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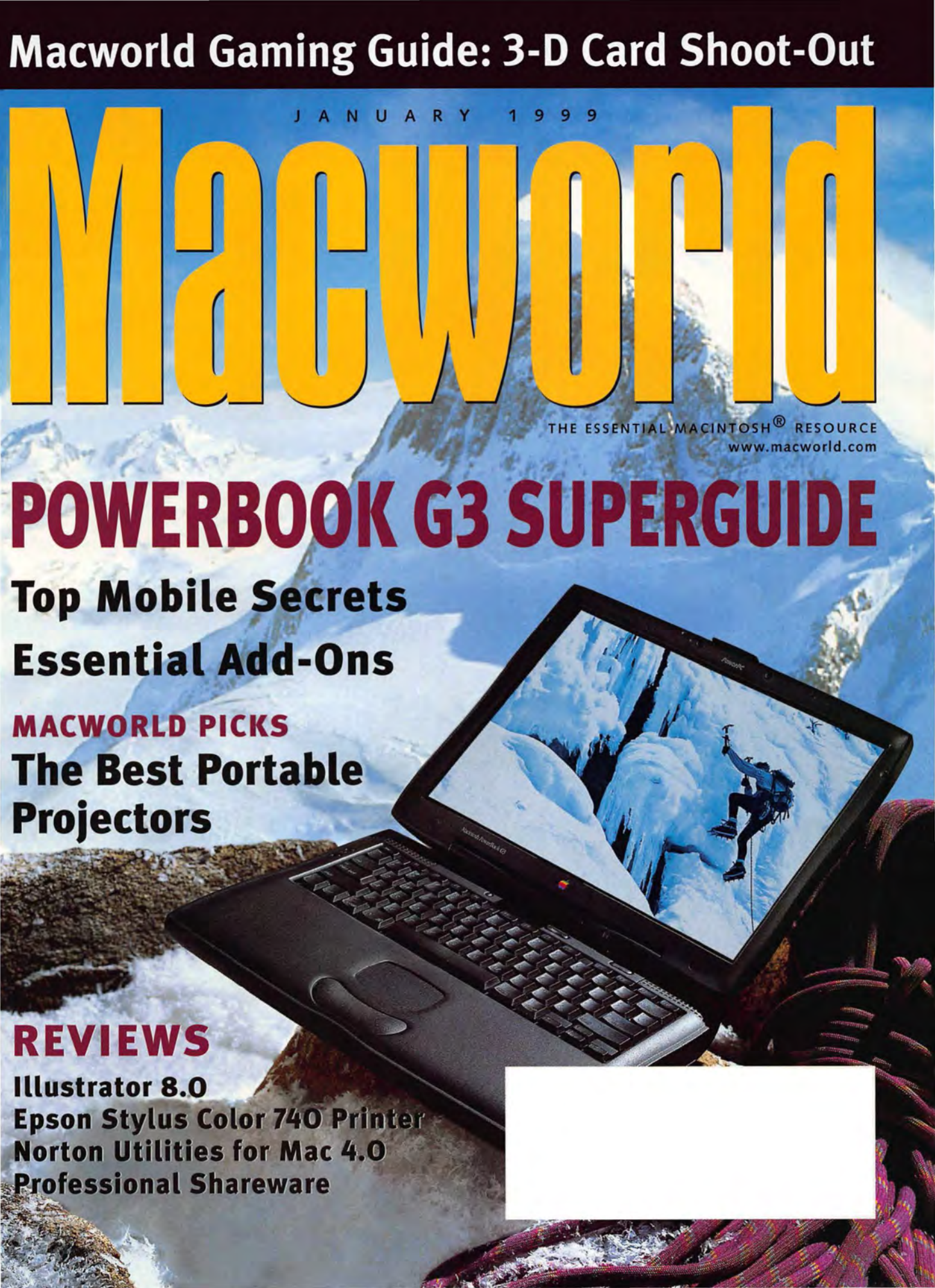

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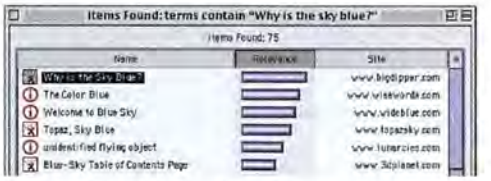


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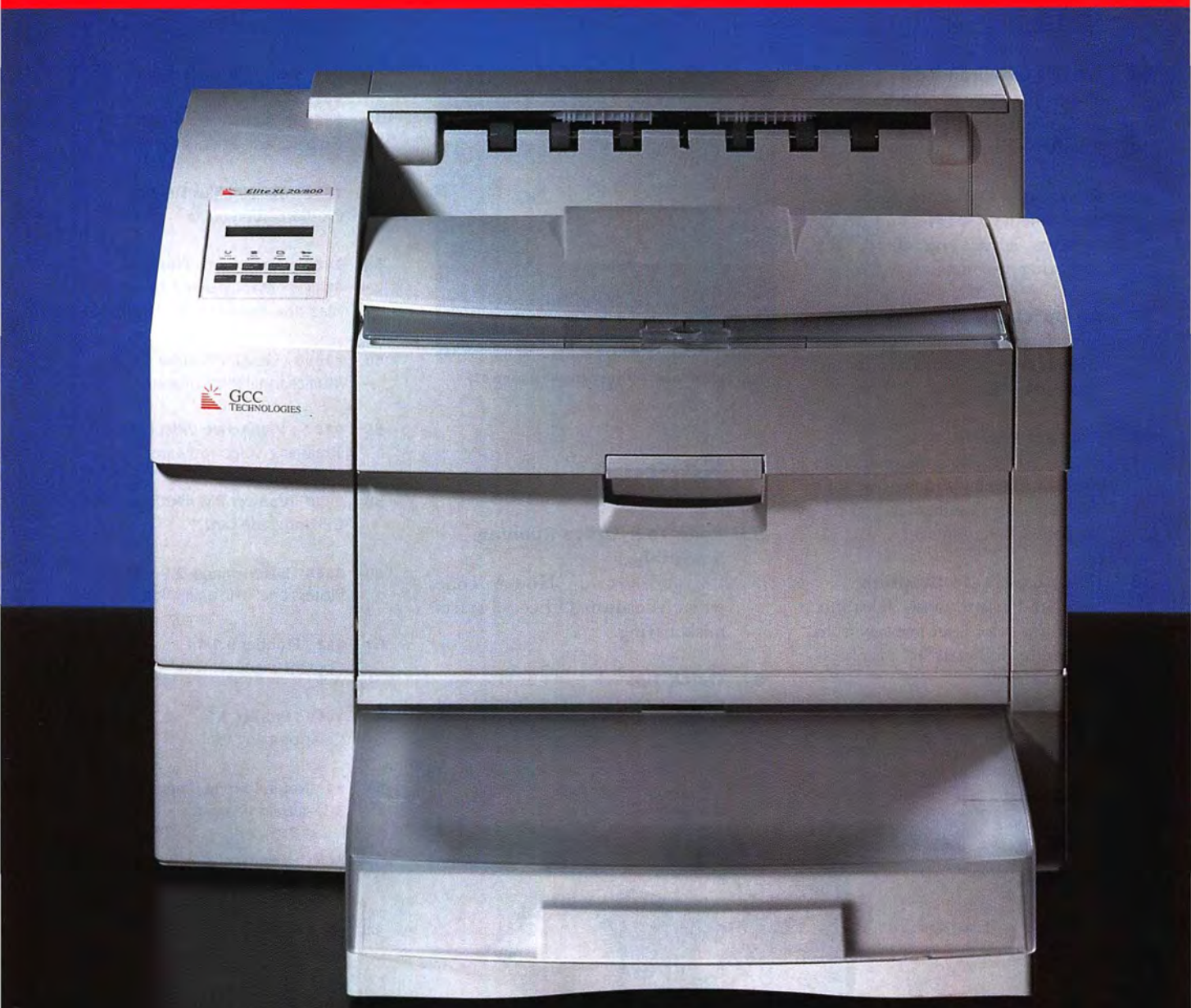


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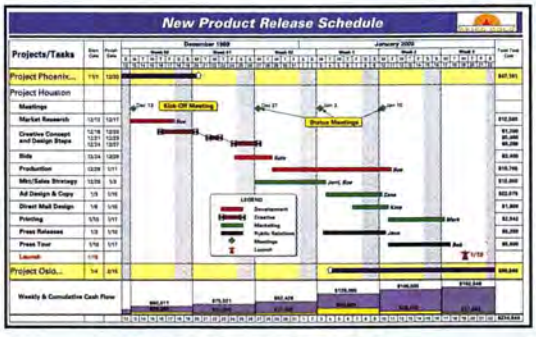


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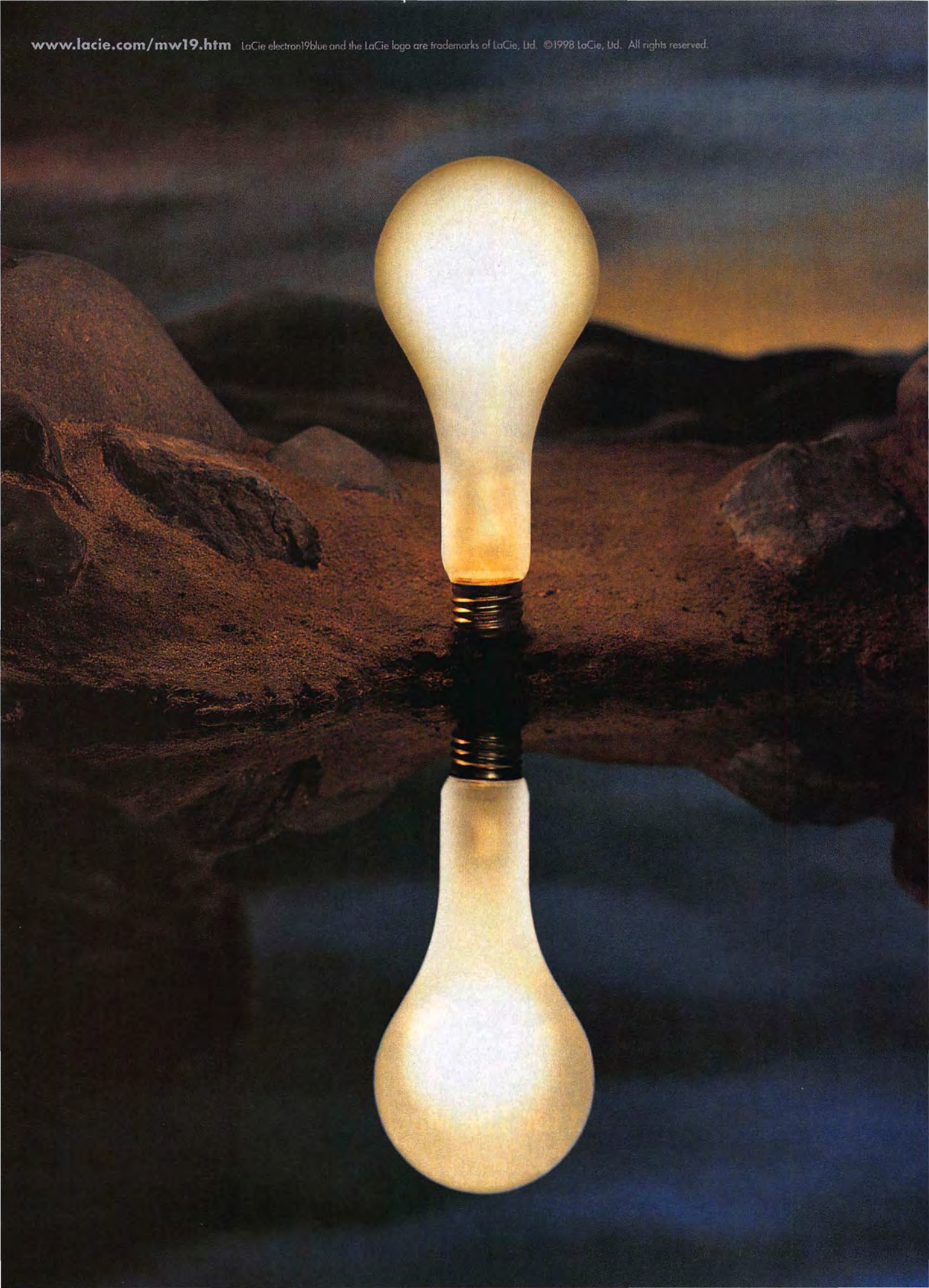
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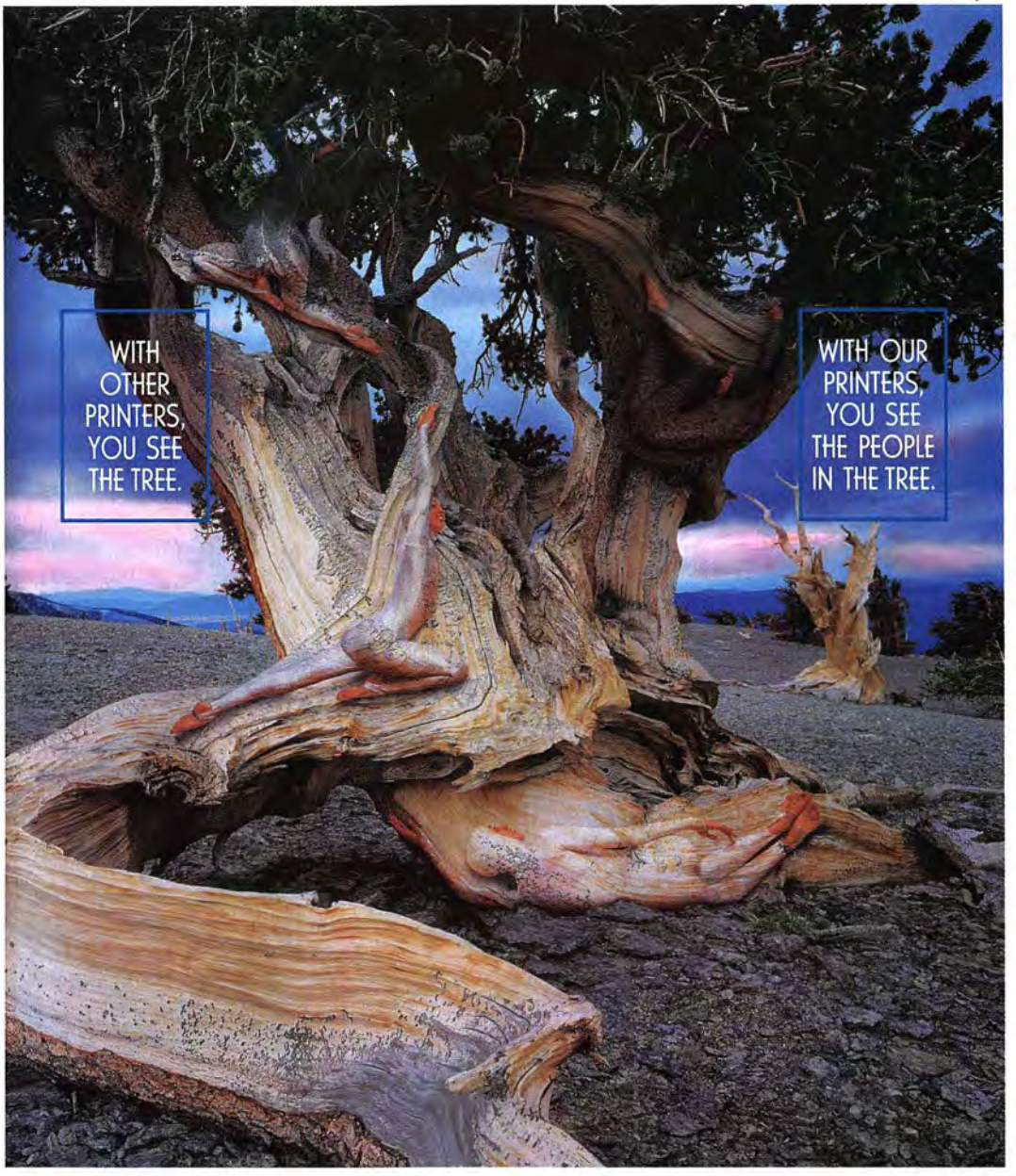

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# Letters

## To iMac or Not to iMac?

I PRACTICALLY HAD MY HAND ON the phone to order an iMac when the October issue of *Macworld* arrived with its "iMac Reality Check." That issue alone was worth the price of a year's subscription. Let me get this straight: If I replace my Power Computing PowerCenter 150 with an iMac, I won't be able to use my Iomega Zip, my Jaz, my scanner, or either of my printers? And although hardware adapters may be in the pipeline, interface software is far behind. This is all one more reason why my next PC may be a PC.

BILL HARRISON
*Huntsville, Alabama*

I HAVE ONE THING TO SAY TO everyone who has lamented the iMac's lack of a floppy drive and serial/SCSI ports: buy yourself a Power Mac. The iMac targets an audience with simple needs and few peripherals, not to mention a tight budget. If you want to use your Jaz drive, 3Com PalmPilot cradle, and 3.5-inch floppies, stick with the core of the hardware line and give yourself credit for being a power user. The iMac's "shortcomings" are calculated omissions designed to suit the needs of basic and new users, not the death knell for Macintosh connectivity. Get over it! Apple is still making CPUs that sport all the bells and whistles.

N. ANDY HILAL
*Oakland, California*

I DISAGREE WITH YOUR STATEment that the iMac can hold only 128MB of RAM. Several companies currently manufacture and sell 128MB RAM DIMMs for the iMac, allowing for a total

of 256MB. I know this because I just installed extra RAM in my iMac.

KEITH THRASH
*Jackson, Mississippi*

*What we said was true when we went to press. And as* Macworld *goes to press again, Apple's official position is still that the iMac has a 128MB RAM limit. Obviously, vendors are selling RAM upgrades that go beyond this limit, and reports are that the upgrades work. Apple has not yet certified them, however, nor has* Macworld *had a chance to test them.—Henry Bortman*

## Working the Phones

KUDOS TO DAVID POGUE FOR writing about the unsung heroes of the tech-support phone pool (*The Desktop Critic*, October 1998). Although I agreed with many of Pogue's points, there is one that needs discussion. I read many comments of displeasure when Apple revoked its policy of free telephone tech support, but none provided any reasonable solutions to Apple's dilemma: the high cost of free tech support versus public disapproval.

Apple cannot presume to offer an "easier to use" and "more stable" platform and yet expect customers to pay for tech support the same as everyone else. Conversely, the public cannot expect the company to bear the cost of fixing problems caused by users' lack of computer proficiency. Therefore, I propose that Apple have a proficiency test for its customers. Those who score well don't pay (or pay a reduced rate) for telephone support—the notion being that in such cases, the problem will likely turn out to have been caused by Apple rather than the user.

YURI HOLOWACKI
*Toronto, Ontario, Canada*

## Hooked on Speed

ANDREW GORE'S "OLD PORTS FOR New" has an error (*The Vision Thing*, October 1998). The speed of SCSI connections is actually 80 MBps, not 80 Mbps—bytes, not bits. So SCSI isn't too bad after all. Other than that, I agree with everything said in the column. Look how long the Wintel world is taking to get rid of the ISA bus and all its problems. However, I am disappointed that the latest PowerBooks are still ADB-based—we have six-month-old Wintel portables that have USB.

STEVE LIEBBE
*West Lafayette, Indiana*

*It's true that we inadvertently transposed* bits *for* bytes *in the October 1998* The Vision Thing *column on FireWire and USB. However, at 200 Mbps to 400 Mbps, FireWire will still be faster than Apple's current external*

*continues*

## CORRECTIONS

- *Hold down the spacebar, not the shift key, during start-up to access the Extensions Manager* (Quick Tips, *November 1998*).

*SCSI, which is running closer to 5 MBps, or 40 Mbps. Only an ultrahigh-speed internal SCSI card paired with high-speed drives will likely perform faster.—Andrew Gore*

### What About IrDA?

SO MUCH HAS BEEN DISCUSSED about USB, but isn't IrDA worth talking about, too? I understand that it transmits at 4 Mbps, works with many printers, and so on. Wouldn't I be able to connect my Hewlett-Packard LaserJet 6MP (with IrDA) to an iMac without a cable? Who cares about printer-port solutions if IrDA works?

CHRIS BELANGER
*Grand Prairie, Alberta, Canada*

*Have no fear, we're on the case. Macworld Lab plans to test the iMac's infrared capabilities in the near future.—Ed.*

### Seeing the Light

IN YOUR OCTOBER 1998 FEATURE about digital cameras ("Focus On"), you say that Agfa's ePhoto 1280 and Nikon's CoolPix 900 can automatically sync with freestanding lights in a professional studio but that with the others, your only option is to use the built-in flash. This is not quite accurate. The reason the other cameras appear not to sync automatically is that they provide a preflash for exposure purposes. Most slave flashes sync on the preflash and fail to sync with the flash used for exposure. There are, however, slave flashes on the market that will sync with the main flash, ignoring the preflash.

MICHELLE STEINER
*Sunnyvale, California*

### When Size Matters

IN YOUR INFORMATIVE REVIEW of color printers ("Print Out," October 1998), you apparently made one very important mistake in reporting that the Epson Stylus Color 1520 prints images up to 17 inches wide. When I tried to print on poster-size paper, I was very surprised to see a great deal of my image cropped off. Upon further investigation of the manual, I found a single line in an appendix stating that no matter what size paper you use, the maximum printable image area is only 13.6 inches. This is like buying a new car that initially seems like a great value only to find out later that the salesperson neglected to mention that the top speed is only 45 mph. What good is a printer that takes 17-inch paper but allows you to print only up to 13.6 inches?

STEPHEN DRAS
*Buena Vista, Colorado*

*You are correct—the Stylus Color 1520's maximum* printable *area is 13.6 by 21.78 inches. Our apologies.—Ed.*

### Scanner Highs and Lows

I ENJOYED YOUR COMPARISONS OF digital cameras and color printers ("The Imaging Revolution," October 1998). The articles were well done and very informative. It was very helpful to see a range of prices included and to see how well lower-cost printers fared in the comparison. But the scanner feature was a great disappointment, in that it was limited to expensive units ("Scan In"). Many of us would like to see how lower-priced scanners compare and what quality and features an extra $1,000 to $4,000 buys. Please consider doing another lab feature comparing the better low-end equipment with the top-of-the-line scanners.

FRED D. CHERNEY
*Scarborough, Ontario, Canada*

### Dongle Nuisance

THERE IS A "CON" NOT INDICATED by Charles Seiter in his review of Ashlar's Vellum Solids (October 1998): for all versions since the introduction of Vellum 3.X, Ashlar has required a hardware dongle key for using the software. Yet nowhere is that indicated—not even in the manual. I paid for Vellum 3.0 in July and received everything but the dongle key. So far I have not been able to use the software, as I have not received a dongle. I have phoned, faxed, e-mailed, and sent letters to them. They keep silent.

GABRIEL DORADO
*Cordoba, Spain*

### Proportional Pixels

JIM HEID'S ARTICLE ON THE Digital Video (DV) standard was chock-full of good info—as Heid's articles usually are—but I noticed one small problem ("Set Your Video on FireWire," *Create*, October 1998). One point Heid brought up was to "render with DV in mind," suggesting that to avoid distortion, you should render at 720 by 480 pixels rather than at 640 by 480. Doing this actually *produces* distortion in the final playback on an NTSC screen, however. The reason is that the decoder in the playback unit compresses the image horizontally to fit it back on the screen; the result is that a rendered circle appears as a tall ellipse.

The problem can be corrected in one of two ways. First, if your rendering program supports it, render at 720 by 480 pixels with a .889-pixel ratio. This tells the renderer to create each frame with the nonsquare pixels that DV expects. On your Mac monitor, the picture looks oblong, but in DV it looks perfect. If your renderer does not support nonsquare pixels, then render at 720 by 540 pixels. This still results in the scaling of your images when you go to DV, but the renderer scales by throwing out information, rather than creating it as is the case when you scale up a 640-by-480 image.

THOMAS BLAHA
*Cleveland, Ohio*

*If your rendering application can handle nonsquare pixels, then you should indeed render at 720 by 480 pixels as I originally suggested. For those with rendering applications that don't support nonsquare pixels, rendering at 720 by 540 is a great idea—you'll get better quality than if you rendered at 640 by 480.—Jim Heid* m

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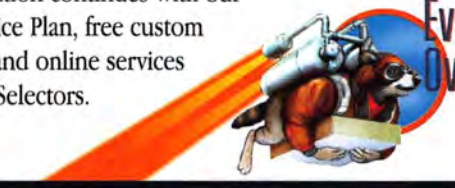


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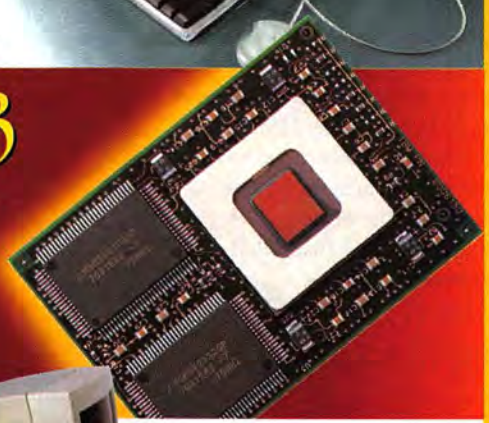

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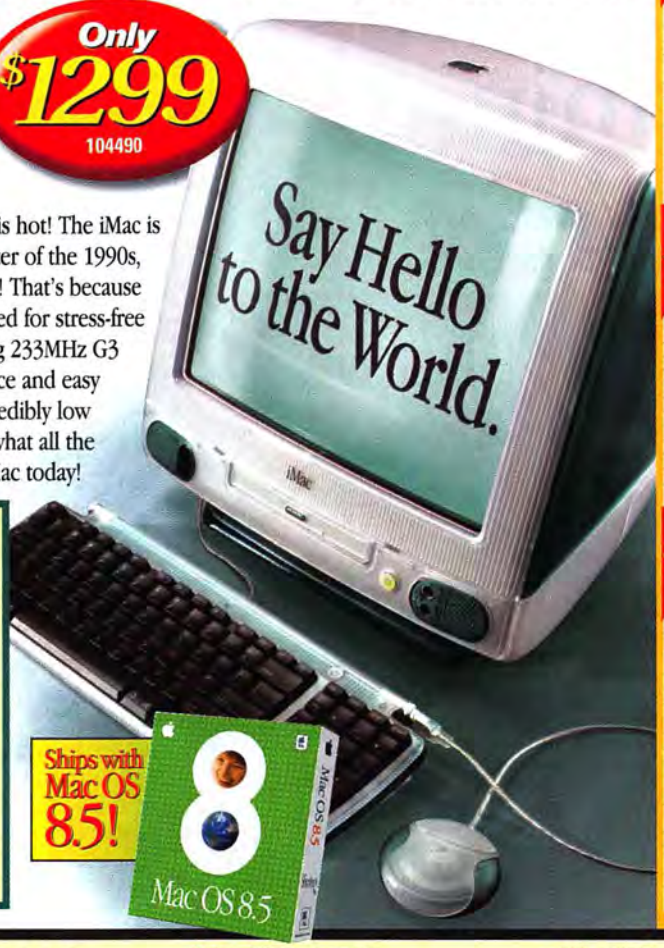


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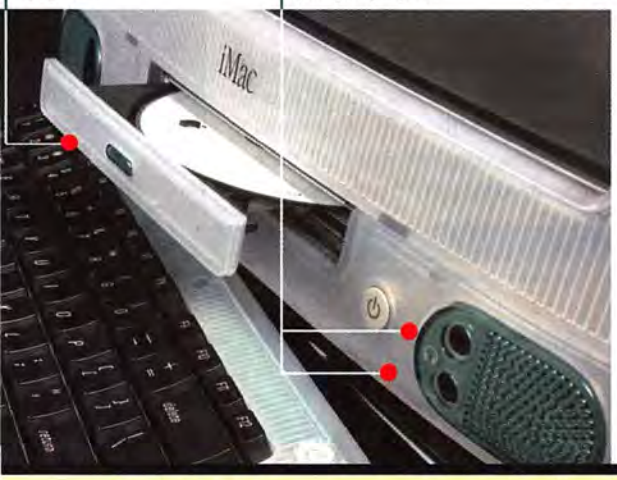


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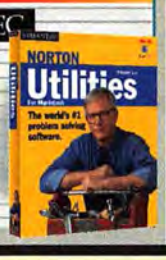


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| 57248 | PowerBook G3 32MB (Wallstreet) | 69.95 |
| 57249 | PowerBook G3 64MB (Wallstreet) | 139.95 |
| 57250 | PowerBook G3 128MB (Wallstreet) | 279.95 |
| 38743 | PowerBook G3 32MB | 99.95 |
| 49272 | PowerBook G3 64MB | 149.95 |
| 49167 | PowerBook G3 128MB | 299.95 |
| 43593 | PowerBook 2400 Series 32MB | 99.95 |
| 43594 | PowerBook 2400 Series 64MB | 159.95 |
| 38743 | PowerBook 3400 Series 32MB | 99.95 |
| 38744 | PowerBook 3400 Series 64MB | 159.95 |
| 38746 | PowerBook 3400 Series 128MB | 299.95 |
| 24152 | PowerBook 5300 Series 32MB | 129.95 |
| 27819 | PowerBook 5300 Series 48MB | 179.95 |
| 27820 | PowerBook 5300 Series 56MB | 229.95 |
| 49125 | Power Mac G3 32MB | 39.95 |
| 49127 | Power Mac G3 64MB | 89.95 |
| 49130 | Power Mac G3 128MB | 179.95 |
| 23000 | Power Mac 7200,7300,7500,7600 32MB | 49.95 |
| 23001 | Power Mac 7200,7300,7500,7600 64MB | 79.95 |
| 23000 | Power Mac 8500,8600,9500,9600 32MB | 49.95 |
| 23001 | Power Mac 8500,8600,9500,9600 64MB | 79.95 |

## MODEMS

### Best Data

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|---|---|---|
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| 56473 | 56K PCMCIA Card Modem | 69.95* |

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### Global Village

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|---|---|---|
| 54275 | 56K TelePort Ext. V.90 | $139.95 |
| 100961 | 56K TelePort Ext. V.90 with G3 purchase | 99.95 |

### Simple Technology

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| 49812 | 56K Communicator PC Card Modem | $119.95 |

### Zoom

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|---|---|---|
| 30842 | 33.6 External Faxmodem V34X Plus | $59.95* |
| 53670 | 56K Dualmode External Faxmodem | 104.99 |

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## MONITORS

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| 43348 | MC7515 RasterOps 19" Monitor | 689 |
| 33148 | MC801HR RasterOps 21" Monitor | 1399 |

### Mitsubishi

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|---|---|---|
| 51575 | Diamond Plus 70 17" Monitor | $469 |
| 36276 | Diamond Pro 91TXM 21" Monitor | 1049 |
| 101099 | Diamond Pro 1000e 21" Monitor | 1299 |

### NEC

| | | |
|---|---|---|
| 43813 | A700 17" Monitor | $399 |
| 57869 | E900 19" Monitor | 679 |
| 103710 | E1100 21" Monitor | 999 |

### Sony

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| 39386 | Optiquest Q53 15" Monitor | $179 |
| 39387 | Optiquest Q71 17" Monitor | 259 |
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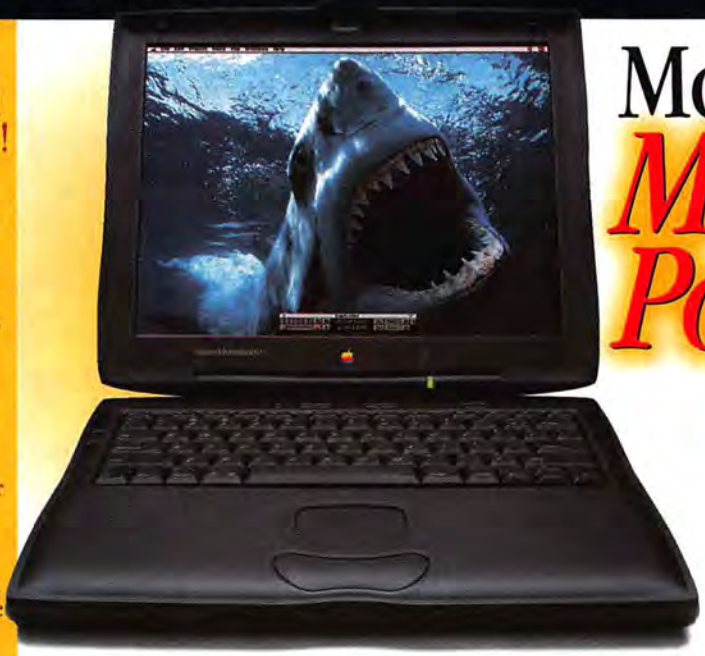

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Includes Additional 32MB RAM

