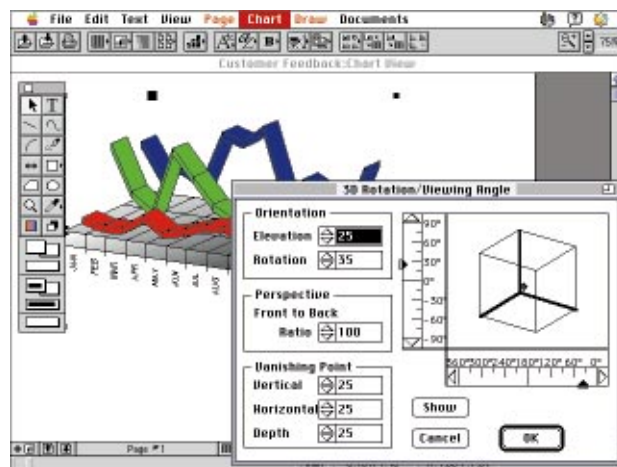


▲ **DeltaGraph Pro's prodigious charting muscle** begins with an extensive Chart Gallery that you can filter according to chart type.

Once you've picked a chart style, ▶ DeltaGraph Pro's dialog boxes provide controls for changing the viewing angle and perspective for 3-D charts.



▲ **For nitty-gritty control over specific chart elements,** DeltaGraph Pro provides dialog boxes such as this one, which lets you adjust the width and depth of 3-D ribbons and chart walls.



containing a wire-frame minichart gives you immediate feedback as you adjust the viewing angle, but to preview the adjustments on your actual chart, you have to click on the Show button.

The precise control DeltaGraph offers over the alignment of text on tick marks and other labels is outstanding. Labels can be rotated and set at any angle. In 3-D charts, you can twist labels so that they line up in perspective with the chart walls.

The program also has a well-designed library feature that provides easy access to clip art (a nice supply comes with the program) for use in pictograph charts. With a Library palette open, you can simply drag the thumbnail of the picture you want from the library onto a data series in an existing chart and the bar, column, or line on which you drop the thumbnail will be replaced by the picture, automatically stacked, stretched, or scaled to fit the data in the chart. (The Pictograph Options dialog box, which appears whenever you

drag and drop clip art onto a chart, is where you choose whether to stack, stretch, or scale a picture.)

You can export DeltaGraph charts as EPS, PICT, Adobe Illustrator 3.2, or Scrapbook files. Like ClarisImpact, DeltaGraph includes all the tools you need in order to create full-scale slide presentations; you get a spelling checker, outliner, and slide sorter, as well as a full complement of drawing tools.

Presenting Your Charts on Slides and On-Screen

As mentioned previously, you can create slide shows with ClarisImpact and DeltaGraph Pro. Neither of these programs offers the range of presentation features you get with either Microsoft PowerPoint 4.0 or Aldus Persuasion 3.0, however. ClarisImpact, for example, offers only one type of slide-to-slide transitional effect, and DeltaGraph doesn't support progressive builds within a slide.

Both Microsoft PowerPoint and Aldus Persuasion use OLE 2.0, Microsoft's interapplication-transport software, to link directly to powerful chart-making modules. OLE 2.0 allows you to embed an object created in one application in a document created in another.

PowerPoint 4.0, for example, comes with Microsoft Graph 5.0, a charting module nearly identical to Excel 5.0's, but with even more preformatted chart styles built in. To add a chart to a PowerPoint slide, you simply click on the chart button on the tool bar. Doing so automatically launches Microsoft Graph, places a dummy chart on the PowerPoint slide, and opens a linked data sheet in a separate window. You can import data as text or directly from Excel, Lotus 1-2-3, or Lotus Symphony.

The Microsoft Graph data sheet makes it very easy to work with data. Individual columns and rows on the sheet can be turned on or off (and thus included or omitted from the chart to which they're linked) by double-clicks on the row and column headers. Also, the row and column headers are automatically marked with icons corresponding to the chart elements in which they're plotted; if Fourth Quarter Sales is represented in the chart by a red bar, then a tiny red bar appears in the column header containing that data, so you can easily see the relationship between your raw data and the finished chart.

To format the chart, you can select from fourteen 2-D and 3-D chart types pictured in a pop-up menu on the Microsoft Graph tool bar. Then, in the AutoFormat dialog box, you can pick from 103 ready-to-use chart formats. Individual components of a chart can be formatted directly too, just as in Excel.

As soon as you click outside the chart area, Microsoft Graph automatically slips into the background and you're back in PowerPoint. Whenever you want to revise the chart, you simply double-click on it to switch back to Microsoft Graph for in-place editing.

Although Microsoft PowerPoint is arguably an easier-to-use and more powerful presentation package than Aldus Persuasion 3.0, its charting features can't compete with those of Persuasion, which comes with its own powerful and strikingly elegant charting module, Aldus Chart.

To add a chart to a Persuasion slide, you simply define a rectangle with the chart tool and Aldus Chart launches. The module offers a rich selection of advanced charting features, including a library of 84 chart types.

Aldus Chart is well designed from top to bottom. For example, in the Chart Gallery window, the program provides a brief description of each chart type and an explanation of when a particular style would be most useful and appropriate; it points out that a certain style of bar chart is useful for showing change over time whereas another emphasizes relationships among values.

Once you've picked a chart type and plugged in your own data, Aldus Chart provides an intuitive interface for additional chart styling. The formatting tools are easy to use, and most can be accessed via a set of floating palettes.

The SFX palette allows you to apply gradients and textures (such as stucco, rough granite, and leather) to chart objects. A library of two dozen textures comes with the program.

The 3-D View palette offers the best 3-D-chart manipulation available in any charting program by providing six kinds of control

Eight Basic Charting Rules

EVEN THE MOST DAZZLING CHART CAN BE MEANINGLESS — or seriously misleading — if you've presented your data in a difficult-to-grasp format. Here are eight guidelines for creating meaningful business charts:

1 PICK THE APPROPRIATE CHART TYPE. Use a bar or column chart (rather than a line or area chart) to compare specific values at a fixed moment in time — East Coast and West Coast sales figures for the month of June, for example. Use an area or line chart (in which one data point is connected to the next) to emphasize trends over time — such as the increase or decrease of sales in both divisions over a period of six months.

2 USE A "STACKED" CHART TO SHOW A TOTAL VALUE along with relationships among the components that make up the total. For example, a stacked chart might include a column for First Quarter Sales, with four stacked chunks making up the column, each chunk representing a subtotal from one of the four regional divisions contributing to the sales total. The stacked approach lets you graph the total sales figure while simultaneously revealing how each division contributed.

3 USE PIE CHARTS WHEN COMPARING two or more values that contribute to a single total amount. If you want to show how much your company is spending on labor versus materials, for example, you can create a single pie chart representing your total operating expenses, with labor and materials each making up one slice of the pie.

4 DON'T LET DESIGN OVERWHELM INFORMATION. Charts are great for showing overall trends and relationships among values, but some chart styles (pictographs, for example) make it difficult — or impossible — for an audience to read specific values. If specific numbers are needed, make sure you label your columns, bars, and pie slices with their corresponding numeric values. Virtually all chart-making programs include a Show Values option that can automatically add these labels.

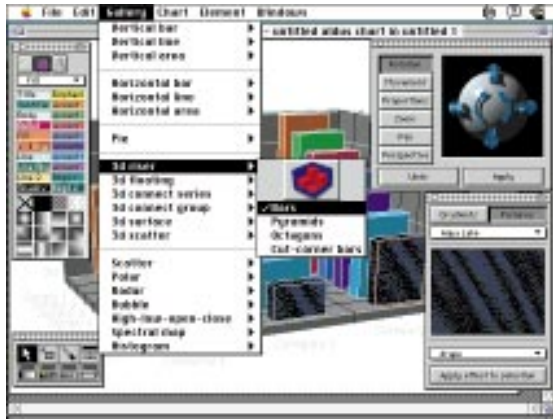
5 USE 3-D CHARTS CAUTIOUSLY — IF AT ALL. Three-dimensional charts are dramatic, but the 3-D bars, cones, and columns can often obstruct other pieces of data on the same chart. When working with 3-D charts, be sure to arrange the data so that all the information is completely visible. Also be careful when rotating a 3-D chart; deep perspective may look exciting, but it can also make the chart harder to read.

6 APPLY A SCALE APPROPRIATE TO THE DATA. A small scale can make even minor variations in values look more dramatic than they really are. Conversely, a scale that's too large will make variations in data almost invisible and reduce the impact of the comparisons.

7 LABEL EACH DATA SERIES IN YOUR CHART; don't assume that the audience will know which bar represents each value. Put the label information in a legend only when adding labels would make the chart too crowded or hard to read. (All charting programs include an option for building a legend from your data.)

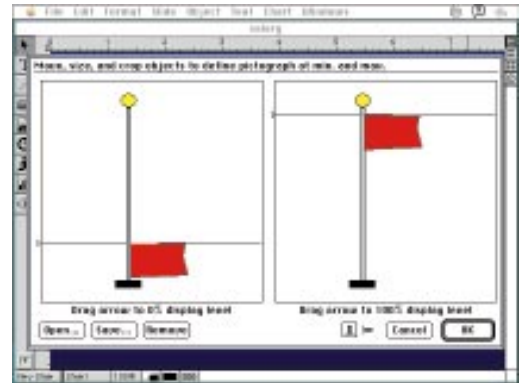
8 DESIGN CHARTS WITH A SPECIFIC PRESENTATION IN MIND. Don't go wild with color charting options if you're going to print the chart on a black-and-white laser printer. If your final output isn't going to be in color, design the chart in black-and-white, so you're sure your final chart will be clear and readable. If you're designing for an on-screen presentation, avoid using small, italicized fonts that are hard to see on-screen.

PIXEL-BASED PRESENTATIONS



◀ **Floating palettes in Aldus Persuasion's charting module** provide plenty of visual feedback for formatting and manipulating 3-D charts. Even submenus have a graphical interface that provides visual feedback showing the results of your decisions.

Pie slices can fade, ripple, dissolve, or fly into view, ▶ with Astound's chart-animation features. In the Chart Animation dialog box, you can set the timing and order of the animated transitions and view the results in the preview window.



▲ **For even-more-arresting animated effects,** you can set up your own animated pictographs. Astound uses your chart data to calculate how much the pictograph image should be moved or resized in the animation to reflect the chart values.

over the positioning of 3-D charts. Rotating a chart or shifting its perspective is as simple as clicking on the appropriate arrows on the palette; the results appear instantly in a full-sized wire-frame view superimposed on your existing chart.

Other formatting tools are also highly visual, allowing you to control virtually every detail of chart construction, and are easy to use.

Making Charts That Move

If you're making your presentation on a computer screen and want charts that will really dazzle your audience, you have yet another option: Set the charts in motion with animation. Creating an animated chart with a conventional animation program would be

time-consuming, but with Gold Disk's Astound, you can set up an animated chart in about the time it takes to assemble a static chart with PowerPoint or Persuasion.

In fact, putting together a chart in Astound is almost exactly like working with the other slide-presentation tools. You use a chart tool to drag out a new chart on an Astound slide, which opens a data sheet into which you can import or type data. Clicking on a button in the data window opens the Create Chart dialog box, in which you set the characteristics of the chart. Astound's chart controls aren't as precise as those you'll find in DeltaGraph Pro and Excel, but they are intuitive and comprehensive enough to give you quite a bit of control over the look and feel of a chart.

Aldus Persuasion 3.0

Rating: ★★★★★

List Price: \$495.

Street Price: \$320.

Pros: Outstanding formatting tools. Gorgeous 3-D-charting styles. Good on-line guidance for picking appropriate chart types. Tight integration with slide-presentation features.

Cons: Chart-editing controls could be more precise.

Company: Adobe Systems, Seattle, WA; 800-333-2538 or 206-622-5500; 206-343-3360 (fax).

Astound 1.0

Rating: ★★★★★

List Price: \$399.

Street Price: \$245.

Pros: Easy-to-use tools for chart animation. Dazzling animated transitional effects for chart elements.

Cons: Limited chart-formatting options.

Company: Gold Disk, Mississauga, ON, Canada; 800-982-9888 or 905-602-0395; 408-982-0298 (fax).

CA-Cricket Graph III 1.5

Rating: ★★★

List Price: \$129.

Street Price: \$95.

Pros: Extensive control over styling of chart elements.

Cons: Cumbersome interface. No 3-D charts. Supports only a limited number of chart styles.

Company: Computer Associates, Islandia, NY; 800-531-5236 or 516-342-5224; 516-342-5734 (fax).

ClarisImpact 1.0

Rating: ★★★★★

List Price: \$399.

Street Price: \$140.

Pros: Simple, straightforward interface. Self-contained slide-making and word-processing components.

Cons: No 3-D charts. Lacks an extensive library of chart styles. Limited control over individual chart elements.

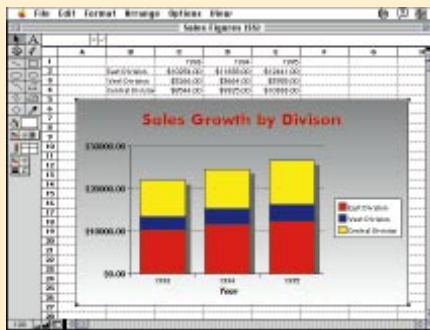
Company: Claris, Santa Clara, CA; 800-544-8554 or 408-987-7000; 408-987-7105 (fax).

Charting the 'Works' / is an integrated application all you need?

IF YOU OWN AN INTEGRATED APPLICATION such as ClarisWorks, Symantec's GreatWorks, Microsoft Works, or WordPerfect Works, you may already have all the charting power you need. If you're thinking about getting an integrated application, or if you're shopping for a Performa and don't know which "Works" application to ask for, pay attention, because not all are created equal — especially when it comes to their charting capabilities.

ClarisWorks offers the most powerful charting of the integrated-software programs. You create a chart in the program's spreadsheet module by selecting a range of cells and choosing Make Chart from the Options menu. This procedure opens the Chart Options dialog box, in which you can choose from 12 chart types for plotting data. You can add depth to a ClarisWorks chart (although you can't rotate it as you could a real 3-D chart), and you can paste in your own graphics to create pictographs. Best of all, you can use all of ClarisWorks' standard drawing tools to edit chart elements. To add a gradient fill to a single slice in a pie chart, for example, you click on the proper data series in the chart legend and then choose the gradient from the pop-up menu on the Tool palette.

GreatWorks offers just eight basic chart types. It doesn't allow you to add depth for a pseudo-3-D effect on any of the charts, and it doesn't support pictographs. But, like ClarisWorks, GreatWorks makes it easy to use standard editing tools to tweak a finished chart by changing colors, lines, fills, and



Stacked-column charts are easy to create with ClarisWorks, the best integrated program for business charting. You create charts in the spreadsheet module and then format them by using the standard drawing tools available in all ClarisWorks modules.

fonts. Although the program is simple to use, the results aren't terribly exciting.

Microsoft Works offers even less. After entering spreadsheet data, you can pick from one of six very basic chart types. When you select one, Microsoft Works automatically creates the chart as a draw object. Again, don't look for 3-D effects or other extras to dress up the rudimentary charts — this is a basics-only charting tool. You can add a little style to an otherwise humdrum chart by ungrouping the draw objects that make up the chart and editing the components individually, using the standard drawing tools and palettes, but doing so breaks the link between the chart and its source data. In other words, if you later find you have to update the chart data, you'll have to re-make the whole chart from scratch.