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 105774 | G3/233MHz | 512K | 12.1" TFT | 64/192MB | 2MB | 2GB | 56K | 20X | 7.6 lb | Y | Y | 2199* |
| 104250 | G3/233MHz | 512K | 14.1" TFT XGA | 32/192MB | 4MB | 2GB | 56K | 20X | 7.6 lb | Y | Y | 2799* |
| 104251 | G3/266MHz | 1MB | 14.1" TFT XGA | 64/192MB | 4MB | 4GB | 56K | 20X | 7.6 lb | Y | Y | 3499* |
| 105001 | G3/300MHz | 1MB | 14.1" TFT XGA | 64/192MB | 4MB | 8GB | 56K | 20X | 7.6 lb | Y | Y | 4499* |
| 104252 | G3/300MHz | 1MB | 14.1" TFT XGA | 64/192MB | 4MB | 8GB | 56K | DVD | 7.6 lb | Y | Y | 4999* |

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| 57993 | Asanté Fast 10/100 PCI Adapter | 49.95 |
| 57994 | Asanté Fast 10/100 PCI Adapter 5 pack | 239.95 |
| 100082 | FriendlyNet 10/100 4-Port Switch | 199.95 |
| 100083 | FriendlyNet 10/100 8-Port Switch | 379.95 |
| 100084 | FriendlyNet 10/100 16-Port Switch | 1149.95 |
| 49859 | FriendlyNet 8+2 Switch for Small Networks | 279.95 |
| 49858 | FriendlyNet 8+2 Switch Plus | 349.95 |
| 38296 | FriendlyNet 10BaseT Hub w/5 RJ45 Ports | 42.95 |
| 38297 | FriendlyNet 10BaseT Hub w/8 RJ45 Ports | 49.95 |
| 2772 | Asanté 10BaseT Hub 12 Port | 146.95 |
| 18906 | Asanté 10BaseT Hub 24 Port | 239.95 |
| 2583 | FriendlyNet 10BaseT Ethernet Adapter | 29.95 |
| 100694 | FriendlyNet 10BaseT Hub w/16 RJ45 Ports | 109.95 |
| 6677 | MacCon Nubus 10BaseT/5 Ethernet Adapter | 82.95 |
| 56712 | MacCon 10BaseT LC Ethernet Card | 79.95 |
| 17702 | MicroPrint 10BaseT/5 to LocalTalk Converter | 149.95 |

### Farallon

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|---|---|---|
| 102103 | EtherMac iPrint Adapter | $99.95 |
| 11607 | Transceiver AAUI 10BaseT | 99.95 |
| 18193 | EtherWave Multi-Printer | 129.95 |

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### Epson

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|---|---|---|
| 55141 | Epson Stylus Photo 700 | $249 |
| 100452 | Epson Stylus Color 740 | $279 |
| 55045 | Epson Stylus Color 850 | 349 |

### Hewlett Packard

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|---|---|---|
| 102727 | DeskJet 697c with iMac kit | $249 |
| 104913 | Color LaserJet 4500N | 2499 |

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### AGFA

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|---|---|---|
| 101374 | 1236 Artline Scanner | $249.99 |

### UMAX

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|---|---|---|
| 101653 | 1220U Scanner (after $20 mail-in rebate) | $129 |

## SOFTWARE

### Apple

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| 103532 | NEW! Mac OS 8.5 | $89 |
| 102450 | Mac OS 8.5 10-user | 797.95 |
| 43931 | Apple Remote Access 3.0 Personal Server | 124.95 |
| 104773 | Web Construction Kit | 94.95 |

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| 100493 | NEW! Adobe Graphics Studio | $999.95 |
| 57851 | Adobe Image Ready w/Photoshop | 89.95 |
| 57850 | Adobe Image Ready | 179.95 |
| 54672 | Adobe Photoshop 5 Upgrade | 189.95 |
| 54673 | Adobe Photoshop 5 | 598.95 |
| 55126 | Adobe Premiere 5.0 Upgrade | 189.95 |
| 55124 | Adobe Premiere 5.0 | 589.95 |
| 32844 | Adobe PageMaker 6.5 | 549.95 |
| 40860 | Adobe PageMill 3.0 | 89.95 |
| 101880 | Adobe Illustrator 8 Upgrade | 119.95 |
| 100197 | Adobe Illustrator 8 | 369.95 |
| 43825 | Adobe Acrobat 3.0.1 | 189.95 |

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| 46707 | Spring Cleaning 2.0 | $49.95 |
| 52083 | FlashBack 1.1 | 44.95* |
| 47006 | StuffIt Deluxe 4.5 | 78.95 |
| 44801 | Private File | 47.95 |

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### Alien Skin Software

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| 35801 | Eye Candy 3.0 for Photoshop | $119.95 |
| 48026 | Eye Candy for After Effects | 499.95 |

### Bare Bones Software

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| 44284 | BBEdit 4.5.1 | $99.95 |

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| 45697 | Riven: The Sequel to Myst | $44.95 |
| 53302 | Journeyman Project 3: Legacy of Time | 29.95 |
| 46770 | Where in Time is Carmen Sandiego? | 33.95 |
| 57551 | Where in the USA is Carmen Sandiego Deluxe CD | 34.95 |
| 57552 | Where in the World is Carmen Sandiego Deluxe CD | 34.95 |
| 52565 | Carmen Sandiego Math Detective | 34.95 |
| 46771 | Carmen Sandiego Word Detective CD | 33.95 |
| 46769 | Arthur's Birthday CD | 28.95 |
| 37182 | Arthur's Reading Race CD | 29.95 |
| 54921 | Kid Pix Studio Deluxe | 29.95 |

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|---|---|---|
| 51163 | OmniPage 8.0 Upgrade | $99.95 |
| 51165 | OmniPage 8.0 | 549 |
| 34314 | OmniForm | 149.95 |

### Casady & Greene

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|---|---|---|
| 51351 | Grammarian | $49.95 |
| 30163 | SpellCatcher | 49.95 |
| 100415 | Conflict Catcher 8 | 49.95 |

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|---|---|---|
| 44892 | QuickMail Office 5-User | $229.95 |
| 44893 | QuickMail Office 10-User | 449.95 |
| 44894 | QuickMail Office 25-User | 799.95 |
| 39945 | QuicKeys | 89.95 |
| 52981 | QuicKeys PowerPack | 24.95 |
| 57867 | QuicKeys & QuicKeys PowerPack Bundle | 89.95 |

### Connectix

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|---|---|---|
| 58594 | RAM Doubler 8 | $44.95 |
| 46532 | Speed Doubler 8 | 54.95 |
| 100884 | Virtual PC w/Windows 98 | 169.95 |
| 50772 | Surf Express | 34.95 |
| 52510 | Virtual PC 2.0 Upgrade for Win95 & DOS | 32.95 |
| 52509 | Virtual PC 2.0 w/DOS | 47.95 |

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| 100988 | CorelDRAW 8.0 Upgrade | $149.95 |
| 100942 | CorelDRAW 8.0 | 489.95 |

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| 46966 | GPS Receiver w/Street Atlas USA 4.0 | $159.95 |

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| 56131 | Li-ion Rechargeable Battery | 229 |
| 56133 | Floppy Disk Drive | 109 |
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| 40204 | Phone Search USA 3.0 | 29.95 |

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| 59681 | NEW! Extensis QX-Tools 4.0 | $148.95 |
| 59685 | NEW! Extensis Beyond Press 4 | 489.95 |
| 51891 | PowerSuite Quark | 194.95 |
| 51959 | PowerSuite Photoshop | 194.95 |
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| 52185 | Extensis PhotoFrame 1.0 Vol.1 | 124.95 |
| 52536 | Extensis PhotoFrame 1.0 Vol.II | 124.95 |
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| 102126 | Extensis MaskPro 2.0 | 289.95 |
| 46442 | Extensis QX-Effects 3.0 | 124.95 |
| 40058 | Extensis Intellihance 3.0 | 94.95 |

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| 54077 | NEW! FileMaker Pro Developer's Ed. | $479.95 |
| 100345 | FileMaker Pro 4.1 for Mac | 134.95* |
| 60103 | FileMaker Pro Server 3.0 Upgrade | 299 |
| 60100 | FileMaker Pro Server 3.0 | 899.95 |
| 54968 | Home Page 3.0 | 89 |
| 54969 | Home Page 3.0 Upgrade | 44 |

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| 102261 | Unreal | 44.95 |
| 48165 | Jack Nicklaus 4 | 49.95 |

### FWB Software

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| 58551 | Hard Drive ToolKit PE 2.5 w/FREE CD-ROM ToolKit | $49* |
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| 101338 | SoftWindows 98 | $164.95 |
| 50127 | SoftWindows 95 5.0 | 189.95 |
| 44701 | RealPC | 74.95 |

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| 46300 | Quicken Basic 98 | $29.95 |
| 46302 | Quicken Deluxe 98 | 39.95 |
| 27057 | QuickBooks Pro 4.0 | 199.95* |
| 26544 | QuickBooks 4.0 | 119.95* |

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| 56908 | Marketing Builder Interactive | $74.95 |

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| 44177 | Reunion 5.0 | $99.95 |

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|---|---|---|
| 101611 | VirusScan 4.0 Deluxe | $9.95 |

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| 51112 | FreeHand 8 Upgrade | $144.95 |
| 51111 | FreeHand 8 | 394.95 |
| 56091 | Flash 3 | 294.95 |
| 55837 | Dreamweaver 1.2 | 294.95 |
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| Item # | Model | Processor/Speed | RAM Std/Max | Hard Drive/Type | VRAM Std/Max | Cache/MHz | Expansion | CD-ROM | Int. Zip | Added Feat. | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 101110 | G3/266 Desktop | G3/266MHz | 32/768 | 4.0GB; IDE | 2MB/6MB | 512K/133MHz | 3PCI /1 bay | 24X | – | – | $1599 |
| 105895 | G3/266 Desktop | G3/266MHz | 64/768 | 4.0GB, IDE | 2MB/6MB | 1MB/150MHz | 3PCI /1 bay | 24X | – | 56K Modem | 1799 |
| 101111 | G3/300 Desktop | G3/300MHz | 64/768 | 6.0GB; IDE | 2MB/6MB | 1MB/150MHz | 3PCI /1 bay | 24X | Y | – | 1999 |
| 101746 | G3/300 Minitower | G3/300MHz | 64/768 | 8.0GB; IDE | 6MB/6MB | 1MB/150MHz | 3PCI /1 bay | 24X | Y | Video In/Out | 2399 |
| 101744 | G3/333 Minitower | G3/333MHz | 128/768 | 9.0GB; U/W SCSI | 6MB/6MB | 1MB/167MHz | 3PCI /2 bay | 24X | – | – | 2999 |

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54901 Office 98 At A Glance ..... 16.95
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32646 Pantone Solid to Process Guide ..... 79.95
28901 Pantone Hexachrome Selector ..... 79.95
31756 Pantone HexWrench ..... 339.95
31752 Pantone ColorDrive/Survival Kit Bundle ..... 194.95
31749 Pantone ColorDrive 1.5.3 w/ColorWeb ..... 94.95
31755 Pantone ColorWeb ..... 29.95

### Qualcomm

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55093 Eudora Pro 4.0 5-User ..... 159.95

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47735 QuarkXPress 4.03 ..... $679.95*

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55153 Norton AntiVirus v5.0 ..... $69.95
101293 Norton Utilities 4.0 ..... 49.95*
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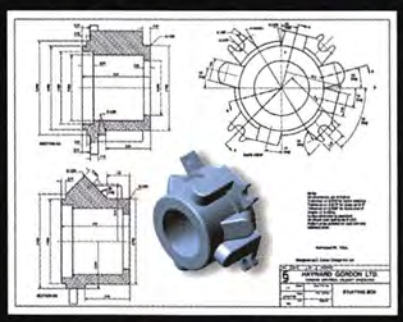

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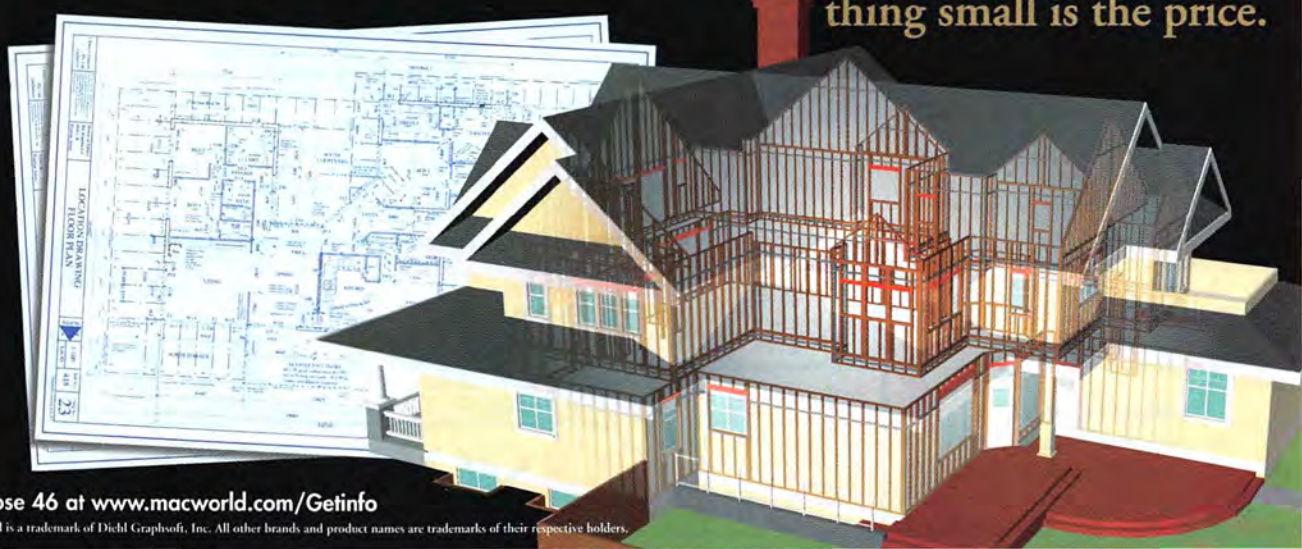

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# The Vision Thing

by Andrew Gore

## "Escape from the Cubicle Farm"

POWERBOOK IN HAND, YOU CAN FREE YOURSELF FROM YOUR DESK AT LAST

THROBBING TECHNO music plays over a darkened movie screen. As the music builds, the silhouette of a figure comes into focus—long hair blowing in the breeze, muscular build outlined in eclipsed light. As the camera cuts in, we see his face emerge from shadow: scars, a black eye patch, and a look that could curdle milk.

As the camera pans down, we see that our dark figure has something flat and black under his arm. A bomb? A briefcase with top secret papers? No. As he grabs the object with a free hand and flips it open with the grace of a ninja, we hear that familiar orchestral hit as the PowerBook G3's screen comes to life. On it is displayed the title of the film: *Escape from the Cubicle Farm.*

### Being There

This homage to the campy 1981 adventure flick *Escape from New York* could be shot anywhere in the "Dilbert"-esque landscape of corporate America. Our protagonist (call him Snake) embodies the frustration of cubicle life, where nineteenth-century management techniques collide with twenty-first–century floor planning. He is the true Road Warrior (1981 was a good year for action movies), here to liberate us from the shackles of the urban/suburban commute, the 9-to-5 grind, and the belief that the only place productive work can take place is in a 10-by-10 gray box.

OK, so maybe this scenario is a bit over the top. But you can see the merit of my movie's theme: thanks to technology, productivity is no longer a destination. Look at the boom in home-office computing: Do you think there would have been nearly as much growth in home-based businesses and flexible work hours if it weren't for the advent of remote access? And just think about how much productivity employees on the go have gained now that they can carry their entire office infrastructure in a black nylon bag. With Apple's latest generation of PowerBooks, there really isn't anything you can do only in the office, except maybe exchange a few sly looks during a dull meeting.

And then there are the things you *can* do unchained from your desk: check e-mail, surf the Web, access company databases, design and deliver sophisticated presentations, edit an image in Photoshop, download high-resolution photos from a digital camera, crunch the department budget, write the Great American Novel, watch a full-length movie. With the addition of large color screens, G3 processors, DVD-ROM drives, CardBus

slots, and multiple storage and battery bays, Apple's current portables are more powerful and flexible than any of their predecessors. In fact, there is now very little a desktop Mac can do that a PowerBook can't (see "The PowerBook Field Guide," in this issue).

### Breaking Free

Unfortunately, one of the things a PowerBook can't do is change the attitude of managers who believe that work happens only under their watchful gaze. Now that PowerBooks have become so affordable—a reasonably well-equipped portable with a 14-inch screen goes for $2,799—in many cases there's no reason for employers to buy desktop machines. Think about how much more productive you could be if you folded up your office computer and took it home at the end of the day. You could get home in time for dinner with the family and then finish up any remaining work while the kids watch *The Simpsons.* If one of them gets sick the next morning, you could stay home and care for him or her and still be able to get work done. Imagine that—taking care of your familial obligations without missing work.

Of course, this might give you ideas. Maybe you could stay home one day a week *every week.* You'd still get your work done—maybe even more work than usual—without the usual workplace distractions. And you could win back the lost commute hours and what strands of your sanity you lose in daily gridlock. Your company would have to be enlightened enough to understand that, when managed responsibly, flexible hours can mean happier and more-productive employees.

Every enabling technology comes with a challenge: that you be open enough to the new possibilities it enables. Now that mobile computing has truly come of age, the next great challenge is for the companies that embrace this technology, and for the employees who use it, to be responsive and responsible enough to get the most out of it.

Or as Snake might put it, that new PowerBook G3 means freedom—but only if you've got the guts to use it.

Well, do you? **m**

*The explosive capsules implanted in Andy's neck are set to go off in 24 hours. Send your comments to visionthing@macworld.com—but make it quick.*

JOHN RITTER

# FEATURES that

**Elaine Lau**
TECHNICAL SUPPORT REPRESENTATIVE

**Mark Vappi**
SOFTWARE DEVELOPMENT MANAGER

**Tara Rolfe**
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# News

systems

## G4 CPUs Set to Take Flight

MOTOROLA FORMALLY ANNOUNCES ITS NEXT-GENERATION CHIP

by Henry Bortman

With all the noise being generated by Intel about the forthcoming Merced processor, you might have missed Motorola's formal announcement of its own new chip, the G4. Motorola offered some details about the G4 months ago (see "Motorola CPU to Boost Multimedia Performance," *News*, August 1998), but now it's official.

**Speedup** As expected, Motorola's first G4's (still targeted for mid-1999) will implement AltiVec, a new set of PowerPC instructions paired with a new vector-processing unit that together enable the chip to perform calculations on up to 16 data elements simultaneously. For example, an Adobe Photoshop filter rewritten to take advantage of AltiVec could work on 16 pixels at a time instead of 1, offering significant speed improvements.

Motorola says that in one real-world test, an AltiVec-equipped chip ran the Photoshop Median filter 11 times faster than did a chip without AltiVec. It also looks as if we won't have to wait long for AltiVec-enabled software once systems using the chips become available. Motorola has been working with key software vendors for two years to pave the way for AltiVec. When G4 Macs arrive on the market in 1999, Motorola says the software will be ready.

**Spec Sheet** Motorola has promised that the first G4 processors will run at speeds of at least 400MHz. However, other details are fuzzy. The CPU will feature a built-in cache to speed processing, but it is unclear how big the cache will be. Performance will also depend on system- and cache-bus speeds, questions that Apple has to answer in its Mac logic board designs.

Also unclear is whether Apple will support the G4's multiprocessor capability. Unlike its G3 predecessor, the G4 can run in a four- or eight-processor environment. In the past, Apple has left design and support of multiprocessor systems largely to other companies, such as DayStar. But there's been nary a peep from Cupertino about Apple's multiple-G4 plans.

Apple also remains mum on whether it will introduce G4's into its PowerBook line.

*continues*

JOHN RITTER

However, given that the G4 has the same power-management capabilities as the G3 and stays equally cool, it seems likely that Apple will include the new chip in its high-end portable systems.

**The Menace of Merced** Should you be worried about Merced? Probably not. Merced isn't due until 2000, and it's not aimed at the desktop market. It's for big iron—high-end servers and technical workstations—and will be priced accordingly. Plus, it will come in a package almost as big as a videocassette.

However, Intel's forthcoming Katmai processor—heir to the current Pentium II line—may be cause for concern. Katmai (a code name) is due in the first quarter of 1999, just before the G4. It will be introduced at speeds of 450MHz and 500MHz, and designed for systems with 100MHz system buses.

Katmai narrows the theoretical performance gap between AltiVec and MMX. Pentium processors with MMX can perform four simultaneous integer operations but just one floating-point operation. Katmai processors can perform up to four simultaneous floating-point operations.

AltiVec, with its ability to perform 16 simultaneous operations, should be able to outrun Katmai processors, at least in theory. But spec sheets are easy to write. We'll have to wait until Katmai and G4 processors are available in commercial systems to see which actually wins the race.

## Micro Dry Printer Climbs the Alps

AS HEWLETT-PACKARD, TEKTRONIX, QMS, AND OTHERS push the envelope on color laser printers, Alps Electric (408/432-6000, www.alpsusa.com) has done the same with its proprietary Micro Dry printing technology. The $599 MD-5000 holds up to seven interchangeable ribbon cartridges that let you print with metallic inks, gold and silver foil, and a glossy overcoat in addition to CMYK. You can also use a Vphoto Primer cartridge that allows printing on plain paper by applying a thin transparent coating under the image. The printer connects to your Mac's SCSI port.

A $99 dye-sublimation option lets you print continuous-tone images using CMY primary colors plus an overcoat. Other options include a $99 USB connection for iMac users and a $199 PostScript 3 kit.—STEPHEN BEALE

multimedia

# Macromedia, GoLive Spin Dynamic Web

MACROMEDIA PREPARES DREAMWEAVER 2.0

by Cameron Crotty

For aspiring moviemakers the question is, "What producer are you talking to?" But if you're building a Web site, the question is, "What server are you talking to?" Macromedia has just announced Dreamweaver 2.0, with extensive tools for building links to content servers. Meanwhile, GoLive is working to parlay CyberStudio into a complete Web publishing system, and FileMaker (née Claris) is billing Home Page as an add-on to the FileMaker Pro server. However, just as in Hollywood, there's always an independent director or two. Adobe is pitching PageMill 3.0 as the authoring tool for the rest of us—without all that fancy dynamic content.

**Macromedia Dreams** Ever since Dreamweaver 1.0 shipped, Macromedia (415/252-2000, www.macromedia.com) has been playing second fiddle (or worse) to GoLive's immensely popular CyberStudio. Part of the reason lies in Dreamweaver's clunky interface, and Macromedia admits that even Dreamweaver devotees complain that the Mac version is a bit slow. So version 2.0 sports a raft of interface improvements and a 50 percent speed boost, Macromedia says.

Users can also look forward to new table-editing features, such as sorting capabilities and noncontiguous cell selection. A new global search-and-replace tool will simplify cross-site changes.

However, the crown jewel in Dreamweaver 2.0, as Macromedia sees it, is the program's support for dynamic publishing. Web designers can preview server-delivered dynamic content—such as tables from a database or a catalog entry from an e-commerce server—as they build their pages. Initially, Dreamweaver will ship with tools to work with servers from iCat, Broadvision, Tango, and Cold Fusion, among others; Macromedia says that adding a tool is as simple as dropping a chunk of code into a Finder folder. Dreamweaver 2.0 is expected to ship December 11, 1998, for $299.

**GoLive Networks** Meanwhile, GoLive (650/463-1583, www.golive.com) is working on the three-piece GoLive Web Publishing System, which allows designers, writers, and others to collaborate on Web production projects. Designers will use GoLive's CyberStudio Publishing Edition to create Web-page templates. Meanwhile, content creators can add text and images with GoLive's CyberWriter client software, which works with Microsoft Internet Explorer or Netscape Navigator, version 4 or later. Content is placed on the Web using a Web server called CyberServer—based on a SQL database—that runs on Linux, AIX, Sun Solaris, Windows 98, Windows NT, Mac OS, and Mac OS X Server systems.

GoLive expects the Web Publishing System to ship by January 1999, with prices starting at less than $1,000 for a two-user configuration.

**Adobe Simplifies** Adobe PageMill was among the first Web authoring tools to hide the complexity of HTML behind a WYSIWYG interface, and Adobe (408/536-6000, www.adobe.com) hopes that the latest version will

KEVIN CANDY AND

appeal to Web authors who aren't necessarily full-time designers.

PageMill 3.0 offers improved site-management capabilities, better table- and frame-editing tools, and inline previewing of plug-ins and Java applets. The $99 package, which is available now, also includes a limited edition of Adobe Photoshop.

graphics

# Deneba Canvas Moves Upstream

UPGRADE BANKS ON SPRITE TECHNOLOGY

by Stephen Beale

Deneba Canvas has long occupied a middle ground in the Mac graphics market. Combining vector-illustration, image-editing, and page-layout functions in a single package, it was seen as the graphics equivalent of ClarisWorks. Its components offered most of the core features of such leading stand-alone applications as Adobe Photoshop, Adobe Illustrator, and QuarkXPress but lacked many of the high-end, cutting-edge functions of those programs. Now, with the introduction of Canvas 6, Deneba (305/596-5644, www.deneba.com) hopes to steal some of its competitors' thunder and expand its appeal to graphics professionals.

The key to Deneba's strategy is a new technology called SpriteLayers. A SpriteLayer is an object that contains text, a bitmapped image, or a vector graphic. You can mix different kinds of SpriteLayers on the same document layer. Any SpriteLayer can be made transparent, and you can attach objects to each other to create masking effects. In addition to adjusting an object's overall transparency, you can use transparency gradients to create effects in which one object gradually fades away to reveal an object underneath. You can also create bitmapped alpha channels that act as transparency masks on vector, raster, or text objects.

The upgrade adds technical-drawing features borrowed from CAD software, including the Fillet tool, for creating precisely rounded corners, and a guides layer that can be placed behind or in front of objects. New image-editing features include additional built-in filters and the ability to import Photoshop layers. New page-layout capabilities include Master Layers, which let you mix and match master-page elements, and an AutoCorrect text-editing feature that resembles the one in Microsoft Word.

Deneba has also spruced up the Canvas interface, which now features a customizable tool bar and keyboard shortcuts. You can assign shortcuts to object attributes such as color, stroke, and style. If you drag a vector object to the Inks palette, Canvas automatically extracts the colors and adds them.

LARRY GOODE

Deneba Canvas 6 is set to ship by the time you read this. The company's estimated price is $349; users of competing graphics programs can get the new version for $199.

publishing

# Olympus Touts New Cameras

D-620L, D-400 MODELS OFFER 3× ZOOM AND MEGAPIXEL RESOLUTION

by Stephen Beale

Olympus America (516/844-5000, www.olympus.com) has finally done its popular D-600L digital camera one better by introducing the D-620L, a $1,199 single-lens reflex model that can capture images about as rapidly as you can snap them. Olympus has also unveiled the D-400 Zoom, a $799 point-and-shoot camera. Both are scheduled to ship by the time you read this.

**Filmless Photography** Olympus touts its D-620L as a "filmless photography" product that happens to use digital technology. Like its predecessor, it's a single-lens reflex camera that features 3× zoom and a 1,280-by-1,024-pixel progressive-scan CCD. But thanks to a new memory buffer, there's almost no waiting as you capture images. You can snap them one at a time or use a burst mode that takes up to five pictures at 3.3 frames per second.

The D-620L also features three prefocus settings (close-up, medium-range, and long-range) and a synchronization connector for external flash in addition to its four built-in flash modes, which include backlight and fill flash. The camera is bundled with an 8MB SmartMedia card, four rechargeable nickel-metal-hy-

continues

# Product WATCH

**Character Builder** Now you can create complex typefaces with thousands of characters, including Japanese-language kanji fonts. Pyrus North America's (410/987-5616, www.pyrus.com) $799 **Composer** is similar to Macromedia's Fontographer but adds the ability to create double-byte fonts with up to 16,384 characters.

**Cyber Storage** The Internet can do more than keep up with the latest political scandals. You can also use it to back up your data. Dantz Development's (925/253-3000, www.dantz.com) **Retrospect 4.1** copies files to certified Internet backup sites, as well as to disk, cartridge, and tape. The full package costs $249; an upgrade from version 4.0 costs $29.95.

**Bad Files Gone Good** **MarkzTools III**, an upgrade to Markzware Software's (949/756-5100, www.markzware.com) $199 QuarkXPress add-on package, features seven QuarkXTensions, including a Conversion Module that lets users of older QuarkXPress versions open files created with newer ones; a Salvage Module that recovers damaged files; a Scavenge Text Module that extracts stories from document files; and a Gray Preview Module that grays out picture previews to save file space.

**For Your iMac** Don't like the round mouse that ships with the iMac? Macally's (626/338-8787, www.macally.com) $49 **iMouse** has a traditional shape but retains

continues

the iMac's translucent Bondi blue color scheme.

iMac owners in need of a printer may find relief with Infowave's (604/473-3600, www.infowave.com) **PowerPrint USB**. The $99 adapter lets users connect to PC printers with parallel ports.

**Faster Connections** Are you looking for fast Ethernet connections but don't have PCI slots to spare? The $75 **Fast EtherTX 10/100 Comm Slot II** from Farallon Communications (510/814-5000, www.farallon.com) plugs into the Communications Slot II in the Power Mac 4400, 6400, 6500, and 7200; the Twentieth-Anniversary Mac; and the Performa 6400, 6410, and 6420. Also from Farallon, the $359 Fast Starlet 10/100 Dual-Speed Hub/8 connects up to eight Ethernet-equipped Macs or peripherals.

If 100-Mbps transfers don't cut it, Publishing Solutions' (330/253-2077, www.pubsol.com) **G-NIC II Gigabit Ethernet** card offers a 1-Gbps transfer speed for $1,195.

**Allegro in the Office** Microsoft (425/882-8080, www.microsoft.com) has posted a free update to **Microsoft Office 98** that fixes minor incompatibilities with Mac OS 8.5, including slow menu drop-down, menu color problems, difficulty rendering the euro symbol, and layout and pagination problems when opening some files. You can download it from www.microsoft.com/macoffice/.

—EDITED BY MICHAEL GOWAN

dride batteries, and a charger. Bundled software includes Adobe PhotoDeluxe 2.0 for image editing and Enroute QuickStitch for creating panoramic images. For the first 90 days, Olympus will also offer an extra 8MB SmartMedia card. Olympus says it will still offer the D-600L for $899.

**Point and Shoot** The D-400 Zoom offers 1,280-by-960-pixel resolution and a 3× zoom in a compact form factor resembling conventional point-and-shoot cameras. The LCD lets you zoom in on stored images to see details that would otherwise be lost. The price includes an 8MB SmartMedia card and a FlashPath adapter, which lets you transfer images through the Mac's floppy drive. Bundled software includes PhotoDeluxe and QuickStitch. Both cameras connect to Olympus's P300 photo printer.

printing

# Color Lasers Move into Graphics

## HP, TEKTRONIX UNVEIL TABLOID PRINTERS

by Stephen Beale

Color laser printers, once used primarily as workgroup devices in offices, are fast moving into the graphic arts, as new models offer improved image quality and other features. The latest entrants are Hewlett-Packard (HP; 800/851-1170, www.hp.com), which is positioning its new Color LaserJet 8500 as a short-run digital press, and Tektronix (503/682-7377, www.tek.com), whose Phaser 780 is targeted at comping and proofing applications. Tektronix has also introduced a new solid-ink printer that vastly improves on the image quality of earlier solid-ink models.

**HP Presses** HP's 600-dpi Color LaserJet 8500 is targeted as a low-cost competitor

HP is challenging color copiers with its new Color LaserJet 8500.

to digital color copiers. It can print 6 color letter-size pages per minute and supports paper sizes of up to 12 by 18.5 inches. Using a Canon laser engine, it boasts a 60,000-page-per-month duty cycle and can handle up to 28-pound paper in its standard 500-sheet input trays and up to 80-pound cover stocks in its 100-sheet multipurpose tray. The base version, aimed at general office applications, sells for $5,999. For graphics applications, HP recommends the $8,699 Color LaserJet 8500DN, which features a 7GB hard drive, a 10/100BaseTX print server, an extra 2,000-sheet input tray, and an automatic duplexing unit for two-sided printing. With the hard drive added, the printer can process a page once and then print multiple copies. Resolution-enhancement technology boosts image quality to the equivalent of 2,400 dpi.

**Tektronix Goes Tabloid** Tektronix's Phaser 780—the company's first tabloid-format color laser printer—is based on the same Fuji/Xerox engine found in the QMS Magicolor 330 (see *Product Watch*, *News*, November 1998). The base version, priced at $4,995, offers 600-dpi color resolution. The $5,995 Phaser 780GN, aimed at graphics applications, uses resolution-enhancement techniques to boost output to 1,200 dpi. Each model includes a 10BaseT Ethernet connection as standard equipment; you can also purchase an optional 10/100BaseT adapter. It can print on 16- to 32-pound bond paper or on 80- to 120-pound card stocks. Maximum printable area is 13 by 19 inches.

Tektronix has also introduced the Phaser 740, a $1,995 color laser printer that handles letter-size paper, and the Phaser 740L, a $1,495 monochrome printer that can be upgraded to color capability by adding a $550 cartridge.