WordPerfect Works has the worst charting of the integrated programs. You get eight basic chart types to pick from, but once you've created a chart, you can't backtrack and change your choice of any of the charting options. If you create a chart containing horizontal bars, for example, and then decide your data would look better displayed in vertical columns, you can't go back and replot the original data in the new format: You have to copy your data into a whole new spreadsheet document and completely start over. As for formatting, the program takes the same approach as Microsoft Works: You have to ungroup the objects that make up a chart to edit them individually.

The fun starts when you click on the Animation button and bring the chart to life. The simple interface lets you set animated transitions for each chart element. Bars in a bar chart can grow from the floor up; fade in; or, best of all, cascade across the screen and tumble into place. When you combine Astound's well-executed animation with synchronized sound effects, the results can be quite dramatic. Obviously, flying pie slices and rippling columns can get annoying if overused within a presentation, but used sparingly, Astound charts can add just the right amount of punch. Astound slides can be exported as QuickTime movies for use in other applications — including slide-presentation programs such as PowerPoint and Persuasion.

DeltaGraph Pro 3.5

Rating: ★★★★★

List Price: \$195.

Street Price: \$135.

Pros: Comprehensive library of chart types and styles. Extensive controls for fine-tuning chart styles. True 3-D-charting features. Chart Advisor provides assistance in selecting appropriate chart types.

Cons: Complex interface.

Company: DeltaPoint, Monterey, CA; 800-446-6955 or 408-648-4000; 408-648-4020 (fax).

Microsoft Excel 5.0

Rating: ★★★★★

List Price: \$339.

Street Price: \$295.

Pros: ChartWizard aids in step-by-step creation of charts. Powerful 3-D-charting tools.


Cons: Doesn't support use of gradient fills or pictographs. Using editing tools is sometimes complicated.

Company: Microsoft, Redmond, WA; 800-426-9400 or 206-882-8080; 206-635-6100 (fax).

Know Your Needs Before You Buy

If you own an integrated application, you may already have all the charting power you need; all the integrated applications are equipped to turn out basic business charts and graphs, although they lack some features, such as gradient fills, that make for exciting visuals.

If you really want to wow your audience, however, you'll need to choose a full-scale charting application. Making the right choice depends on how and where you plan to use your charts. Claris-Impact is a great all-purpose charting tool for cranking out reports and proposals on a deadline. For desktop publishing, designers will favor the precise controls of DeltaGraph Pro. And for those who are

looking for knockout slide- and screen-presentation graphics, Aldus Persuasion offers the most control and the best interface — although only Astound offers you the ability to animate your presentations. 

Microsoft PowerPoint 4.0

Rating: ★★★★★

List Price: \$395.

Street Price: \$295.

Pros: Chart-making module is well integrated with slide-making features. Includes more than 100 ready-to-use 2-D and 3-D chart styles.

Cons: No gradient fills or pictographs.
Company: Microsoft, Redmond, WA; 800-426-9400 or 206-882-8080; 206-635-6100 (fax).

Joseph Schorr serves as the Mac troubleshooter for a publishing company in Oregon. His writing includes dozens of magazine articles and *Mac and Power Mac Secrets*.

DESKTOP PUBLISHING

3-D SOFTWARE /

Enter the 3rd Dimension

New modeling programs appeal to pros, novices.

SOFTWARE FOR 3-D modeling and animation is getting more powerful, easier to use, and lower-priced. If you've shied away from 3-D graphics, now's the time to give it a whirl, especially if you've got a Power Mac. These Power Mac-native applications may turn you into a 3-D artist.

Infini-D 3.0, from Specular International, is an enhancement of an easy-to-use application with tools suited to professional 3-D

animation. The revamped modeler makes it possible to use familiar Bézier curves to create objects based on a spline profile and a user-defined extrusion path. Want an easy way to model an airplane body or a banana? Use the Envelope tools to scale the object along the path. You can change the modeling paths and rails over time to create animated bending and twisting effects.

Infini-D 3.0 also offers much more precise animation controls through the same accessible interface. Specular has enhanced the sequencer to allow animators to change any keyframe parameter, including scale and position. You can adjust velocity parameters by manipulating a graph for much smoother motion. Finally, Infini-D 3.0 offers editable spline animation paths. Pricing was not set at press time. 413-253-3100.



Vision 3d 4.0

updates Strata's current low-end 3-D program, StrataVision 3d, and adds functionality from its high-end sibling, StudioPro. Vision 3d 4.0 includes the Boolean, sweep, and skinning modelers from StudioPro. The Boolean modeler, for instance, lets you build complex shapes by adding two objects together or subtracting one object from another in order to create new objects.

Graphic artists who produce three-dimensional images for print as well as on-screen will like the new PostScript-style renderer, which is similar to that in Adobe Dimensions. Instead of rendering an image based on pixels, Vision 3d renders a vector-based image, which you can subsequently scale without losing quality. \$695. 801-628-5218. / Sean J. Safreed



Adobe Charts Future Course

THE DUST IS SETTLING from the merger of Adobe Systems and Aldus, and Adobe's product strategy is falling into place.

Common Code. All Aldus applications will eventually be rewritten to use the same core graphics engine currently used in Illustrator, Photoshop, and others. The graphics engine handles on-screen display and printing to non-PostScript printers. Implementing the same code across the product line allows seamless native-file transfer among applications and across platforms — PageMaker will be able to open native Photoshop files and display them correctly, for example. It will also allow third-party developers to create hardware that accelerates multiple Adobe products.

Plug-ins. Adobe is creating a common extensible architecture that allows developers to add specific or general-purpose functionality to all core Adobe products on Macs and PCs. Under this strategy, a special-effects plug-in for Photoshop could be opened with Persuasion or an Illustrator Bézier editor could be used in PageMaker, for instance.

Future Technologies. Adobe plans to support both Apple's OpenDoc and Microsoft's OLE technologies on the Mac and on Windows machines, respectively. PageMaker already supports OLE, but Adobe plans to make it and all its Mac applications OpenDoc-compliant as well. Acrobat is a cornerstone for future product development too. All Adobe products will read and write Acrobat's PDF format. / PP

Type Tamers

WHAT THE HECK does that font look like? Do you really need to pack all those fonts in that suitcase? End font confusion with two must-have utilities that help you manage your font collection.

FontSqueezer. This nifty utility from FontHaus reduces hard-disk clutter by eliminating unnecessary screen fonts. A font suitcase may contain bit maps for 10-, 12-, 14-, 18-, and 24-point sizes, each in book, bold, light, heavy, and associated italics — if you have a lot of fonts, these gobble up valuable disk space. But if you're using Adobe Type Manager, you don't need them all. With FontSqueezer, you can pick which size bit maps you want to keep and get rid of the rest, in batches if you want. (They're permanently removed, but you do have the original font disks, right?) For example, running FontSqueezer on Adobe Caslon to retain the 10- and 12-point sizes excises 30 screen fonts and saves 195K of hard-disk space. \$30. 800-942-9110 or 203-367-1993.

theTypeBook. Shareware stalwart theTypeBook is now available as a commercial application from Rascal Software. This type-cataloging utility creates type-specimen sheets on the fly from your installed fonts. You select from five layouts — various sizes with leading samples, uppercase and lowercase only, key-caps layout, and so on — which you can tailor to your needs. In version 4.0, you can also preview spec sheets before printing. theTypeBook ships with 15 fonts designed by shareware fontmeister David Rakowski. It's fast and hassle-free for seeing what's in your font library. \$60. 805-255-6823. / Pamela Pfiffner



PLUG-INS /

Create Custom Photoshop Filters

KAI'S POWER TOOLS is known mostly for its weird and wonderful special effects, but underneath the unique interface lies some powerful stuff. Now a new KPT Photoshop plug-in from HSC Software lets users create custom filters for any project.

In essence, KPT Convolver puts an interface



on Photoshop's custom convolution kernels, which let users vary the brightness of adjacent image pixels, much as the Sharpen, Blur, and Emboss filters do. Photoshop's Custom filter can also produce effects similar to those of channel calculations.

KPT Convolver centralizes all these operations in one plug-in that, much like KPT Texture Explorer, lets you experiment with a variety of effects and preview them with 15 variations. Once you're satisfied with an effect, you switch to Design mode to create a filter. You can set variables for edge angle and relief amount and angle as well as for more-standard effects such as blur and sharpen. Finally, a mode called Tweak lets you refine the filter you've created and observe changes to an image on the fly.

Like those of other KPT products, KPT Convolver's interface sports a 3-D look. As users progress through the software, they're rewarded with special features as they reach new levels. \$199. 805-566-6200. / PP

SCANNERS /

Double-Duty Duo

TWO NEW SCANNERS bring high-quality scanning to the desktop at prices even dabblers can afford. Each offers 10 bits per color per pixel, for 30-bit scanning.

UMAX Gemini-D16. Based on a new, dual-lens technology, the Gemini-D16, from UMAX, uses two sets of optics to achieve true 800-x-1,600-dpi resolution. According to UMAX, the dual-lens technology gives the Gemini-D16 the highest possible resolution available without interpolation in a low-cost flatbed scanner.

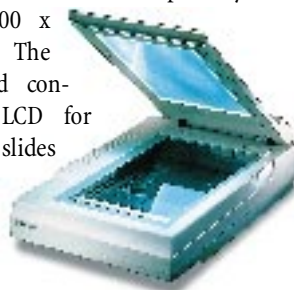


The 30-bit scanner has two settings: 400 x 800 dpi and 800 x 1,600 dpi. When the scanner is set to the higher resolution, the second lens magnifies an image to capture more data. As a result, the scanner's image area is reduced to 4.25 x 11 inches, so scanning a high-resolution, letter-sized image requires you to stitch two halves together with an image-editing application. At the lower resolution, the scan area is the full 8.5 x 11 inches. UMAX clocks the Gemini-D16 at 20 seconds for a 400-dpi scan and 60 seconds for an 800-dpi scan.

The Gemini-D16 is available in two versions: the \$1,895 LE, which ships with

Adobe Photoshop LE and Caere's OmniPage Direct, and the \$1,995 Pro, which ships with Photoshop and HSC Software's Kai's Power Tools SE. An optional transparency module is available for \$595. 800-562-0311 or 510-651-8883.

Relisys RELI4830T. This all-in-one unit can perform reflective and transparency scanning at 400 x 1,600 dpi. The scanner lid contains an LCD for scanning slides and transparencies. Like other Relisys



scanners, the RELI4830T uses cold-lamp technology, which the company says cuts down on the dust and vibrations that affect scanned-image quality because it requires no fan.

The maximum image area is 8.5 x 14 inches. The \$1,699 RELI4830T ships with Photoshop; OmniPage Direct; Kai's Power Tools and Tips & Tricks CD-ROM; and Relisys' Art-Scan Pro software, which lets you scan images as autotraced EPS files. 800-945-0900 or 408-945-3113. / PP

Classy Clip Art

The woodcut look is in for EPS images, and two of its biggest promoters are Art Parts and ARRO International. If you hanker for hip graphics, grab some Art Parts — Taco Bell did for its in-store marketing materials. Each \$50 package (50 images) provides a fresh, playful take on standard subjects such as animals, business, people (Face Parts

works like a digital Mr. Potato Head), food, sports, holidays, and education. Monthly subscriptions are \$40, or you can



get the CD-ROM (named after the company's cofounder) containing 13 volumes for \$399. 714-771-6754. Arts Parts' graphics are also available through FontHaus (800-942-9110 or 203-367-1993). ARRO focuses on environmental issues, and although the woodcuts — as well as engravings, markers, and brushes — in its ARROglyphs series have a more refined look than Art Parts', they're no less compelling.

The 200 EPS and TIFF images in Environment (\$119) range from global warming and endangered species to pollution and recycling; companion packages include Wildlife and Energy (50 images each, \$49). 800-243-1515 or 201-746-9620. For a really hand-drawn look — say, a child's crayon rendering of a school bus — check out the KidBAG series, from DS Designs. As their names imply, Art by Kids and Environmental Art by Kids (\$79 each for 100+ images) were created by 5- to 11-year-olds, using crayons, paint, watercolors, markers, pastels, and pencils. The whimsical pictures of people, places, and things — saved as EPS or TIFF images (some in color) — can liven up any publication. 800-745-4037 or 919-319-1770. Finally Aridi Computer Graphics has



five packages of elegant decorative art, all based on historical designs, that can give any publication an extra touch of class. Your choices range from ornate initial caps (12 alphabets) to the intricate interlaces of arabesque ornaments. Each of the EPS images comes in both black-and-white and CMYK-



color versions. You can pay \$129 per volume or snag all five on CD-ROM for \$399. 800-755-6441 or 214-404-9171. / Aileen Abernathy

CLIP ART / BY AILEEN ABERNATHY

State of the Art

Professional-caliber photographic images are staples of any graphic artist's toolbox, but for something a little bit different, check out these quirky collections.

CLIP ART HAS COME a long way in ten years. The quality and content of royalty-free photographs are growing by leaps and bounds, thanks to increased demand, the capacity and convenience of CD-ROMs,

and the need to remain competitive in this era of clip art by the pound (think Corel Gallery). Among the dozens of firms that are churning out superior photographic images, you can rely on big names such as Artbeats, Digital Stock, and PhotoDisc.

But what if you want more than a beautifully composed image? These days you can make a unique statement with the quirky objects, detailed maps, classic art, and unusual frames in these innovative CD-ROM collections.

Remembrance of Things Past

Several recent photography CD-ROMs trade on nostalgia and our appreciation of historical fine art. Whether you're looking for '50s family values or Michelangelo's David, you can find them among these high-resolution offerings (see figure 1).

America Remembered (\$70), from Boraventures Publishing, contains reproductions of 500 penny postcards from the early 1900s. The 300-dpi PICT images retain the sepia tones and hand-colored pastels of the originals — as well as their blurry, blotchy appearance. Subjects include scenic wonders, cowboys on the range, urban architecture, and the Pan-Pacific World's Fair. 800-648-9009 or 203-254-2959.

PhotoDisc's \$299 Retro Americana covers the era of *Father Knows Best* and *Ozzie and Harriet*. The 336 black-and-white stock photos, taken from the 1920s to the 1960s, feature wholesome housewives, clean-cut businessmen, dreamy teens,

cuddly couples, and oh-so-precious kids. As in all of PhotoDisc's other superb titles, the full-page images are saved in both 72-dpi TIFF and 300-dpi JPEG formats. For those who are more interested in Renaissance-era masterpieces than American kitsch, PhotoDisc also offers Italian Fine Art, Prints and Photographs (also \$299), a lovely collection of antique maps, historical photographs, botanical and zoological prints, and trade illustrations that spans the 14th to the 20th century. 800-528-3472 or 206-441-9355.

Planet Art casts a wider net, bringing the world's art treasures to your desktop. Each \$90 CD-ROM in its Classic Graphics series has 100 images from a specific artist, period, or style — such as Michelangelo, Albrecht Dürer, William Morris, French Posters (featuring Toulouse-Lautrec), Navoi's

Arabic Tiles, Medieval Alphabets, Japanese Art, Architecture, and Icons. There are loads of images that also make wonderful backgrounds and textures. The images do tend to be muddy, requiring color and contrast tweaks — but then so are their physical counterparts, after a few hundred years. 800-200-3405 or 213-651-3405.

Object-Oriented

Need a picture of just a piggy bank? Full-screen photographs require editing expertise (and Adobe Photoshop) to separate a desired item from its surroundings. Now several companies have taken the next logical step: photographed objects, isolated against white backgrounds (often with naturally cast shadows) for easy selection (see figure 2).

CMCD, a branch of designer Clement Mok's company, offers the Visual Symbols library: seven business-oriented collections on CD-ROM that include Everyday Objects, Just Tools,

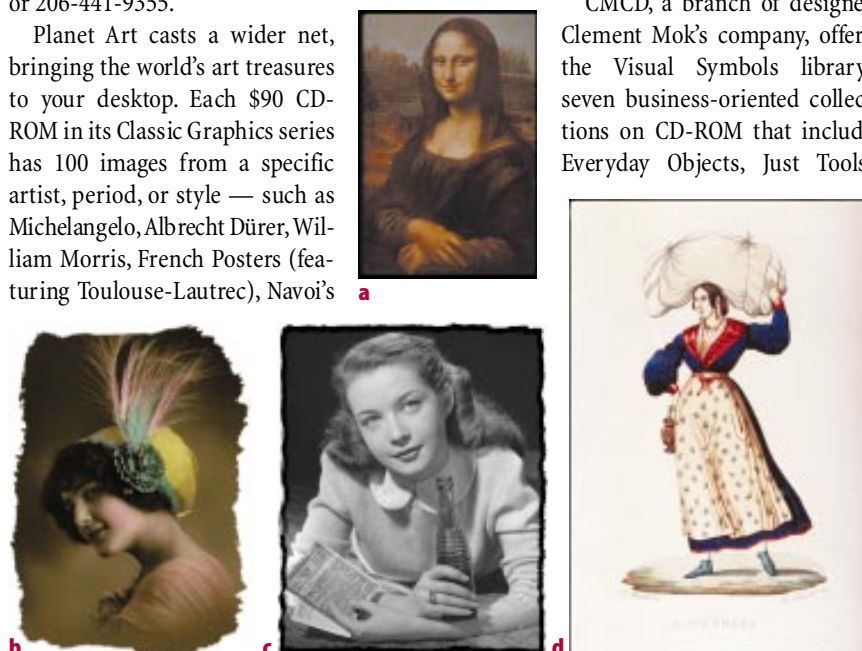


figure 1 / **Women through the ages**, as depicted in Planet Art's Leonardo da Vinci collection (a); Boraventures' America Remembered (b); and PhotoDisc's Retro Americana (c) and Italian Fine Art, Prints and Photographs (d). For details about the edge effects on (b) and (c), see sidebar.

Just Documents, Just Hands, and Metaphorically Speaking (a black sheep, golden handcuffs, a broken record). Each \$129 disc contains more than 100 good-looking, well-chosen images in Photo CD format. Although Photo CD gives you five resolutions to work with, it unfortunately doesn't support clipping paths — carefully drawn outlines you can use as selection areas when copying or manipulating an object. As a result, you must spend time carefully separating objects from their backgrounds, which (in case you're thinking of using them) are occasionally marred by dirt specks. 800-664-2623 or 415-703-9907.

Three other companies offer images that do include clipping paths. Digital Media has four Stock Options titles: Sports Equipment; Food & Grocery Items; Business & Medical Items; and Toys, Models & Game Pieces. The 75 to 100 images on each \$99 CD-ROM are saved as high-resolution CMYK TIFF files and include such hard-to-find items as fishing lures, stuffed olives, and trademarked items such as Tinker Toys, so read the licensing agreement carefully. 800-786-2512 or 714-362-5103.

The Classic Photographic Image Objects (PIO) library, from Ridgley Curry & Associates, supplies vintage props and memorabilia from the storehouses of Hollywood's 20th Century Props. The ten volumes include classic Telephones, Radios, Cameras, Kitchen Appliances, Business Equipment, and Fashion Accessories. Each \$70 CD-

ROM has two views each of 20 objects. The TIFF images are saved in low and high resolutions and contain alpha-channel masks for each object, making it easy to add transparency to a blender's glass, for example. 818-564-1215.

Image Club Graphics' Object-Gear collection falters in terms of image selection, but it is the easiest to use. Its 85 photographs are saved in two resolutions as CMYK EPS files with embedded clipping paths, allowing you to import a cropped object directly into a page layout without first visiting Photoshop. The \$99 disc also supplies separate TIFF files containing two types of shadows (drop and cast) for each object. 800-387-9193 or 403-262-8008.

Mapping the Terrain

If you chart the modern-day world, you may be familiar with Cartesia Software's MapArt CD-ROM series (\$60 to \$200) of excellent EPS (or PICT) two-dimensional maps. 800-334-4291 or 609-397-1611.

Nonmembers of the Flat Earth Society will appreciate Digital Wisdom's Mountain High Maps CD-ROM (\$995). This unique collection of relief maps duplicates the land and ocean-floor contours of the world, providing a better sense of natural terrain than do satellite images (see figure 3). The 74 gray-scale projections of continents and

GIVE YOUR PHOTOS AN EDGE

ARTISTICALLY FRAYED PHOTOS may be the next trendy faux-traditional look, thanks to Digimation's Photo/Graphic Edges, an innovative collection of 650 edge effects that can be added to any digital photograph (see figure 1). Instead of painstakingly creating rippled and textured edges in Photoshop or Painter, you just select one of the premade borders on the \$199 CD-ROM and combine it with the desired image.

The collection of 400-dpi TIFF files has three parts. Underlay and Overlay edges are for use in page-layout programs: Place one of these edges on the page, and layer it with a graphic (or even text) to achieve the desired effect (the overlays have transparent windows). The most versatile are Composite edges, which have alpha-channel masks for creating special effects in Photoshop and can be combined with 19 textures (such as etched, mezzo, and rice paper). 800-839-2008 or 603-430-8373.

countries and 39 globe views are based on a set of carefully constructed scale models used in atlases. Each TIFF file comes in two resolutions. To get the most out of the maps, you'll need a program such as Photoshop, because they look better in color and you'll want to add details such as text, borders, or roads. Mountain High Maps gives you a head start, with its precreated masks and helpful hints on modifying the maps, but Digital Wisdom can also sell you Frontiers, a \$120 CD-ROM of editable map outlines that can be overlaid on the topological maps. 800-800-8560 or 804-758-0670.

Aileen Abernathy is a coauthor of The Macintosh Bible, Fifth Edition, and the upcoming The ABCs of DTP (both from Peachpit Press).

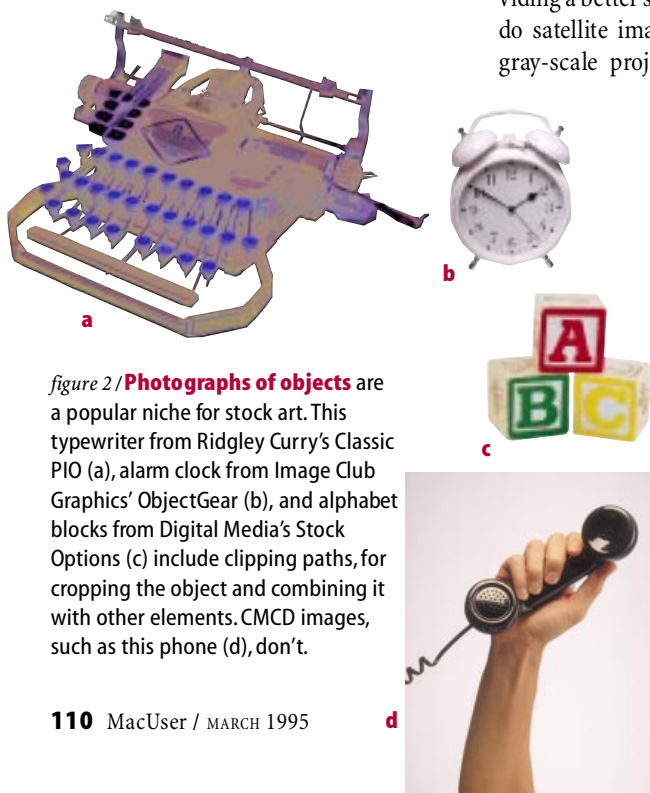


figure 2 / **Photographs of objects** are a popular niche for stock art. This typewriter from Ridgley Curry's Classic PIO (a), alarm clock from Image Club Graphics' ObjectGear (b), and alphabet blocks from Digital Media's Stock Options (c) include clipping paths, for cropping the object and combining it with other elements. CMCD images, such as this phone (d), don't.



figure 3 / **Digital Wisdom's** Mountain High Maps has a nifty viewer utility that provides cartographic and digital data about each map (a). Photographer Mike Agliolo colorized a globe from the collection and incorporated it into this stock-photo illustration (b).



© Mike Agliolo Productions, Chico, CA

GRAPHICS HOW-TO / BY JANET ASHFORD

The Mask

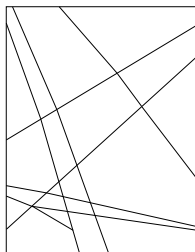
In PostScript illustration programs, masking lets you turn complex patterns into simple shapes. Here's how one artist uses Altsys FreeHand to create rich backgrounds.



MASKING IS A POWERFUL PostScript function that allows you to define a closed path as a clipping path or masking shape. Artists often use masking to clean up the rough edges of an illustration. (Picture making a cookie: The cookie cutter is the clipping path, the dough that's left on the table when you lift up the cookie is the mask, and the table that shows through the hole is the illustration.)

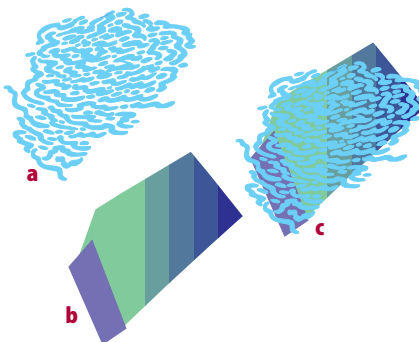
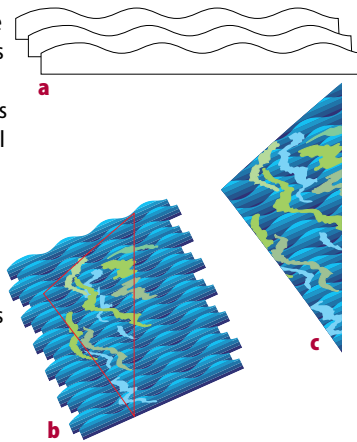
Seattle illustrator Don Baker employs Altsys FreeHand's masking function, Paste Inside, to create a complex, Cubist background for an illustration of salmon. After creating several types of textures and applying masks to them, he assembles the masked shapes like a puzzle. The result resembles light slanting through water. To do the same thing in Adobe Illustrator, select the textures and the polygon and choose Make Mask from the Object menu. In Illustrator, the masking polygon should be in front of the textures.

Janet Ashford is the coauthor, with Linnea Dayton, of Aldus PageMaker: A Visual Guide for the Mac, distributed by Addison-Wesley.



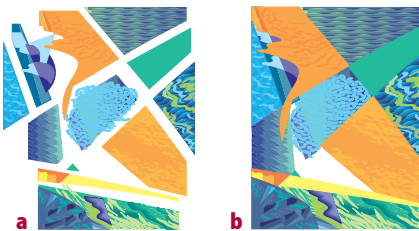
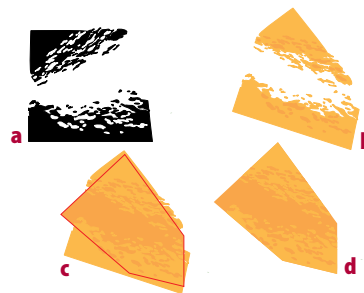
1. Mapping the masks. Based on a rough sketch of the illustration, Baker creates a series of shapes for masks.

2. Masking the waves. To create the texture of waves, Baker draws undulating shapes and staggers copies in units of three (a). He fills these shapes with a graduated fill and rotates them. Next, he draws free-form squiggly lines and a triangle (shown in red) over the shapes (b). He selects the waves and squiggles and cuts them to the Pasteboard. Finally, he selects the triangle and chooses Paste Inside from the Edit menu to insert the textures into the triangle (c).



3. No masking necessary. To create soft ripples, Baker draws wiggly lines with a felt-tip pen. After scanning the drawing, he autotraces the scan and fills the ripples with a light blue in FreeHand (a). Using the diagram he made in step 1 as a guide, he draws three background shapes, fills them with marine colors (b), and then positions the blue ripples on top (c). Because other shapes in the illustration will cover its edges, Baker doesn't use masking on this element, thus reducing file complexity.

4. Adding photographic textures. For a different effect, Baker scans two photos of water and autotraces them in FreeHand (a). After adding color to the textures, he rotates them (b). He gives the water a background by drawing an orange-filled polygon (shown here outlined in red) and sending it behind the water textures (c). He then pastes the water shapes into the polygon to mask them (d).



5. Assembling the pieces. Baker assembles the completed textures according to his diagram. An exploded view shows the separate texture elements (a). Baker leaves an area near the center of the background blank (b), because it will be covered by a large salmon.

EXPERT TIPS / BY BOB SCHAFFEL AND CHUCK WEGER

Another OPI nion

Image-replacement strategies ease the burden of working with large files. But which image-substitution scheme is right for you?

IN LAST MONTH'S COLUMN, we talked about DCS (Desktop Color Separation), a method of substituting low-resolution files for high-resolution images in page layouts. Now let's take a look at another method:

OPI (Open Prepress Interface).

Aldus developed OPI years ago (in the Deep Prehistory of Desktop Publishing), in cooperation with big-system vendors. In those days, prepress trade shops and printers were responsible for high-resolution scanning. A shop with OPI capabilities scanned photos on high-end scanners and handed them back to designers as low-resolution FPO (for-position-only) files for use in page layouts. Designers returned completed page-layout files to the prepress shop, where, for final output, a proprietary and expensive high-performance color electronic-prepress system automatically replaced the low-resolution FPO files with their high-resolution equivalents.

These days, OPI works in much the same way from the designer's standpoint, although a designer today might use a PostScript service bureau or in-house scanning equipment instead of a color trade shop.

Strictly speaking, OPI refers to a specific type of image-replacement scheme that uses PostScript comments as defined in the OPI standards document. Today, however, OPI generally refers to a variety of image-replacement mechanisms available from several vendors, including Compumation (now part of the Adobe Systems juggernaut), Archetype, Helios, Scitex, Linotype-Hell, and others. The details differ, but all use PostScript comments to tell the image-replacement engine — usually a print spooler — where and how to swap the files.

The print spooler — a separate computer

running special software or a separate program running on a file server — examines the PostScript code for OPI comments as it goes to the imagesetter. The high-resolution files must be accessible to the spooler, either on a disk drive attached to the spooling computer or on a network volume.