The company hasn't given up on its solid-ink printing technology, previous versions of which offered fast output speeds and low-cost consumables but mediocre image quality. The new Phaser 840, priced at $2,495, uses reformulated inks and other advances to offer a vast improvement in image quality. The letter-format printer produces 6 pages per minute in standard color mode and 10 pages per minute in draft mode. Standard resolution is 1,000 dpi, but you can boost this to 1,200 dpi by adding memory. The base version features a 200-sheet paper tray, but you can add up to two 500-sheet trays as options. Other options include automatic duplexing and 100BaseT/10Base2 Ethernet.

All the new Tektronix printers feature interfaces that allow connecting a flatbed scanner, to turn them into color copiers. Many popular scanners are supported; Tektronix provides a list of them on its Web site.

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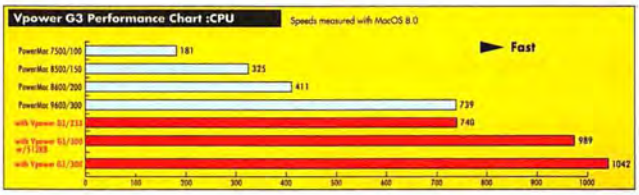


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# Reviews

# Adobe Illustrator 8.0

VECTOR-DRAWING LEADER FINALLY DELIVERS

JOHN BLECK

ASK LONGTIME MACINTOSH ARTists when Adobe Illustrator started to go downhill, and you'll get a lot of different answers. Many point to Illustrator 7.0, which omitted new features in favor of cross-application harmony. Others considered Illustrator 7.0 a structural recovery from the slipshod additions made to versions 5.0 and 6.0. But most will agree that Illustrator 7.0 amounted to damaged goods.

Refreshingly, Illustrator 8.0 achieves a nearly full recovery. Live blends, enhanced distortion controls, Smart Guides, new Actions and Links palettes, easier navigation, and natural-media brushes make this one of the most feature-rich upgrades to Illustrator in years. Version 7.0 users will delight in the new features and gentle learning curve. Those who stuck with version 6.0 now have reason to grapple with the Photoshop-inspired interface. Illustrator 8.0 is every bit as streamlined as its predecessor, and it's nearly as powerful as Macromedia FreeHand. Together, these two factors make it the best Mac drawing program.

### The Ten-Year Blend

Illustrator 88 was the first program to let you blend between two paths to create custom gradations, transitional objects, and morphing effects. In the years since, Adobe has ignored the feature. Version 8.0 finally brings blends into the 1990s.

As in FreeHand, CorelDraw, and Deneba Canvas, the blends in Illustrator 8.0 are dynamic: if you change the shape, fill, or stroke of one of the anchor paths in a blend, the intermediate paths update automatically. For more diverse color transitions, you can blend among three or more shapes at a time and even blend among shapes that contain predefined gradients. If you begin with two groups of paths, Illustrator can blend between equivalent pairs in the groups (based on stacking order), which is great for creating complex morphs.

Illustrator 8.0 also lets you blend along a curve, which the program calls a *spine*. You can use the standard path tools to edit the straight spine that Illustrator gives you by default. Or more simply, you can align the blend to a predefined path. After you establish the spine, Illustrator lets you change the orientation of the in-between steps (see "Blends with a Backbone").

Illustrator 8.0's best new features give adept users extra control over object editing. The new Free Transform tool lets you scale, rotate, and slant selected objects all at once. You can also distort objects and achieve perspective effects using the same keyboard toggles available in Photoshop.

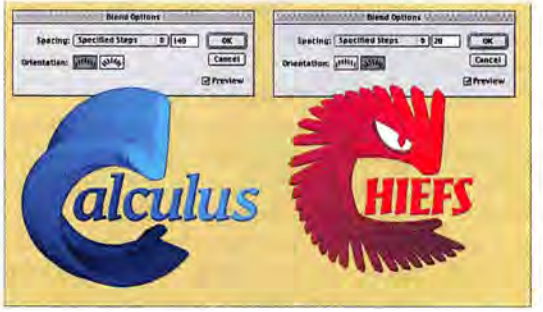
REAL PRODUCTS REAL RATINGS — Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
OUTSTANDING: ♦♦♦♦♦ VERY GOOD: ♦♦♦♦ GOOD: ♦♦♦ FLAWED: ♦♦ UNACCEPTABLE: ♦

Illustrator 8.0 makes good on a promise to FreeHand users by letting you select up and down a stack of overlapping paths without having to lock and hide objects. And while you still can't paste one path inside another to get a mask (another common request from FreeHand users), you can now apply fills and strokes directly to masks. To expedite path drawing, you can add and delete points without switching from the pen tool, delete segments with a new eraser tool, and redirect paths just by drawing with the pencil.

My favorite editing feature hails not from FreeHand but from Canvas. Like the Smart Mouse function that Canvas introduced eight years ago, Illustrator 8.0's Smart Guides notify you when your cursor aligns with the center, edge, or anchor point in a stationary object. Although many artists will find the sheer quantity of on-screen notifications overwhelming, those with a penchant for schematic illustrations will take to Smart Guides immediately. The function enables you to select, align, and transform objects with dead-on accuracy.

### Closer to Photoshop

If you spend a lot of time trading pixels between Illustrator and Photoshop, then Illustrator 8.0 is indispensable. For the first time ever, you can get a piece of artwork to look the same in Illustrator as it will when rasterized in Photoshop. Inexplicably, Illustrator 8.0 and Photoshop 5.0 approach color management from different directions, but both programs take their cues from ColorSync. If you go to the trouble of saving RGB and CMYK settings as ICC profiles from Photoshop, you can apply them to Illustrator with appropriately harmonious results.




**Blends with a Backbone** When you're blending along a curve, Illustrator lets you arrange the blended steps vertically (left) or splay them in a fan pattern (right).

Do you cry every time Photoshop flattens your vector artwork? Version 8.0 provides more cause to rejoice. You can export a layered Illustrator file in Photoshop format with all layers intact.

Like Photoshop, Illustrator 8.0 lets you record actions. You can't record mouse-driven operations such as selecting and moving objects, nor can you swap actions between Illustrator and Photoshop, but the interface is identical between the two programs. If you spend much time importing images or rasterizing artwork inside Illustrator, the Links palette is a godsend. Not only does it show every imported graphic in your illustration, but it also lets you update an image file from disk, center the image in the illustration window, and automatically open the image in Photoshop.

To make you feel more at home, Illustrator 8.0 borrows Photoshop's Navigator palette for quick zooms and scrolls. Even better, you can zoom in and out with 0.01 percent accuracy (although scrolling with the hand tool still lurches the page in 20-pixel chunks).

### The Whiz-Bang Stuff

The two new features that are likely to attract the most attention are unlikely to have a profound effect on the way you work. First is the Gradient Mesh tool, which lets you add points of color inside a shape. The result is a multipoint gradation, unlike anything available in competing drawing programs. While undoubtedly innovative, the Gradient Mesh tool might inspire as much frustration as creativity. The feature is designed specifically to work with PostScript 3. If you print to a PostScript 1 or 2 device, Illustrator rasterizes the gradient as a 150-dpi JPEG bitmap.

The second new feature is the Brushes palette, which lets you stroke paths with one of four different kinds of effects. The most interesting of these, the Artistic Brush, stretches a collection of objects over the course of a path. Sounds dull, but the effects can be spectacular, from natural-media brushstrokes to swaying graphics (see "Illustrator Becomes Expressive"). If you have ever used MetaCreations' groundbreaking Expression, you've seen artistic brushes in action (see *Reviews*, March 1997).

The Scatter Brush sprays a stream of graphics. But unlike FreeHand's equivalent Graphic Hose, the Scatter Brush doesn't allow you to cycle through different objects or vary colors as you paint. The last two brushes—Pattern and Calligraphic—are merely repackaged functions that date back to Illustrator 6.0.

**Illustrator Becomes Expressive** Artistic brush effects can vary from realistic brushstrokes to stretched artwork to winding text. You can also choose from scatter brushes (the grasshoppers), repeating patterns (the leaves), and calligraphic strokes (the blue line).

### Macworld's Buying Advice

If there was ever a must-have upgrade to Adobe Illustrator, this is it. In addition to the major enhancements, version 8.0 offers smoother screen display, organizes path operations in a handy palette, and reinstates the Select Again command. Better still, you can encode EPS files as PostScript 1 or 2 to avoid printing errors.

It would be nice if Illustrator adopted Photoshop's History palette, and FreeHand and CorelDraw still offer some more extras, notably lens effects and enveloping. But Illustrator 8.0 supplies the most essential features and a more streamlined interface. After years of being second best, with version 8.0 Illustrator is again a contender.—DEKE McCLELLAND

**RATING:** ♦♦♦♦½ **PROS:** Live blends and blends on a curve; paths can be transformed and distorted in one operation; on-the-fly Smart Guides; layered Photoshop files can be exported; naturalistic brush effects. **CONS:** Color-management functions differ from Photoshop's; Gradient Mesh tool is more sizzle than substance. **COMPANY:** Adobe Systems (408/536-6000, www.adobe.com). **COMPANY'S ESTIMATED PRICE:** $375.

# Epson Stylus Color 740

## NEW INK-JET IS NOT ALL BUSINESS

EPSON'S NEW FOUR-COLOR INK-jet printer, the Stylus Color 740, may be its most versatile. Aimed at the small-office/home-office market, the Stylus Color 740 offers impressive photo-realistic output, making it a great low-cost alternative to color-laser and dye-sublimation printers. But this printer is not all business: its ease of use, reasonable price, and USB interface make it an ideal choice for iMac users. It also features a serial interface for use with other Macs.

### Not New, but Improved

Like the popular Stylus Color 600 and 800 ink-jet printers, the Stylus Color 740 uses Epson's proprietary Micro Piezo printing technology. Unlike ink-jets that use thermal-printing technology, Epson's ink-jets use electrical impulses rather than heat to force ink through print nozzles onto a page. This process minimizes splatter, thus creating cleaner, more consistent dots. With the Stylus Color 740, Epson has modified the Micro Piezo print head to produce smaller and variable-sized dots, resulting in better photo quality and finer detail.

Documents printed with the Stylus Color 740's default settings showed good color reproduction except for minor oversaturation. This was evident in our Adobe Photoshop prints, where we noticed some loss of shadow detail. However, when we experimented with the software settings and printed on high-quality photo paper, photographic images were truly exceptional, with realistic flesh tones and smooth color transitions. The printer also did a good job when printing text on high-grade glossy paper, but type was a bit fuzzy on plain paper.

QuarkXPress and Adobe Illustrator documents printed from the Stylus Color 740 and its six-color counterpart, the Stylus Photo 700 (see "Print Out," *Macworld*, October 1998), looked almost identical. While the 700 edged out the 740 in color accuracy, the 740 excelled in sharpness and detail rendering.

### In the Driver's Seat

Epson's software driver for the Stylus Color 740 offers three color-management options: ColorSync, PhotoEnhance3 (recommended for digital camera prints), and user-defined custom settings. These options are more than adequate for imaging novices. However, professionals may be disappointed with the lack of a PostScript option.

During testing, we found that using

SUZANNE ROADY

Epson's standard ColorSync profile yielded the best results. The driver interface is easily navigable and lends itself to experimentation, so creating the best possible print is not difficult. Also included is a user-friendly maintenance and diagnostic wizard that makes cleaning and adjusting the 740's print heads a cinch.

### Speed and Cost

Though ink-jet printers have improved in speed, they still don't compare to color lasers (about four to six pages per minute), and the Stylus Color 740 is no exception. At the highest resolution of 1,440 dpi, Photoshop prints averaged nearly 10 minutes per page, and our QuarkXPress document averaged 7.5 minutes per page. Printing a full-page Word 98 document averaged almost 7 minutes.

For everyday use, the Stylus Color 740's faster 720-dpi setting may be more than adequate, but if you need your documents to look their best, be prepared to wait for them.

The 740 uses two ink cartridges, one black and one color (cyan, magenta, and yellow). Inks are formulated for quick-drying and smudge-free prints. Cartridges cost $29.95 each and will give you about 300 prints, unless you plan to print lots of high-resolution documents, which use more ink.

For the highest-quality prints, it's a good idea to invest in Epson's ink-jet paper, which ranges from 14 cents per page for thin coated paper to $2.13 per page for glossy photo stock.

### Making the Connection

Setting up the 740 is simple: just pop in two ink cartridges, connect the printer to your serial or USB port, and install the drivers. No networking options are available, but you can connect up to three computers—a Mac, an iMac, and a PC—simultaneously to the 740's serial, USB, and parallel ports, respectively. The driver handles just one print job at a time, but it's still a neat feature.

The Stylus Color 740's built-in USB port is a first for ink-jets. This is a great option for iMac users, since compatible printers are scarce, and most that do support USB use a somewhat costly parallel-to-USB adapter cable.

Although some iMac users experienced compatibility problems with early versions of USB drivers from Epson and Apple, the 740 worked trouble-free during our testing, with no crashes in the applications we used. It's a good idea to download and install the latest USB drivers for the Stylus Color 740 and iMac from Epson's and Apple's respective Web sites.

### Macworld's Buying Advice

Business professionals who want high-quality color prints without spending thousands of dollars will find the Stylus Color 740 to be a great solution—if they don't mind sacrificing some speed. Home users will appreciate the Stylus Color 740's sharp output as well as its easy-to-use software.—GIL LOYOLA

**RATING:** ♦♦♦♦ **PROS:** High-quality output; built-in serial and USB ports; easy-to-use software. **CONS:** Slow. **COMPANY:** Epson America (310/782-0770, www.epson.com). **COMPANY'S ESTIMATED PRICE:** $279.

# Intuos

## WEAK SUPPORT MARS AMBITIOUS GRAPHICS TABLET

ON PAPER, WACOM'S INTUOS reads like a computer artist's dream. One tablet supports multiple pointing devices, from mice to pens to simulated airbrushes. All the pointing devices are wireless, making for less clutter and greater mobility. And the mice and pens are ergonomic and inventive, with enough dials and buttons to render the keyboard obsolete.

But in practice, the Intuos is perilously close to the bleeding edge. Several graphics applications, including Adobe Photoshop and MetaCreations Painter, react to Wacom's pressure-sensitive input. But there's little or no support for the Intuos's more radical features, most notably axial rotation (the ability to sense the mouse's pointing direction) and the use of two pointing devices at the same time. In addition, the Intuos pens and tablets are incompatible with older Wacom products. Software support will likely improve, but for the present, the Intuos is a great idea that's still waiting to happen.

KEVIN CANDLAND

### Zoom and Swivel

Wacom sells the Intuos tablet in several different sizes. The tablet's active area varies from 4 by 5 inches ($199.99), for those with small workstations, to 12 by 18 inches ($819.99). You can select from ADB or serial connections; USB is not an option.

We looked at the $509.99, 9-by-12-inch tablet, which includes a four-button Intuos pen and the 4D Mouse. Like previous four-button pens from Wacom, the Intuos pen offers a pressure-sensitive nib, an eraser, and a dual-action side switch for double-clicking and other operations. Unlike previous pens, the Intuos device tapers in both directions for a more comfortable feel. And if you buy more than one pen (at $49.99 each), you can assign each different settings.

Every tablet includes a pen, but only the 9-by-12 and 12-by-18 models include the 4D Mouse (also sold independently for $69.99), the most versatile and least-supported of the Intuos pointing devices. The 4D Mouse gets its name from the four attributes it records. As with a conventional mouse, the first two are width and height. The third attribute is depth: depending on how you've set up your graphics software, a thumbwheel lets you zoom in and out or scale an image. The fourth attribute is direction: you can use the mouse to rotate objects.

If a graphics program could respond to all this stimuli, you might be able to move an object, scale it with the thumbwheel, and rotate it in one fluid gesture. Alas, no software responds to rotation and only one program, Photoshop, responds to the thumbwheel. After you install Wacom's PhotoZoom plug-in, Photoshop zooms in and out when you move the thumbwheel forward and backward. The thumbwheel conveys pressure, so you can zoom quickly or gradually. Unfortunately, it always magnifies the upper left corner of the image, even if your cursor is positioned elsewhere.

You can change the mouse's incline so the mouse fits snugly in your left or right hand. The thumbwheel also accommodates left- or right-handed use, and the driver software recognizes the change automatically.

### Software a Bit Soft

The Intuos driver software (version 4.1.2) is a mixed bag. On the plus side, it provides an extensive array of customization options. Not only can you assign mouse actions, keystrokes, and QuicKeys macros to any pointing-device button, but you can also create unique settings for different applications. If an application doesn't respond to the 4D Mouse's thumbwheel, you can use the wheel in combination with other buttons, turning your 5-button mouse into a 15-button device.

Also on the plus side, the tablet ships with a Photoshop plug-in that keeps track of the last tool used with each pointing device. If you own the optional Airbrush stylus (a bit expensive at $99.99), Photoshop automatically selects the airbrush when you touch the stylus to the tablet. Use the pen and you get the paintbrush, use the 4D Mouse and you get the marquee, and so on—very convenient.

On the downside, the software does not support older Wacom tablets. We installed the Intuos on a Mac that also had an older tablet connected to the serial port, and neither tablet worked. The Intuos worked only after we unplugged the serial device. Wacom says that it is working on a fix, but until this problem is solved, previous Wacom customers will have the unpleasant choice of using their old tablets (with older versions of the driver software) or the Intuos, but not both.

### Macworld's Buying Advice

Wacom says that Adobe Systems, MetaCreations, Electric Image, Avid Technology, and other vendors are working to support the tablet's more radical functions. In the meantime, the Intuos system delivers about 70 percent of the miraculous functions that Wacom advertises on the outside of the box—good, but not great.

If you're in the market for a pressure-sensitive tablet, you might as well purchase the tablet with the knowledge that third-party support will only improve. But if you already own a Wacom tablet, hold off. No one should ask you to throw away your old hardware to make way for the new, and it will be a while before major graphics programs are revised to support many of the unique Intuos features.—DEKE McCLELLAND

**RATING:** ♦♦♦ **PROS:** 4D Mouse includes thumbwheel and adjusts to fit predominant hand; Photoshop plug-in remembers last tool used. **CONS:** Many features not yet supported; incompatible with older devices. **COMPANY:** Wacom (360/896-9833, www.wacom.com). **LIST PRICE:** 9-by-12-inch tablet, $509.99.

# Norton Utilities for Mac 4.0

## UPDATED RECOVERY PACKAGE RELEASED TOO SOON

SYMANTEC'S NORTON UTILITIES for Macintosh (NUM) is the staple tool kit for data search and rescue from deleted files or crashed disks. But version 4.0 is a late arrival. It's the first incarnation of NUM to support HFS+ (known as the Mac OS Extended Format) disks, yet it was released nearly a year after Mac OS 8.1 debuted HFS+. Despite its long gestation period, NUM 4.0 shows clear signs of being hurried out the door.

### The Doctor Is In

While the NUM 4.0 collection provides several features, from crash protection to quicker file finding, the package's core consists of Norton Disk Doctor (NDD) and its ability to diagnose and repair disk problems.

NDD 4.0 sports a new look compared with version 3.5, but the shiny new facade eliminates several familiar shortcuts that were in previous versions. For example, you can no longer type a volume's name from the list of mounted volumes to select it, nor can you press the return or enter key to begin examining the disk. These may seem like trivial gripes, but anyone familiar with older versions of the software will find this a roadblock to performing frequent drive checkups.

NDD 4.0 does have a notable usability improvement: for minor problems you can tell the program which files to fix and which ones to leave alone. In the past, fixing such errors was an all-or-nothing proposition. However, NDD 4.0 didn't go far enough with the enhancements. The application can't scan multiple volumes and deal with all the errors at the end. Instead, you're confronted with individual volumes' errors immediately after each one is scanned.

### Diagnosis and Repair

When it comes to diagnosis and repair, Norton Disk Doctor 4.0 seems to have shipped prematurely. Shortly after its initial release, user complaints surfaced about NDD's reporting errors on disks formatted with many non-Apple drivers, and the fixes resulted in inaccessible disks. NDD 4.0 also had problems fixing a directory error that Norton Anti-Virus (NAV) 5.0 can introduce when running under Mac OS 8.1. Symantec has released an update, NDD 4.01, that fixes the NAV error, as well as reporting errors on disks formatted with FWB's Hard Disk ToolKit 2.5.X. However, it does not address reporting errors on media formatted with other non-Apple drivers.

**Face-Lift** Norton Disk Doctor 4.0's main window is more colorful than its predecessor's but is less easy to use.

Symantec should also be faulted for not including the NAV 5.02 patch, which fixes the bug that causes the directory error. The patch doesn't fix the error, but it will prevent NAV from causing directory errors in the future. Sure, you can download the NAV patch from Symantec's Web site, but including the patch on the NUM CD-ROM would have been a simple matter.

### Ounces of Prevention

Another revamped part of NUM 4.0 is the multifunction FileSaver extension, which tracks erased files for easier recovery, saves critical disk information at regular intervals, and periodically scans drives for damage. In addition, FileSaver 4.0 also introduces an excellent feature: the ability to scan disks quickly after an improper shutdown or crash.

Unfortunately, FileSaver 4.0 has its problems, too. For starters, performance seriously lags when deleting files. While it's understandable that FileSaver has to do some bookkeeping when deleting files, users may find themselves waiting while their Trash empties, or while programs, such as Netscape Navigator, remove cache files.

In addition, FileSaver's user interface isn't as configurable as it should be. It's impossible to enable the disk-directory–update feature without also enabling delete tracking. In many cases—for example, on servers—this all-or-nothing choice is undesirable. FileSaver also updates its directory information with every reboot and shutdown. Restart updates are unnecessary in most cases, but there is no way to restrict the updating to shutdowns only.

### Speeding Your Disks

NDD may be the core of Norton Utilities, but the package's jewel is Speed Disk 4.0, which improves disk performance by defragmenting files and rearranging data. The updated version now handles HFS+ disks and is somewhat quicker than Speed Disk 3.5. It also remains configurable for those with a technical bent. Unfortunately, it has slight imperfections: its default settings cause it to scan an entire disk for problems before optimizing. You can also choose write verification, which is more efficient and guarantees that data is written back exactly the way it was before, but we think this should be the default.

One feature missing from Speed Disk is the ability to optimize the directory in addition to all the files; the only comparable process is to back up, reinitialize, and restore a volume, which is far too time-consuming.

### Macworld's Buying Advice

Norton Utilities for Macintosh 4.0 suffers from two problems: it was released before it was ready, and many of its user-interface changes were for the worse. While the latter is annoying, it isn't nearly as grave as the loss of confidence caused by teething problems in such a crucial product.—STEPHAN SOMOGYI

**RATING:** ❦❦ **PROS:** Updated for HFS+; improved Speed Disk performance; PowerPC native. **CONS:** Performance problems; interface has significant rough spots; 680X0 Macs no longer supported. **COMPANY:** Symantec (541/334-6054, www.symantec.com). **LIST PRICE:** $99.95.

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# Masking Utilities

THREE PROGRAMS GO FAR BEYOND PHOTOSHOP'S MASKING FUNCTIONS

CREATING MASKS CAN BE ONE of the most difficult parts of altering an image. Fortunately, several programs can help. Two, Extensis Mask Pro 2.0 and Chroma Graphics' EdgeWizard, are Adobe Photoshop plug-ins. The third, Ultimatte KnockOut, is a stand-alone program that works with Photoshop files.

Each program uses a different approach to masking. Mask Pro 2.0 is a general-purpose masking utility, offering a variety of intelligent brushes and tools that let you paint masks into an image. KnockOut shines at creating difficult masks that involve wisps of hair, complex shadows, and translucent elements. EdgeWizard lacks its own masking tools, but it lets you refine the edge of an existing selection created in Photoshop or another program (including Chroma Graphics' MagicMask plug-in).

**Hair Today** Ultimatte KnockOut lets you create complex masks by selecting inner and outer boundaries.

### Smart Brushes

Of the three, Mask Pro offers the widest range of masking tools. Similar to Photoshop's QuickMask feature, it lets you select colors to keep and drop using two special eyedroppers. When you paint with Mask Pro's brushes, the plug-in analyzes the colors beneath your brush, compares them with your selected colors, and applies an appropriate level of transparency to the mask.

A new IntelliBrush tool automatically selects Keep and Drop colors by averaging the pixels beneath the brush. This makes it easier to create complicated masks; without it you would have to make many manual color selections.

Mask Pro can automatically knock out image layer backgrounds, and its pen tool can now automatically detect edges and set control points accordingly. A new, separate EdgeBlender plug-in blends semitransparent pixels with background pixels to reduce halos.

### Magic KnockOuts

Mask Pro is powerful, but it still can take a lot of time to mask wisps of hair or translucent objects. That's where KnockOut comes in. You create a mask in KnockOut by using four lasso tools to trace outlines along the boundaries of the area you want to select. The first traces inside the area to be masked; the second, around the outside (see "Hair Today"). Two similar tools let you create inner and outer boundaries for any shadows you want to mask.

KnockOut's Process Image feature then generates a mask, which you can refine using the Syringe or Edge Feather tools. Syringe tools let you inject color into pixels that are being rendered transparent; the Edge Feather tool lets you define edges in areas where there's little difference between the foreground and background.

KnockOut's results are impressive, but the program cannot soften mask edges, and it lacks tools for manually refining the mask. It's also a memory hog—you need at least five times as much RAM as the maximum image size—and it uses a dongle.

### Refining Edges

EdgeWizard's edge-refining tools can automatically eliminate halos and transparency problems. After you create a mask, the plug-in provides a preview of your image and the selection. You can then modify the mask edge in three ways: QuickEdge applies a two- or three-pixel blur, producing a result similar to feathering. Gaussian Edge applies a Gaussian blur, creating even blends in images that have simple backgrounds. Variable Color Edge, for use with complex selections, analyzes colors along the edge to determine the best way to blend with the background. All three effects can be brushed in or applied globally.

### Macworld's Buying Advice

None of these programs is a comprehensive solution, but all three are great complements to the masking tools in Photoshop. Mask Pro is a good one-stop masking tool; it's inexpensive and offers an impressive range of features. KnockOut is missing a few functions and costs nearly twice as much as Mask Pro, but it lets you create difficult masks with a minimum amount of work. EdgeWizard lacks built-in selection tools but does a great job of improving mask edges, especially those composited against complex, multicolored backgrounds.—BEN LONG

#### EdgeWizard

**RATING:** ♦♦♦½ **PROS:** Strong edge-refining tools; inexpensive. **CONS:** No built-in selection features. **COMPANY:** Chroma Graphics (888/824-7662, www.chromagraphics.com). **COMPANY'S ESTIMATED PRICE:** $99.95.

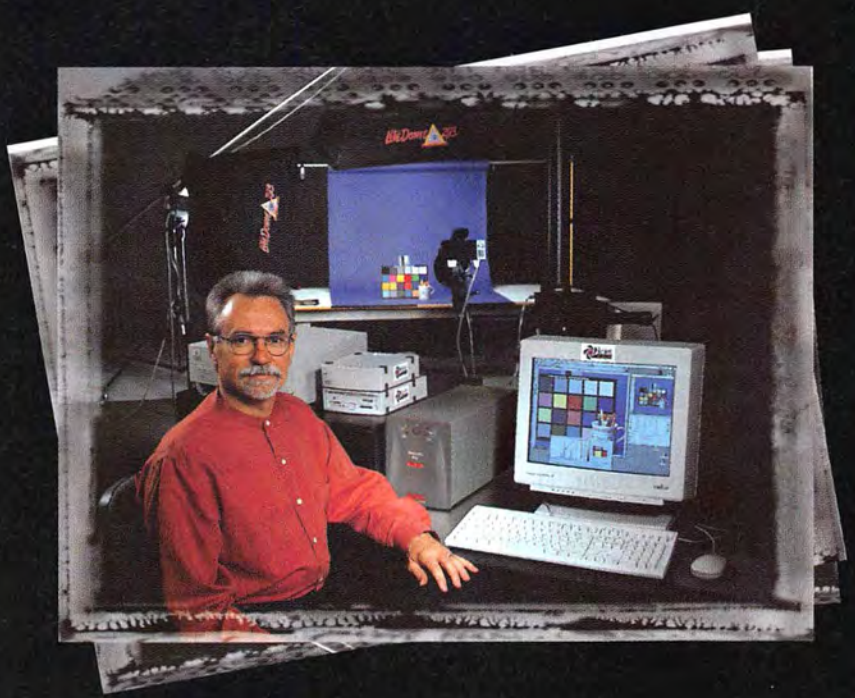
#### Extensis Mask Pro 2.0

**RATING:** ♦♦♦♦ **PROS:** Broad range of masking tools. **CONS:** Creating complex masks takes time. **COMPANY:** Extensis (503/274-2020, www.extensis.com). **COMPANY'S ESTIMATED PRICE:** $299.95.

#### Ultimatte KnockOut

**RATING:** ♦♦♦♦ **PROS:** Simplifies creation of difficult masks. **CONS:** Memory-hungry; lacks manual refinement tools; requires hardware lock. **COMPANY:** Ultimatte (818/993-8007, www.ultimatte.com). **COMPANY'S ESTIMATED PRICE:** $495; before January 1, 1999, $395.

# What does a digital photographer do in the middle of a lightning storm?



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# Graphics Accelerators

## MACTELL'S VISION3D PRO II LITE WINS THE RACE

NOT LONG AGO, IN A *Macworld* test of 2-D/3-D graphics accelerators, Mactell's Vision3D Pro II 250 turned in some of the best scores but was also much pricier than the other cards (see "Quick on the Draw," August 1998). Since then, Mactell stuffed nearly all that heat into a less expensive package, and it will be tough to beat.

In our search for the fastest pixels in the West, we tested three new 2-D/3-D accelerators: iXMicro's ix3D Mac Rocket and ix3D Pro Rez, and Mactell's Vision3D Pro II Lite. Both iXMicro boards use the company's TwinTurbo 128-3D graphics chip. The $279 Mac Rocket comes with 4MB of RAM and includes composite-video– and S-Video–out ports. The $359 Pro Rez comes with 8MB of RAM; video-out ports are a $59 option. On the Vision3D, Mactell uses Number Nine's Imagine 128 Ticket to Ride chip. We tested the card with 8MB of RAM ($349); a 4MB version costs $259.

All of these cards are noteworthy because—unlike game-specific 3-D accelerator cards such as Micro Conversions' Game Wizard (see "Comin' at Ya," elsewhere in this issue)—they accelerate 2-D *and* 3-D graphics routines, including those used in 3-D modeling programs. Mactell gives a brief nod to game acceleration by implementing portions of Apple's RAVE 3D game-acceleration libraries, but iXMicro ignores game-specific 3-D completely. None of these cards are intended for primary use as 3-D game accelerators.

With all three cards, installation is a piece of cake: just pop open your system and pick an empty PCI slot. The cards all include easy-to-use software installers.

SUZANNE ROADY

ix3D Mac Rocket (left), ix3D Pro Rez (middle), and Vision 3D Pro II Lite

For the most part, the companies' video-control software worked as advertised. iXMicro includes a generous software bundle with each board. Mac Rocket features a full version of Kai's Photo Soap from MetaCreations. Pro Rez includes Photo Soap plus two other MetaCreations packages, Bryce 2 and Expression.

When we put the cards through our test suite, Mactell's Vision3D was the runaway winner. In 2-D tests, it was much faster than the G3 Power Mac's built-in video, and it was slightly faster than the G3 in 3-D tests. The ix3D Pro Rez and Mac Rocket were only a hair faster than the G3 in 2-D performance. In 3-D tests, the iXMicro boards were slower than an unaccelerated G3.

### Macworld's Buying Advice

Of the three boards tested, the Vision3D Pro II Lite wins based on performance, price, and RAVE support (albeit limited). However, it would be unfair to completely dismiss the iXMicro boards. They won't do much to accelerate 3-D graphics, but they will boost 2-D graphics performance, especially on pre-G3 Macs.—CAMERON CROTTY

### ix3D Mac Rocket

**RATING:** ♦♦♦ **PROS:** Good software bundle; video-out port. **CONS:** Mediocre performance; no game RAVE support. **COMPANY:** iXMicro (408/369-8282, www.ixmicro.com). **COMPANY'S ESTIMATED PRICE:** $279 (4MB).

### ix3D Pro Rez

**RATING:** ♦♦♦ **PROS:** Hefty software bundle; video-out option. **CONS:** No game RAVE support; mediocre performance. **COMPANY:** iXMicro (408/369-8282, www.ixmicro.com). **COMPANY'S ESTIMATED PRICE:** $359 (8MB).

### Vision3D Pro II Lite

**RATING:** ♦♦♦♦ **PROS:** Blazing speed; RAVE game support; inexpensive. **CONS:** RAVE support is not complete. **COMPANY:** Mactell (512/323-6000, www.mactell.com). **COMPANY'S ESTIMATED PRICE:** $349 (8MB).

Macworld LAB TEST

## Faster Pixels?

**Best results in red.** *Reference system in italics.* **Scrolling scores are relative to those of a Power Macintosh G3/300 with 128MB of RAM, which is assigned a score of 1.00. Frame-rate scores indicate the number of frames per second. MacBench scores are relative to those of a Power Macintosh G3/300 with 64MB of RAM, which is assigned a score of 1,000.**

| | 2-D ACCELERATION | | | | 3-D ACCEL. | MACBENCH 5.0 | |
|---|---|---|---|---|---|---|---|
| Video Card | Word Scroll | QuarkXPress Scroll | Photoshop Scroll | Commotion Frame Rate | Walker Frame Rate | Graphics | Publishing Graphics |
| iXMicro ix3D Pro Rez | 1.05 | 1.24 | 1.48 | 29 | 12 | 1,354 | 1,585 |
| iXMicro ix3D Mac Rocket | 1.03 | 1.29 | 1.51 | 29 | 11 | 1,371 | 1,627 |
| Mactell Vision3D Pro II Lite | 3.89 | 1.52 | 2.06 | 34 | 17 | 3,153 | 1,991 |
| *Apple Power Macintosh G3/300 built-in video* | *1.00* | *1.00* | *1.00* | *39* | *14* | *1,369* | *1,607* |

*Longer bars are better.*

**Behind Our Tests** All cards were tested on a Power Macintosh G3/300 with 128MB of RAM with the display set to 1,152-by-870-pixel resolution. For detailed information on our methodology, see www.macworld.com/tests/.—**Macworld Lab testing supervised by Gil Loyola**

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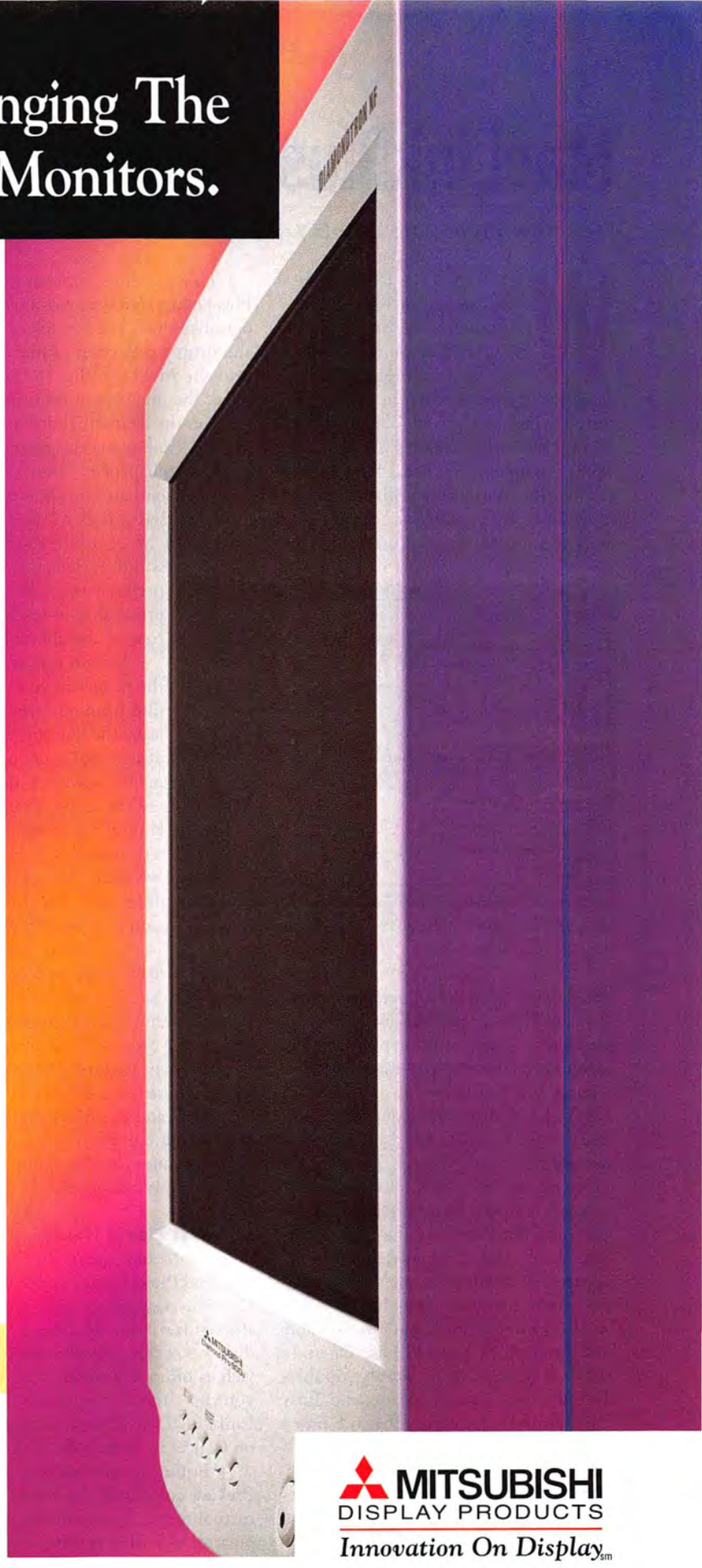

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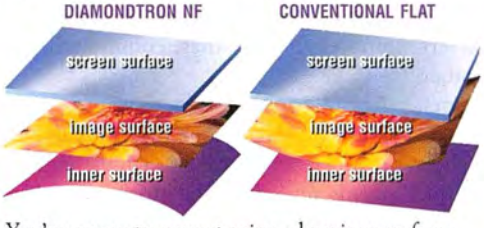


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# MacLinkPlus Deluxe

## FILE-TRANSLATION UTILITY NO LONGER FREE

WHY BUY THE COW WHEN you can get the milk for free? Although this bit of homespun wisdom most often pops up in late-night mother-daughter powwows, it has its place in the software business as well. Take DataViz's MacLinkPlus, for instance. At one time, Apple Computer bundled a light version of this file-translation utility with new Macs and system-software packages. To no one's surprise, few Mac users felt compelled to purchase the full retail version of MacLinkPlus—MacLinkPlus "lite" translated the majority of file types that folks encountered, so why pay for a few extra features and translators?

**Say What?** You can translate and see a preview of unrecognized files with MacLinkPlus Deluxe.

Well, the milk's no longer free. Apple has stopped including MacLinkPlus, so if you want it, you'll have to pony up for the complete cow: MacLinkPlus Deluxe.

Although the basic functionality of MacLinkPlus remains in the Deluxe version, DataViz has smartened up the interface as well as added a few new translators and features. To begin with, MacLinkPlus is no longer inexorably linked to Apple's Mac OS Easy Open. In earlier versions, you simply double-clicked on an unknown file and Easy Open dutifully translated that file into a readable file type on your hard disk—maintaining most of the document's formatting. In these light versions, MacLinkPlus supplied the translators and Easy Open did the work.

This technique remains in MacLinkPlus Deluxe, but the program offers other options as well. For example, you can drag and drop a collection of files and folders into the MacLinkPlus Deluxe window, select the ones you want translated, and click on the Translate button to start the process. Employing this method, you can easily batch-process files of different types. When batch-processing, the program translates files to the type you've chosen in MacLinkPlus's Preferences window. Separate translation preferences can be set for word processing, spreadsheet, database, and graphics files.

As with earlier versions of the program, you can convert files from one type to another using the Document Converter utility. Make a copy of Document Converter, double-click on the copy, determine the kind of conversion to perform (convert files to WordPerfect for Mac, for example), and drag and drop files onto its icon to convert them.

Users with Mac OS 8 or higher can also control-click on a file to summon MacLinkPlus's contextual menu. Using this method, you choose the Mac or PC format you'd like the file translated to—ClarisWorks 4 or the DOS version of WordPerfect, for example—and the MacLinkPlus Deluxe application launches, translates the file, and, on your command, quits when the translation is complete.

### So What Else Is New?

The contextual menu hints at some of MacLinkPlus Deluxe's added capabilities. Control-clicking on a file and selecting Recognize from this menu produces a dialog box that identifies the file type as well as offers translation tips. From here you can choose to send the file to MacLinkPlus Deluxe for translation or click on Cancel to dismiss the dialog box.

Another handy feature is the Quick Preview command, also found in the contextual menu. Quick Preview displays a portion of a file's contents—text as well as graphics—and you can copy the preview to the Clipboard or send the file to MacLinkPlus Deluxe for translation. You can also preview files from within the MacLinkPlus Deluxe application.

Finally—and to be honest, insignificantly—the program expands .sit, MacBinary, Zip, Gzip, TAR, Compact Pro, and Z files and decodes UUencode, MIME, and BinHex files from within the MacLinkPlus Deluxe application window. Aladdin's StuffIt Expander does the same thing, and StuffCM, David Catmull's $9 shareware contextual-menu plug-in, gives Mac OS 8 users this capability from within Apple's contextual menus. For many users, therefore, this feature may seem superfluous in MacLinkPlus Deluxe.

Not so superfluous, however, is the program's inclusion of translators for the various components of Microsoft Office 98 and Office 97 for Windows. Macintosh users who eschew the Office suite can now easily open these common file types.

### Room for Improvement

Not everything about MacLinkPlus Deluxe is sweet, however. Although the utility performs admirably, the interface could be a bit more elegant. For example, when invoking a translation from the contextual menu, users should have the option of translating the file in the background, bypassing the MacLinkPlus Deluxe application.

Background processing of multiple files and folders would likewise be more convenient. And surely there's a more intuitive method for creating Document Converters than requiring users to duplicate the original file.

### Macworld's Buying Advice

Inconveniences aside, MacLinkPlus Deluxe is a solid translation utility. If you have an older, *free* version of MacLinkPlus that satisfies your translation needs, the multitude of translation methods and translators may not be compelling enough reasons to upgrade. If, however, you don't already have a copy, MacLinkPlus Deluxe is a worthwhile investment.—CHRISTOPHER BREEN

**RATING:** ♦♦♦♦ **PROS:** Capable and comprehensive translation; new interface makes for easier translation. **CONS:** Translation could be less visible. **COMPANY:** DataViz (203/268-0030, www.dataviz.com). **COMPANY'S ESTIMATED PRICE:** $99.95.

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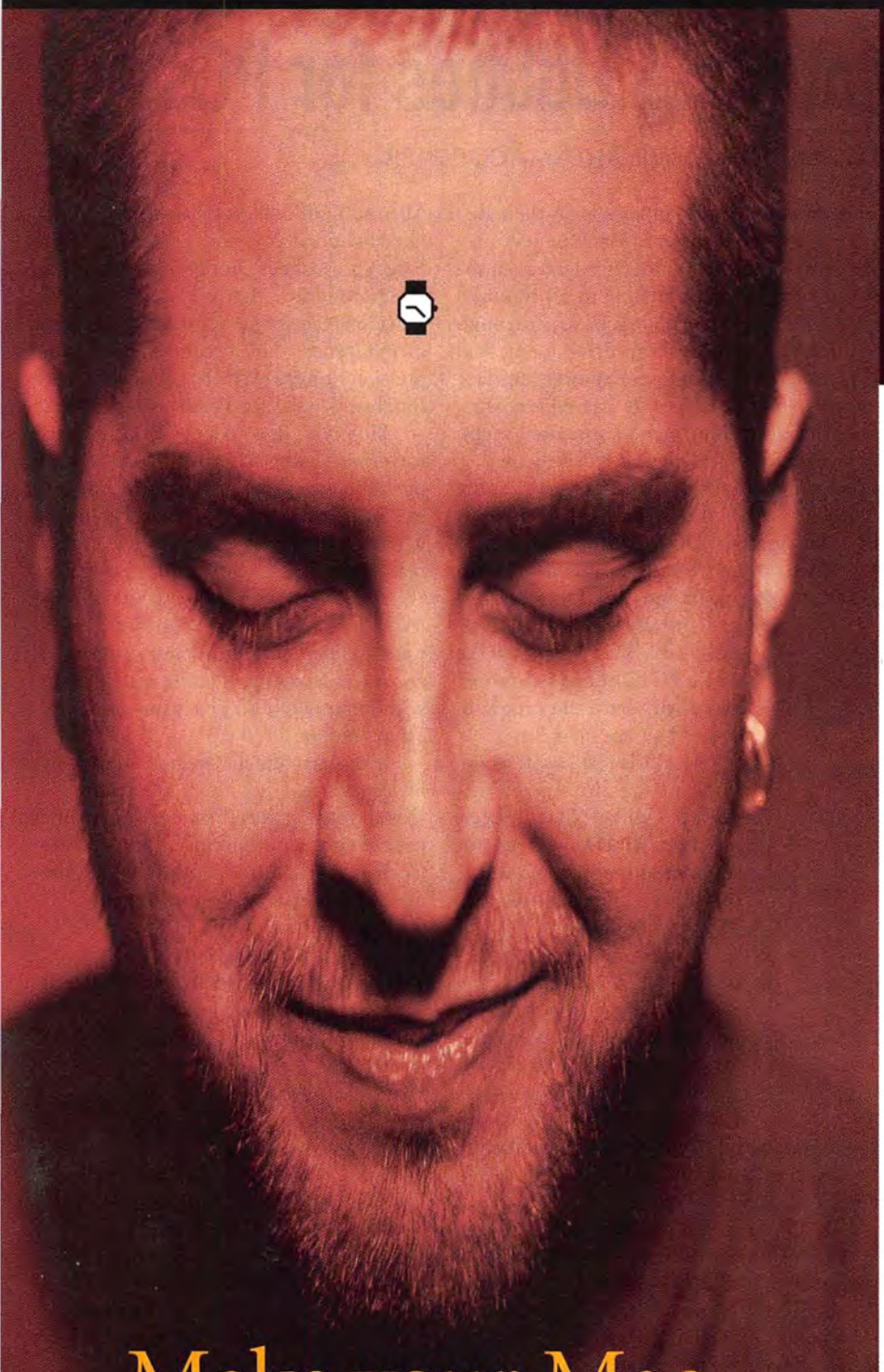

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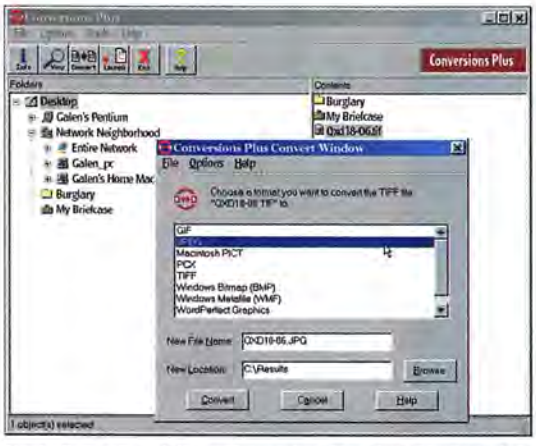
# Mac-Disk–Mounting Utilities for PCs

## COMPETITION TIGHTENS BETWEEN MACDRIVE AND MACOPENER

FOR MAC USERS, DEALING WITH PC disks is a no-brainer—Mac OS 8.1 and later handle Windows media such as floppy, Jaz, Zip, and SCSI hard disks, using the PC Exchange extension. But your Windows-using colleagues don't have reciprocal support for your media.

Thankfully, there's Windows software that lets PC users read Mac media. One mainstay Mac-disk–mounting utility—DataViz's MacOpener 4.0—has beefed-up support that includes Windows 98 and the HFS+ Mac-disk format in Mac OS 8.1 and 8.5. DataViz has also updated its Conversions Plus file-format translation utility—which includes MacOpener—to support Microsoft Office 98 files and to allow conversion of attachments in Microsoft Outlook 98's e-mail program.




**Single-Source Translation** Conversions Plus gives users one place to do translations among common file types.

And MacDrive (★★★★½; $75 list price; *Reviews*, April 1998), from Media4 Productions (515/225-7409, www.media4.com), has also been updated. The changes between the 2.01 version reviewed and the current version (2.1) are essentially bug-fixes.

### Disk Mounters Compared

The changes in the new release of MacOpener, 4.0, are very focused: Windows 98 and Mac OS HFS+ compatibility. Otherwise, the disk mounter is the same as in version 3.0. That's not bad, since MacOpener does everything most users will need, whatever version of Windows is on their PC.

As you'd expect, MacOpener integrates into the Windows interface, making Mac media available in all standard Open and Save dialog boxes, through the Windows desktop drive icons, and through the Windows Explorer interface to system resources. It also adds a Mac-Format option to the contextual menu when you right-click on a drive icon.

You can also set whether the PC or the Mac portion of dual-format CDs mounts and whether DOS file extensions are added or removed as files are moved from PC to Mac media and back. Once the utility is installed, you can use Mac disks on a PC as if they were native PC disks, and soon you'll forget you have the program. That's how seamless it is.

MacDrive 98 2.1 offers the same integration into Windows. Unlike MacOpener, however, MacDrive does not support Windows 3.1. But it has several nice utilities that MacOpener does not.

For example, it can identify Mac files' creator and file types, which is handy when you are trying to update the extension maps in Mac-disk–mounting software, in cross-platform networking software, or in the Mac OS's PC Exchange. Another handy utility lets you copy Mac disks from your PC's drives.

On Media4's Web site you'll find several utilities that remap special symbols between Mac and PC files to correspond to the different locations where these symbols occur in Mac and PC font files.

Except for these small differences, the two programs are the same, and the nominal price difference doesn't argue for one over the other. Basically, the two programs are incredibly similar: The extra utilities in MacDrive give you more options, but if you use Windows 3.1, you should go with MacOpener.

### Conversions Plus

The newest version of DataViz's Conversions Plus is not a major upgrade. It adds Microsoft Office 98 for Mac file formats to its translation list of word processing, database, spreadsheet, and graphics formats; integrates into Microsoft's Outlook 98 e-mail manager; and has the nifty Attachment Opener, which decodes various compression formats (MIME, UUencode, and BinHex) popular for Web and e-mail files.

However, most people on both platforms are using Microsoft Office, and most modern programs import from and export to competing formats. Programs with Mac and PC versions almost always read each other's files without translation.

If you deal with people who use outdated formats such as WordStar, you'll want Conversions Plus, but otherwise, consider if you can handle translations with your current programs' import/export options.

The Attachment Opener utility may be appealing, since there are still occasional mismatches between browsers, mail clients, and compression utilities (such as StuffIt and WinZip) that require manual decoding of file attachments.

### Macworld's Buying Advice

You can't go wrong with MacDrive or MacOpener, but avoid Conversions Plus unless you really need it.—GALEN GRUMAN

#### Conversions Plus 4.5

**RATING:** ★★★★ **PROS:** Integrates into Windows 3.1, 95, 98, and NT 4 menus and dialog boxes; supports HFS+ from Mac OS 8.1 and 8.5; offers handy file-format translation for files and Web attachments. **CONS:** File conversion is not needed for most modern formats. **COMPANY:** DataViz (203/268-0030, www.dataviz.com). **COMPANY'S ESTIMATED PRICE:** $99.

#### MacOpener 4.0

**RATING:** ★★★★½ **PROS:** Integrates into Windows 3.1, 95, 98, and NT 4 menus and dialog boxes; supports HFS+ from Mac OS 8.1 and 8.5. **CONS:** Offers nothing beyond the essentials. **COMPANY:** DataViz (203/268-0030, www.dataviz.com). **COMPANY'S ESTIMATED PRICE:** $60.

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# Vpower PM 4400 G3/240

GAIN SPEED FROM EASY UPGRADE

WHEN APPLE COMPUTER waved good-bye to the clones, it left behind a legacy of Macs with sketchy upgrade options. Now owners of the Power Macintosh 4400; the Motorola StarMax series; and clones from APS, Mactell, and PowerTools can beef up their machines with a Vimage Vpower PM 4400 G3/240 upgrade card.

GIBSON

The Vpower PM4400 G3/240, a 240MHz CPU with a 512K Level 2 cache, installs in the cache slot of the 4400, replacing any existing cache module. Since these Macs represent a generation of machines that didn't house the CPU on a daughtercard, Vimage created an upgrade card for the cache slot. Unlike other G3 upgrade cards, the Vimage card doesn't have any software controls for tweaking the cache-to-bus ratio. The card also lacks hardware switches—it operates at a fixed frequency.

### Stability and Simplicity

Macworld Lab tested the Vpower card in a Power Mac 4400, and based on the results, other models using Apple's Tanzania architecture should work equally well (see "Vpower Resurrects Old Macs"). MacBench 5.0 and SpeedMark tests indicated a twofold improvement over running without the card. But the card's slower, 40MHz bus somewhat hampered performance against that of the 66MHz system bus of the 233MHz G3 Power Mac.

The real speed gain was confirmed in informal real-world tests. In Adobe Photoshop, the upgraded Mac gained about 25 percent over the unaccelerated machine and was up to 63 percent faster in some image-processing tasks. For more speed, check out the $999, 300MHz version of the Vpower card, with a 1MB Level 2 cache.

### Macworld's Buying Advice

The Vpower PM4400 is a stable upgrade. Keep in mind, though, Apple's statement that third-party upgrade cards will not be officially supported under Mac OS X. It will be the card manufacturers' responsibility to provide any necessary fixes.—JEFFY MILSTEAD

**RATING:** ♦♦♦♦ **PROS:** Easy installation; hefty speed boost. **CONS:** Slower than the 233MHz Power Mac G3. **COMPANY:** Vimage (310/225-3979, www.vimagestore.com). **LIST PRICE:** $549.

Macworld LAB TEST

## Vpower Resurrects Old Macs

**Best results in red.** *Reference systems in italics.* **SpeedMark scores are relative to that of a Power Mac 7100/80, which is assigned a score of 1.0. MacBench 5.0 scores are relative to those of a Power Mac G3/300, which is assigned a score of 1,000 in each test.**

| | SPEEDMARK | MACBENCH 5.0 | | |
|---|---|---|---|---|
| | Overall Performance | Processor | Disk | Graphics |
| Apple Power Macintosh 4400 with Vpower PM 4400 G3/240 | 3.8 | 698 | 618 | 949 |
| *Apple Power Macintosh 4400* | *2.0* | *337* | *521* | *681* |
| *Apple Power Macintosh G3/233* | *4.0* | *732* | *611* | *1,291* |

*Longer bars are better.*

### Behind Our Tests

The tested systems, running Mac OS 8.1, were set to 832-by-624-pixel resolution and had a 512K system disk cache. The systems had 64MB of RAM, except the Power Macintosh G3/233, which had 32MB of RAM. For SpeedMark tests, displays were set to 16-bit color. For MacBench testing, all systems were set to 24-bit color.—**Macworld Lab testing supervised by Kristina DeNike**

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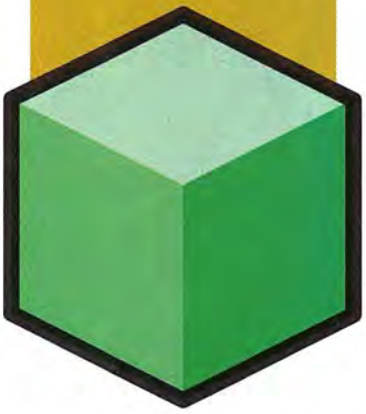

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# LinkUPPP Turbo 3.0

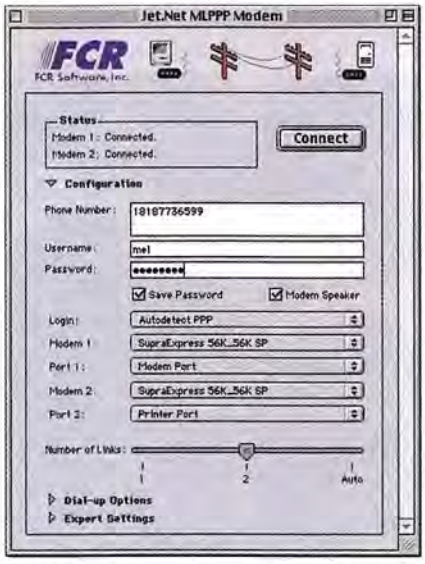
DOUBLE THE SPEED WITH TWO MODEMS

THE RECENT DEVELOPMENT OF Multilink Point-to-Point Protocol (MLPPP) created a flurry of network adapters that increase bandwidth by letting you connect two or more modems in parallel. But these devices cost a few hundred dollars, plus the price of extra modems. Thankfully, FCR's LinkUPPP Turbo 3.0.2 can do the same thing without the extra cost. This software kit achieves up to 112-Kbps throughput by letting you combine the speed of two 56-Kbps modems.

LinkUPPP Turbo installs easily with a downloadable installer application that places the LinkUPPP control panel, an MLPPP extension, and electronic documentation on your hard disk. The installer thoughtfully removes any prior PPP dialers to prevent troublesome interactions. LinkUPPP Turbo inherits the extensive functionality of its previous incarnation: AppleTalk and TCP/IP support, a huge library of modem and log-in scripts (including ones for iMacs and 56-Kbps modems), and detailed diagnostics. Its elegant user interface simplifies basic configuration while providing access to advanced features, such as autodialing, redial on busy, and dynamic bandwidth expansion. Once a connection is running, you can open various status windows to display throughput and diagnostic information.

Before you connect to an Internet service provider or other remote-access server that supports MLPPP, make sure the remote service to which you connect has MLPPP enabled. LinkUPPP can dial up both connections immediately, or initially dial up one and add the second only if you need to speed remote access.

Unlike some stand-alone multimodem implementations, such as Ramp Networks' WebRamp M3I Plus, LinkUPPP Turbo doesn't depend on multiple TCP/IP data streams to achieve its rated 112-Kbps throughput. In tests, LinkUPPP Turbo hit this number consistently even with individual file transfers.




**Double Your Fun** LinkUPPP Turbo includes dual-modem support, letting you combine the bandwidth of two modems.

**Macworld's Buying Advice** LinkUPPP Turbo's elegant user interface, extensive modem support, AppleTalk support, detailed diagnostics, and dual-modem capability make it the king of native Macintosh remote access. And AppleTalk support means that you can access all of your home network's resources remotely. If you need to connect a single Mac to your network or the Internet at higher-than-modem speeds, LinkUPPP Turbo is your best bet.—MEL BECKMAN

**RATING:** ★★★★★ **PROS:** Bonds two modem connections; inexpensive; AppleTalk support; extensive diagnostics. **CONS:** None. **COMPANY:** FCR Software (617/494-1300, www.fcr.com). **LIST PRICE:** $59 (multiuser pricing available).

# VivoActive VideoNow 3.0

FRIENDLY, INEXPENSIVE UTILITY CREATES STREAMING-MEDIA FILES

WHEN REALNETWORKS ACquired Vivo Software, in March 1998, it looked like the latter's VivoActive streaming-media technology might go the way of the Betamax. Fortunately, RealNetworks is continuing to develop compression tools for the VivoActive format. The latest is VivoActive VideoNow 3.0. Like its predecessor, VivoActive Producer 2.0, VideoNow 3.0 is a breeze to use: select the QuickTime movie you want to convert to VivoActive format, specify the target delivery speed, and click on a button.

The VivoActive streaming-media technology isn't as sophisticated as RealNetworks' RealMedia or Microsoft's NetShow, but it has the advantage of simplicity. Rather than grappling with dedicated server software, you can dish out VivoActive clips by using the same HTTP server that handles your Web pages. You can also do this with RealMedia clips, but VivoActive's superior HTTP streaming uses network bandwidth more efficiently.

VideoNow 3.0 provides a wide variety of presets for common connection speeds and quality settings (see "Video Crunch"). You can customize these presets and create new ones, and you can apply multiple presets (for example, to create clips for different connection speeds) to a single movie.

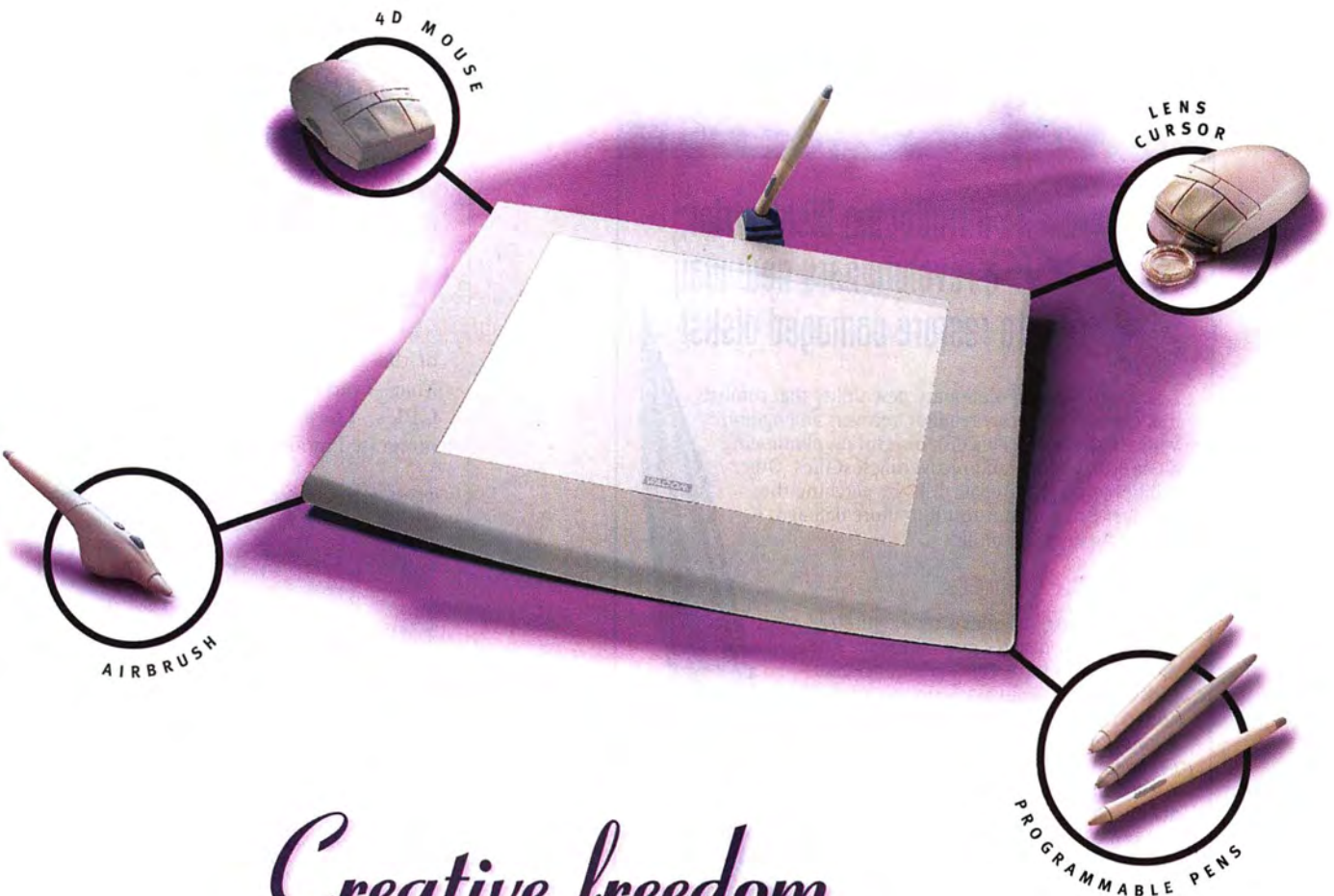
VideoNow 3.0 isn't just a one-trick pony. It's the only Mac program that can compress clips for the ASF format, used by NetShow. It can also create QuickTime 3 reference movies, one of which can refer to multiple movie files, each compressed for a specific connection speed.

But VideoNow 3.0 doesn't support reference movies as well as Terran Interactive's Media Cleaner Pro 3.0 does (see *Reviews*, November 1998). You can't, for example, specify that one alternative movie plays on Macs while another plays on Windows. VideoNow also lacks Media Cleaner Pro's broad array of quality-optimizing features. But VideoNow costs just $49, versus Media Cleaner Pro's $359.

**Video Crunch** VideoNow's simple, single-window interface displays before and after views of a movie as it's being compressed.

**Macworld's Buying Advice** VivoActive doesn't have the quality or bells and whistles of RealMedia and NetShow, but it's refreshingly straightforward. VideoNow's low price and its support for NetShow and QuickTime 3 reference movies make it a versatile tool for producing basic streaming-audio and -video content.—JIM HEID

**RATING:** ★★★½ **PROS:** Inexpensive; straightforward. **CONS:** Quality inferior to that of RealMedia and NetShow; reference-movie support is limited. **COMPANY:** RealNetworks (206/674-2700, www.real.com). **LIST PRICE:** $49.

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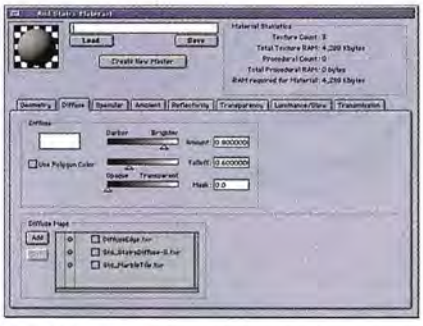
# ElectricImage 2.8

INDUSTRIAL-STRENGTH 3-D GRAPHICS TOOL, EVEN WITHOUT MODELER

WITH A VAST NUMBER OF major motion-picture and broadcast special effects to its credit, ElectricImage has established itself as the state-of-the-art 3-D graphics program for the Mac—even if it does cost more than most CPUs. The latest version still lacks an integrated modeler, but with version 2.8's new features and tweaks of existing ones, ElectricImage remains the best Mac-based rendering and animation tool for production professionals.