As a result, high-resolution image files don't have to be carried around on your network along with the page-layout files, saving time, network bandwidth, and overall hassles. But because image-replacement schemes are based on the assumption that only trade-shop pros should mess with high-resolution files, designers can't do any image retouching, color correction, or special effects on the high-resolution images. (Changes to a low-resolution image don't affect its high-resolution original.) In fact, as originally defined, OPI allowed only for image cropping and resizing and could handle only TIFF files; rotation and support for other file types came along later.

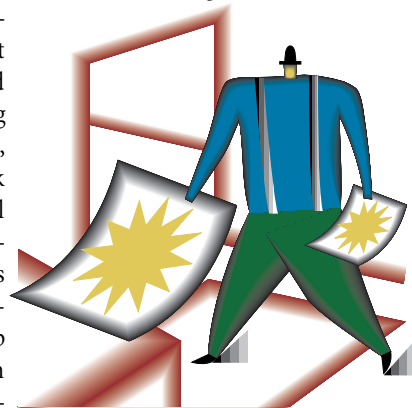
What are the differences between OPI and DCS? OPI schemes use only two files: the high-resolution file and the FPO file. DCS uses five EPS files: the low-resolution "master" file and the four linked CMYK high-resolution separation files that must travel as a group. As a result, DCS requires

more file management than OPI. By definition, DCS files must be in CMYK form, which means that any DCS-generating program (such as Adobe Photoshop) must include color-separation capabilities. The OPI standard says nothing explicit about the number of colors or how they're separated (although in practice, most OPI schemes deal with CMYK).

DCS is a more self-contained technology than OPI, so it is more readily available to desktop publishers. DCS files can be printed directly by the page-layout program (QuarkXPress or PageMaker), which finds the high-resolution files and substitutes them for the low-resolution placeholders in the layout. With OPI, images must be replaced in a separate step, handled by a print spooler instead of by a page-layout program.

Which of these image-replacement schemes is better for you? DCS requires less up-front investment in technology and is generally less complicated (except that you have to keep track of more files). OPI systems are more sophisticated, and you can couple them with image databases to streamline your work flow. If you don't want to fuss with the details of the image-replacement process, using OPI may be the better strategy. In either case, discuss your choice with your film-output service provider. ☒

Bob Schaffel is technology director of the Professional Prepress Alliance. Chuck Weger is an independent consultant and publisher of the Photoshop Monitor newsletter.



GROUPWARE /

FirstClass Expands to Power Mac, Windows, and TCP/IP

OPTIONS FOR SOFTARC'S groupware server software are increasing as fast as the popularity of the bulletin-board/e-mail/database-access package. As the FirstClass server software moves to new platforms with Power Mac-native, Windows, and TCP/IP versions, third-party add-ons are becoming available.

Version 2.6 of the Power Mac-native FirstClass server software (\$395) offers speed improvements through support for Apple's Modern Memory Manager, as well as access from TCP/IP networks, including the Internet. With the new TCP/IP module (\$995), Macintosh and Windows users of FirstClass 2.6 client software can log in via a TCP/IP network as well as from AppleTalk and modem connections.

Mac and Windows users can obtain a free upgrade to version 2.6 of the client software from SoftArc's FirstClass bulletin board (905-415-7070) or from SoftArc's support areas on America Online, CompuServe, and eWorld. A server-software upgrade is available without cost from SoftArc's bulletin board or for \$95 directly from SoftArc (905-415-7000).

Mac and PC FirstClass clients are able to access the FirstClass Windows server software (\$690 for ten users) with any existing version of the client software. The server software supports connections from AppleTalk, TCP/IP, IPX, and NetBios networks as well as

from modem connections. SoftArc has also announced that Windows NT and Windows 95 versions will follow the Windows 3.1 release, which is expected to ship in the second quarter.

More than a dozen third-party gateways and extensions have recently shipped that expand FirstClass' functionality. Information Access Technologies (510-704-0160) sells HoloGate mail gate-



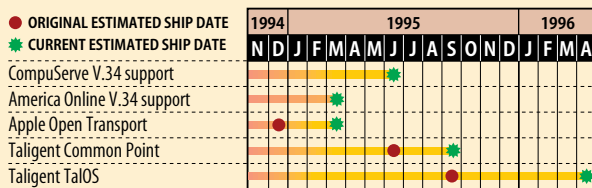
ways, starting at \$500; the gateways allow you to send FirstClass mail to several popular e-mail packages via the Internet. FirstClass Retriever+ (\$99), from Black Labs (303-938-8580), enables Newton users to retrieve their FirstClass mail. Pre-press businesses can

use a suite of custom forms and gateways from Pine Island Software (317-465-9623) to track jobs and facilitate printing and file transfer within FirstClass. FirstConnect (\$995), from TGF Technologies (802-660-4911), uses FirstClass as a front end for queries to locate and display photographic images stored in Oracle, SYBASE, or other SQL databases. / Shelly Brisbin

NETWATCH /

Keeping Track of Upcoming Products

MODEMS BASED ON the newest standard, V.34, are now widely available, and on-line services are planning to offer 28.8-kbps phone lines in a few months. Apple's Open Transport is running a little late. The first Open Transport software will be for AppleTalk and TCP/IP and will be bundled with system software as well as with third-party networking products. Taligent Common Point (formerly called Taligent Application Environment), which runs on top of 32-bit operating systems, has slipped a quarter. The full operating system, TalOS, was pushed into next year and will probably run on the Apple/IBM reference PowerPC platform. Some of these ship dates were given by the vendors; others are *MacUser's* own projections.



LINKING LANS /

Shiva Connects Remote Network Sites

SHIVA HAS COMBINED remote LAN-to-LAN and dial-in functions in two new products designed to connect networks in branch offices with 25 or fewer nodes. The new hardware provides high-speed links using V.34 and ISDN technologies. Shiva (617-270-8300) believes ISDN is ideal for LAN-to-LAN links, because of its quick connecting time, which allows the hardware to bring the connection down and back up during a session to save money during idle times.

The LANRover/2E Plus (\$2,799) is a two-slot remote-access router that can connect two LANs (Mac and/or PC) using a variety of network protocols over PPP (Point-to-Point Protocol) links. One slot contains a 115-kbps asynchronous module for ISDN, Switched 56, or X.25 connections for linking LANs. The other slot contains a V.34-modem module for dial-in access by telecommuters and dial-out access by users on the LAN. For creating and managing LAN-to-LAN connections, the unit also includes Shiva LANConnect software, whose interface is similar to that of Apple Remote Access (ARA).

Shiva's new single-port NetModem/E 28.8 (\$1,999) can also be used for LAN-to-LAN or dial-in and dial-out connections. The new model, which supports ARA, includes a 28.8-kbps modem based on the Rockwell V.34/V.FC chip set. / John Rizzo

PHOTOGRAPHY / LEON

NETWORK BACKUP /

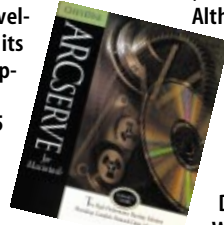
More Data on Tape

AUTOMATIC BACKUP becomes more automatic with a new version of the cross-platform ARCserve software, from Cheyenne Software (516-484-5110), and Dantz Development (510-253-3000) announces its first step toward cross-platform support for Retrospect.

Cheyenne's ARCserve for Mac (\$245 for five users) offers improved automation, security, and speed in version 1.5 and is Power Mac-native. For backup sessions that don't fit on a single tape, the new version of ARCserve supports tape-drive cascading, so backup sessions can be automatically continued on multiple tape drives. You can also continue sessions by using tape autochangers from ADIC, Archive, Exabyte, and Hewlett-Packard. Automation is furthered by the product's support for AppleScript.

For security, ARCserve 1.5 does a byte-by-byte data verification. It scans the hard disk for viruses before the disk is backed up and leaves infected files off the backup tape. You can also now block folders from being backed up without having to change filenames or

folder names. Tapes created from the Mac are compatible with tapes created by ARCserve for NetWare, which runs on NetWare servers.



Although Dantz's popular Retrospect does not run on NetWare servers, you will be able to back up some NetWare servers and NetWare PC clients to a Macintosh with an add-on product scheduled to be released this April. Dantz's Remote 10-Pack for NetWare (\$395) will back up NetWare servers running Novell's Storage Management System 2.0 software (free with NetWare 4.x and 3.11). The Remote 10-Pack for NetWare is Mac software that works with Retrospect (\$249) or Retrospect Remote (\$449).

According to Dantz, the new add-on is aimed at NetWare environments in which Macs predominate, because the backup is being done by a Mac, not a NetWare server. Retrospect still can't back up non-NetWare PCs. Dantz says it is working on Windows client software but would give no ship date. / JR

MAC-TO-MIDRANGE /

New AS/400, HP 9000 Connections

GETTING AND KEEPING Macs in Blue shops is easier with new host-access products from Wall Data, Andrew, and WRQ.

Wall Data (408-369-6900) has added AS/400 connections to the SNA•ps IBM suite it bought from Apple, with the release of SNA•ps 5250 (\$345). The new product includes AppleTalk Direct, host software that links an AS/400 to a network of Macs, providing 5250 display and AS/400 printing.

Another new Wall Data product, SNA•ps Folder 400, is file-transfer software that runs on top of Wall's Mac-based SNA•ps SNA gateway software. Folder 400 is the first file-transfer product for Macs that uses IBM's APPC file-transfer standard. The price was expected to be about \$1,000.

A/TXaccess (\$200), new from Andrew (800-531-5167 or 512-314-3000), also connects networks of Macs to AS/400 systems over AppleTalk. It includes 5250-terminal emulation and printer emulation as well as bidirectional file transfer between Macs and AS/400

systems. Andrew's TCP/Axcess for Macintosh Release 3 (\$200), which connects to a host over TCP/IP networks, now allows you to print AS/400 documents on AppleTalk printers.

Mac users are also able to reach Hewlett-Packard 9000-series midrange systems with a new version of Reflection 1 Plus (\$329), from WRQ (800-872-2829 or 206-217-7100). Version 4.1 supports multiple HP sessions, faster file transfer, and graphical keyboard mapping. The upgrade is free to current users. / SB



Acquired Targets

DCA HAS BECOME THE LATEST MEAL in the networking food chain, with its acquisition by Attachmate. Both companies' product lines will continue, including the DCA OpenMind groupware package and DCA's popular IRMA line of mainframe connectivity products. This latest merger follows on the heels of DCA's 1992 acquisition of Avatar, which had swallowed



TriData a year earlier. * One of the products Novell picked up when it acquired WordPerfect was Informs, a groupware package consisting of automated forms that communicate over networks. Novell (801-225-5000) has released the Mac version, InForms Filler for Macintosh (\$199), which lets users exchange data and forms with Windows users. But unlike the Windows version, the Mac version can't create forms or directly access databases. * Practical Peripherals (805-497-4774) is shipping some innovative V.34 Mac modems, including the credit-card-sized MacClass PCMCIA 288 (\$459) for 500-series PowerBooks and the MacClass 288 LCD V.34 (\$459), a desktop model that tells you the speed of the modem you've connected to on the other end. * Hewlett-Packard (800-752-0900 or 800-387-3867 [outside U.S.]) is betting on 100VG Ethernet (also called IEEE 802.12) to be the next big networking standard, by allying with hub giant Cisco Systems to develop hardware. HP's first resulting product is the 100VG-AnyLAN hub, a 100-megabit-per-second unit that also works with existing Ethernet networks. It's a steal at \$3,750. * Ethernet for mere mortals is getting a boost from the EtherSwitch EPS-2115 (starting at \$767 per port), from Kalpana (408-749-1600). This switched hub offers modular ports and power supplies that can be hot-swapped while the unit is running. Also included is a special SwitchProbe port, in to which you can directly plug network-monitoring devices. * DataStream's Laser Choice (606-255-6686) lets PCs access Mac-network printers while staying on PC networks. The ODI-compliant software is \$59. / JR

THE INTERNET / BY KELLI WISETH

Roll Your Own Internet Server

With an old Mac and some inexpensive software, you can put your business on the information highway.

IT'S FAIRLY EASY for an individual to get started cruising the Internet, given the healthy range of affordable offerings from Internet-access providers. But what about Internet access for everyone on your company

network? For even a small company of 25 people, SLIP accounts, at around \$30 a person each month, would add up to \$9,000 annually (see "Shopping for Internet Access," December '94, page 133). Large companies lower per-user costs by setting up their own UNIX Internet servers, a route many small companies can't afford.

Fortunately, you don't need an expensive

UNIX workstation or dedicated connections to a service provider to enable your business to slip into the Internet. You can create your own UNIX gateway server by using an old Mac and MachTen (\$495), a version of UNIX from Tenon Intersystems (805-963-6983) that runs on top of the Mac operating system. You can even use your Mac UNIX server to publish material on the

Internet to provide information to clients and potential customers.

MachTen is a full-fledged UNIX operating system that has all the networking software processes necessary to turn a Mac into an Internet host. It is also a cheaper implementation of UNIX than Apple's upcoming PowerOpen, which will run on a Power Mac. (Apple's A/UX is being replaced by PowerOpen.) And MachTen is very easy to install and configure as Internet server software.

A World of Information

Even an older 68030-based Mac running MachTen supplies all the advantages of LAN-based Internet access without the cost

ACCESS FOR EVERYONE / *the Macintosh as an Internet server*

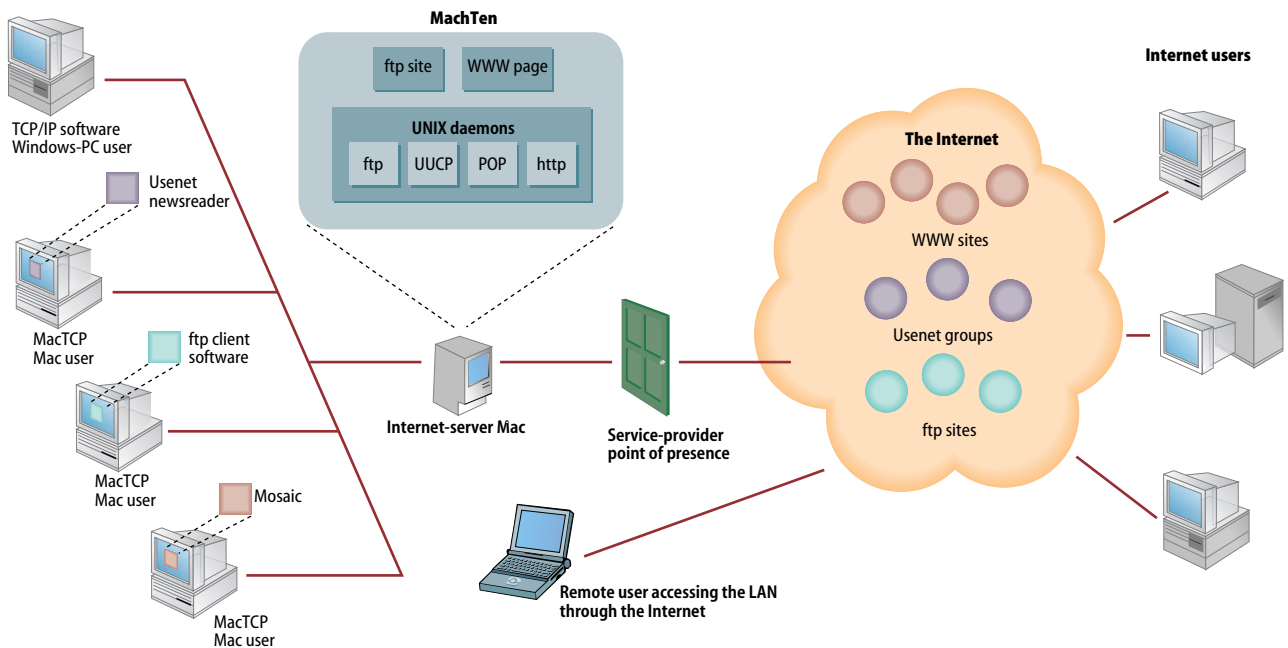


ILLUSTRATION / VICKY SWART

A MAC RUNNING MACHTEN, configured as an Internet server, gives Macs and PCs on your network access to the Internet and Internet users access

to your server. Macs need MacTCP, and Windows PCs need TCP/IP software such as that included with Windows for Workgroups.

and support burden of UNIX hardware. All Mac and PC users on your company network get the same type of access to the Internet that they would have with individual accounts, including access to ftp (file-transfer protocol) sites and WWW (World Wide Web) sites, as well as use of UUCP (UNIX-to-UNIX Copy Protocol) for e-mail and access to Usenet groups. (See "Access for Everyone.")