**New in Your Face** ElectricImage 2.8 has a significantly overhauled interface, including a much improved Materials Editor.

### Relief in Changes

The ElectricImage interface's many improvements will be welcome to long-time users. For example, the new Selection Set feature lets you group subsets of object parameters, a critical addition for managing scenes with large numbers of objects and textures. Grouped objects can now have *bones* that allow you to deform them, an important feature for making characters walk and move.

You get two flavors of morphing. One requires the source and target objects to have the identical polygon and vertex count. The more-powerful and -flexible multitarget polygon morphing lets you select subgroups of polygons for morphing, a crucial feature for facial animation.

ElectricImage's animation controls still define the standard for Mac-based 3-D graphics and include a new Function Curve Editor, which delivers extremely fine control over advanced keyframe and animation parameters.

Texture handling has received per-

haps the most attention in this upgrade, bringing it up to truly professional standards. You can apply an unlimited number of texture maps per object; advanced texture caching handles memory overflows that would plague lesser rendering environments. Displacement mapping allows an imported gray-scale image to distort an object's shape, yielding amazing special effects. For example, you can animate the displacement amount to have one shape "grow" out of another. (Displacement mapping is different from bump mapping, which adds the appearance of surface deformations without changing the object's geometry.)

The texture-map interface has been overhauled and is much more straightforward than in previous versions. New procedural textures—such as woods, stones, and rust—are a welcome addition, but they still pale in comparison with those found in MetaCreations' Bryce 3D. However, ElectricImage cannot preview texture maps in its working windows. The program does not support OpenGL or QuickDraw 3D, either of which would permit limited texture previews.

Rendering has been speeded up, although by how much varies, depending on polygon counts, volumetric lights, and texture settings. A new depth-of-field capability adds to realism by automatically applying specific levels of blurring as objects recede from the camera.

ElectricImage is available in separate editions for film and broadcast production. The broadcast edition is limited to supporting video resolutions; the film version supports the higher resolutions used in motion pictures.

### Macworld's Buying Advice

If you bill serious dollars for rendering and animation work, ElectricImage can pay for itself in a professional production environment. It's not for the casual 3-D artist, but those who need the power of ElectricImage know who they are and will definitely want this upgrade.—DAVID BIEDNY

**RATING:** ♦♦♦♦ **PROS:** Fast, high-quality rendering; excellent texture controls; robust file-format support. **CONS:** No modeler; no texture-map previews in scene views; high price. **COMPANY:** Electric Image (626/577-1627, www.electricimage.com). **COMPANY'S ESTIMATED PRICE:** Broadcast version, $2,995; film version, $7,495.

# Frontier 5.1

CONTENT-MANAGEMENT AND SCRIPTING TOOL STILL TEETHING

USERLAND SOFTWARE'S FRONTIER started out as a scripting language, an alternative to AppleScript. Now, in version 5.1.4, Frontier has been reborn as a Web-content–management system. Frontier still houses the scripting language but also includes a lightweight Web server and numerous other features that can make it a Web-content repository, Web-site development environment, or Web-server back end.

### It Slices, It Dices

For those familiar with previous versions of Frontier, version 5.1.4 is a relatively straightforward upgrade. But newcomers may find Frontier's capabilities both powerful and unwieldy.

At the core of Frontier 5.1.4 are the object-database engine and the main database file, Frontier.root. Because storing all data in a single database can lead to corruption, Frontier 5.1.4 introduces the capacity for guest databases, allowing ancillary content databases separate from Frontier .root. This welcome addition drastically reduces the likelihood of crippling database mishaps.

### Web Identity

Frontier's new Web-centric identity comes from the concatenation of the system's different capabilities. The database engine stores and delivers Web-site content, and the scripting language drives the Web-related features. Once a site is ready to go live, Frontier "renders" it, saving the pages that make up the site into static files. Alternatively, Frontier's integrated lightweight Web server can deliver some or all pages—often generated on the fly via UserTalk scripts—dynamically. Be warned, though: the built-in server is not intended for heavy loads.

Since many of Frontier 5.1.4's Web features are implemented as scripts and attendant data, referred to as "suites," it's easy to change and customize much of Frontier's functionality. Both UserLand and users can modify standard behaviors or post updates.

### No Compass

Frontier 5.1.4's most prominent fault is a lack of coherent documentation. You simply download the product from UserLand's site. The software is accompanied only by a basic tutorial that refers to online resources for further information. Although there is, indeed, a great deal of information available online, it's woefully disorganized. For a new user, this can be a major setback.

If Frontier 5.1.4 were still a freeware product, many of these gripes wouldn't be an issue; the Linux community is a perfect example of how an organic support structure works with ad hoc documentation.

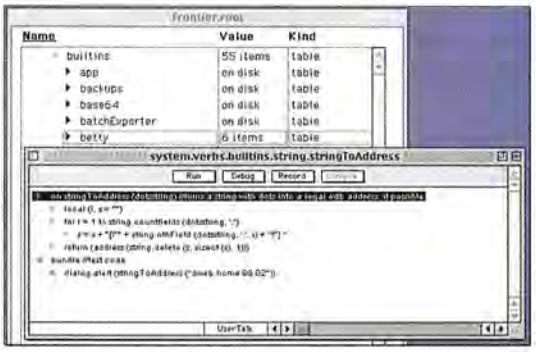



**Table Talk** Frontier's interface displays all its data—formatted text, UserTalk scripts, and stored Web pages—as a collection of tables and hierarchical outlines.

Frontier's abrupt transition from freeware to commercial software—with little change other than bug-fixes—appears premature. Currently, Frontier's price tags aren't justified by the quality of the initial commercial release or by the resources and support UserLand provides.

### Macworld's Buying Advice

Frontier 5.1.4 provides an undeniably unique and powerful set of features. However, the transition from freeware to a commercial product was too hasty; new users are more likely to feel overwhelmed by the product's breadth and depth than invited in to explore.—STEPHAN SOMOGYI

**RATING:** ♦♦♦ **PROS:** Comprehensive, highly integrated set of Web capabilities; ongoing, aggressive development. **CONS:** E-mail–based support only; insufficient documentation; high price. **COMPANY:** UserLand Software (fax only: 650/685-0867, www.userland.com). **LIST PRICE:** Noncommercial license, $299 per year; commercial license, $899 per year.

# Profiler 1.1

LOW-COST PROFILING TOOL DELIVERS

ONE OF THE MAIN ROADBLOCKS to the widespread adoption of ColorSync and other ICC (International Color Consortium)–compatible color-management systems is the difficulty and expense of building profiles for output devices. Delta E's affordable Profiler 1.1 may help break that logjam. Other low-cost tools exist, but they require you to measure hundreds or thousands of color patches in order to build a profile. Profiler is special in that the program requires only 18 measurements, making it usable with relatively inexpensive handheld instruments.

The profiling process is quite simple: with all color management turned off, print the calibration target containing the 18 patches. Then measure the patches—the software provides audible feedback when each measurement is complete and automatically advances to the next patch for measurement. Once the measurements are complete, Profiler prompts you to save a Delta E profile, which the program uses as the basis for creating ColorSync profiles and Adobe Photoshop separation tables. To build the full set of profiles, simply click on the Build Profiles button—the rest is automatic. On a 300MHz Power Mac G3, Profiler takes around 4 minutes to build all the profiles. So the entire process, from printing the target to producing the profiles, can be accomplished in around 15 minutes.

**Less to Add** Delta E's Profiler 1.1 sets itself apart by requiring fewer measurements than other low-cost device profilers.

When we printed to a Minolta CF-900 color laser copier and a Hewlett-Packard DeskJet 697C ink-jet printer—which use halftone dots—the profiles produced good results. But the results were subpar when we tested profiles on two continuous-tone printers, the NewGen Chromax Pro and the Fuji Pictrography 4000. This isn't a crippling constraint, by any means, since most printers used in graphic arts are based on halftone processes.

Profiler lets you open images and view printer simulations. The Blend control lets you view the different rendering intents built into the profiles. But although you can view intermediate stages among the intents, you can't change what gets built into the profile.

The Gray Adjustment feature lets you shift the hue of your neutral tints by a variable amount. It's hard to use, because you can't preview the effect on screen—it shows up only in the final print. We recommend using this sparingly, if at all.

**Macworld's Buying Advice** Profiler 1.1 is probably best suited to working with color copiers, which are notorious for drifting. It's faster to reprofile most color copiers with Profiler than it is to relinearize them with the vendor-supplied calibration tools. Profiler also seems to work well with ink-jet printers. Despite its limitations, Profiler is an affordable, stable product that shows a great deal of promise for the future.—BRUCE FRASER

**RATING:** ♦♦♦♦ **PROS:** Inexpensive; easy to use; supports most low-cost measuring devices. **CONS:** Fails on some processes; lacks profile-tuning tools. **COMPANY:** Delta E (510/237-5577, www.Delta-e.com). **LIST PRICE:** $399.

# Natural Scene Designer 2.0

CLUNKY INTERFACE MARS 3-D–TERRAIN GENERATOR

NATURAL SCENE DESIGNER 2.0 is a 3-D–rendering and –animation program with a specialized mission: creating photo-realistic nature scenes. As such, it draws inevitable comparisons to MetaCreations' Bryce 3D. But although Natural Scene Designer has a few features you won't find elsewhere, its clunky interface makes it a tough sell.

Producing a landscape is a straightforward affair. Create or import a terrain; define its surface features as a combination of snow, rock, vegetation, or soil; choose from a variety of light, sky, and water settings; and then add objects, such as trees, bushes, rocks, or imported models. Once you've set up the scene, you can render a still image, a QuickTime animation, or a panorama ready for conversion to a QuickTime VR movie.

One of the program's strongest features is its ability to import 3-D landscapes from the U.S. Geological Survey (USGS). You can also create terrains by using a built-in fractal landscape generator or by importing gray-scale PICT images.

Once you've created a terrain, you can add a variety of objects: spheres, blocks, cones, and cylinders. The program provides limited options for choosing object surfaces, but you can also import textured objects in the QuickDraw 3D 3DMF format.

**Restricted View** Natural Scene Designer 2.0 provides only two views of your scene.

Besides producing primitive objects, the program designs trees, bushes, rocks, and lakes. When rendered, the trees look reasonably realistic except for a lack of detail in individual leaves. The program also includes a fast ray-tracing engine for rendering still images or animations. Unfortunately, it's hobbled by an interface more appropriate to shareware.

Natural Scene Designer gives you only two views: a camera view and a view of the terrain from above—and only the camera view lets you see an object from different sides. For this reason, you'll want to use the camera view to build most of your scene, which means you'll be continually moving the camera through the landscape rather than leaving it in the spot you want to photograph.

The program also relies on numeric fields for positioning the camera and objects. Sure, you can move and resize objects within the camera view, but if you want any precision, you need to enter numbers in an Object Properties dialog box. To add to the hassle, the program comes with a hardware lock.

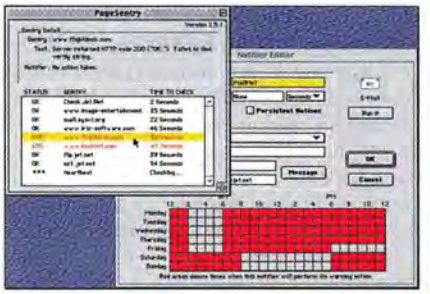
**Macworld's Buying Advice** Natural Scene Designer 2.0 has some attractive features, but with its poorly designed interface and limited options, it falls far short of its similarly priced competition, Bryce 3D.—STEPHEN BEALE

**RATING:** ♦♦ **PROS:** Fast ray tracing; imports USGS terrain models. **CONS:** Clunky interface; limited generation; hardware lock. **COMPANY:** Natural Graphics (916/624-1436, www.naturalgfx.com). **COMPANY'S ESTIMATED PRICE:** $299.

# PageSentry 2.5

PRICEY MONITORING UTILITY GUARDS WELL

WEBMASTERS OFTEN RELY ON customer complaints to tell them that the company home page is off the air. Maxum's PageSentry 2.5 watches your servers for you—from your office or from across the Internet—automatically notifying you by e-mail or alpha page when problems arise.



**Watchful Eye** PageSentry monitors multiple TCP/IP servers simultaneously and generates multiple notifications when servers go off- and online.

PageSentry is a small application that can run in the background of any Internet-connected Macintosh. It comes with a well-written user guide, online documentation, and some sample AppleScripts for use with pagers or remote power-control devices. You configure a list of probes—called sentries—that periodically test specific protocols on specified servers, and a list of people to notify by either e-mail, pager, or Apple event. PageSentry then quietly checks your servers for proper operation, emitting notifications when servers become unreachable or respond incorrectly, and then when they return to normal operation. A handy status display lets you see problems at a glance.

The program includes numerous perks. For example, you can probe servers using HTTP, FTP, SMTP, Telnet, AppleShare IP, DNS, and arbitrary TCP/IP streams and configure multiple notification techniques—e-mail, alpha paging, or AppleScript. Included are AppleScripts for Mark/Space Softworks' PageNow, Ex Machina's Notify, and Sophisticated Circuits' PowerKey Pro. The PowerKey AppleScript lets you automatically reboot a nearby server when PageNow finds it unresponsive. You can schedule and customize notifications to occur only during certain time periods, to automatically repeat, and to wait a predetermined interval before sounding the alarm. These features combine to make PageSentry easy to configure for even complex monitoring chores.

PageSentry has no obvious technical faults, and the affordable entry-level package lets you configure up to ten sentries and ten notifiers. Alas, the next-larger PageSentry package costs nearly three times as much, entering the range of full-fledged network monitors. However, although PageSentry performs some of the functions of a full-blown network monitor, its feature set is not as complete.

**Macworld's Buying Advice** If you're monitoring just a few services on two or three servers, you won't go wrong with PageSentry's attractive price and good performance. However, if you need to monitor numerous services on several servers, you may want to consider spending a little more for a full-fledged network-monitoring tool, which can also report on performance over time in addition to performing other high-end functions.—MEL BECKMAN

**RATING:** ★★★½ **PROS:** Multiple protocol support; scheduled notifications; periodic status summary; AppleScript support. **CONS:** Expensive for more than ten sentries. **COMPANY:** Maxum Development (630/830-1113, www.maxum.com). **LIST PRICE:** $149 for 10 sentries and notifiers; $395 for 100 sentries and notifiers.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# ReBirth RB-338 2.0

CLASSIC RHYTHM SYNTHS IN SOFTWARE

WHAT'S OLD IS NEW AGAIN. Just ask the folks at Volkswagen or fans of analog synthesizers. Those old instruments that musicians gladly abandoned are now considered classics and are highly prized. And just like the new Beetle, these instruments are beginning to reappear, in this case as software. One such creation is ReBirth RB-338 2.0, from Propellerhead Software (marketed by Steinberg), an application that mimics three of Roland's venerable rhythm synths: the TR-808 and TR-909 drum machines and the TB-303 bass module.

Granted, those model numbers probably mean bupkis to you. The sounds are familiar, though—just think of the drum machine in Phil Collins's "In the Air Tonight" or the bass and drum tracks in any of today's "house" dance mixes. ReBirth is a remarkably convincing imitation of Roland's rhythm boxes. Not only are the sounds virtually indistinguishable from those of the original but the software versions also look, and for the most part operate, just like the Roland machines.

As with its analog counterparts, you develop ReBirth songs—by creating and stringing together a series of short drum and bass patterns—the old-fashioned way. On the TR-808 and TR-909, you select a tempo, start recording, and assign different drum sounds to buttons that represent 16 sixteenth notes. For example, to create a *boom-chick-boom-chick* bass and snare pattern, you assign the bass drum to buttons 1 and 9 and the snare to buttons 5 and 13. The two TB-303's can also be programmed in this manner or by step-recording—assigning a pitch to a sixteenth note, clicking on the Step button, and then assigning the next pitch to the next sixteenth note. This process so closely mimics the old ways that it may seem tedious to those accustomed to creating riffs with modern MIDI sequencers.

**Flashback** ReBirth provides digital versions of old rhythm synthesizers that would otherwise cost a small fortune.

While remaining faithful to the sound and design of the original machines, ReBirth adds several modern-day goodies. For instance, in Song mode, you can twiddle any of ReBirth's many tone controls in real time and record that twiddling—change a sound's tuning and resonance over time, for example. And using an included program called ModPacker, you can plug your own sounds into ReBirth as well as create a custom interface. You can also export your ReBirth tunes as AIFF or WAV files.

**Macworld's Buying Advice** ReBirth is an outstanding achievement, both aurally and visually. Modern musicians who missed out on the analog years and are interested in the sounds of yore should give ReBirth a long look and listen. And if you're like me and tossed the analog gear ages ago, maybe you're ready for the sound to be reborn.

—CHRISTOPHER BREEN

**RATING:** ♦♦♦♦ **PROS:** Sounds and operates like the real thing; customizable. **CONS:** Not much easier to program than the real thing. **COMPANY:** Steinberg (818/993-4161, www.steinberg.net). **LIST PRICE:** $199.


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**The Problem**

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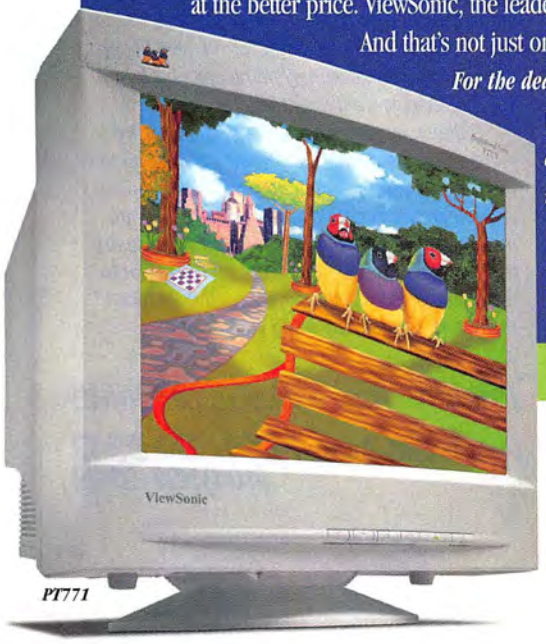


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# Mars Rising

1980s-STYLE SHOOT-'EM-UP SCORES BIG

PERHAPS AMBROSIA SOFTWARE should consider a name change—something along the lines of Children of Galaga or Old Skool Software. No other company has gotten so much mileage out of renovating mid-1980s arcade hits. Mars Rising is the latest installment in the series, and while it riffs on a familiar theme, the entertaining shoot-'em-up proves that sometimes it ain't the song; it's the way you sing it.

Mars Rising needs a back story about as much as a Steven Seagal movie needs a plot. But for all you arcade rats moonlighting as method actors, here's an explanation for the game's mayhem: Martian rebels (or patriots) have attacked and destroyed nearly all Terran military forces on Mars and in Martian airspace. You must counterattack, using the advanced Terran Vac-Fighter to destroy the Martian Defense Forces on the ground and in the air.

With your conscience soothed (or with dreams of conquest stoked), you are dropped into the cockpit of a fighter-bomber winging over a two-dimensional landscape that scrolls at a constant rate from the top to the bottom of the screen. Your mission: as you fly, gun down incoming aerial enemies and drop bombs on ground targets. Completely destroying a squadron of airborne baddies nets you either a star (which converts to points at the end of the level) or a power-up. Power-ups enhance your ship's capabilities in many ways, including increasing your shield capacity and increasing the number of bombs or bullets you fire per salvo. It's possible to fly for a while without this assistance, but power-ups are essential to surviving later levels.

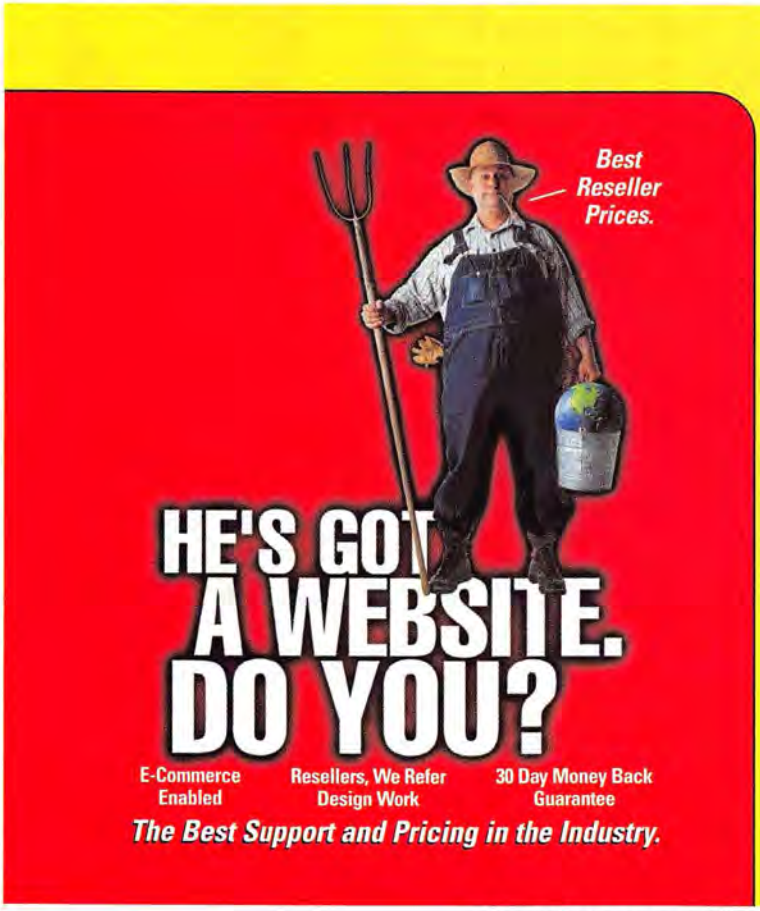
**Pay Attention** If the Martian Defense Forces catch you napping, they'll eat you alive.

Brightly colored and vaguely cartoonish, Mars Rising's graphics could have been lifted from a stand-up arcade machine. The busy, constantly changing landscape and tendency for enemy forces to explode messily make it difficult to identify live threats and incoming fire, but that's the price you pay for the game's fast and furious pace. Ambrosia backs the carnage with thumping techno soundtracks and plenty of sound effects to help you sort out the action.

Play Mars Rising solo or with a friend, in which case you compete for points and power-ups. Two-player action must take place on a single machine, as Mars Rising has no provision for network play. You can control your vehicle with the keyboard or mouse, but if you plan to spend much time with Mars Rising, find a good joystick or game pad.

**Macworld's Buying Advice** Mars Rising is good, old-fashioned, finger-cramping, put-your-brain-on-hold fun. Playing Mars Rising is like being back in the arcade—except you've still got your quarters when you're done.—CAMERON CROTTY

**RATING:** ♦♦♦♦ **PROS:** Fast action; great graphics; finger-twitching fun. **CONS:** Occasionally difficult to see what you're shooting. **COMPANY:** Ambrosia Software (716/325-1910, www.ambrosiasw.com). **LIST PRICE:** $20.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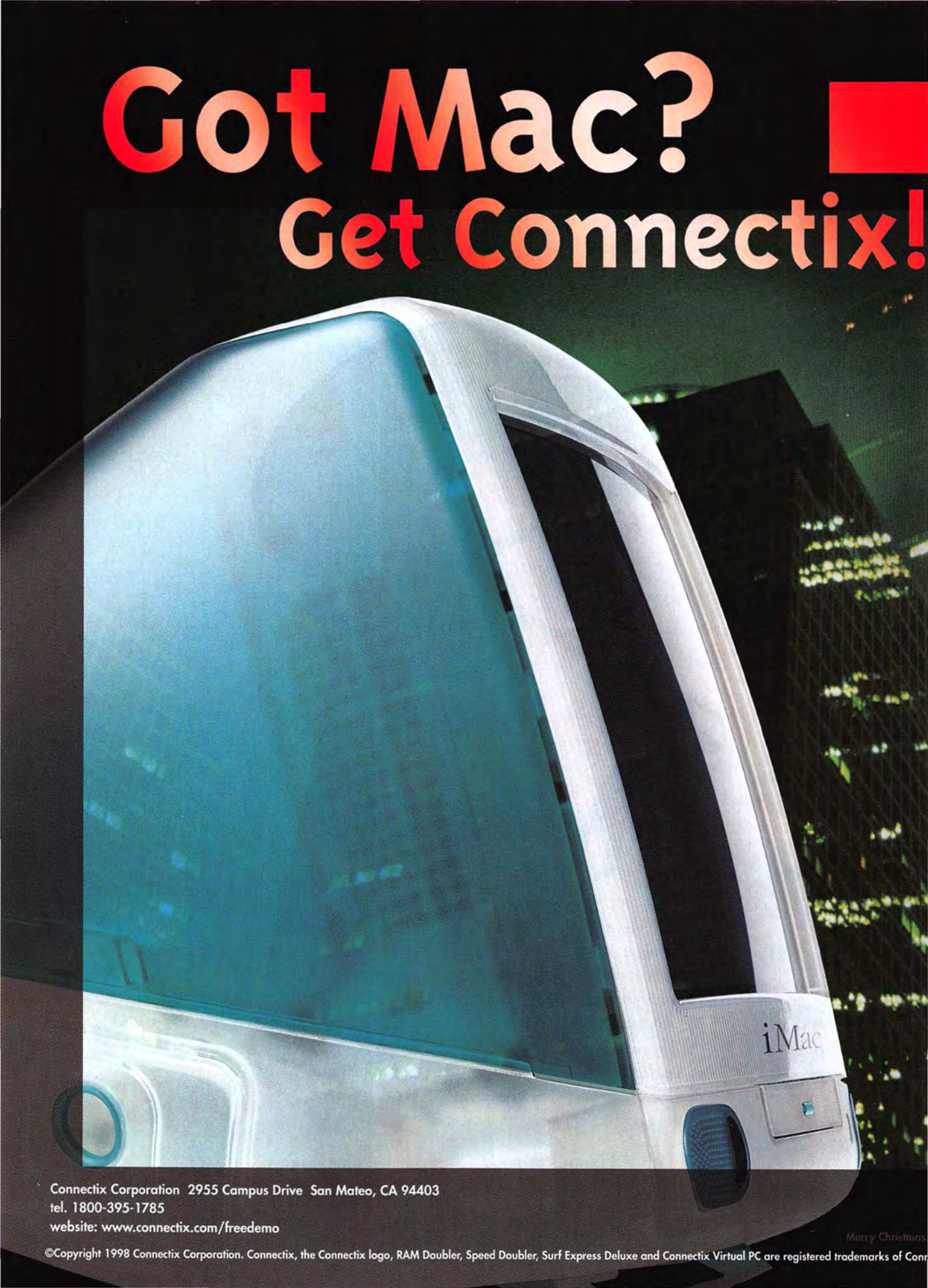
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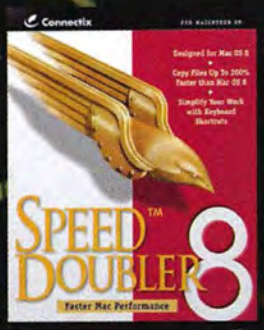


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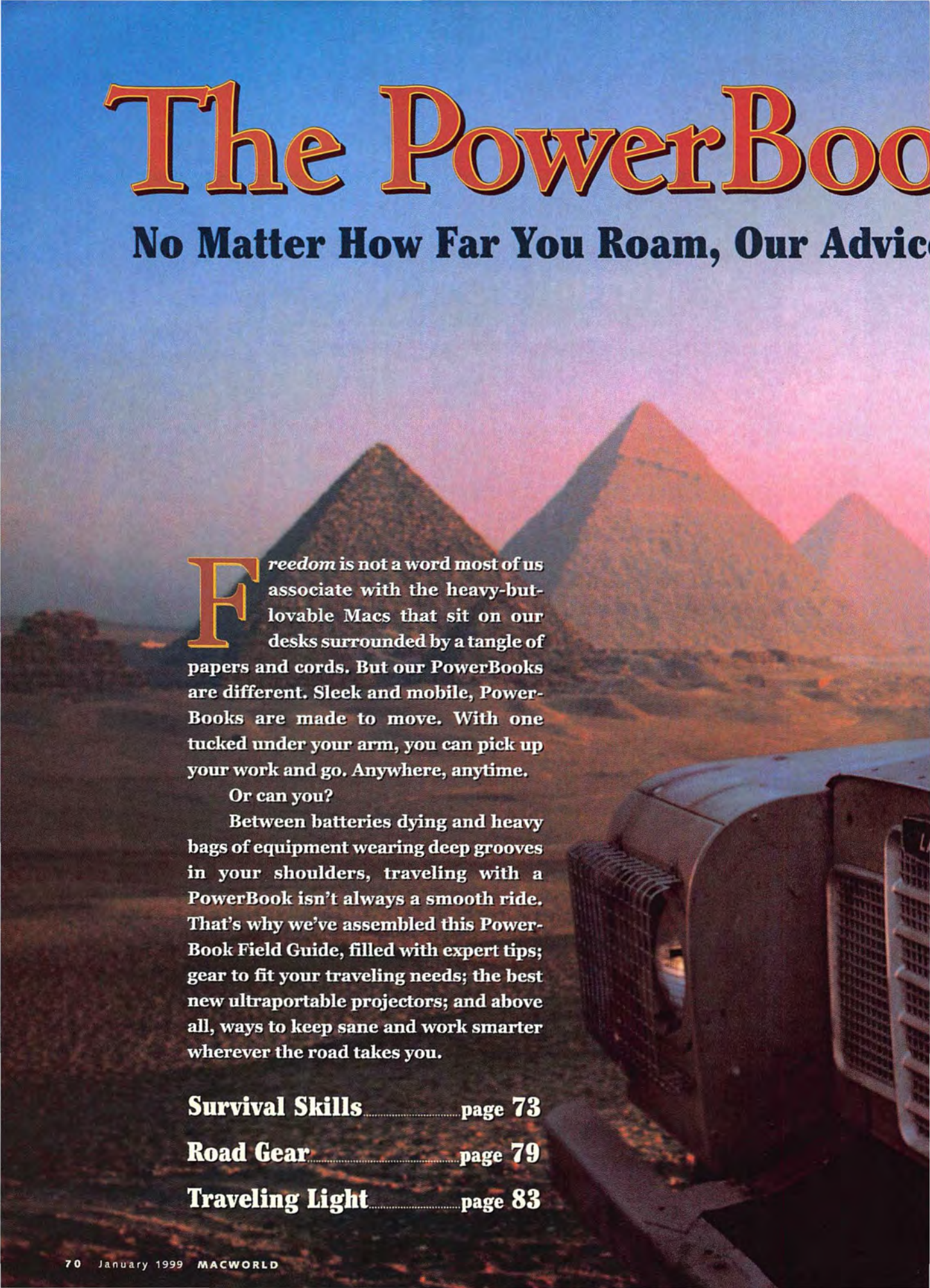

*Freedom* is not a word most of us associate with the heavy-but-lovable Macs that sit on our desks surrounded by a tangle of papers and cords. But our PowerBooks are different. Sleek and mobile, PowerBooks are made to move. With one tucked under your arm, you can pick up your work and go. Anywhere, anytime.