MachTen also offers Internet access for users while they are on the road. For instance, remote users can dial in to an Internet server to pick up their e-mail through the POP server software, which is part of MachTen. And they can also dial in to their in-house network through SLIP or PPP server software, also part of MachTen.

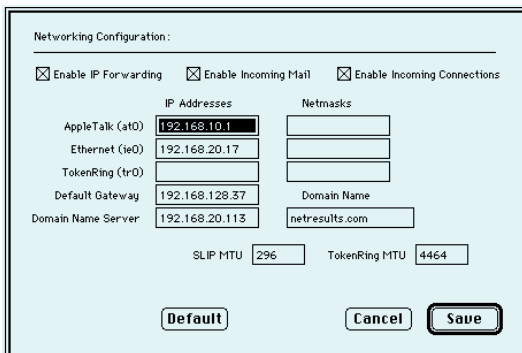


figure 1 / The MachTen control panel handles most of the network configuration, including the server's IP addresses. IP forwarding automatically routes between LocalTalk and Ethernet. Disabling Enable Incoming Connections prevents outside users from accessing the server.

As a further plus, you can offer your own Internet services to the rest of the world, giving your company a high-tech profile with a presence on the most widely hyped medium available today. Large firms are now doing this by posting financial reports and product information on ftp and WWW servers.

Stress-Free Installation

For the Internet-server Mac, you need at least a Mac SE/30 with a minimum of 5 MB of RAM (we recommend having at least 8 MB) and 30 MB of free hard-disk space, meager requirements by UNIX standards. You won't need a large supply of patience, since the MachTen system is easy to get up and running, its scary-looking documentation notwithstanding. MachTen doesn't take over your Mac, so you'll work within the familiar environment of the Finder. And

because most of the setup is automated, it doesn't require a lot of fiddling with configuration files.

Much of the configuration occurs in the MachTen control panel (see figure 1). Here you set the size of MachTen's virtual memory and swap-disk file and enter network-address and subnet information. After the configuration is complete, many of the network processes will start automatically when MachTen boots.

However, we found that there are two things to be careful about. If you're installing MachTen on a Mac SE/30, II, IIx, or IIcx, be sure to install the MODE32 extension — free for the downloading from CompuServe, America Online, and other commercial services (see end of article). Without MODE32, the ROMs in these four older Macs don't support 32-bit addressing, which MachTen requires. Second, avoid the temptation to reorganize the various files and folders MachTen installs on your hard disk. Rearranging the file and folder structure prevents you from logging in at the root level, something you'll need to do in order to limit access to the appropriate individuals or groups and to perform other administrative tasks.

You can connect your MachTen server to the Internet via a SLIP or PPP dial-up account from a service provider, a company that charges a monthly fee for your link. The newer PPP is better than SLIP, because it handles errors and supports compression. The service provider will give you unique IP (Internet Protocol) node addresses for the Macs on your in-house LAN, which will also need Apple's MacTCP software (bundled with System 7.5) in order to access the Internet. You'll then need to type an IP node-address number into MacTCP on each Mac. You may find the IP numbering scheme the least attractive aspect of the entire Internet-server-setup process, but if you simply approach it as an organizational task — keeping track of which machine has which number — it'll be a lot easier than you might think.

With MachTen installed on the server and MacTCP on the users' Macs, you can

now set up the Internet services. Setting up an ftp server is virtually automatic when you install and configure MachTen, if you've checked the Enable Incoming Connections box in the MachTen control panel. Doing so enables MachTen to run a UNIX process called ftpd (short for *ftp daemon*), which invokes the ftp server software.

Users have access privileges on the ftp server as long as their names are listed in MachTen's password file. The person doing the setup can enter the name Anonymous in that file to allow users from around the world to access specific files. Don't worry about strangers weaseling their way into other sections of the server Mac's hard disk or into the rest of your LAN. MachTen includes instructions, via a HyperCard-based manual, for setting up the ftp server so that users are restricted to specified areas.

To offer dynamic presentations — walk-throughs of homes, using video images and sound, for example — a company can set up a World Wide Web server, which users access with Mosaic or other graphic browsers. Tenon offers a MachTen version of the WWW server software, called httpd (for *hypertext-transfer-protocol daemon*), which you can get by accessing Tenon's ftp server (ftp.tenon.com). Creating the hypermedia documents is a time-consuming, labor-intensive task, however — harder than setting up the WWW server itself.

Gateway to the World

There are other ways to use a Mac to give your business access to the Internet, such as using WWW and ftp server software, but these approaches are limited. MachTen brings you the functionality of an Internet server without the costs of supporting and maintaining UNIX hardware.

Because MachTen is a bona fide implementation of UNIX, you can build a complete Internet gateway for accessing the Net from your LAN. And the server can become a purveyor of your company's marketing, tech-support, and other kinds of literature to the millions of Internet users around the world. ☛

Kelli Wiseth heads NetResults, a network-consulting company based in the San Francisco Bay Area.

You can find MODE32 in the MacUser and ZiffNet/Mac areas on CompuServe and eWorld. See page 4 for details on how to access ZiffNet/Mac.



MAC TO PC / BY JOHN RIZZO

Scaling the Software Wall

Slow software development has been stalling the growth of personal computing. Is OpenDoc the breakthrough developers need?

THE FASTEST PERSONAL COMPUTER in the world — a prototype of the 120-MHz PowerPC 604-based Mac expected to ship later this year — made its demo debut at Comdex in Las Vegas last fall. This

prototype Mac ran about twice as fast as the fastest personal computer you could buy at the time, the 110-MHz Power Mac 8100, which, in turn, is about five times as fast as 1993's top-of-the-line Mac.

Yet with all this impressive advancement in hardware power, users' experience hasn't changed much of late. The reason? Software isn't keeping up with hardware. Software delays are of epidemic proportions, with application upgrades often several months late and operating-system releases — such as System 7.0; Windows 95; and now, System 8.0 — frequently delayed for a year or more. In addition, Mac versions of applications lag behind Windows versions by months and years, creating problems for companies that use the same software on Macs and PCs.

With a year or more between major upgrades, developers wanting a long shelf life for their products pack each release with every possible feature for every possible user. So we get products that *require* the latest new hardware, not software that *takes advantage* of the new hardware.

Apple's OpenDoc technology, expected to ship in a few months, has grown beyond its original mission of providing users with an alternative to RAM-eating, monolithic applications (see Mac to PC, April '94, page 119). With added technology from IBM and Novell, OpenDoc has evolved into a cross-platform technology that offers developers a way to scale the wall created by slow application development.

Why does software development lag so far behind hardware development? W. Wayt Gibbs sums it up in an article entitled "Software's Chronic Crisis" (*Scientific American*, September '94, page 86). He points out that hardware design is an engineering discipline, which means that it employs mathematical models to create products made of modular, reproducible parts. Programming, however, is still a handcrafted discipline involving few reusable parts. Gibbs notes that as software projects become more complex, the likelihood increases that they'll be late or even canceled.

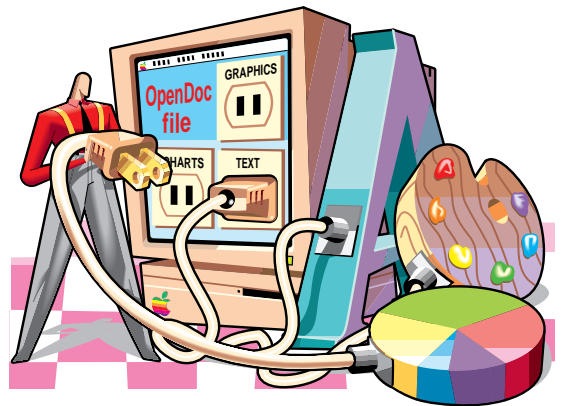
Software experts tend to agree that a key to bringing the software industry to maturity is to move it from building made-to-order products to using prefabricated, reusable components, sometimes called *objects*.

OpenDoc offers a vendor-neutral standard for building modular software components that work together. OpenDoc documents are also modular; they consist of *parts*, such as text, graphics, spreadsheets, and charts, each of which is handled by a part editor that provides tools that are specific to the type of data that part contains. OpenDoc's modularity moves programming closer to an engineering model, because new parts and application sets are assembled from pretested components.

The group that has responsibility for

certifying that OpenDoc components will work with each other is the nonprofit CI (Component Integration) Labs, which additionally serves as the caretaker of OpenDoc standards. The current members include the three founders — Apple, IBM, and Novell — as well as Adobe, Lotus, and Taligent. CI Labs has also been endorsed by Borland, Hewlett-Packard, and Xerox, among other companies.

Notably missing from this lineup is Microsoft, owner and purveyor of the OLE (Object Linking and Embedding) technology. OLE links functions of large applications, such as spreadsheet programs and word processors. As I mentioned in my April '94 column, OpenDoc has several



user-interface advantages over OLE — for example, switching among parts requires fewer mouse clicks and parts don't have to be box-shaped. It also has two major architectural advantages:

1. OpenDoc code is easier to write than OLE code. OLE is not currently a modular software technology, so it doesn't shorten the software-development cycle. In fact, OLE complicates things with several APIs (application-programming interfaces) that provide varying degrees of OLE compatibility. OpenDoc, on the other hand, is compatible

ILLUSTRATION / JOHN CORBITT

with OLE — and CI Labs claims that the OpenDoc API is actually a significantly easier tool for implementing OLE than are Microsoft's own OLE APIs.

2. OpenDoc is designed to be multiplatform.

OLE was designed for Windows and ported to the Mac, whereas the OpenDoc standard was developed as a collaborative effort by vendors representing multiple platforms — and OpenDoc is expected to ship for multiple platforms during the first half of this year. Apple has developed OpenDoc system software for MacOS, and the WordPerfect Novell Applications Group is developing OpenDoc for Windows 3.1, Windows 95, and Windows NT; furthermore, IBM is developing OpenDoc for AIX (its UNIX version) and OS/2. In addition, OpenDoc will support operating systems, including AS/400 OS, HP-UX, and MVS, for mainframe and midrange hosts.

OpenDoc also makes it easier to build multiplatform software. A single API covers all platforms, and about 80 percent of OpenDoc code is multiplatform, according to CI Labs. Mac developers porting their applications to OpenDoc get access to these

other platforms with little extra effort. In fact, CI Labs claims that it's easier to use OpenDoc to get software running on Windows 95 than it is to port software from Windows 3.1 to Windows 95.

The most recent operating environment to support OpenDoc, Taligent's Common Point, will make OpenDoc development still easier. Scheduled to ship in the third quarter of this year, Common Point features many capabilities that are built in (for example, client/server communication and multimedia support), so developers don't need to create them from scratch. And now that Taligent is supporting OpenDoc, applications created within Common Point's developer frameworks can run in OpenDoc on Macs and PCs.

Opening Up OpenDoc

Just as the modular nature of OpenDoc enables users to plug document parts in to each other, so too does it allow previously existing object technologies, including Apple's Bento and IBM's SOM, to plug in to OpenDoc. These technologies are modular and could be replaced by others if a

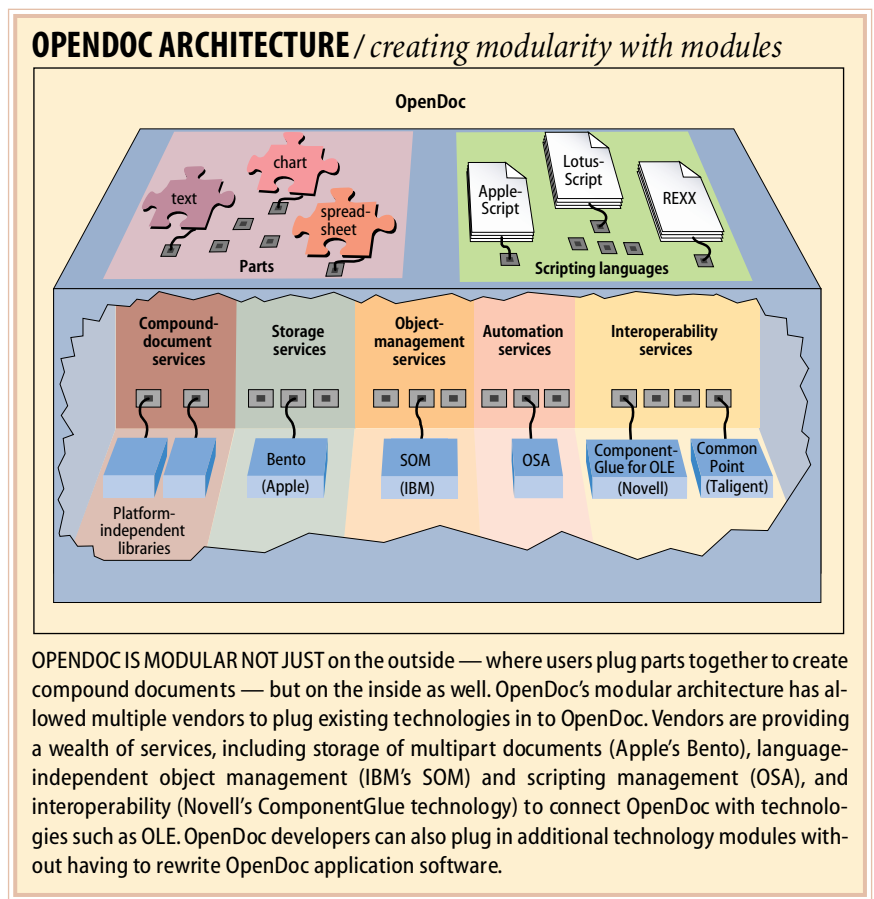


ILLUSTRATION / VICKY SWART

developer wanted to use its own technology or if something better came along, without the need to rewrite any user software. A brief look at these technologies helps illustrate the modular nature of OpenDoc.

Bento, a storage service invented by Apple, is already used in over 100 Mac and PC applications, including Lotus 1-2-3; in fact, Bento is the basis of the Lotus WK4 file format. Bento acts as a Clipboard for moving information and documents, even between different operating systems over a network. Bento also enables the different parts in an OpenDoc document to be stored in a single place in memory.

SOM (System Object Module), a key component of OpenDoc, is an object-management service that lets OpenDoc objects work together. First developed for OS/2 2.0, SOM is IBM's implementation of a programming standard called CORBA (Common Object Request Broker Architecture). SOM can distribute objects over a network, a capability OLE won't have until 1996.

A major feature of SOM is its language independence; it lets objects written in procedural languages, such as COBOL work with objects that are written in object-oriented languages, such as C++ and Smalltalk. This capability is important when you consider that asking an expert COBOL programmer to become fluent in C++ is like asking an English speaker to become fluent in Japanese — it can be done, but not without a great deal of study and effort.

Language independence is also a feature of OpenDoc's OSA (Open Scripting Architecture), which automates interaction among components and scripting languages on desktops and over networks. Because of OSA, developers and users alike can script off-the-shelf OpenDoc components, using any number of scripting languages — including AppleScript, LotusScript, IBM's REXX, and any other language compatible with OSA — on different platforms. In contrast, OLE dictates that Visual C++ be the scripting language.

No longer just an interface enhancement for Macs, OpenDoc is building cross-platform momentum among vendors and corporate users. According to *MacWEEK*, the Mac IS group of Mac managers from corporate America put OpenDoc support high on its Top Ten wish list for Microsoft at its fall 1994 convention. Also, an industry source

told me Bill Gates considers OpenDoc to be one of the Top Ten items that may adversely affect Microsoft's fortunes. From a developer's point of view, however, OpenDoc is not so much an alternative to OLE as an industry-standard method of implementing OLE and Windows technology.

OpenDoc has a good shot at succeeding, because it solves problems for developers

while offering new capabilities to users. It won't be very long before we start seeing some shareware OpenDoc parts, including Internet-access modules and games — the true measure of success of any software technology. ☒

MacUser technical editor John Rizzo is the author of MacUser Guide to Connectivity and How Macs Work.

Smart Money Mac

GET FISCALLY FIT WITH SOME HELP FROM YOUR MAC AND THE RIGHT SOFTWARE. Although there are strong arguments against the saying “you can never be too rich or too thin,” most people probably wouldn’t mind having more money. The good news is you don’t have to become a counterfeiter or win the lottery to do better financially. The bad news is that selecting the best strategy to meet your financial goals is complex. Fortunately, you can cut through the complexity by using your Mac and several financial-management packages. / **BY KELLI WISETH**

Budgeting

If you routinely find yourself with barely enough to feed your cats — let alone pay your rent — at the end of each month, it’s time to take a critical look at your budget. If you don’t have a budget, it’s time to create one. The first step in budgeting is to figure out where all the money is going. A checkbook-management program such as Quicken 5 (\$49.95), from Intuit (800-624-8742 or 415-322-0573), or CheckWriter Pro (\$79), from Aatrix Software (800-426-0854 or 701-746-6801), will pay for itself as it helps you discover all the black holes in your spending.

In Quicken, for instance, you can assign every check and deposit to a particular income or expense category. Because Quicken’s long list of categories is customizable, you can get as detailed as you want in recording your outlays; the more discrete the categories, the more detailed the reports Quicken can produce. The program also lets you generate a graph showing the breakdown

of your expenses to see how income and expenses compare (see figure 1).

If you’re not sure how to create a budget, Quicken can do it for you automatically, based on your past expenses and income. The program gives you a list of exactly where your money’s going. Look for places to cut back, and then modify the budget for upcoming months accordingly. Quicken’s budget report shows you how your spending compares to the budget you’ve set up, so you can see how realistic your plan is.

Bill Paying

If you find bill paying so tedious that you sometimes forget — and then incur late fees — or if you just want to streamline the process of writing the same checks to the same creditors each month, it’s time to let your Mac do the job for you. Drag and drop items such as property-tax payments from your list of transactions into Quicken 5’s new calendar so you’ll easily be able to see

their monthly due date (see figure 2). The next version of CheckWriter Pro will also include a calendar. If you use either Quicken or CheckWriter Pro to write your checks, you can set the program to automatically enter the amounts and payees into the check register so you don't have to re-type them. Unlike Quicken, CheckWriter Pro lets you print on your existing checks — you don't have to buy special checks or maintain two concurrent checkbooks with different sets of numbers.

You can also save time by paying your bills electronically through an account set up with CheckFree. This on-line bill-paying service lets you send electronic checks, via modem, right from Quicken to the entities you deal with on a regular basis. The \$9.95 monthly fee covers as many as 20 payments per month.

Taxes

The penalties for shortchanging Uncle Sam at tax time can rival those charged by loan sharks. Proper tax planning throughout the year not only saves you worry but it's likely to save you money as well.

Intuit's MacInTax (federal, \$35; state, \$25) can help ensure that you get every possible break without setting off any alarms to the IRS. As you're filling out your tax forms, helpful tips from MacInTax's Tax Adviser pop up at appropriate moments to warn you of changes in the tax code and to alert you to tax-saving opportunities (see figure 3). Before you ship your return off to the IRS, SmartAudit reviews the completed tax return and flags errors, omissions, and possible audit triggers.

If you're a small-business owner, you should always know the tax consequences of how you spend your money. Quicken 5's Tax Planner can help throughout the year by showing you how much you owe the IRS. You can also modify the numbers to see how certain actions would affect your taxes. For example, the total tax for the year may be approximately \$12,000; if you invest \$2,000 in an IRA and spend \$3,000 more on business equipment, however, the tax drops by about \$2,200.

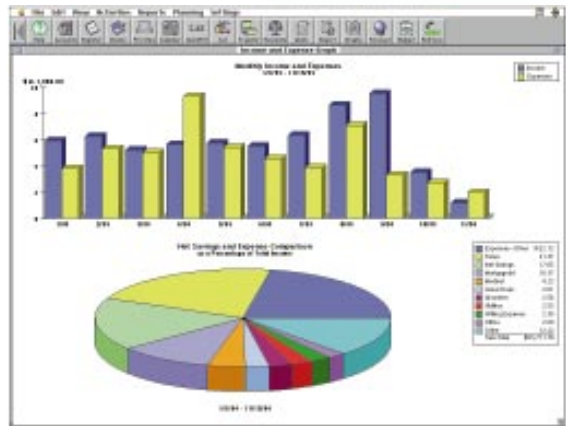


figure 1 / **Budgeting.** Programs such as Quicken help you categorize your expenses and see graphically where your money's going. For instance, this graph shows clearly what proportion of your income is going toward taxes.

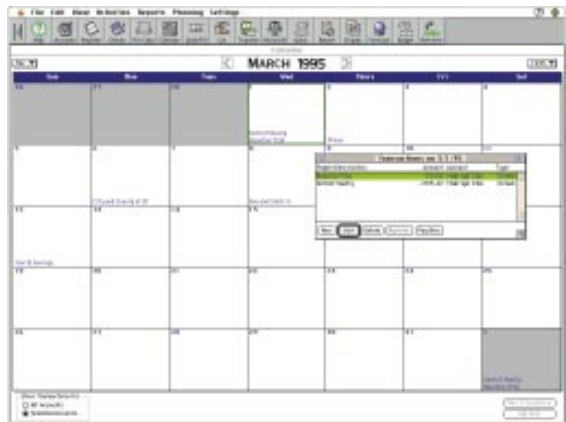
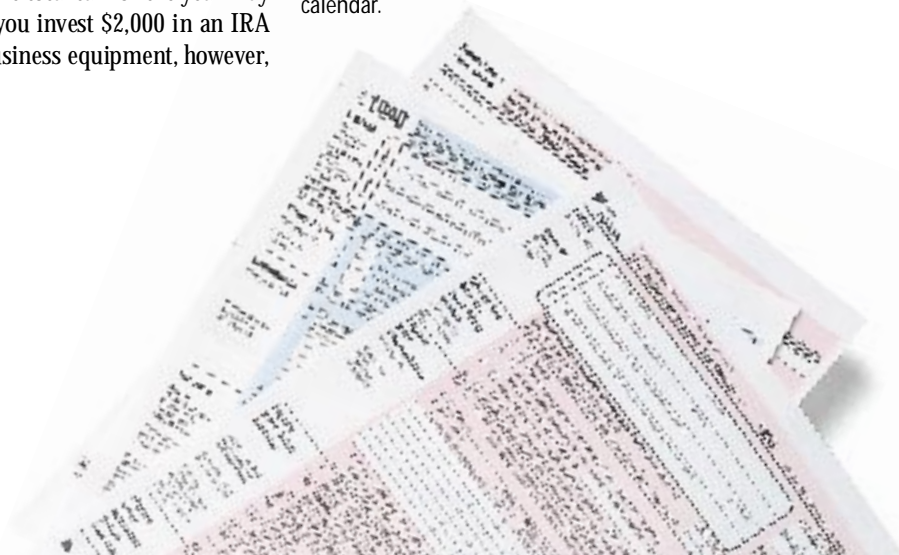


figure 2 / **Bill Paying.** Quicken helps you pay your bills on time by letting you post items on their due dates. If a bill's due date changes, you can simply drag the item to a new date on the calendar.



Investing

The first step in developing an investment strategy is setting long-, intermediate-, and short-term goals. The second step is ascertaining the amount of risk you can tolerate. Riskier investments typically offer a higher potential return (in the long run) but are inappropriate for people — for example, single parents on a tight budget — who need their assets to remain fairly liquid in the short term.

In addition to helping you think through such issues, WealthBuilder 3.0 (\$109.95), from Reality Technologies (215-277-7600), tailors an asset-allocation plan to the risk level you've chosen (see figure 4). The program can tie in to Reuters Money Network, which provides access to historical prices and to research and rating databases, including Morningstar fund ratings, so you can research various investment alternatives. Access to the network ranges from \$10 to \$30 per month (the first month is free). You can also use CheckWriter Pro to guide you in your investment research; it lets you download stock quotes from a variety of on-line services.

Although Quicken also lets you dial up to CompuServe or Intuit's own 900 service to download current data about your investments, hands-on investors will probably want the research capabilities of WealthBuilder or StreetSmart (\$59), from Charles Schwab (800-334-4455 or 415-627-7000). The latter lets you do trading from your Mac (see Quick Clicks, January '95, page 62).

Retirement

The sooner you start saving for retirement, the better. For example, say you hope to retire at age 70. If, at age 20, you start putting aside \$2,000 a year in a tax-deferred account earning 5 percent interest, you will

have approximately \$441,631 awaiting you when you hit retirement age; if you start at 30, that drops to \$255,680. And if you wait until 40, the return plunges to a mere \$141,522. You can use either WealthBuilder or Quicken to calculate such statistics; each program lets you fiddle with the numbers and set up comparative scenarios.

Estate Planning

If you want to make sure your Power Mac 8100 and CD-ROM collection go to your favorite nonprofit agency — instead of being sold to pay for your urn — write a will. State laws of intestacy — legalese for “without a will” — typically divide what you own at death according to set formulas that leave your friends and charities — even your longtime companion — out in the cold and your minor children in the hands of the courts. You can save the cost of having an attorney draw up your will by using WillMaker 5 (\$69.95), from Nolo Press (800-992-6656 or 510-549-1976). An interview format guides you through the process of bequeathing your property; naming a guardian for minor children; and making medical decisions for yourself, in advance, in case you become incapacitated.

The Running Total

Money management isn't just for the very wealthy or the economically challenged. By analyzing your spending patterns, creating a budget you can live with, and investing for



figure 3 / Taxes. Besides helping you fill out tax forms, MacIntax gives you money-saving tips on matters such as how to maximize your deductions. Tips screens pop up as you fill out your tax forms.

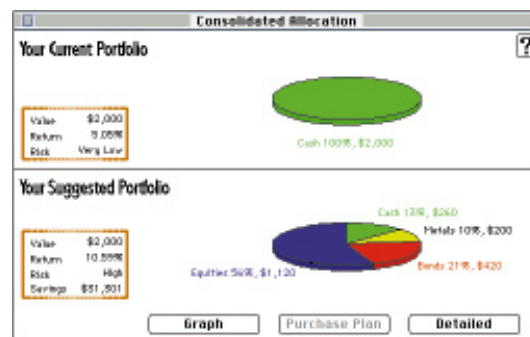


figure 4 / Investing. You set the risk level, and then WealthBuilder tailors an asset-allocation plan for you. You can also use WealthBuilder to download stock quotes.

the future, you can make informed choices. For example, if you'd rather work less now and have more time for personally enriching pursuits — writing a novel, teaching English to immigrants, or creating a CD-ROM title to rival the likes of Myst — you need to manage your money to make it stretch. ☒

Kelli Wiseth manages a computer-consulting business and is preparing a new budget to keep her growing pup, Daisy, in dog food.

Software on a Shoestring

IS YOUR BUDGET FOR BUDGETING SOFTWARE slimmer than you wish? That's not a problem if you're on-line — lots of shareware programs are available to help you become a financial whiz.

Loan (\$15) is a simple loan calculator that can display and compare conventional and adjustable-rate mortgage-loan projections. Enter a loan's vital statistics, and Loan generates a chart detailing the progression of the loan and its payments, with running totals of the interest and equity paid.

For those who work with more than just loans, Financial Inquiry Tools (\$20) provides over 40 different financial-calculation functions.

Falcon-Nc (\$15) is a calculator that provides basic financial functions, such as nominal- and effective-interest calculations, as well as regular mathematical functions.

Newton MessagePad owners should check out PocketMoney (\$20), which helps you keep track of transactions in as many accounts as you want. You can also import and export data between PocketMoney and Quicken or Managing Your Money on your desktop Mac.

You can find all these programs in the MacUser and ZiffNet/Mac areas on CompuServe and eWorld and in the libraries of other major on-line services. See page 4 for instructions on accessing ZiffNet/Mac.



MOBILE MAC / BY SHARON ZARDETTO AKER

The Buzz About Blackbirds

What Apple *didn't* tell you when you bought your 500-series PowerBook: how to deal with single serial ports, dumb smart batteries, and other conundrums.

THE LAUNCH OF THE 500-SERIES PowerBooks, code-named Blackbirds, was less than auspicious. Despite the daunting price tag of the high-end 540c model, demand outstripped supply and prospective

owners were left cooling their heels for weeks and then months. Just as that bottleneck eased up, Apple decided to cull non-color active-matrix PowerBooks from its line and dropped the 540. And then there was the bad chip in the 540c . . .

So the early users (those who actually got the machines they wanted) ended up, as usual, going on the shakedown cruise. However, you can benefit from their — or rather, *our* — experience. Here's a roundup of 500-series-specific issues, problems, and solutions (or workarounds).

Goodbye, Mr. Chips

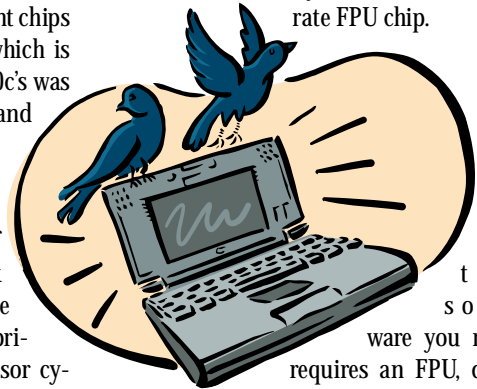
First and foremost among 500-series problems are the constant random freeze-ups — caused by a defective processor chip —

experienced by the early production models of the 540c. Although replacement chips were scarce in the first months (which is probably why the supply of new 540c's was also slim), they're plentiful now and available free from Apple (call 800-767-2775). Until you get your replacement chip, the barely acceptable workaround is to turn off processor cycling in the PowerBook control panel (Option-click on the Custom button to display the appropriate check box). Turning off processor cycling causes the battery to drain faster (because the processor won't use its rest state at every opportunity), but it's still a better option than crashing every 20 minutes.