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**Survival Skills** ..... page 73

**Road Gear** ..... page 79

**Traveling Light** ..... page 83

# k Field Guide

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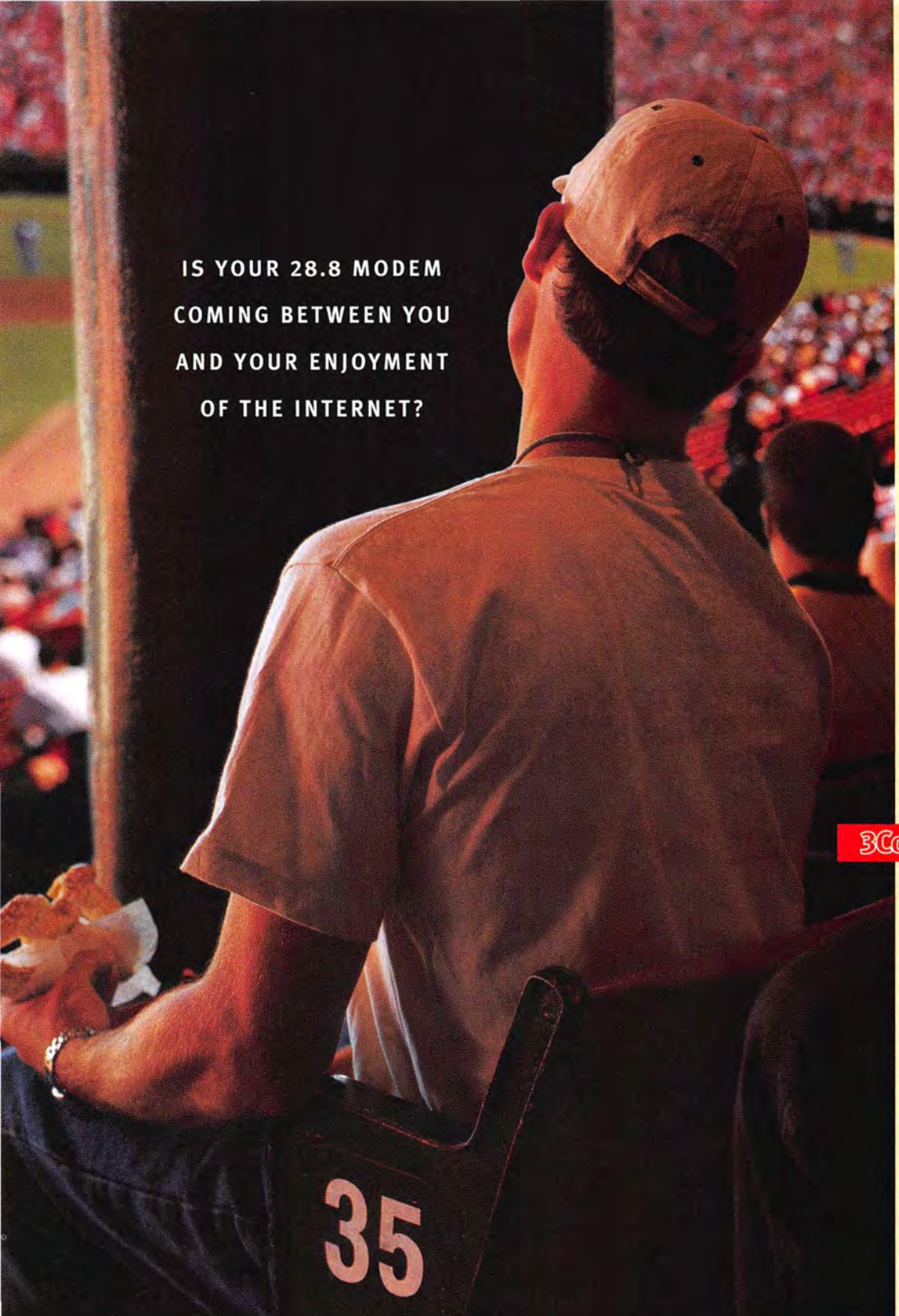
Photographs by Mark Johann

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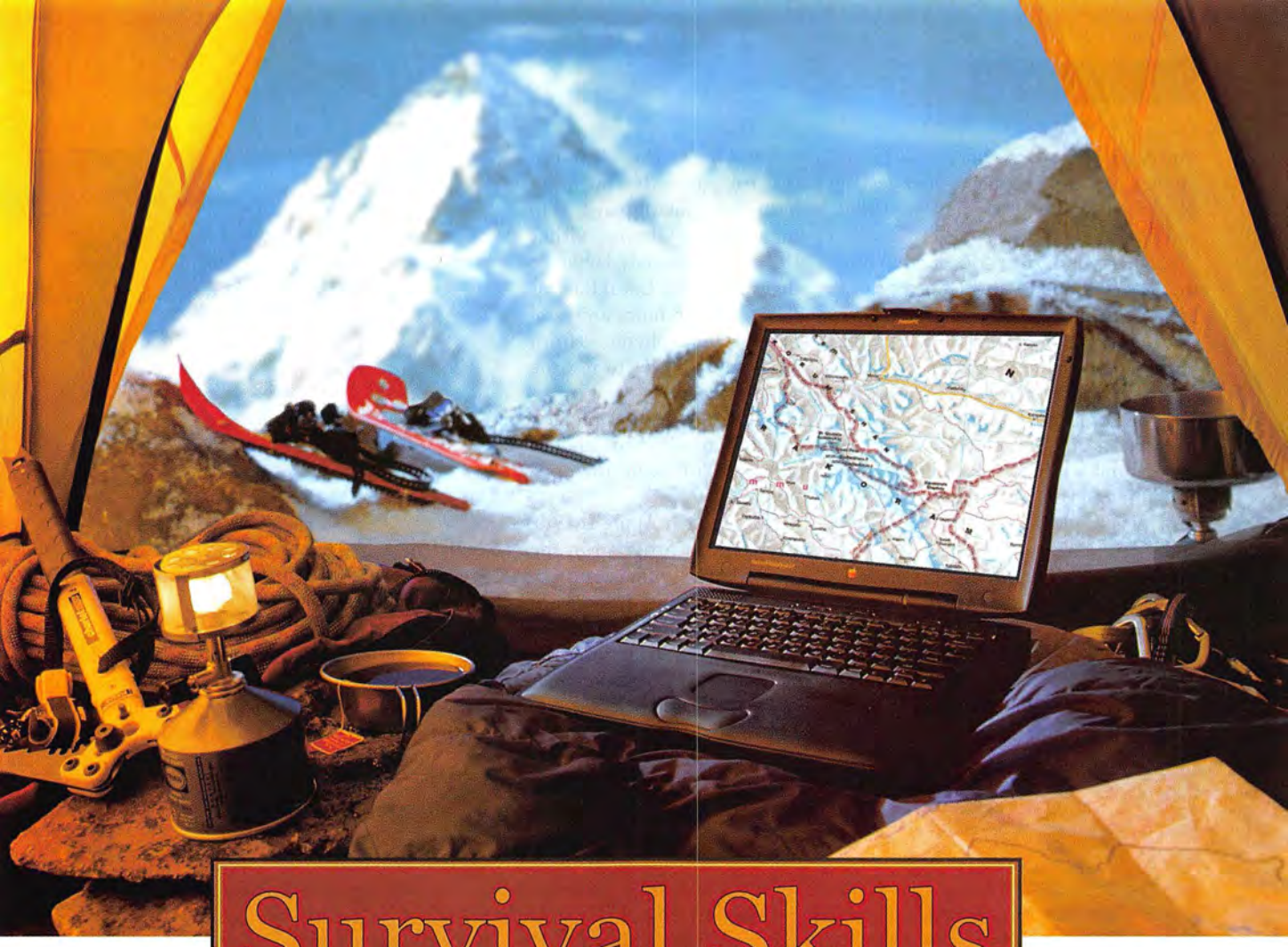


# Survival Skills

## Expert PowerBook Tips for When You're on the Go

BY DAVID POGUE

With their G3 horsepower and gigantic screens, today's Mac laptops bring us closer than ever to the Holy Grail of portable computing: forgetting that we're not using a desktop computer.

Unfortunately, one road trip will burst that bubble in a hurry, as you're quickly mired in low-battery warnings and connection hassles you'd never get with a deskbound Mac.

But don't despair. If you can find room in your bag for *Macworld*'s collection of expert tips and tricks for the mobile Mac user, you'll be able to work in far-off places just as easily as if you were back at the office.

### Pack It Up, Pal

Before heading off to the airport, your first task is to get your important files onto the laptop. You can do so the wired way, the quick way, or the space-age way.

**Perform Instant Network Hookups** It's easy to hook up a PowerBook to another individual Mac: use a standard serial (StyleWriter) cable to create a tiny, Mac-to-Mac LocalTalk network, or an Ethernet crossover cable (about $10) to create a much faster Mac-to-Mac Ethernet connection without needing a hub or router.

**Try Superfast SCSI Transfers** If your files are big or your time is short, on the other hand, put your PowerBook into SCSI Disk Mode, in which your PowerBook impersonates an external hard drive for another Mac.

To set this up, you need a special cable, such as the $30 SCSI Doc from APS Technologies (816/483-2749, www.apstech.com) or the $28 dark-gray HDI-30 SCSI Disk Adapter cable from Apple (800/795-1000, www.apple.com). (Don't confuse it with Apple's light-gray HDI-30 SCSI *System* cable.)

Now open the PowerBook Setup control panel or (on 1998 and later models) the PowerBook SCSI Disk Mode control panel. Specify a SCSI ID for your laptop, 1 through 6, just as though it's going to be a scanner or another SCSI device. Finally,

shut down both Macs, connect the far end of the Disk Adapter cable to your desktop Mac and the near end to your PowerBook, and turn on the PowerBook.

When you turn on the desktop Mac, the PowerBook's hard-drive icon shows up just as though it were an external hard drive. You can drag huge files back and forth, reveling in the speed of the copying.

**Investigate Infrared Beaming** If you're not up for the hassle of dealing with cables and SCSI addresses, try the PowerBook's infrared-beaming feature. The infrared (IR) port, the dark translucent-plastic plate on every PowerBook and iMac, sends and receives files from one Mac to another through the air, without a single cable connection. (You can even retrofit an existing Mac with infrared features by using a $70 Farallon AirDock; 510/814-5000, www.farallon.com.) Setting up your wireless Mac-to-Mac network is remarkably easy.

1. Open the Infrared control panel (if you don't have this control panel, skip to step 2). Choose either IRTalk, a Mac-only language that's a lot like LocalTalk, or IrDA, a faster, more universal networking scheme. (Both Macs must be set to use the same protocol.)

2. Open the AppleTalk control panel and choose Infrared Port from the pop-up menu.

3. Launch Apple IR File Exchange, a program in the Apple Extras folder on every PowerBook and iMac hard drive. Position the two Macs so that their transmitters face each other. Amazingly, any Macs in range show up as "drop-box" folder icons. Now just drag file or folder icons from your desktop onto the icons of the receiving Macs. When the progress bar indicates that the job is done, the recipient should open the Apple IR File Exchange folder. Inside is a

**Securing a Safe Line** **Road Warrior's Modem Saver Plus can keep your modem from getting fried by foreign phone lines.**

## Four Ways to Stay Connected

THE POWERBOOK IS A VITAL TOOL BECAUSE IT KEEPS you in touch with your office and the rest of the world, no matter where you might be. Here are a few tips to help you make the most out of your remote connections—whether you're using your PowerBook in a hotel room or at home.

**1. Upgrade to Mac OS 8.5.** With the latest update to the Mac OS, Apple has finally created great remote-access software. In this release, the PPP and Remote Access control panels have merged to become version 3.1 of the Remote Access control panel. This version lets you dial remote-access servers and Internet service providers with equal ease from the same interface. Better still, you can now connect to the Net—and even choose what number to dial—all from the Control Strip, with no control panels or helper applications necessary.

**2. Get Timbuktu Pro.** Netopia's (510/814-5000, www.netopia.com) remarkable Timbuktu Pro 4.0 software ($190 for a two-user pack) is a must-have tool if you frequently dial in to your office network from a remote location.

With Timbuktu Pro and either a TCP/IP or an AppleTalk connection, you can view the screen of any other Mac that's running Timbuktu. As a result, you can run applications that you didn't install on your PowerBook, search through e-mail you left at the office, and more. But Timbuktu's not just for screen sharing: its file-transfer feature beats the Finder hands down when used over modem lines, making it the ideal tool if you want to grab those files you forgot to bring with you.

If you don't want to leave your computer on all the time (a necessity if you'll be using Timbuktu) but want it to be there when you need it, consider also getting one of Sophisticated Circuits' (425/485-7979, www.sophisticated.com) PowerKey power strips. The $100 PowerKey Pro 200 features two sets of remotely controlled outlets; the $200 PowerKey Pro 600 offers six individually controlled outlets. PowerKeys can be controlled both by computer and via telephone, so you can turn your computers (and other devices) on and off from far, far away.

**3. Bypass Finder copies.** If your file server at work runs AppleShare IP, you may be able to access it via an FTP client such as Dartmouth College's free Fetch (www.dartmouth.edu/pages/softdev/fetch.html), Stairways Software's $35 shareware Anarchie Pro (www.stairways.com), or Peter Li and Vincent Tan's $20 shareware NetFinder (www.ozemail.com.au/~pli/netfinder) rather than having to mount it on your desktop. You'll be able to transfer files in a much speedier fashion—FTP uses less network overhead than is used in mounting Mac volumes and performing Finder copies.

**4. Save your e-mail on the server.** If you use a POP e-mail client such as Eudora Pro or Light from Qualcomm (619/658-1291, www.eudora.com) or Outlook Express from Microsoft (425/882-8080, www.microsoft.com), be sure to set your preferences to leave mail on the server. If you don't, your PowerBook will delete every message after downloading it, leaving you no way to retrieve those messages and file them when you return to your work. If you set this preference, you can ensure that your e-mail in-box at work contains a complete copy of your correspondence. If you don't, you'll get a conspicuous hole in your e-mail trail every time you head out on the road.—JASON SNELL

folder named IR Receiver—which contains whatever data you just beamed through space.

Unlike traditional Mac file sharing, IR doesn't require setting up passwords, registered users, or levels of access. You might call it *don't*-plug-and-play.

## A Battery of Power Savers

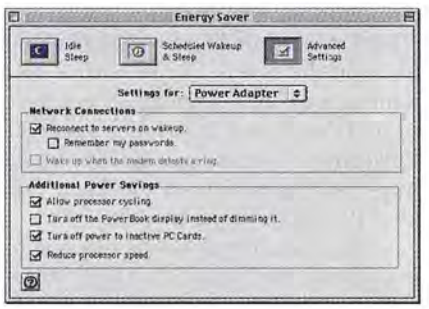
Once you're out the door, you may quickly discover that your PowerBook's "three-hour" rating is an exercise in sheer optimism. For better battery mileage, try these tricks.

**Work Dimmer, Not Harder** If you can work with your screen at half brightness, you'll add 20 minutes to each battery charge; your backlight is one of the laptop's biggest power consumers. Also turn off AppleTalk while on that plane or train; it, too, saps away power unnecessarily.

**Exercise Spin Control** A spinning hard disk is one of the PowerBook's biggest power guzzlers; a nonspinning one, on the other hand, uses almost no power at all. If you run your laptop off a RAM disk, as described in the sidebar "Double Your Battery Life," your battery can last four hours or more.

If the RAM-disk approach is a bit much, at least use selective spin control by pressing ⌘-control-shift-0 (zero) to chill your hard drive when it's overactive. Do so promptly after saving your work, for example, to prevent the hard disk from spinning pointlessly for 15 more minutes (or whatever period you've specified in the Energy Saver or PowerBook control panel).

**Choose Disk-Shy Apps** For additional spin control, favor programs that don't access the hard disk very often. Microsoft programs, alas, are among the most disk-intensive. Instead, draft your speech in the $70 Mariner Write from Mariner Software (502/222-6695, www.marinersoft.com) or Apple's $99 AppleWorks while on the plane.




**G3 Slowdown** When battery power is more important than horsepower, use Energy Saver's Advanced Settings panel to slow down the works.

**Tweak Your Processor** Your PowerBook offers several secret controls that can minimize its processor's energy use. On the newest PowerBook G3 models, these options are in the Energy Saver's Advanced Settings panel; on older laptops, open the PowerBook control panel and, while holding down the option key, move the Easy/Custom switch into the Custom position.

If you turn on the Allow Processor Cycling option, you'll permit your processor to rest between bursts of activity, saving juice (but making games and movies jerkier). The option Turn Off Power To Inactive PC Cards (in the G3 series only) may eke out a few extra minutes by cutting off the juice to any inserted PC Cards such as modems or Ethernet cards, although not every card will be able to turn off when you choose.

Finally, the Reduce Processor Speed option slows down even a G3 to a feeble 25MHz (see the screen shot "G3 Slowdown"). To be sure, this is a dire last resort—but when the battery warnings are coming up and all you're doing is finishing your speech, this option may be just the ticket.

## Up in the Air

A little strategic thinking goes a long way toward making your plane trip—and your airport time—PowerBook-friendly.

## Off-Roading without a Mac

JUST BECAUSE YOU'RE A HARD-CORE MAC USER DOESN'T NECESSARILY mean you always lug a PowerBook around with you when you're out of the office. Sometimes it's simply impractical to tote one along. But if you've got a 3Com (801/431-1536, www.palm.com) Palm III (or other Palm-family handheld organizer), you don't have to lose touch.

**Quick and Dirty** If you've got electronic documents you want to read on the go without the inconvenience of paper, consider Florent Pillet's $20 shareware Palm Buddy utility (http://perso.wanadoo.fr/fpillet/; see the screen shot "Palm Pal"). Not only is this a great tool for backing up and installing files on a Palm device (without the hassle and overhead of 3Com's own HotSync software), but Palm Buddy can also automatically translate any text file into a document that is readable by any Palm-based Doc reader, such as the $17 shareware TealDoc, from TealPoint Software (www.tealpoint.com), or the $30 AportisDoc, from Aportis Technologies (503/736-3240, www.aportis.com).

**Palm Pal** A friendly drag-and-drop interface makes Palm Buddy a must-have utility.

**Mini Mail** To keep up with e-mail on a Palm device, you won't need anything faster than the 14.4 Kbps of 3Com's teeny $120 PalmPilot modem. If you're on a budget, you can use Ian Goldberg and Steve Gribble's free Top Gun Postman (www.isaac.cs.berkeley.edu/pilot/), which downloads mail from a POP/SMTP server directly into the Palm OS's built-in Mail program. For more full-featured e-mail, consider the $40 MultiMail Professional 2.0, from Actual Software (978/475-2690, www.actualsoft.com), or the $50 HandMail 2.0, from Smart Code Software (619/597-7544, www.smartcodesoft.com).

**Dainty Data** At press time, 3Com had not yet released the much-promised version 2.0 of its Mac HotSync software (see "Mac's Best Friend," August 1998). But when that software does appear, Rob Tsuk's Jfile to FileMaker Conduit (www.tsuk.com/fmc/) will let you sync FileMaker databases with the $20 Jfile from Land-J Technologies (www.land-j.com/jfile.html), a popular Palm flat-file database. That means you'll also be able to look up and edit flat-file databases in the palm of your hand.—JASON SNELL

# Location Is Everything

FEW THINGS ARE MORE FRUSTRATING than settling down with your PowerBook and realizing that before you can check your e-mail, you've got to change the settings in a half dozen control panels.

That's why Apple created Location Manager, a powerful tool that lets you change dozens of preferences with just one click. It's quite tricky to set up, but once you have properly configured Location Manager, you can finally stop tinkering with settings and get to work.

## How It Works

Location Manager is a lot like the Extensions Manager control panel: you can create different *sets*, or collections of preferences, and turn them on and off in one fell swoop instead of one at a time. Using Location Manager 2.0 (a part of Mac OS 8.5), you can remotely control AppleTalk, TCP/IP, printing, Extensions Manager, File Sharing, Internet preferences, Modem settings, Remote Access settings (including dial-up phone numbers), your time-zone settings, and even the volume of your PowerBook's speaker. (Previous versions of Location Manager offer a more limited amount of control.)

Just because you *can* control all of these settings doesn't mean you'll want to. Based on your particular situation, you may need to control only a handful of these items. If you use a PowerBook both at home and at work, you might want to create a different set of AppleTalk and TCP/IP settings for each locale, as well as a different default printer and a separate set of Internet preferences. If you travel frequently, you may just want to create settings for your most common destinations—complete with each city's time zone and the local number for your Internet service provider.

No matter what you use your PowerBook for, chances are good that Location Manager can save you time. That's why it's worth it to take the time to get to know more about it.

### Step 1. Getting Started

To begin, open Location Manager (see the screen shot "Home Base") either directly from the Control Panels list in the Apple menu or via its Control Strip panel (an icon that looks like two sets of preference files joined by a pair of red arrows). Use the File menu to create your first new location. If you've already configured your PowerBook for a certain place, it's important that the first location set you create includes all these preferences—otherwise you might lose them when you create another set.

**Home Base** Choose which settings to change from Location Manager's main window.

### Step 2. Describe Your Preferences

Location Manager refuses to work with any preference named Default, so you must open all the control panels you plan to modify with Location Manager and give your preference settings descriptive names. The method involved is the same for the AppleTalk, TCP/IP, Remote Access (which integrates the pre–OS 8.5 Remote Access and PPP control panels), and Modem control panels: choose Configurations from the File menu (see the screen shot "Get Set"), click on Rename, and give your settings names like Work Ethernet TCP Settings or Remote Access 800 Number. The Extensions Manager and Internet control panels have a more intuitive interface for creating and managing multiple sets of preferences via pop-up menus.

If you want to be extra-safe, hit the Export button and export your settings to files. That way, if anything bad happens to your settings, you'll still have a copy you can import later using the Import button.

### Step 3. Create a Location

Now you're ready to create your first location. Location Manager learns settings by picking up whatever ones are currently active and storing them away. If you've got things just the way you want them, you should be able to click on items one at a time in the Settings area of the Location Manager window and click on Apply to add that setting to your location. If you need to make changes, click on the Edit button, and Location Manager brings up a dialog box that lets you open the control panel you need to edit (see the screen shot "The Springboard").

**Sit Smartly** Savvy PowerBookworms ask for an exit-row seat; only then do they have enough tray-table room to open a PowerBook G3 all the way.

**Seek Outlets** Your wait at the gate doesn't have to be fruitless thumb-twiddling time; power outlets lurk at every gate of every airport (and bus and train station, too). Use them. To find one, you need to think like a janitor; these outlets are generally concealed on the side of a pillar, virtually never convenient to a seat. If your need for juice is stronger than your pride, you're going to have to sit on the floor.

Don't expect to find outlets when you're in the air. On some of the newer airplanes, there are power outlets right on the seats in first class—but you can use them only if you own the correct adapter (they're not standard outlets). You can usually find an outlet in the plane's lavatory, but we doubt that your fellow passengers would look favorably upon you if you commandeered it to use your PowerBook.

**Sleep in the Air** A plane trip is a series of on-and-offs for the typical PowerBook: on for security, off for take-off, on for the ride, off for dinner, and so on. Do what the pros do: *never* shut down your PowerBook. Instead, simply close the lid when you're not using the machine (or press ⌘-shift-0 [zero]), thus putting it to sleep. (Be sure it's actually asleep, as indicated by the tiny blinking light on the case.) The next time you want to use your computer, all you have to do is press any key. For a speedier PowerBook wake-up, select Make AppleTalk Inactive from the AppleTalk On/Off Control Strip module.

The fact is, there's no good reason to shut down your PowerBook *ever*, unless you want to change its SCSI or monitor configuration, shelve it for days, or ship it. When you're not working, your PowerBook should be sleeping.

When you're making changes to settings, remember to be *extremely* careful. Location Manager works by remembering the *name* of the configuration setting you use in a particular control panel, not the actual setting itself. If you open the Remote Access control panel, replace your user name, password, and phone number, and close the window, saving your changes, you've overwritten your previous settings and there's no way to get them back.

Before you make any changes, be sure to create a *new* set of preferences. In the TCP/IP, AppleTalk, Modem, and Remote Access control panels, you do that by choosing Configurations from the File menu, clicking on Duplicate, giving this new setting a descriptive name, and clicking on Make Active. Now you can make all the changes you need to.

When you've finished changing settings in a control panel, you close it, and Location Manager reappears. Now when you click on the Apply button, your newly changed settings are added to the location you're editing.

Once you're done, you can create as many locations as you need to fulfill your travel requirements. For each new location, choose New Location (or Duplicate Location if the location you want to make is similar to an existing one) from the File menu (see the screen shot "Makin' Location"). Then go through all the relevant control panels, make changes to your settings, and apply those changes to your new location.

## Powerful Possibilities

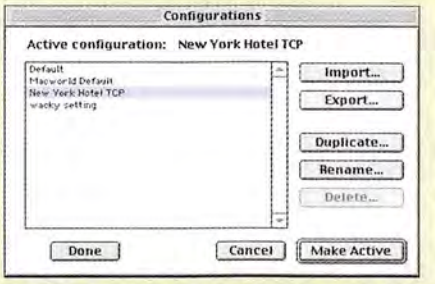
The least documented of Location Manager's settings—the Auto-Open Item setting—may be its coolest. It can instruct Location Manager to open files, applications, or other items whenever you select a new location. One of the best uses for this is to designate server aliases as Auto-Open Items so that server volumes remount automatically. By making an AppleScript an Auto-Open Item, you can also have your Mac perform customized tasks.

And whether you're using a Mac at home or on the road, if you share space on that Mac with other users, you'll find Location Manager a blessing. Since Location Manager can change your TCP/IP, Remote Access, and Internet settings at the same time, you can use it to quickly shift between different Internet accounts, right down to different home pages and default Web browsers.

**Caveat User** Location Manager is quite powerful, but it could be both easier to use and more comprehensive. Although version 2.0 is an improvement over its predecessors, Location Manager is still one of Apple's uglier interface efforts. Switching locations is accompanied by a pop-up window filled with scary streams of text and the occasional hard-to-comprehend error message.

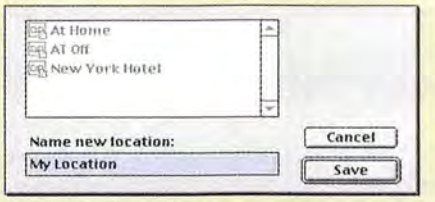
Ideally, Location Manager should let users make changes to preferences without having to click through individual control panels (and without risking accidental destruction of their settings). It should also be able to control more preferences, including power-management settings and perhaps even Mac OS 8.5's themes.

There's plenty of room for improvement, but as it is, Location Manager is quite useful today. If you've grown tired of wrestling with your PowerBook's settings every time you travel, you should invest the time to configure it now. Your effort will pay off down the road.—JASON SNELL




**Get Set** Export, rename, and change settings from the Configurations window.

**The Springboard** From here, you can open control panels, configure them, and apply the result to your location.




**Makin' Location** Be sure to make new locations so you don't destroy your old ones.

## Surviving the Hotel Room

In some ways, arriving at a hotel is a welcome moment, since you can stop worrying about running out of battery juice. But in other ways, the hotel room presents its own challenges.

**Print for Free** The first challenge—the lack of a printer—is easily surmountable. Using your PowerBook's fax modem, *fax* your printworthy documents to the front desk, addressed to yourself. Presto: fresh, crisp printouts. Moreover, most hotels these days use plain paper (not that curly fax stuff), deliver the fax to your door, and don't charge a penny. The front desk never needs to know that the fax originated in the same building.

**Jack In Safely** Another traveler's hazard is the digital (PBX) phone jack, found in virtually every hotel room. Such jacks look exactly like normal (analog) phone jacks—but if you plug your PowerBook's modem into a digital line, you could fry the modem for good.

Fortunately, the bedside phones in most modern hotels have a special analog jack on the side, marked "Data" or "Dataport," into which you can safely plug your modem. (Don't forget to bring a generous amount of telephone cord with you.) If you worry that your hotel won't offer such a jack, travel with a digital-line converter, such as the $150 TeleSwitch Plus, from TeleAdapt (www.teleadapt.com). Or try another helpful tool—the $30 Modem Saver Plus, from Road Warrior (http://warrior.com, 714/434-8600), which tests a jack for safety *before* you plug in.

**Simplify Your Setup** Once you've arrived at your temporary location, don't bother with the usual ritual of changing your PowerBook's clock to the new time zone, typing in the local Internet-access number, adapting to a different network setup, and so on. Instead, do all that with a single click, using the

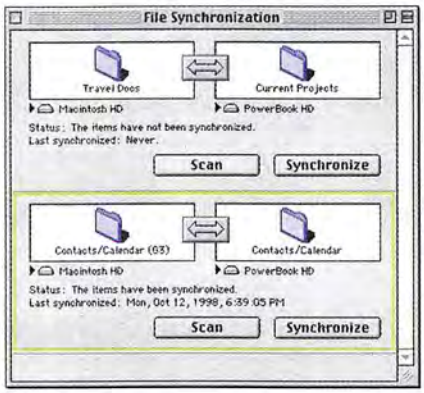
Location Manager (see the sidebar "Location Is Everything").

## Home Again

After your travels, you've got one challenge left: returning your on-the-road documents to your desktop Mac without confusing them with previous versions.

**Get in Sync** Synchronizing files is the whole purpose of the unsung but extremely handy File Synchronization control panel (called PowerBook Assistant before Mac OS 8.5). It helps you synchronize parallel folders on your PowerBook and your desktop Mac and makes the process drag-and-drop easy.

On either computer, drag a PowerBook folder onto one side of the control panel and a desktop-Mac folder onto the other. Then, whenever you click on Synchronize, the File Synchronization control panel makes sure that the two folders contain exactly the same set of files—the newest only. (In the screen shot "That Syncing Feeling," you can see two different pairs of folders being synced.)




**That Syncing Feeling** Don't let your travel documents get confused with the versions on your home Mac—use the File Synchronization control panel to synchronize them with the click of a button.

**Zip through Data Transfers** If you would rather avoid the hassle of networking your desktop Mac with your PowerBook after each trip, outfit your PowerBook with a $250 PowerBook Zip drive, from VST Technologies (978/635-8200, www.vsttech.com). This way, you can keep all your documents on a single Zip disk, which you transfer between machines before and after each excursion.

## The Last Word

Let's face it: simply carrying one of today's gorgeous, sleek, high-horsepower PowerBooks is enough to impress friends, coworkers, and passersby. But mastering the tricks of expert PowerBook use will let you venture farther. And isn't that the reason you bought a laptop in the first place? **m**

Contributing Editor DAVID POGUE (www.davidpogue.com) is coauthor of *Macworld Mac Secrets*, fifth edition (IDG Books Worldwide, 1998).

# Double Your Battery Life

FRUSTRATED BY THE SHORT LIFE OF LAPTOP BATTERIES? Then replace your juice-guzzling hard drive with a disk that doesn't move and uses no battery power at all. That's the purpose of a RAM disk, a portion of memory the Mac treats like an additional (but extremely fast) floppy disk. When you work off a RAM disk with your hard drive spun down, a fresh PowerBook battery can last four hours or longer per charge. The bad news is that setting up a RAM disk as your in-flight hard disk requires some dedication and effort, but the good news is that it's a onetime setup.

**1.** First, figure out how much disk space your RAM-disk contents will require—total the disk-space requirements of, for example, your word processor, your documents, and a stripped-down System Folder. (At minimum, a basic Mac OS 8.1 setup should include the following: System, Finder, PowerBook Enabler, Text Encoding Converter, Geneva 9-point, and the Appearance extension.)

**2.** Open the Memory control panel; turn off virtual memory and click on the RAM Disk On button. Move the slider to the right until it shows the size you calculated (or larger, if you can afford the RAM). Turn on Save On Shut Down or Preserve RAM Disk Contents so that you won't have to repeat this business later. Restart.

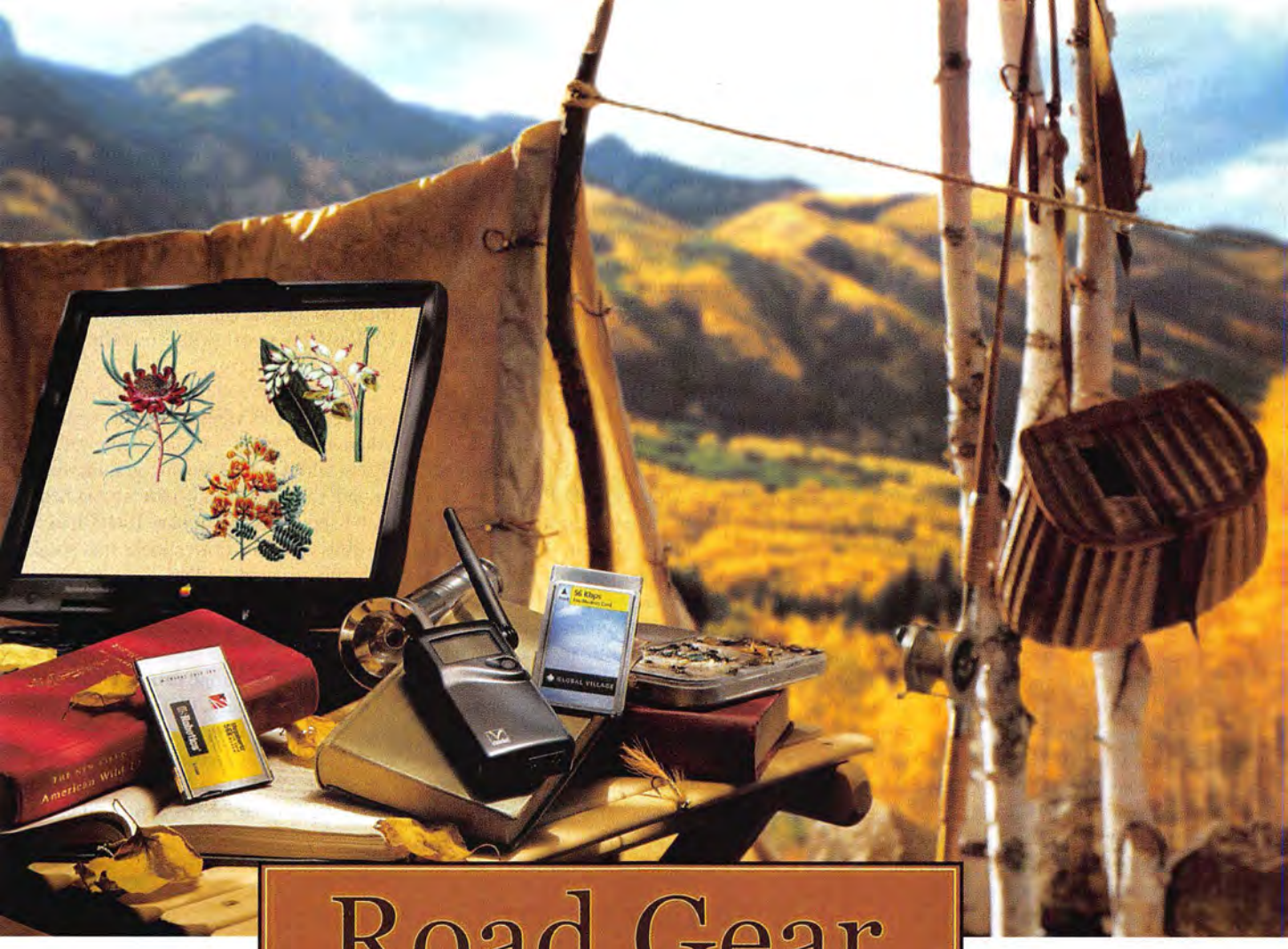
**3.** Now a RAM-disk icon appears at the right side of the screen. Copy your files—the mini System Folder, your word processor, and your documents—onto it. Also copy onto it an alias of the Startup Disk control panel.