If you purchase a state-of-the-art 540c,

you'll get everything you need in the way of power and convenience — except an FPU (floating-point unit).

The special low-power version of the 68040 chip used by the 500-series PowerBooks does not include an FPU (the full version of the processor chip does). Nor does the 500-series allow you to add on a separate FPU chip.



If the software you need requires an FPU, don't expect to run it on a 500-series PowerBook. And Software FPU, the FPU-emulation utility so many users depend on as a workaround for some other FPU-less Macs, doesn't work on the 500-series PowerBooks.

POWERBOOK SECRETS / opening up the PowerBook 100

A WORLD OF LOW-COST REPAIRS and installations reveals itself to you when you learn how to open up your PowerBook. If you have a PowerBook 100, you're probably not too worried about voiding the warranty (which you may do when you open the case), so we'll start with that venerable model. Work slowly and carefully, taking precautions against static electricity, as described in February's column.

To open the PowerBook 100 case, first remove the main and backup batteries, the I/O door, and the backup-battery holder. Pry off the three rubber screw covers on the bottom of the case, and loosen the screws with a Phillips-head screwdriver.

Turn the PowerBook right-side-up — the loosened screws will fall out — and then unlatch the

case and open the computer. The halves are no longer hinged, but they are attached by the *interconnect cable*, so be careful not to pull it out. Lay the display back on your work surface.

Next, move the keyboard out of the way by lifting it slightly at the rear and then sliding it backward to release it from the palm rest. You don't need to detach the keyboard cables; you can angle the keyboard out of the way to do a modem or memory installation or flip it over and rest it on the screen for a hard-drive installation. If you're installing a hard drive, you also need to remove the palm rest: Lift it at the back (the edges at each side of the computer case) and slide it forward until it's released.

When you're ready to put the PowerBook back together, check that the keyboard and interconnect cables are firmly seated at both ends and not caught or pinched during the reassembly. / Rich Wolfson



A Single-Port Storm

Life with a single serial port (which is all the 500 models have) is fraught with minor annoyances. Instead of both a printer and a modem port, you get one serial port for both functions. Here are three areas in which this double-duty port requires special treatment:

If you're using a serial printer, you'll need to turn off AppleTalk if you want the port to work for the printer — not exactly an intuitive action. Fortunately, a dialog box instructs you to do this when you select a serial-printer icon in the Chooser.

The PowerBook Setup control panel has Compatible and Normal settings in the Modem section. (How's that for a choice of labels — as if being compatible were abnormal.) Some communications packages require the Normal mode, others the Compatible mode; if you select the wrong one, you won't be able to access the serial port. So if you're having problems, try changing the settings.

Even Apple's system software doesn't like to deal with the combined printer/modem port (see figure 1). If you select the ImageWriter icon in the Chooser, you'll see an icon for the combined port. But select the StyleWriter II icon, and you get a choice of printer or modem port. When facing this conundrum, select the modem port to access the single serial port, even for printing.

A Bit of a Problem

Just when we were getting used to saying "turn on 32-bit addressing," we found that the newest Mac models (the 500s among them) don't have that option; they're *always* in 32-bit mode. If you have an older program that requires 24-bit addressing, it's not going to run on your 500-series PowerBook. Even though some users have managed to get version 7.3 of the Memory control panel — which displays the 32-bit-addressing check box even on 500-series PowerBooks — that doesn't mean they can actually turn off the 32-bit option: You'll find that every time you restart, the computer resets to 32-bit addressing.

Smart Batteries Go Dumb

The "intelligent" battery in the 500s is Apple's most expensive to date (no doubt because it contains an \$18 chip that provides its brains), and one that's not a likely

candidate for use in future PowerBook models.

The expense is not the only problem with these batteries — they also have a tendency to dumb down under certain conditions. The contents of a smart battery's memory are easily corrupted when the battery is left uncharged for a long period of time. Because a battery slowly loses its charge even when it's not in use, you can get a brand-new 500-series PowerBook with a dead battery. Or if you leave your PowerBook sleeping or turned off for too long, the battery will forget how to recharge.

Look for these symptoms of corrupted battery memory: The battery refuses to run the PowerBook or charge when it's inside; the Control Strip doesn't recognize the battery (there's a blank battery icon); the battery completely discharges in a day or two if the PowerBook is left sleeping (instead of lasting about a week, as it's supposed to); and the battery is *extremely* hot when you remove it — so hot you may be surprised that your fingers didn't blister.

If you can't run your PowerBook on its battery, first make sure you don't just have a regular drained-all-the-way-down situation: Leave the battery plugged in for about 20 minutes, and then try to turn on the PowerBook. Sometimes the drain is so extreme you need at least that much time to get going again.

If you're convinced the battery is so dumb it's dead, Apple will actually supply a free replacement: Just ship yours to the company, and it will ship one back (call 800-767-2775). Or, better yet, fix it yourself with Bill Steinberg's EMMpathy utility (it deals with the culprit, the Energy Monitoring Module controller in the battery), which VST Systems has put out as freeware (available on-line; see end of article) after initially bundling it with one of its PowerBook products. The utility resets the battery's memory to its factory defaults.

In the meantime, be aware that when two batteries are inserted, only one is used at a time: The PowerBook does not use the battery on the right side until the one in the left

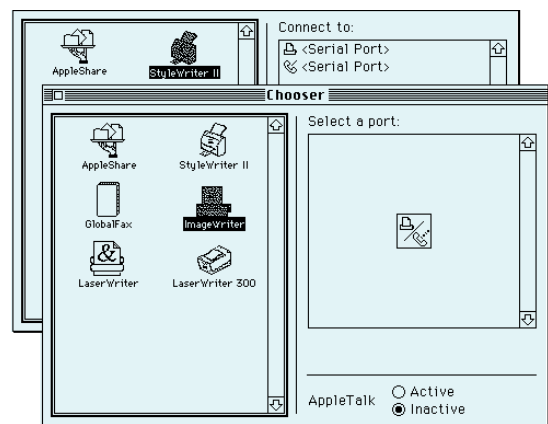


figure 1 / **There's just one serial port** on a 500-series PowerBook, rather than a printer port and a modem port, but Apple's system software doesn't always admit it. Choosing an ImageWriter icon gets you the correct, combined printer/modem-port icon (foreground); other icons, such as that for the StyleWriter II, still give a misleading choice of ports. The nonintuitive answer: Choose the modem port.

bay is completely drained. Current wisdom dictates that you should occasionally swap the batteries so that you're not killing one and ignoring the other.

Shopping List

In the space I have left this month, let me mention a few noteworthy items from the small but growing list of 500-specific products. The \$179.95 VST Charger 500, from VST Systems (508-287-4600), charges two batteries in about an hour. The Lind Power Center 500 (\$249.95), from Lind Electronic Design (800-897-8996 or 612-927-6303), takes about three hours to charge two batteries, but with two spare batteries, it can serve as a handy auxiliary power pack (it weighs just 8 ounces without the batteries) — if you don't mind paying a premium for getting both functions. And finally, what list of 500-series products would be complete without mention of trackpad-decorating, stick-on tattoos from APS Technologies (800-233-7550 or 816-483-6100) — a sheet of 20 different ones costs just \$10.95! ☞

Sharon Aker regretfully announces that she is doing the honorable thing and returning the 540c loaner unit to Apple. Meanwhile, Rich Wolfson is hanging onto his aging PowerBook 100, which he's opened so many times he's almost ready to do it blindfolded.



You can find EMMpathy in the MacUser and ZiffNet/Mac areas on CompuServe and eWorld. See page 4 for instructions on accessing these on-line areas.



NET TRAVELER / BY MICHAEL SWAINE

Shop Around

Cyberspace citizen or info-consumer, hot mailing lists, and four ways to cut World Wide Web access costs.

OVER REASONED OBJECTIONS from the on-line community, the U.S. Congress passed legislation last fall that requires phone companies to build their systems so that the government can still tap citizens'

phones. They won't listen to us, but they will *listen* to us.

Virtual Money

You may be a good cyberspace citizen, but to truly validate your existence today, you gotta be a consumer. To that end, at least five companies have announced systems for moving credit-card information over the Internet safely. This is noteworthy. Employing secure encryption and authentication, these systems are one step away from the e-money that may, sooner than we dream, make cash obsolete and revolutionize commerce, especially white-collar crime.

Meanwhile, there are plenty of places to netshop now if you don't insist on paying in bitbucks. Such as CDnow, the Internet Music Store, at <http://cdnow.com/>, and the Internet Shopping Network, for computer goods, at <http://shop.internet.net/>.

Free Subscriptions

Shopping in cyberspace shouldn't be confused with the dreaded commercialization of the net, which is about spamming people's e-mailboxes with junk mail. Cramming your *own* e-mailbox by subscribing to mailing lists is entirely acceptable, however. Mailing lists are underappreciated: For the effort of sending one e-mail message, you can subscribe to electronic publications, join discussion groups in an area of your interest, or get automatic software updates. Lists are hot.

So here are a few hot lists. To subscribe to

one, send the indicated message to the indicated e-mail address. HotFlash has the latest buzz from *Wired* magazine: inforama@wired.com, message "subscribe hotflash". Edupage provides summaries of technology news: listproc@educom.edu, message "subscribe edupage <your name>". A list of mailing lists is available on the Web at <http://www.neosoft.com/internet/paml/> or via ftp at <ftp://rtfm.mit.edu/pub/usenet/news.answers/mail/mailling-lists>. After burning up so much on-line time, you may be ready for . . .

Smart Ways to Cut Access Costs

These are particularly handy if you are among the growing number of users logging on at home:

Get someone else to pay. Your boss, your school, your favorite organization. Your Scout troop isn't on the net? Sell them on the idea, meanwhile calling your local provider (send an e-mail message to info-deliverer@netcom.com with the phrase "send PDIAL" to get a list of providers) to wheedle a special deal for the Scouts. Hey, can't hurt to try.

Keep your old modem. Although the claim is routinely made that you need at least a 14.4-Kbps modem to use a Web browser, you can get tolerable performance (I have testimonials on file) at 9,600 bps by turning off the automatic downloading of graphics. You can still manually load a graphic if you want

to see it. This practice will save you time at any speed, even if you've got a direct Internet connection.

Keep your old shell account. The Internet Adapter (TIA), which is available from SoftAware (phone: 310-314-1466; e-mail: software@marketplace.com), turns any shell account into a virtual SLIP account, so you can use Web browsers and other Mac-based tools without paying for a real SLIP



account. (Not all Internet providers are thrilled about this approach.) You can get an evaluation copy of TIA either from <ftp://marketplace.com/tia/> or from <http://marketplace.com:80/tia/tiahome.html>; the full version costs \$25.

Sell your Mac, and buy a MessagePad. Radical. The Telecooperation Office at the University of Karlsruhe in Germany is developing a Newton MessagePad Web browser with a Mosaic-like interface. Estimated cost to get onto the net: \$600, including MessagePad 110, modem, and software but not the IP account. True, the browser currently also requires a Mac, but they're working on that.

Don't Know FTP from FTD?

MacUser maintains a list of frequently asked questions (FAQs) about the Internet, *MacUser* itself, and this column specifically at faq@macuser.ziff.com. You can reach me at traveler@macuser.ziff.com. ☺



BY ANDY IHNATKO AND BOB LEVITUS / *Tips compiled by Christopher Breen*

Help Folder

How to best use all your RAM, what to do when plagued by a common error message, and the many ways to create a watermark.

RAMPing Up

Q. I upgraded my Mac from 4 MB to 10 MB of RAM. How do I adjust my control-panel settings to get the most from the upgrade? For instance, should I turn on 32-bit addressing? Should I increase the size of the disk cache?

Also, ever since I did the upgrade, the amount of RAM my system software uses has increased significantly. Why?

Larry Huntsperger
Soldotna, AK

BOB: Yes, you should turn on 32-bit addressing so you can take advantage of your full 10 MB of RAM. If you don't turn it on, your Mac will act as though it has only 8 MB. Almost all software sold today works beautifully with 32-bit addressing, although some older software is incompatible. If you need to use incompatible software, you'll have to turn 32-bit addressing back off.

Turning on 32-bit addressing is also the solution to the problem you mentioned — swollen system software. Once you've turned it on and restarted your Mac, the system software will slim down.

The answer about how much room you should give to the disk cache is not as

*... BUT WERE AFRAID TO ASK

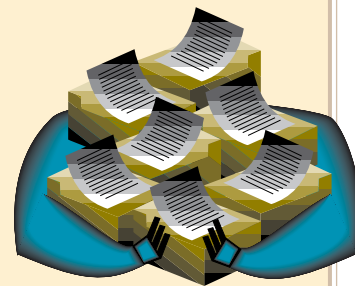
Leading financial analysts across the country agree — in the upcoming decade, the one certain growth profession is sainthood. How can you join this pilgrimage to prosperity? Start by simplifying your life. Now, I'm not saying you should ditch your Sega machine or anything, but sending a basic question for the "... But Were Afraid to Ask" portion of Help Folder would certainly be a good first step toward finding your jawbone encased in glass somewhere 200 years from now. To avoid the tainting influence of pride, we'll say it was asked by one of our top-drawer saints.

PROLIFERATING PPDs

Q. What are these PPD files on my hard disk?

Saint Doo-Dah
Doo-Dah, Doo-Dah

ANDY: They're PostScript Printer Description files, and they reside in the Printer Descriptions folder in your Extensions folder. They ensure that the printer driver can take advantage of any special features your PostScript printer might have, such as the ability to print odd paper sizes, use multiple trays, do binding, brew coffee on demand — that sort of thing. PPDs are chiefly used by the LaserWriter driver, but certain paper-intensive applications, such as PageMaker and Illustrator, use 'em too. You don't need to have a PPD, but as you might guess, having one means you can get the most out of your printer. If you don't have one, contact your printer's manufacturer. If you're Internet-hip, you might find the PPD you want on Adobe's ftp server: ftp.adobe.com.



simple. The disk cache is a portion of RAM set aside to hold frequently used instructions so that the Mac doesn't have to access the hard disk each time it needs that information, thus making the Mac run faster. A reasonable amount to allocate to the cache is 5 percent of your total RAM, but giving it more or less than that probably won't make a noticeable difference in speed.

Here's the important thing to remember: The higher you set the disk cache, the less RAM you'll have for running programs. Play around with the settings, and stick with the lowest setting that doesn't feel sluggish to you.

ANDY: I once spent an entire day fiddling with disk-cache settings in pursuit of a good rule of thumb for the best balance between speed and memory. In the end, I

never found any rule as elegant as "just set the bloody thing to 256K, and never give it another thought."

Restoring a Custom Icon

Q. Recently, after I rebuilt my desktop, the custom hard-drive icon I had pasted into its Get Info box disappeared. Whenever I try to paste in another icon, I get a message saying I have a type-39 error. What is a type-39 error? Can I fix the problem by using ResEdit? By the way, what is ResEdit?

Frank Chezem
via America Online

BOB: A type-39-error message means "End of file; no additional data in the format." That's programmer-speak for "your file is hosed." The file in your case is the one that represents the icon you pasted into your

Write to Help Folder/Tips

c/o MacUser

950 Tower Lane

18th Floor

Foster City, CA 94404

Don't want to wait for an answer?

Post your question on ZiffNet/Mac,

MacUser's on-line service, and get a

reply from Bob (76004, 2076) or Andy

(72511, 204). We pay \$25 – \$100 for any

undocumented tips we publish. Send

them to Christopher Breen (72241, 1036).

hard drive's Get Info window. Just remove the file. The tricky part is that it's an invisible file, so in order to find it, you first have to use a program that sees invisible files and then make it visible so you can trash it.

The program you asked about, ResEdit, can do just that, as can other programs such as InvisiFile 1.1 (shareware that's available on-line; see end of article), Now Software's MacSnoop, Dayna's ProFiles, and Symantec's Norton Utilities. The file you're looking for is called Icon and is at the root level of the hard disk in question. Once you've made the file visible and dragged it into the Trash, you can paste a new icon into the Get Info window and have a nice day.

ResEdit does more than just make icons visible; it is Apple's utility for editing Mac resources (sets of data that define items such

as icons and the contents of menus). For instance, you can change your startup screen or switch an alert's default from Yes to No.

ResEdit is available from all the usual places: on-line services, user groups, and friendly Apple dealers. Or for a mere \$24.95, you can get a copy of the latest version of ResEdit along with an excellent introduction to it called *Zen and the Art of Resource Editing*, by David A. Lai (Berkeley, CA: Peachpit Press, 1994).

And now, here's Andy with the standard ResEdit disclaimer:

ANDY: Oh, sure, make *me* play bad cop. Ahem. If you don't know what you're doing, "ResHacking" a file can lead to program failure, system crashes, depletion of the ozone layer, unsightly facial hair, impotence, the delay of the Second Coming by at least a fortnight, cancellation of *Baywatch*, and the replacement of McDonalds' secret sauce with obviously just plain Russian salad dressing mixed with mayonnaise-and-pickle-relish sauce. Therefore, use ResEdit only on something you wouldn't mind trashing.

I dig the *Zen* book, but I would also like to mention *ResEdit Complete*, by Peter Alley and Carolyn Strange (Reading, MA: Addison-Wesley, 1994). Both of them are great books, but they have different strengths. *ResEdit Complete* is heavy on technique and specific usage; *Zen* gives you a better idea of what resources are and how they work. It wouldn't hurt to buy both.

The Word on Watermarks

Q. Is there any way to put a watermark on my printed Word 5.1 documents?

Sean Savage
via CompuServe

BOB: Well, you can upgrade to System 7.5 and install QuickDraw GX. It includes printer extensions, such as Peirce Print Tools, that perform such magic as creating watermarks. Peirce Print Tools comes with the CD-ROM version of System 7.5.

But for those who aren't prepared to install QuickDraw GX, there is a way to create watermarks in Word (see figure 1). This method works not only in Word 5.1 but also in 4.0 and 5.0 (version 6.0 uses a different method; stay tuned):

1. Open the Glossary (type Command-K).
2. Choose Open from the File menu (type Command-O).



figure 1 / **System 7.5 lets you create watermarks**, as long as you've installed QuickDraw GX. A more RAM-economical method is to create them by using Microsoft Word version 4.0 or 5.0.

3. Open the Page Layout Glossary (in the Glossaries folder inside the Word 5.1 folder). If it's not there, you need to install it from the Word installation disks.
4. Double-click on the Word Under Text glossary entry.

A block of PostScript code will appear in your document. The code itself won't print, because it's formatted as hidden text, but the word *Confidential* will print behind your document text in light-gray type at a 45-degree angle.

If you want to modify the watermark — say, change *Confidential* to *Draft* or change the font — you can locate instructions in Page Layout Glossary Info in the Word Glossaries folder.

ANDY: Peirce Print Tools does it with far less muss and fuss. Instead of going through all the steps to enter PostScript code, you simply click on buttons.

BOB: Yeah, the Peirce stuff is pretty cool, but QuickDraw GX hogs a whole megabyte of RAM. Another space hog, Microsoft Word 6.0, also allows you to add watermarks by simply inserting graphical objects. Nevertheless, the most RAM-economical way to go is to use earlier versions of Word to enter PostScript code, although this method is not nearly as elegant.

Functional Finder Labels

Q. I know that many hard-disk-compression utilities use Finder labels to exclude certain files from compression. What are

TIPS / System

FINDING APPLICATIONS FAST

When you use the Find command to find an application, the pre-System 7.5 Find feature often searches the System Folder first, bringing up an application's preferences file long before it locates the application itself. You can avoid unnecessary further searching by double-clicking on the preferences file — doing so launches most applications.

Sophia Bennett
via CompuServe

APPLE-MENU ORGANIZING

Many people know the trick of moving files and folders to the top of the Apple menu or Finder windows (with View by Name selected) by adding spaces or numbers before the name. But here's a way to do it without visibly changing the names or alignment.

Using any word processor, create a new document, highlight the first line (the paragraph mark), and copy it. Return to the Finder, click in front of the name of the file or folder you want to reorder, and paste your selection. The whole name will go blank, but don't fret. Once you click outside the name box, the name will reappear and the file or folder will spring to the top of the list.

To increase a file or folder's "ordering" power, just paste this blank line two or more times.

Chris Bloomfield
Kelburn, Wellington, New Zealand

some other practical uses of these labels?

Scott Lewancowski
Somerset, MA

ANDY: If you had asked, "What are some *impractical* uses of labels?" I'd tell you to erase all the label names from the Labels control panel, close it, and then restart. The labels will change to the names of the guys who wrote the Labels control panel.

But Finder labels have a bunch of practical uses. They are a great boon to people who aren't genetically predisposed to anal-retentive organization. I use them whenever I have a group of scattered files I want to collect in the future so I can perform a common function on them (see figure 2). For instance, when preparing Help Folder, I mark all related files with a Help Folder label so I can gather them later. Similarly, I give an On-Deck Circle label to the files I don't need to use now but don't need to throw away immediately. When I need to free up some disk space, I gather them up and do a mass delete.

You can also use labels to protect files. For instance, I label the files I don't ever want altered in any way Kevlar. When I write an AppleScript script to do housekeeping and transmogrify various files, I always put in a

line or two of code to protect Kevlar-labeled files.

BOB: Although the only thing I've had to say about Finder labels in the past has been that they are pretty useless and lame, I have to admit that I did find a good use for them recently — speeding up hard-disk backups. Because my backup software, Retrospect, lets me exclude files based on their labels, I can avoid backing up applications by giving their folders a common label or color, such as ugly green. I then tell Retrospect to exclude all ugly-green folders from backups.

CD Database

Q. I'd like to keep track of my CD collection in a FileMaker Pro database. Is there any way to export the data I've already entered into the AppleCD Audio Player and put it in the database?

Michelle Tarrentino
via the Internet

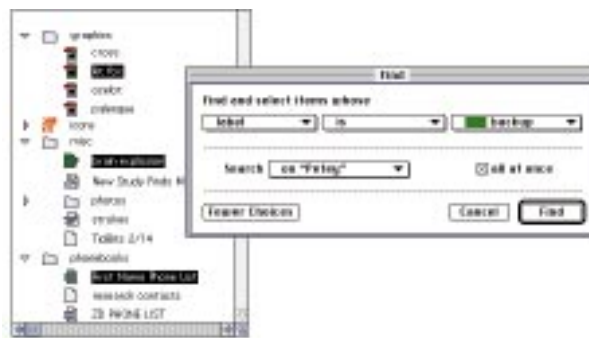



figure 2 / **Finder labels come in handy** when you want to perform a common function on files in separate folders. You can use Find to highlight all the files that have the same label and then copy or delete them, for instance, in one fell swoop.

ANDY: You're in luck — a guy with a name even more difficult to pronounce than mine, Esa Ristilä, was nice enough to create the program CDCoyote, a freeware utility (available on-line) that turns the data from AppleCD Audio Player programs into a plain-text file readable by any database, spreadsheet, or word-processing program. Sadly, he hasn't yet figured out a way to make Finder labels categorize your CDs. ☹

 You can find the programs referenced in this article in the MacUser and ZiffNet/Mac areas on CompuServe and eWorld. See page 4 for instructions on accessing ZiffNet/Mac.

TIPS / PowerBook and Newton

COMPUSERVE NAVIGATOR

CompuServe Navigator frequently reads the hard disk when you review a session. In order to minimize spinup of your hard disk and save battery power, set Disk Cache in your PowerBook's Memory control panel to some number large enough to hold a typical Navigator session. I set mine to 2,048K, but 1,024K usually suffices.

After running a Navigator session, use the Find Message command to search for some text that doesn't exist in the session (I search for ZOP), which causes the whole session text to be read into the cache. Now go back to the session start, spin down the disk with a PowerBook utility such as PBTtools or the freeware SpinD FKEY (available on-line), and review the session as you normally would. The disk will still spin up to save a reply or a newly composed message, but you can turn off the drive right afterward.

Roland Mailleux
Brussels, Belgium

PREVENTING PRONG PUNCTURES

There's a simpler way to protect your carrying case from the prongs on the PowerBook's AC adapter than the one you published in "PowerBook Tips" (May '94, page 143): Use the power cord that's already conveniently attached to the

adapter. Just coil your cord in a tight spiral, roughly the size of the power brick. Place the spiral against the brick so that the brick's prongs stick into its empty center, and then wrap a rubber band around the whole brick and the cord. This protects the case and creates a nice compact bundle for storage.

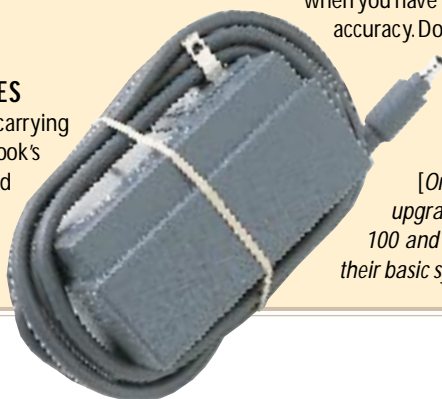
A.J. Cady
Centerville, MA

NEWTON WRITING

If you need to jot down information on your Newton MessagePad and accuracy is important but difficult (when taking down a phone number at a pay phone, in a moving car, or in the dark, for instance), have a blank page ready in the Notepad with handwriting recognition and shape recognition turned off. Let the Newton function as a piece of paper; when you have time, you can go back and type in the data with perfect accuracy. Don't let correction delays or chancy text recognition prevent you from getting an important address or phone number.

Mark Zimmer
via America Online

[Only those with an original MessagePad that has not been upgraded should need to use this tip. The Newton MessagePad 100 and 110 offer deferred handwriting recognition as part of their basic system. — Ed.]



A New Age, Maybe

THE NEXT GENERATION of Power Macs, using Motorola's PowerPC604 chip, should be out

soon. The 604 is considered by many chip experts to be the real deal. Until now, the PowerPC chips available were all quasi-prototype chips designed to fill a market need but not the serious PowerPC chips we'll be seeing. This little-known fact comes from the early papers written about PowerPC architecture, in which the 601, for example, is considered a proof-of-concept chip serving two purposes: proving the chip design can work and getting an early foothold in the marketplace.

Well, congratulations to all those pioneers out there who actually used this chip during the past year. The experiment is over, and it's obvious to everyone that the PowerPC is the performance leader — especially with the release of the 604.

But will Apple make hay with the 604 and the other upcoming PowerPC chips? We've already seen the unstoppable Intel get stopped late last year, when the furor over the Pentium erupted into a PR nightmare and a fiasco for the company. But did Apple take advantage of this? Where were the ads showing two executives side-by-side in a company, one looking at the other and asking, "Aren't we both doing the same calculation? Why is my answer different from yours?" The opportunity was there for

Apple to change its motto to "Results You Can Count On!" Which is a great slogan, right? Instead, the company still tries to perpetuate the ludicrous notion that its machines are as inexpensive as or even cheaper

than PCs. I figure they must be using Pentiums to do the calculation.

What worries me even more about Apple's future is that even the general public is concerned. Hardly a day goes by without someone asking me about the future of Apple: "Do you think they are going to stay in business?" I ask back, "Why wouldn't they?" Then I tell them the tale of the 604 and how its speed will blow away any PC. "Too expensive," they reply.

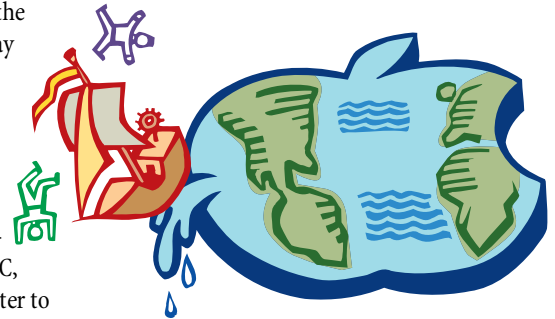
Until recently I argued that the additional expense of the Mac was negligible, since I can add peripherals to a Mac almost effortlessly without fear of losing a weekend trying to get the thing to work. With a PC, it's always a hassle to get the computer to accept extras such as a magneto-optical drive. Recently, though, great strides have been taken in the PC world, and the development of the ASPI driver standard for SCSI has helped mucho. The promise of the Plug-and-Play PC looms over the horizon.

While the PC world has been improving, the Mac crowd seems to be going in the opposite direction. Although the Mac's still superior to the PC, its advantages are getting a little frayed at the edges and a whole new operating system may be needed soon. System 7.5 is far too big and resource-hungry. The Mac needs too much memory to work properly. Extension conflicts are becoming epidemic. The Mac is becoming more like the PC even as the PC becomes more like the Mac.

Then there's the hopeless situation with Apple's notebook strategy. Everyone who is serious about computing uses a notebook or laptop computer. Story: I'm sitting on some coast-to-coast flight with my little

color Toshiba Portégé. Next to me is a guy with a monochrome Mac notebook. We both have work to do, and his battery drops dead in about two hours. Mine continues to operate until the end of the flight and has power left. I've gotten six hours out of this thing. The guy laments that he's going to give up on his Mac because of this one detail. Although Apple's notebooks are well liked, it should realize that the market is fickle. It should also hire Toshiba to design its next laptop.

Then there's also the issue of the Apple GUI, a thing of beauty in 1984. It took the PC side of the business 11 years to get it to-



gether with the GUI. This gave Apple an 11-year head start. But what has Apple done in the last 11 years in terms of taking us to the next evolutionary stage? Is this basic point-and-click interface the end of the line? Is the only reason for the 604 and future speed-demon chips to make Photoshop run faster?

And where is all the cool video stuff Apple was supposed to introduce? The so-called Personal Conferencing scene is being dominated by Intel (of all companies). The big trends in computing are voice recognition, video teleconferencing, and Internet access. Where does Apple fit into this picture? What is Apple doing to lead the way? The company cannot survive unless it is a leader.

Maybe just using these hot new RISC chips is enough to maintain a leadership role. These chips do burn MIPS like no others. But the best chip running tired and bloated software doesn't add up to the best computer. ☹