**4.** Finally, use Startup Disk to select the RAM disk as the start-up disk. Restart again. (If the laptop doesn't boot, press 1-option-P-R during start-up to nuke the RAM disk and start over.) You'll be shocked at how fast your Mac now starts up—in about three seconds. At this moment, however, your hard disk is still spinning; you aren't getting any extra battery mileage until you complete the next step.

**5.** Drag your hard-disk icon *to the Trash!* The Mac warns you that you're doing something nutty; click on OK. (If the disk is still spinning or spins up unbidden from time to time, press 1-control-shift-0 [zero] to stop it cold.)

At last you've arrived at an amazing point. Your PowerBook is absolutely silent, runs about three times as fast as before, and uses very little battery juice. Everything on the RAM disk is safe, even if your laptop crashes, sleeps, or restarts. Only removing both battery and power cord—or shutting down without having used the Save On Shut Down option in the Memory control panel—obliterates your RAM disk.

To summon the hard disk back to the screen (to back up your document, for example), double-click on the Startup Disk alias on your RAM disk. And to terminate your RAM disk, use the Startup Disk control panel to choose your hard disk, restart, erase the RAM disk, turn off the RAM-disk option in the Memory control panel, and restart again.



# Road Gear

## Enhance Your PowerBook with These Essential Extras

BY STEPHAN SOMOGYI

The latest PowerBook G3 comes with almost everything a mobile Mac might need, but there are still situations when you require something more. If you have an older PowerBook that's still performing yeoman's service—and isn't in evident need of replacement—there's also a lot you can do to make your mobile work flow more smoothly.

### Know Your Slots and Bays

Sure, you know your PowerBook has interesting places for you to put expansion hardware, but you may not know all that these bays and slots can and cannot do.

The PowerBook bays were built to be flexible, but it's not always clear what hardware bits go where (see the diagram, "The Lay of the Land"). Take, for instance, the PC Card slots. Every PowerPC-based PowerBook has them, but depending on how old your PowerBook is, these slots can have different capabilities.

All PC Card slots can accept basic PCMCIA Type II cards, such as most modems. One of these cards can fit into each of the available slots. You can also fit a dual-height Type III card—such as a hard disk for a high-end digital camera—into any PowerBook with PC Card slots, although one of these bigger cards will take up both spaces.

The PowerBook G3 series, however, has particularly snazzy PC Card slots. These support the faster CardBus cards, which can move data at up to 132 MBps, compared with a standard PC Card's meager 20 MBps. The trick is that although CardBus cards look almost identical to ordinary PC Cards, they're shaped just differently enough so that they won't fit into a standard PC Card slot. PC Cards, on the other hand, work just fine in CardBus slots. As a result, though, you may not be able to use newer expansion hardware in all your PowerBooks.

Another flavor of PC Card that might discombobulate the unsuspecting PowerBook user is the Zoomed Video (ZV) card. ZV cards also look like standard PC Cards, but they're designed

for processing and generating video data.

ZV cards need a ZV-capable slot—the *bottom* slot in G3 PowerBooks (as well as in the 3400- and 2400-series PowerBooks). If you put it in the wrong place, the ZV card won't work.

## Watching Movies

If you're up in the air a lot, there's one obvious reason to add an extra piece of hardware to your PowerBook—so you can watch movies while you're on the plane. Unless you're lucky enough to own a DVD-equipped PowerBook G3/300, you'll need to get the PowerBook DVD-Video Kit from Apple ($499; 408/996-1010, www.apple.com).

The DVD-Video Kit has three parts: a DVD-ROM drive, a ZV card that decodes the audio and video data on DVD movie discs for playback, and Apple's own DVD Software. The DVD-Video Kit's drive has an additional bonus: it can read DVD, CD-ROM, *and* CD-RW discs (a standard PowerBook CD-ROM drive can't read CD-RW).

Unfortunately, when we fired up Apple's DVD Software 1.0, we met a few rude surprises. If you don't take battery-saving precautions, such as setting the Separate Timing For Hard Disk Spin Down option in the Energy Saver control panel to five minutes or less, even a full battery won't last two hours. "No biggie," you say. "Just put the PowerBook to sleep and pop in a fresh battery." Right? Sadly, it's not so.

Apple's DVD software can't remember how far into the film you are, which means in most cases you'll have to hunt manually through the movie for your place (some DVD titles support scene selection, which makes this a *bit* easier). This problem isn't related to the battery running out, either: the DVD Player loses track of the last-viewed spot on the disc anytime the PowerBook sleeps. A version 1.1 software update geared to fix this problem should be available from Apple's Web site by the time you read this.

## Presenting with Your PowerBook

Another reason to add to your PowerBook is if you frequently make presentations on the road and have the misfortune to own a first-generation PowerBook G3. A bug in the first revision of this model's motherboard (since fixed) makes it impossible to set the external video ports' resolution to 640 by 480—the standard many projectors expect. Help is $349 away in the shape of iXMicro's (408/369-8282, www.ixmicro.com) ix3D Road Rocket (see *Reviews*, November 1998).

The ix3D Road Rocket is a CardBus-based video card, originally created to add support for a second monitor to the PowerBook. At the heart of the Road Rocket is the same accelerated 2-D/3-D chip set found in iXMicro's ix3D PCI cards. Its video performance isn't as high as that of the PowerBook's built-in ATI Rage Pro LT chip set. However, for the purposes of straightforward presentations, the difference isn't likely to be noticeable.

If you need the Road Rocket, you'll appreciate the fact that it works, but be forewarned—it's *huge*. It not only takes up both slots, but it sticks out a good two inches. This means you have to be careful not to corner too tightly when running through hallways, and you can't use a 100-Mbps Ethernet card or the DVD Kit's ZV card when the Road Rocket is installed.

## Jacking Into a Fast Network

The PowerBook G3 series' stock 10BaseT Ethernet port meets most users' demands, but if you plan on connecting to a fast new 100BaseT network while traveling, you need a card to do so.

These new 100BaseT networks—which run at 100 Mbps instead of "regular" Ethernet's 10 Mbps—are increasingly ubiquitous, and if you're moving graphics files around, the added bandwidth is a big help. Both Farallon and TDK have 10/100BaseT CardBus cards for PowerBooks that speak both 10BaseT and 100BaseT.

The $179 TDK Network Flyer 100 (530/478-8421, www.tdksystems.com) card has a dongle—a connector between the card and the phone cable—that locks securely into the card. Unfortunately, this dongle doesn't have any indicators to show whether the network connection is live. Such telltales are priceless when you're trying to hook yourself into

## The Lay of the Land

Before you buy expansion hardware for your PowerBook, it's good to know your way around its slots and bays. Here's a map of all the PowerBook G3's ins and outs.

another net for the first time. Often, if you have trouble, the little lights help you figure out where the problem is.

In contrast, the $179 Fast EtherTX-10/100 CardBus Adapter from Farallon (510/814-5000, www.farallon.com) has two LEDs on the network end of its dongle. One shows network activity and the other indicates whether the network is running at 10 Mbps or 100 Mbps—very handy.

## Connecting Far from Home

The 56-Kbps modem built into the current PowerBook G3 is fast and flexible enough for most folks, but if you travel abroad or venture far from land lines you may want to consider more untethered options. Also consider a new modem if you own an older PowerBook.

**International Modem Issues** What problems might you run into if you travel far from home? First off, while PowerBooks bought in the United States are *likely* to work internationally, they contain modems approved for use only in the United States and Canada.

Modems must pass FCC requirements before they're approved for use in the United States, and by the same token almost all foreign countries have requirements. In some places it's actually illegal to connect a nonapproved modem to the public phone network. To get around all this, you need a modem that has been approved for use—and meets the electrical specifications—in the country to which you are traveling.

One possibility is 3Com's (800/638-3266, www.3com.com) $269 Megahertz 56K Global Modem PC Card. More than 20 countries have formally approved this V.90 modem for use. While it isn't specifically designed for the Mac, it works well in a PowerBook, thanks to the Mac OS's built-in drivers. However, you won't be able to access the modem's more advanced features unless you run the software in Virtual PC or another emulation program.

**Cell-Phone Connections** Just as modems lack one international standard, cell phones don't have standardized modem connectors. To send information out over a cell phone, you'll need a modem that explicitly supports these devices, such as 3Com's $249 Megahertz 56K Cellular Modem PC Card with XJack connector. This card has built-in support for cellular phones—on the edge of the card is a second plug for a dongle to connect to the cell phone.

**One Wireless Option** If you're in the San Francisco Bay Area; Washington, D.C.; or Seattle, you have another mobile connectivity solution: the wireless Ricochet from Metricom (800/469-4735, www.ricochet.net). The Ricochet comes in three different flavors, distinguished mainly by size, battery life, and price (ranging from $149 to $599, depending on the level of service you order). All of them connect to a PowerBook's printer-modem port and look like small external modems with foldout antennae.

When you're inside a Ricochet service area, the modem behaves like a standard modem—no strings attached. You can connect to your home network over the Internet using the Ricochet Internet service, or connect directly to other Ricochet-equipped computers. This means if your desktop machine back at the office is equipped with a Ricochet as well, you can set up point-to-point network connections to transfer files back and forth or run Timbuktu sessions.

**Older PowerBook Boosts** The most apparent reason to get a new modem is if you own an older PowerBook. The newest PowerBook G3 has a built-in modem that supports the V.90 modem standard, created to put an end to the 56-Kbps modem standard wars (see "The Modem Showdown," April 1998). However, you can't upgrade some earlier PowerBook modems to V.90, which means you won't be able to connect to V.90 ISPs or dial-in servers. The 3Com Megahertz 56K Global Modem PC Card and the Megahertz 56K Cellular Modem PC Card both support the V.90 standard.

Fortunately for PowerBook users, the necessary drivers for PC Card modems are built into the Mac OS. That means unlike LAN cards—which require Mac-specific drivers—most PC Card modems, even those *not* formally aimed at the Mac, work when plugged into a PowerBook. One notable exception to this rule of thumb is the $239 RealPort Modem 56-GlobalAccess, from Xircom (805/376-9311, www.xircom.com), which in our testing caused the PowerBook to hang.

**Mobile Movies** **All software glitches aside, Apple's DVD-Video Kit can turn your PowerBook into a traveling entertainment center.**

## The Last Word

Thanks to its expandability, you can customize a PowerBook to suit most mobile computing needs. There are plenty of products designed for other situations you may find yourself in.

If you're lugging around loads of data, you can get a $350 Zip drive from VST (978/635-8200, www.vsttech.com) that fits into the PowerBook G3's media bay. For videoheads, there's the $249 Kritter, from Par Technologies (602/922-0044, www.partec.com)—a small digital camera that you can connect to your PowerBook via a ZV card—as well as Par Technologies' $129 CapSure card for capturing full-motion analog video. Soon you'll also be able to buy PC Cards with a USB interface so that you can connect to iMac peripherals.

Even today, PowerBooks aren't first-class citizens in the world of mobile peripherals. This is clear from the dearth of drivers for PC Card and CardBus network cards, and the lack of formal support from many PC Card modem vendors. Still, with the roaring success of the PowerBook G3, it shouldn't be long until more products are officially declared PowerBook-compatible. Then you'll have even more options to take with you wherever you may roam. **m**

STEPHAN SOMOGYI has fond memories of his PowerBook 100, managed to get the PowerBook 500–series PCMCIA cage to work, and dreams of a G4-powered, 2400-size PowerBook.

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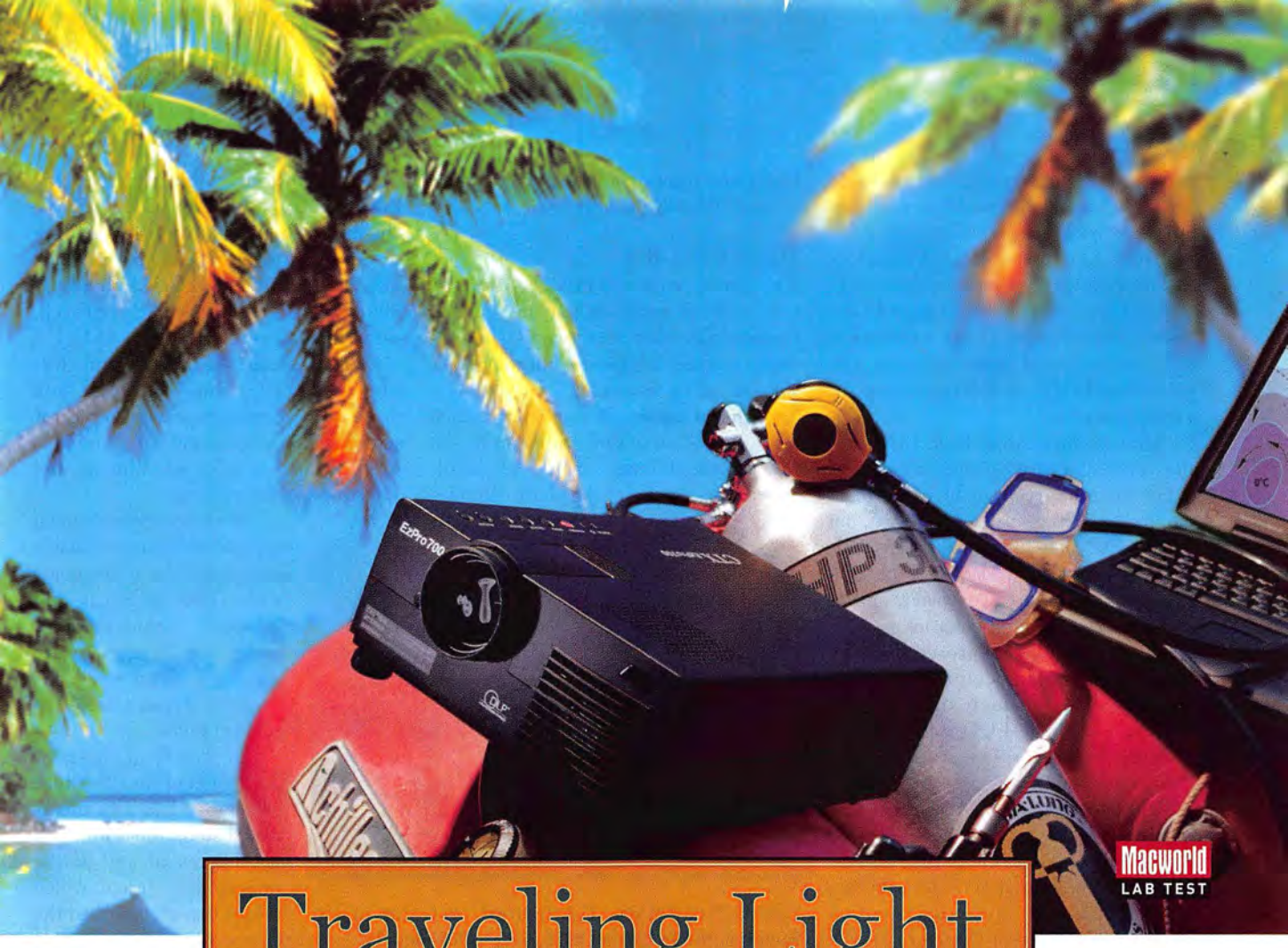



Macworld
LAB TEST

# Traveling Light

## High-Quality Ultraportable Projectors That Won't Break Your Back

BY JEFF PITTELKAU

How many times have you swept into a room, all fired up to give a socko sales pitch or wow an awaiting class, and discovered that the projector you've rented won't work with your PowerBook? Or perhaps you already own a projector, but it's so big and heavy that you dread hauling it out for another road trip.

Whether you've had it with renting or with lugging around yesterday's technology, relief is at hand—and in a very easy-to-carry form. Weighing in at under ten pounds each, these new lightweight multimedia projectors—dubbed "ultraportables"—offer incredibly bright and colorful images as well as unprecedented reliability.

We evaluated the features of six new ultraportable projectors head-to-head and enlisted a panel of experts to test how the image quality of the units compared. Although two projectors stood out from the crowd, our testing—both subjective and objective—showed that all these projectors reflect a major advance in projection technology. Every model we tested offered better image quality and cost about $1,000 less than projectors we reviewed as recently as March 1998 ("Prime-Time Projectors"). Better yet, the new models weigh, on average, about four pounds less.

### Totable Technologies

The streamlined size of these new projectors owes itself to advances in two distinct under-the-hood technologies. Two of the projectors we looked at feature polysilicon liquid-crystal displays, or LCDs: the $7,499 PowerLite 5500C, from Epson America (www.epson.com), and the $5,999 UltraLight LS1, from Proxima (www.proxima.com).

The other four projectors are based on a technology called Digital Light Processing, or DLP. These include the $5,999 Boxlight 4050, from Boxlight (www.boxlight.com); the $5,995 EzPro 700, from CTX (www.ctxintl.com); the $5,999 LP425, from In Focus (www.infocus.com); and the $4,955 MultiSync LT80, from NEC Technologies (www.nec.com). In the last year, both technologies have

undergone refinements that have reduced size, weight, and cost while at the same time improving image quality.

**Triple-LCD Technology** Projectors based on larger, heavier, single-LCD modules are all but gone. Today's LCD-based projectors instead use a tiny—and light—assembly of three active-matrix, polysilicon LCDs, each about the size of a postage stamp.

How do they work? Each LCD creates a gray-scale image that corresponds to either the red, green, or blue *content* in the image being projected. Next, an assembly of color filters and prisms adds the necessary *color* to each channel and then recombines the three separate images into one to create a full-color image.

The triple-LCD approach not only creates a lighter-weight projection engine but also lets more light through than the old, single-LCD approach—all of which makes for a clearer, brighter image on screen.

**DLP Technology** The other new invention making projectors more shoulder-friendly is DLP. Texas Instruments coined this brand name to describe the technology used in projectors based on its Digital Micromirror Device, or DMD.

The DMD is a small rectangular device that uses an array of tiny mirrors to create an image. Each micromirror corresponds to a bit on a special type of memory chip that coordinates the mirror's movements. As the mirrors move, they reflect pulses of red, green, blue, and white light toward the projection lens. Your eye then integrates this information into full-motion, full-color images. (For more information, see the diagram, "Travel-Worthy Technologies.")

## Theater-in-a-Box

These new projectors may be skimpy in size—did we mention that not one of them stands taller than two G3 PowerBooks stacked together?—but they don't skimp at all on features.

**Sync or Swim** When a projector's resolution is out of sync with your Mac's, the projected image may lose detail, appear improperly cropped, or exhibit a strobe effect. Older projectors typically made you use the sync controls to fix problems like these. Conveniently, these new models all sport automatic circuitry that makes the adjustments for you.

All the projectors we tested did a decent job of matching our test Mac's resolutions of 640 by 480, 832 by 624, and 1,024 by 768 pixels. Most resized our test images smoothly. Unfortunately, the Boxlight 4050 and In Focus LP425 synchronized the resolution by discarding or doubling pixels whenever the Mac's displayed resolution wasn't exactly 800 by 600 pixels—a less desirable approach, since fine details can be lost.

**Simple Setup** All the projectors feature on-screen menus that guide you through the manual aspects of projector setup, such as switching inputs from Mac to VCR, making color adjustments, and adjusting speaker volume.

We found Epson's menu system the easiest to navigate and make adjustments with. The In Focus and Boxlight menu systems, which are identical, were slow to respond, while the Proxima menus were difficult to navigate.

In their favor, however, the In Focus and Boxlight projectors had the most-robust autosetup calibration procedures of any of the projectors we tested, which means that they offered the closest to a plug-in-and-go experience.

**Remotely Controllable** All the projectors we tested, except the Boxlight 4050 and the In Focus LP425, come with remote-control devices that let you move your Mac's mouse from a distance. (Remote-control devices are optional for the Boxlight and In Focus projectors and cost between $99 and $199, and $200 and $399, respectively.)

**Small Surprise** **The lightest projector in our roundup, the In Focus LP425, weighs 6.8 pounds.**

## Lightweight Light: Six Ultraportable Projectors

| Company | Product | Mouse Rating | List Price | Phone | Dimensions (l × w × h, in inches) | Weight (in pounds) | Technology | Resolution (in pixels) | Warranty |
|---|---|---|---|---|---|---|---|---|---|
| Boxlight | 4050 | ♦♦♦½ | $5,999 | 360/779-7901 | 11.8 × 9.0 × 4.0 | 6.9 | DLP | 800 × 600 | two years; parts and labor |
| CTX | EzPro 700 | ♦♦♦♦ | $5,995 | 408/541-6060 | 12.2 × 9.3 × 3.9 | 9.7 | DLP | 800 × 600 | two years; limited parts ar |
| Epson America | EDITORS' CHOICE PowerLite 5500C | ♦♦♦♦ | $7,499 | 310/782-0770 | 13.6 × 9.3 × 3.7 | 9.4 | triple LCD | 800 × 600 | one year; parts and labor |
| In Focus | LP425 | ♦♦♦ | $5,999 | 503/685-8888 | 12.0 × 9.0 × 3.6 | 6.8 | DLP | 800 × 600 | one year; parts and labor, excluding lamp |
| NEC Technologies | MultiSync LT80 | ♦♦♦♦ | $4,955* | 630/467-5000 | 12.8 × 9.8 × 4.8 | 9.9 | DLP | 800 × 600 | two years; parts and labor |
| Proxima | UltraLight LS1 | ♦♦♦♦ | $5,999 | 619/457-5500 | 12.4 × 8.5 × 4.3 | 8.4 | triple LCD | 800 × 600 | one year; parts and labor |

*Company's estimated price.

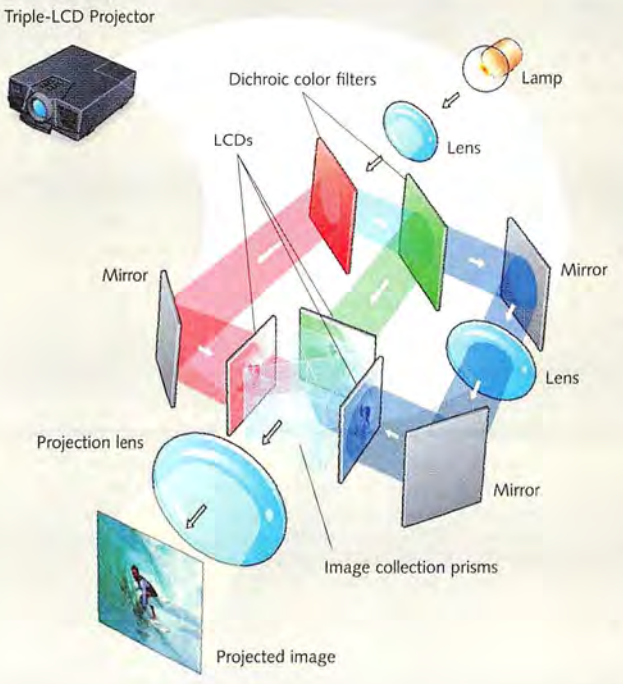
## TRAVEL-WORTHY TECHNOLOGIES

TWO TECHNOLOGIES MADE THIS YEAR'S NEW CLASS of petite projectors possible—Digital Light Processing (DLP) and triple-LCD. Projectors based on either of these engines offer welcome relief to the weighed-down traveler, but each also offers particular advantages and disadvantages.

Their most fundamental difference is how these technologies use light to create projected images. Triple-LCD projectors, as you can see in this illustration, split a steady stream of white light into red, green, and blue light using two dichroic color filters; pass the light through three tiny LCD modules; and finally use prisms to recombine the light into a single color image. DLP projectors use rapid pulses of white light that are filtered through a high-speed, rotating color wheel and reflected off an array of microscopic mirrors mounted on a Digital Micromirror Device, or DMD. These images are recombined by your eye, not the projector.

The most noticeable result of these different approaches is that triple-LCD projectors have better image quality. As DLP projectors create images they flip individual mirrors on and off. Some light can be reflected in the process, which means that darker shades in still and video images often appear to shimmer noticeably.

Be this as it may, since DLP technology *reflects* light rather than *filters* it, as the LCD panels do, very little light is lost and DLP projectors create brighter images. Also, DLP Projectors typically weigh less than triple-LCD projectors because they use fewer and lighter components.




ARNE HURTY

The Epson and Proxima remote-control devices use an infrared receiver on the projector, which requires you to connect the projector to your Mac with a company-supplied ADB cable. We didn't like the CTX and NEC approach—these companies provide a separate infrared receiver that connects directly to your Mac's ADB port, and that means one more item to carry. You can leave your laser pointer at home if you get either the NEC or Proxima projector, as the remote-control devices for those models have laser pointers built in.

**Lamps That Last** The halogen lamps of old, which typically lasted less than a hundred hours and burnt out in a flash, are yesterday's news. Every projector we tested features a durable, metal-halide arc lamp instead, which typically should last at least 1,000 hours.

While expensive to replace ($300 to $400 each), metal-halide arc lamps don't burn out suddenly and leave you in the lurch. They travel well, since they don't have a filament that's susceptible to vibration. Instead, they dim and take longer to start up as they age, giving you plenty of warning before you need another bulb.

### PICTURE-PERFECT

Of course, a lightweight projector that's easy to use may still not fill the bill if it can't project bright, accurate images and provide decent sound. That's why we took a critical, audience-level pass at these projectors' color, video, and sound capabilities by testing the units with a panel of experts. We confirmed our panel's findings with a series of objective tests (see the benchmark, "Screen Tests").

**Color and Clarity** Our panel found that in general, the DLP projectors' color quality did not match that of the triple-LCD projectors. In particular, the In Focus LP425 and Boxlight 4050 projected distinctly orange-looking reds.

On the other hand, our experts noted that the DLP projectors created brighter and clearer still images. All the DLP units projected pixels that were larger and closer together than those generated by the triple-LCD projectors. This made images look crisper and more "filled in."

Finally, panel members observed that the Epson PowerLite 5500C and Proxima UltraLight LS1—both triple-LCD projectors—had a few dead pixels, which were visible as tiny red, green, or blue dots in dark areas of projected images.

| Comments |
|---|
| Small and light, but has no zoom lens. |
| Bright projector has a no-frills design. |
| Excellent quality and easy setup outweigh the expense. |
| Small and light, but has no zoom lens and no frills. |
| Same mechanism as CTX projector, but offers better color at the expense of brightness. |
| Great color; power zoom and focus; somewhat tricky setup; remote includes laser pointer. |

Macworld LAB TEST

## Screen Tests

You don't need to compromise on image quality when you opt for one of these small, ultraportable projectors—for the most part. All but two of the projectors we evaluated received at least acceptable scores in all our objective and subjective tests. In general, DLP-based projectors created the brightest images in all our tests, but their image quality suffered when it came to projecting saturated colors and video images. In particular, the Boxlight 4050 and the In Focus LP425 projected images with orange-looking reds and video images with an unacceptably noticeable shimmer. The triple-LCD projectors, on the other hand, produced the most-stable and most-vibrantly colored images and video.

Best results in red.

| | | OBJECTIVE MEASUREMENTS | | SUBJECTIVE IMAGE QUALITY | |
|---|---|---|---|---|---|
| | Imaging Technology | Brightness (in fL.) | Color Gamut | Still Images | Video |
| Boxlight 4050 | DLP | 60 | 0.08 | Fair | Poor |
| CTX EzPro 700 | DLP | 47 | 0.08 | Excellent | Fair |
| ★ Epson PowerLite 5500C | Triple LCD | 43 | 0.13 | Excellent | Excellent |
| In Focus LP425 | DLP | 61 | 0.08 | Fair | Poor |
| NEC MultiSync LT80 | DLP | 36 | 0.09 | Excellent | Fair |
| Proxima UltraLight LS1 | Triple LCD | 31 | 0.11 | Excellent | Excellent |

Longer bars are better.

★ = EDITORS' CHOICE

### Behind Our Tests

Macworld Lab conducted objective tests with a Minolta CS-100 spot colorimeter. Brightness results are listed in footlamberts and are the average of nine spots on the screen measured at default projector settings. Color-gamut results are stated as a CIE area index and were measured at default projector settings. Subjective image quality was judged by a panel of three experts. Ratings were given for each projector according to how well it displayed our Adobe Photoshop and Microsoft PowerPoint test images. Subjective video quality was gauged with an S-Video signal from a laser-disc player.—**Macworld Lab testing supervised by Jeffy Milstead**

**Video Quality** The triple-LCD projectors were clear winners in video tests. These projectors had the best color and most-stable images. In particular, the Epson PowerLite 5500C performed superbly.

When projecting moving pictures, the DLP projectors produced images that suffered from noticeable shimmering. The reason is that to create shading, these projectors vary the amount of time individual pixels stay on or off.

The shimmering was discernible with the NEC MultiSync LT80 and the CTX EzPro 700 but not nearly as pronounced as that produced by the In Focus LP425 and the Boxlight 4050. This distraction, coupled with unnatural-looking colors, makes these two projectors unacceptable for motion video.

**Sound Advice** Let's face it: these projectors are tiny, and so are their speakers. While all the projectors our jury evaluated create sound adequate for small-group presentations emphasizing spoken words, not one was acceptable for playing music or presenting to large audiences. If you plan on projecting movies or presentations full of rich sound, buy a set of amplified speakers—or rent a public-address system at your destination.

### Macworld's Buying Advice

When you choose one of these projectors, bear in mind that you're also choosing a technology. Pick the one that's best for the material you'll be presenting the most.

If your livelihood depends on killer video presentations, the triple-LCD projectors we tested offer the most-stable video quality and most-vibrant color. If bright, crisp still images are your top priority—for instance, if your presentations primarily use slides—the DLP projectors could fill the bill, although at the expense of less color saturation.

For best overall image quality and ease of use, our Editors' Choice goes to the LCD-based Epson PowerLite 5500C. It offers the most-convenient on-screen menus and controls as well as the most colorful and stable images. Its list price is high, but we expect its *street price* to be more in line with those of the other products we reviewed. The Proxima UltraLight LS1 is a good second choice, but beware: its setup is nowhere as easy as the Epson's.

Still, the DLP projectors are noteworthy for their still-image clarity and high brightness—the highest recorded by our objective tests. Of the DLP models, the nearly identical NEC MultiSync LT80 and CTX EzPro 700 are the most complete packages. We recommend the MultiSync LT80 above the EzPro 700 because the former's remote includes a built-in laser pointer.

Whichever projector you choose, you'll find yourself traveling light. And that'll leave hands free for all those bouquets tossed on stage after your dazzling, glitch-free presentations. m

Macworld Lab Director JEFF PITTELKAU specializes in operating systems and display technology.

### EDITORS' CHOICE

★★★★ **Epson PowerLite 5500C** Easy-to-use menus and controls, plus the best overall image quality on our tests—for still *and* video images—make this projector worth its price. **Company:** Epson America (310/782-0770, www.epson.com). **List price:** $7,499.

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| | CRT Monitor Model/ Viewable Area | TCO | Dot Pitch/ CRT Type | Max. Horizontal Scan Rate | Max. Resolution | Est. Street Price |
|---|---|---|---|---|---|---|
| 21" | **VisionMaster Pro 502** (19.5" VIS) | TCO '95 | 0.28mm/AG | 110khz | 1800 x 1440@74hz | $999 |
| | **VisionMaster Pro 501** (19.5" VIS) | TCO '95 | 0.28mm/AG | 96khz | 1600 x 1200@75hz | $939 |
| | **VisionMaster 502** (19.5" VIS) | TCO '95 | 0.27mm/dp | 110khz | 1800 x 1440@74hz | $999 |
| | **VisionMaster 501** (19.5" VIS) | TCO '95 | 0.27mm/dp | 96khz | 1600 x 1200@75hz | $939 |
| 19" | **VisionMaster Pro 450** (18.0" VIS) | TCO '95 | 0.25mm/AG | 102khz | 1600 x 1200@80hz | $699 |
| | **VisionMaster 450** (18.0" VIS) | TCO '95 | 0.26mm/dp | 102khz | 1600 x 1200@80hz | $659 |
| 17" | **VisionMaster Pro 400** (16.0" VIS) | TCO '95 | 0.25mm/AG | 96khz | 1600 x 1200@75hz | $498 |
| | **VisionMaster 400** (16.0" VIS) | TCO '95 | 0.26mm/dp | 96khz | 1600 x 1200@75hz | $459 |
| | **S702GT** (16.0" VIS) | TCO '95 | 0.28mm/dp | 96khz | 1280 x 1024@85hz | $369 |
| 15" | **VisionMaster 350** (13.7" VIS) | MPR-II | 0.28mm/dp | 69khz | 1280 x 1024@65hz | $239 |

| | TFT/LCD Monitor Model | TCO | Pixel Pitch | Max. Horizontal Scan Rate | Max. Resolution | Est. Street Price |
|---|---|---|---|---|---|---|
| 14.1" | **Pro Lite 36a** (with OSD) | TCO '95 | 0.279mm | 62.5khz | 1024 x 768@75hz | $899 |
| | **Pro Lite 36b** (80° Viewing Angle) | TCO '95 | 0.279mm | 62.5khz | 1024 x 768@75hz | $1,129 |
| 15" | **Pro Lite 38a** (with OSD) | TCO '95 | 0.279mm | 62.5khz | 1024 x 768@75hz | $1,129 |
| | **Pro Lite 38b** (with OSD, USB & Speaker) | TCO '95 | 0.279mm | 62.5khz | 1024 x 768@75hz | $1,179 |

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Not Every Useful and Powerful Mac Program Comes in a Shrink-Wrapped Box

# Serious

BY JOHN FU AND PHILIP DYER

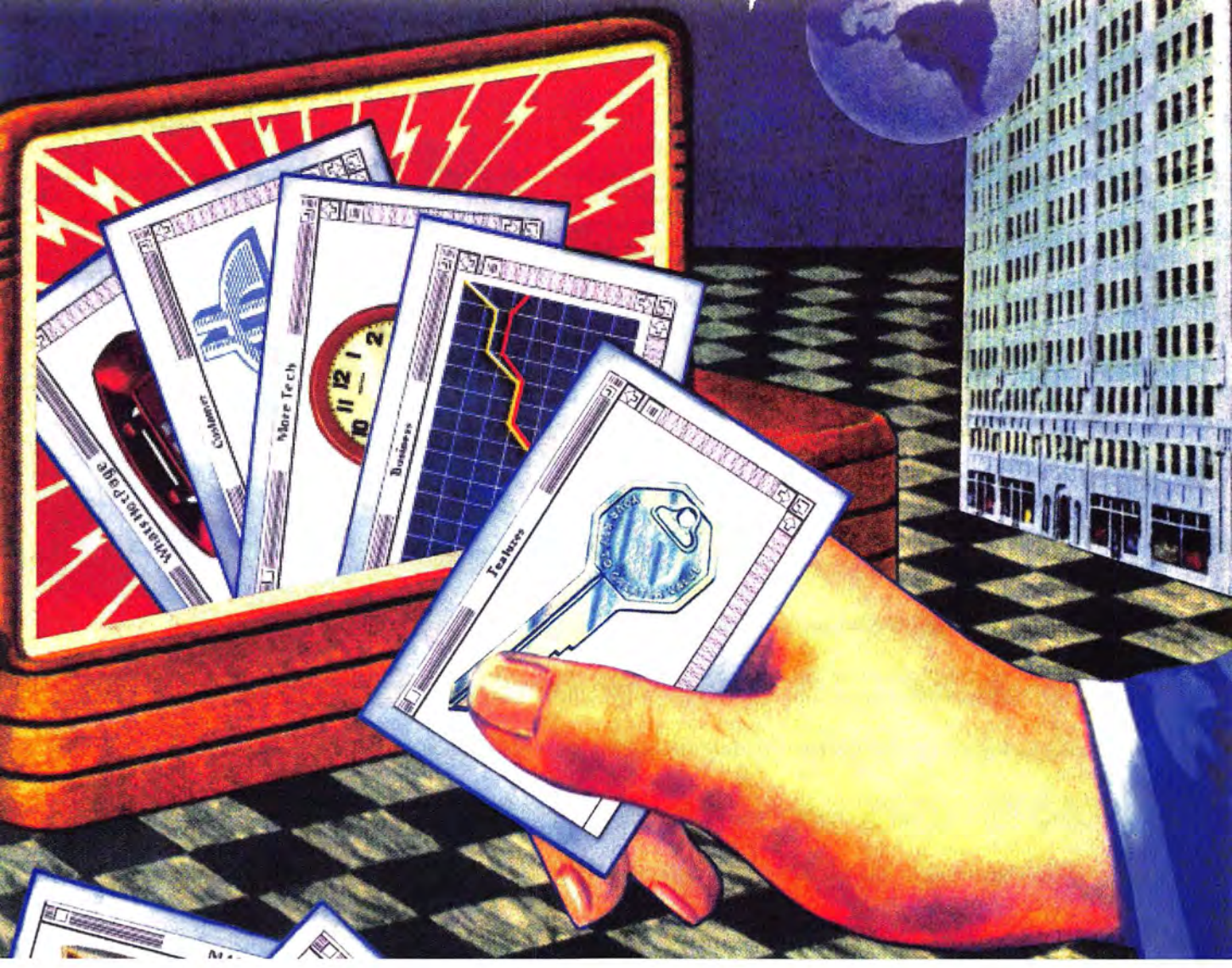
SHAREWARE—THOSE SUPERFLUOUS GAMES, NOVELTIES, AND interface enhancers that clutter your hard drive and distract you from your work. If you've ever had a coworker who thought it was a hoot to play round after round of Jared—that little smiley face that sings off-key Guatemalan folk songs—you know that no good can ever come of shareware. There's no telling where this stuff comes from and how much testing it went through before its release. If you have clients who rely on you to provide professional service on a tight deadline, the last thing you need is shareware . . . right? Wrong.

If you're on a tight budget, you can save a lot of money by choosing shareware and freeware over giant commercial software packages. But even if price is no object, shareware can be an excellent complement to the tools you already have.

### Grappling with Graphics

Not every graphics chore requires Adobe Photoshop; even if you're a Photoshop pro, you may find that you can perform many image-editing tasks more efficiently using shareware.

Let's say you need to convert 500 images from some graphics format you've never heard of into GIF and then reduce them all by 25 percent, run a "sharpen edges" filter on them, and combine them all into a slide show. You could load up Photoshop, Equilibrium's DeBabelizer, and Microsoft PowerPoint to get the job done, or you could save yourself some RAM and time by launching Thorsten Lemke's nimble $35 **GraphicConverter.** This Rosetta stone of graphics utilities can batch-convert to and from almost any image format, offers a wide range of image-editing options, and can organize your images into a slide-show presentation.




# Shareware

If you create graphics for use on the Web, some new commercial applications—notably Macromedia's FireWorks and Adobe's ImageReady—can make the job much easier. But for many people, nothing beats Yves Piguet's free **GifBuilder,** the original GIF-animation tool. Simply create the cels in your favorite image-editing program—GraphicConverter, perhaps—and then use GifBuilder to assemble them. Its drag-and-drop interface and simple transition effects are pleasant enough, but the program's price (or lack thereof) is the nicest touch of all.

### The Smooth Sounds of Shareware

If your Windows-using friends are in the habit of sending you sound files they've downloaded or recorded on their PCs, you can hear them on your Mac—just get Norman Franke's free **SoundApp** and listen to your friends' desperate pleas for a real operating system. This mother of all sound utilities can translate files from just about any sound format into something your Mac can play, which makes the utility ideal for prepping sound files for the Web or a multimedia presentation. Although SoundApp doesn't offer as many special effects as its commercial cousins, its abilities are quite impressive—and it's free.

If you use your Mac to make music, you'll want to try **FreeMIDI,** from Mark of the Unicorn. This complete MIDI operating system offers an intuitive interface, recognizes more than 200 MIDI devices, and provides a pop-up list of 100 popular MIDI synthesizers.

ILLUSTRATIONS BY JOHN CRAIG

### Shareware at Work

Sure, shareware can help you generate and edit content such as images and sounds. But several shareware programs have an even more practical bent, helping you work more efficiently and get yourself organized.

**Automate Your Life** If you send out tons of e-mail every day or have to key countless entries into a database or word processor, you need an application that automates the process. Riccardo Ettore's $27 **TypeIt4Me,** for example, can save you time by autocompleting frequently used text strings (such as your name and address) whenever you type a simple abbreviation.

If it's task automation you're looking for—word processing or otherwise—check out Binary Software's **KeyQuencer Lite.** For just $20, this powerful macro engine can perform complex tasks such as opening a document, merging text into it, editing the text via menu commands, and then e-mailing the finished product to a mailing list at the touch of a button.

**Get It Together** Even if you use all this shareware to cut your software budget in half and double your productivity, it won't do you a bit of good if you miss an important meeting because your schedule is in disarray. Luckily, one of the best personal information managers available anywhere is only a download away. Chronos's $40 PIM, **Consultant,** offers an intuitive interface that makes it easy to keep up with even the busiest schedule and the most unruly collection of contact information.

If your needs are simpler, use Panda Systems' free **PandoCalendar** to mark events on a compact desktop calendar. There's also John Covele's free **Right On Time,** a versatile calendar that keeps your to-do list handy and reminds you of upcoming meetings.

**Manage Your Money** Once you've started using shareware to streamline your work habits, you may become so efficient that you'll need a way to keep track of all the additional money you're making. One option is **NetBooks,** Symmetry Software's shareware continuation of the popular PeachTree Accounting; it helps you keep your accounts organized, without requiring that you know a lot about accounting.

If you're a FileMaker Pro user, check out **Estimate & Invoice Tracker.** This free set of FileMaker Pro templates from FileMaker Inc. will help you generate bids and track projects from beginning to end. As your fortunes increase, keep an eye on your investments with Michael Foreman's $10 **Financial Portfolio,** a HyperCard stack that stores information about your investments and calculates your net worth.

**Crash Savers** Nothing ruins your day quite like computer troubles, but several shareware programs can help stop problems *before* they start. You don't necessarily need Norton Utilities to keep troubles to a minimum and fix the ones that do crop up; you can prevent problems by using MicroMat's free **TechTool** to perform the regular maintenance Apple recommends. Although this free version doesn't offer all the analysis and repair tools of its commercial cousin, it can

**Groovy Graphics** GraphicConverter can open images saved in almost any format and even gives you the basic tools you'll need to edit them.

## Whatware?

**The fuzzy, twisting line between shareware and commercial software becomes more and more blurred every day. There's no way to fit every product neatly into a single category, but these definitions should help.**

#### COMMERCIAL SOFTWARE

Usually distributed on CDs in shrink-wrapped boxes, commercial software is sold in stores, online, or in a catalog.

**Examples:** Macromedia Director, Microsoft Office 98

#### SHAREWARE

Freely distributed by the author on a trial basis, shareware is usually available via an online service or the Web. The author requests that after a certain period of time, often 30 days, you pay a fee for the software if you want to continue using it. Registering shareware often gets you extra features, or at least removes those annoying payment reminders.

**Examples:** GraphicConverter, Escape Velocity: Override

#### FREEWARE

Freeware is freely distributed software that's available for unlimited use at no cost, though the author retains all rights to the product.

**Examples:** SoundApp, StuffIt Expander

#### PUBLIC DOMAIN

Like freeware, public-domain software is freely distributed, except that the author also distributes the source code with permission to modify the product.

**Examples:** NewsWatcher, Internet Config

#### WHATEVERWARE

Publishers of whateverware don't want money but do want some kind of recognition or reimbursement. These products range from e-mailware (just send the author an e-mail message if you like the product) to the nonsensical sillywalkware (perform a Monty Python silly walk in public if you like the product).

**Examples:** OS 8 Views Setter, Iconizer

#### DEMOS

Scaled-down versions of commercial software products, demos are freely distributed with some features disabled, allowing you to get a feel for the product before purchasing the full version.

**Examples:** Adobe Illustrator demo, MacSoft's Quake demo

rebuild the desktop from scratch, zap the PRAM, test for damaged System files, and clean up your floppy drive—all while you're fetching your morning coffee.

When SCSI voodoo comes to haunt you and all your external drives seem to have disappeared, use the free **SCSIProbe,** from Newer Technology, to diagnose your SCSI chain and mount volumes with a single command. If what ails you is an extension conflict, use Dan Frakes's $15 encyclopedic reference, **InformINIT,** to get detailed information about those gremlinesque extensions lurking in the depths of your System Folder.

Even when you've done all you can, sometimes your only option is a clean install of the system software. Alleviate the pain of this procedure by using Marc Moini's **Clean-Install Assistant** (free for personal use) to transfer files from the fallen System Folder to the reborn one.

**Bug Zappers** Mac viruses have been resurgent as of late, but shareware can help keep your system clean. To eradicate the recent Graphics Accelerator virus, just run John Dalgliesh's free **AntiGax.** The recent AutoStart virus is no match for Matthias Neeracher's free **WormFood,** which flicks that nasty bug off your hard drive and prevents future infections.

Sadly, John Norstad's free **Disinfectant,** which at one point was able to combat all known Mac viruses, is no longer in production; if you need an all-encompassing antivirus program, you'll have to get a commercial package such as Symantec's Norton AntiVirus or Network Associates' VirusScan or Virex.

## Web Wonders

Now that your business is humming along nicely, it's time to put up a Web site to tell the world what you can do. With shareware Internet servers and utilities, you can get your Web site off the ground and ensure that it runs smoothly.

**Can You Spell HTML?** For most HTML purists, the preferred text editor has long been Bare Bones Software's outstanding BBEdit or its freeware sibling, **BBEdit Lite.** The Lite version offers most of the commercial version's editing tools; both give you a wide array of HTML tools that help you breeze through tedious coding chores.

If you aren't an HTML whiz and need a little more help generating Web pages, turn to Optima System's $25 **PageSpinner.** While this HTML editor is not

nearly as powerful as the current crop of WYSIWYG products, PageSpinner is more than adequate for anyone who just needs to post a few pages on the Web.

**Site-Serving Shareware** For serving simple Web sites on your Mac, try Social Engineering's free Web server, **Quid Pro Quo;** it offers most of the abilities of commercial server software and can handle thousands of hits per day. If you want to add FTP services to your site, Stairways Software's $10 **NetPresenz** makes it a snap and even includes Web and Gopher services; if you want to add e-mail service, Stalker Software's free **Stalker Internet Mail Server** is a great choice. Qualcomm also offers an older version of its **Eudora Internet Mail Server** for free.

No matter how meticulously you set them up, servers have a tendency to crash when you least expect it. You could prepare yourself for the inevitable with a $100 server watchdog or spend just $20 for Karl Pottie's **AutoBoot,** which restarts your Mac automatically after a freeze. Another Pottie utility, the $25 **Keep It Up,** attempts to relaunch crashed server applications and can perform regular restarts to help prevent problems.

Crashes aren't the only thing that can bring your Web site to a screeching halt. If an application on your server puts up a dialog box that requires a response, your machine is essentially dead until you click on one of the buttons. Dan Walkowski's free **Okey Dokey Pro** saves the day by checking for dialog boxes as often as you like and automatically clicking on the default button.

**More Online Options** With Web sites sprouting like tribbles, it's hard to make people aware of your site. Rather than writing the address on a napkin, send potential visitors a shortcut to your site—a file created with the freeware **Internet Launcher,** by Gabriele de Simone. Users simply click on the file to launch their browser and go right to your site. (This works only on Macs; you'll need to keep a napkin handy for PC users.)

If you're not using the Web to publicize your business, chances are you're using it for research. If you're sick of printing 20 pages of images and tables just to get one paragraph of text, download John Moe's brilliant **Net-Print** and print only the text you select.

## The Last Word

Big commercial applications will always be around; they simply offer the biggest bang, albeit for the biggest buck. But if you don't want to buy an expensive application just to gain access to a single feature, or if the application you already own doesn't handle certain tasks the way you'd like, don't shy away from shareware. And—this is the best part—if you don't like it, you don't have to pay for it.

Perhaps the best thing about shareware is that so many new products come out every day that this article is probably out of date already. To keep you current, we'll maintain a list of all the shareware mentioned in this article, plus additional shareware items, at www.macworld.com/more/. If you've found other shareware products that help you get your work done better, tell us about them and we'll add them to the list. And if you're looking for a product that doesn't appear on our list, check for it at one of the other sites mentioned in "Bookmarks."

Finally, if you do find a piece of shareware you like, please don't forget to register it. Not only will you be doing the right thing but you'll also be giving shareware authors the incentive to think of more insanely great ways to improve your Mac computing experience. **m**

JOHN FU and PHILIP DYER love shareware because of the powerful features it offers . . . and because they're shameless cheapskates.

**Bookmarks**

**Macworld's Shareware Page**
www.macworld.com/more/

**Info-Mac HyperArchive**
http://hyperarchive.lcs.mit.edu/HyperArchive/HyperArchive.html

**cnet's Download.com**
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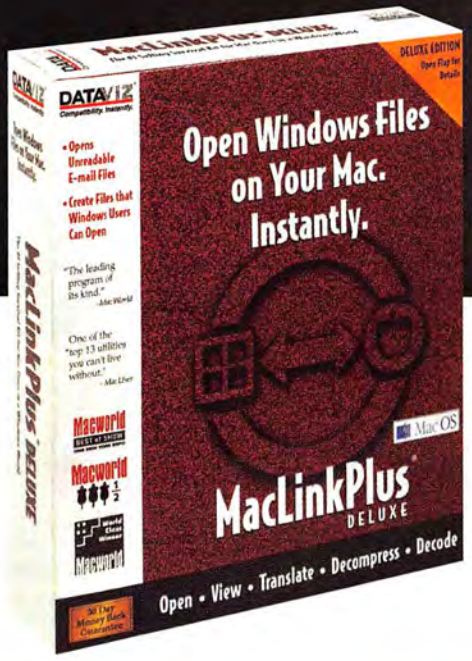


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# Secrets

## Keep Your Office Running Smoothly

WHAT TO DO WHEN OFFICE 98 MISBEHAVES

by Ted Landau

The buzz on Microsoft Office 98 has become a deafening roar of approval: Office 98 is a vast improvement over previous versions. But given the abundance of features, it's not surprising that the suite is still experiencing growing pains. If you're an Office user, or thinking of becoming one, learn how to protect yourself from the bugs you may encounter—*before* one of them bites you.

### Remove Office 98 Goes Too Far

**Problem** If you want to uninstall Office 98, one of your options is to use a utility called Remove Office 98 (located in the Administration Tools folder). This program does a clean sweep, removing virtually all traces of Office 98 files from your disk. Unfortunately, it can get overzealous and move your entire System Folder to the Trash. According to Microsoft, this can happen only if an MS Library file named Microsoft Office 98 somehow winds up in the System Folder instead of in the Microsoft Office folder. Regardless, numerous users have run this utility and had their System Folders vanish before their eyes.

**Solution** Fortunately, only version 1.0 of the utility is prone to this disaster. More-recent copies of the Office CD-ROM ship with version 1.1, which fixes the bug. If you have version 1.0, be sure to download the 1.1 upgrade from Microsoft's Web site (see "Bookmarks").

### PowerPoint Fails to Convert

**Problem** If you ever need to convert a PowerPoint 98 file to an earlier version of the program, simply selecting the appropriate translator from the pop-up menu in the Save dialog box should work. If your file is a relatively large one, however, you may get a "Memory full" error message when you try to convert the file.

**Solution** Surprisingly, increasing PowerPoint's memory (in the Get Info window) won't help. To get the conversion to work, you need to increase the memory of another utility, PP Translator 8-4 (which turns out to be the one that does the actual conversion). You'll find it in the Translators folder (Microsoft Office 98: Office: Translators).

### Word Refuses to Save

**Problem** Saving a Word 98 document usually works without a hitch. But Word may occasionally refuse to save your document, claiming you have too many files open. Mysteriously, Word 98 will stand by this claim even if the document you're trying to save is the only open file.

**Solution** Save the file in Word 6 for-

*continues*

RICCARDO STAMPATORI

mat. Next, quit Word 98 and reopen the document. You should now be able to save it in Word 98 format. This solution is less than ideal if the document contains formatting unique to Word 98 and that can't be converted, but at least it lets you save the text.

Since the problem seems to be related to the proliferation of work files Word creates when you repeatedly save an open document, turning off Word's Fast Save option should help. To do this, select Preferences from the Tools menu and then clear the Allow Fast Saves check box in the Save tab.

### The Red X of Death

**Problem** Word 98's Insert Picture command lets you embed graphics in a Word document. The problem, particularly if the file contains several graphics, is that the images can suddenly disappear; in their place is a red *X*, dubbed by its victims "the Red X of Death."

**Solution** Whatever you do, don't save the file! If you do, all the graphics will be lost and you'll have to reinsert them. Instead, quit Word, select Get Info for the Word application, and increase the Preferred Memory size—give it as much as 30MB if you have enough memory. The *X*'s are unlikely to reappear. (Microsoft is working on a permanent fix.)

### Ê's Disappearing Act

**Problem** In Word 98, typing option-I followed by shift-E should produce a capital *E* with a circumflex mark over it (*Ê*, a character not often used in English but common in other languages). If you try this, however, you'll probably get a space where the letter should be.

**Solution** Select Preferences from the Tools menu. From the Nonprinting Characters section of the View tab, deselect All (if it's selected), make sure Spaces isn't selected, and click on OK. The *Ê* should magically appear.

### Word 98's Security Leak

**Problem** Open a Word 98 document in any text editor, such as Bare Bones' BBEdit (select Any File from the pop-up menu in BBEdit's Open dialog box to list Word files). Now scroll through the document. If your experience is typical, you'll find extraneous text that's invisible when you're viewing the document in Word. This text comes from other, usually deleted, files on your hard disk. Why worry about this? Because if you send these files to users who know how to make the extraneous text appear, you could be revealing confidential information.

**Solution** Microsoft's Office 98 Unwanted Data Patch squashes this bug. By the way, this problem isn't unique to Word; it can occur with any application that uses Microsoft's OLE (Object Linking and Embedding) technology, which allows applications to share data.

### Contextual Menus Hide and Seek

**Problem** In Mac OS 8, you can access contextual menus by holding down the control key when you click the mouse. Office 98 has its own built-in contextual menus that override the Mac OS contextual menus that would otherwise appear. But if you've installed Contextual Menu Enabler—an extension needed by some contextual-menu software, such as Apple Data Detectors—it trumps Office 98, and you're back to the Mac OS menus.

**Bookmarks**

**Patches** To download the Microsoft patches mentioned in this article, go to Microsoft's Known Issues Web page.
**www.microsoft.com/macoffice/productinfo/issues.htm**
And if you've moved up to the latest OS, you'll also want to download the Office 98 Updater for Mac OS 8.5.
**www.microsoft.com/macoffice/85update.htm**

**Microsoft Support** For other information on Office 98 problems, search Microsoft's Knowledge Base.
**http://support.microsoft.com/support/**

**Beyond Microsoft** If you can't find what you want at Microsoft's site, try one of the numerous independent Web sites, including my own MacFixIt.
**www.macfixit.com**

**Solution** If you want the Office 98 contextual menus but want to keep the Enabler installed (for use with other applications), go to the Help menu and select the Turn Off Contextual Menus option for the Office application. This option appears in the Help menu when you install Apple Data Detectors 1.0.2 or later. **m**

Contributing Editor TED LANDAU maintains the MacFixIt Web site (www.macfixit.com), where you'll find still more solutions to Office 98 problems.

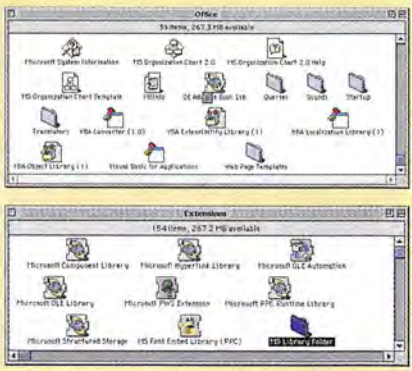
## Solving Office Extension Conflicts

OFFICE 98 PLACES MANY FILES IN THE System Folder's Extensions folder (see "A Full Office"). Like anything else on your disk, these files can become corrupted, or installers for other applications that use some of the same files may replace them with newer or older versions. In either case, the result may be that Office applications no longer launch. If you can identify the likely problem file, you can use this generic fix.

1. Move the file from the Extensions folder in your System Folder to the desktop.
2. Delete the Microsoft Component Library file from the Extensions folder.
3. Start any Microsoft Office 98 program. The First Run install process begins, and the missing extension file is replaced with the uncorrupted version from Office 98.

A known instance of this problem involves Adobe Photoshop 5: it installs OLE Automation 2.06, which prevents Office 98 applications from working. One solution is to install Photoshop, move the Automation 2.06 file from the Extensions folder to the Photoshop folder, and then install Office 98.

If you've already installed Office 98, remove the OLE Automation and OLE Library files from the Extensions folder and then install Photoshop. Move OLE Automation 2.06 to the Photoshop folder, and launch Word 98 to get the First Run application to reinstall the removed files.



**A Full Office** Here's a peek at just some of the dozens of files and folders Office 98 installs.

# Quick Tips

## Tips, Tricks, and Shortcuts

by Lon Poole

Do you want to save QuickTime movies via your Web browser but haven't yet paid for the $30 QuickTime 3.0 Pro upgrade that makes this possible? If you use Netscape Navigator or Communicator and have QuickTime 3.0's standard Web plug-in, you can use several workarounds. Some readers suggest scrounging for the movie files in the Netscape cache folder, but Tobias Lee of London has a more direct procedure for Navigator 4.0 and Communicator 4.0.

After watching a QuickTime movie in Navigator or Communicator, choose Page Info from the View menu. A split window appears. The top pane lists URLs for all the images and movies on the Web page, and the bottom pane displays details about the listed items one at a time as you click on the URLs. In the top pane, locate the URL for the movie you want to save (it's labeled Embed, not Image) and click the adjacent URL to see details about the movie in the lower pane. In the lower pane, click the URL labeled Netsite to load the movie into the pane, and choose Save As from the File menu. Be sure to set the Format option to Source in the Save As dialog box. With default preference settings, Netscape saves the movie as a MoviePlayer file; you can then double-click the movie's icon in the Finder to open it with MoviePlayer.

If you use Navigator 3.0, you can use a similar procedure sent in by Paul Burney of Framingham, Massachusetts. After watching a QuickTime movie in the browser, choose Document Info from the View menu. In the top of the split window that appears, click the link for the movie and hold down the mouse button until a contextual menu appears. Choose Save This Link As from the contextual menu, and be sure to set the Format option to Source in the Save dialog box.

### Control Too-Speedy Scrolling

**Q.** My G3 Mac scrolls too fast. When I drag my cursor past the bottom of a ClarisWorks 5.0 spreadsheet window, hoping to scroll to cell A35, my computer flies to cell A134 before I can stop it. This also happens when I try to highlight text in a word-processor document. Is there any way to control my G3's scrolling speed?

ROBERT TRIEFF
*Massillon, Ohio*

**A.** The free Scrolling control panel by Ken McLeod (found on Ted Landau's MacFixIt Web site at www.macfixit.com/library/tul/scrolling.sit.hqx) lets you adjust how fast windows scroll and how quickly scrolling accelerates to the speed limit. It doesn't seem to affect scrolling in menus, however. Although this control panel has been around since 1991, it worked fine in my brief tests with Mac OS 8.1. It does not work in Mac OS 8.5, however.

### Test Your Phone Line

**Q.** When my 56-Kbps modem connects to the Internet, the connection speed is only 24 Kbps. I would like to get at least 38.8 Kbps, but I'm not sure whether the problem is my Internet service provider or my telephone line. How can I test my phone line to find out if it's the limiting factor?

MICHAEL O'LAUGHLIN
*Breckenridge, Minnesota*

**A.** You can test your telephone line by having a terminal program such as the freeware ZTerm or the communications module of ClarisWorks call 3Com's US Robotics BBS from your computer. You can find instructions for doing this on 3Com's Web site at www.3com.com/56k/need4_56k/linetest.html. If your phone line passes the test, then make sure the correct modem script is selected in your Modem control panel. Or if your Mac uses FreePPP or MacPPP for Internet connections, make sure the FreePPP Setup control panel or ConfigPPP control panel is configured properly for your modem.

### Print from an iMac via LocalTalk

**Q.** I want to connect a 68040 Macintosh to my iMac. Since the iMac has only an Ethernet connection, do I need to buy an Ethernet card for the 68040 Mac? And once I get these

*continues*

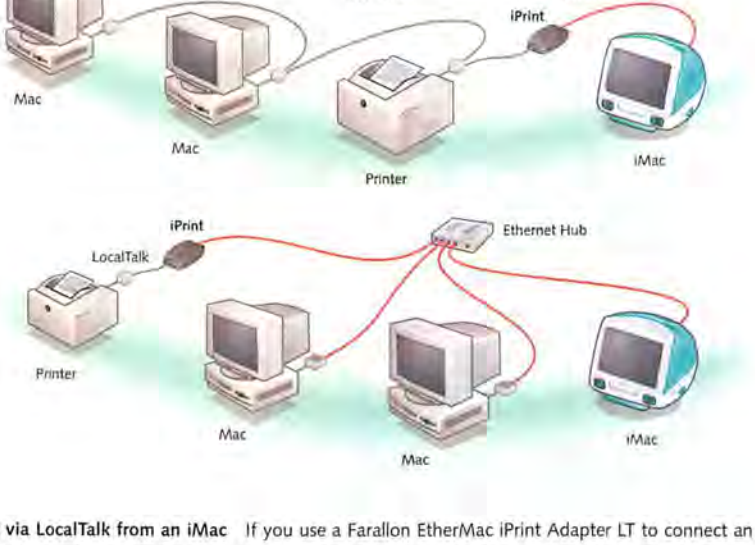
babies connected, can I print from the iMac over my spiffy new network to a laser printer connected to my old Mac?

JIM LAVRAKAS
*Anchorage, Alaska*

A You can connect the iMac and your old Mac via Ethernet (see *Quick Tips*, December 1998), but this network is separate from the LocalTalk network connection used by most laser printers. Although the Ethernet and LocalTalk networks both use the AppleTalk protocol, the Mac OS can connect via only one at a time.

Fortunately, you can *interconnect* the two different AppleTalk networks. One way is to install Apple's free LaserWriter Bridge control panel on your old Mac. This allows the iMac and any other computers you might add to the Ethernet network to use the laser printer on the LocalTalk network, as long as the old Mac is turned on. But LaserWriter Bridge doesn't enable any communication between Macs on the LocalTalk network and computers on the Ethernet network. Apple's LocalTalk Bridge control panel enables computers on the two networks to share files and services, but it tends to sap the performance of the computer it's installed on.

You can avoid all the shortcomings of the bridge software with a device such as Farallon's $99 EtherMac iPrint Adapter LT. You simply connect the LocalTalk network and the Ethernet network to the iPrint, and then computers on either network can use printers, files, servers, and other services on the other network. The iPrint actually gives you a couple of network-connection options, as shown in "Printing via LocalTalk from an iMac."




**Printing via LocalTalk from an iMac** If you use a Farallon EtherMac iPrint Adapter LT to connect an iMac to older Macs and a LocalTalk printer, you can either put all the computers on an Ethernet network (bottom) or put the old computers on a LocalTalk network with the printer (top). Using an Ethernet network gives you better file-sharing performance, but you need to buy a hub and Ethernet transceivers or adapter cards for some old Macs. Printing performance is the same with either option.

## Achieve Orderly Start-Up

**TIP** In "Work Less, Do More" (*Secrets*, October 1998), Joseph Schorr mentions putting program aliases into your Startup Items folder. To take this a step further, add a z to the beginning of the alias's name for the program you want to use first after start-up, so it will be the last item to open. For instance, I usually check my e-mail first, so I renamed Eudora's alias zEudora.

DOUGLAS MEHR
*Gurnee, Illinois*

*If the first program you want to use after start-up is one you expect to keep open longer than other start-up programs, put a second alias of it in the Startup Items folder. Name this alias 01, so your preferred program opens* before *the others. Then after all your start-up items open, the alias with the z should make your preferred program (already open) come to the front. If you leave this program open and quit others, you're less likely to end up with fragmented memory (several small blocks of unused memory but no one block large enough to open another program).—L.P.*

## Track Installation with Labels

**TIP** To track the installation of control panels, extensions, and other items in the System Folder, I use the Finder's Labels feature. First, I assign a label to all items installed in the Control Panels, Extensions, and other special folders as part of the Mac OS installation. Each time I install new software, I know that the unlabeled items in these folders have been added by that software's installation. If no problem arises from the new items, I eventually give them a different label to distinguish them from newer items placed during the next installation.

DIETER KERSCHBAUMER
*Olten, Switzerland*

## Keep Your Lap Cool

**TIP** Does your PowerBook overheat your lap? Since the day I got my PowerBook 1400, I've used it on a lap desk. Lap desks typically have a ledge to keep pens from rolling into your lap, which helps your PowerBook stay put, and some have a beanbaglike bottom that conforms to your lap. The flat desk surface supports your PowerBook's feet, ensuring an airspace underneath, and the beanbag bottom lets you position the desk comfortably.

JON C. HAVERSTICK
*Santa Ana, California*

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LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 8 Bible* (IDG Books Worldwide, 1997).

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All shareware and freeware mentioned in *Quick Tips* is available from the Macworld Online software library (www.macdownload.com).

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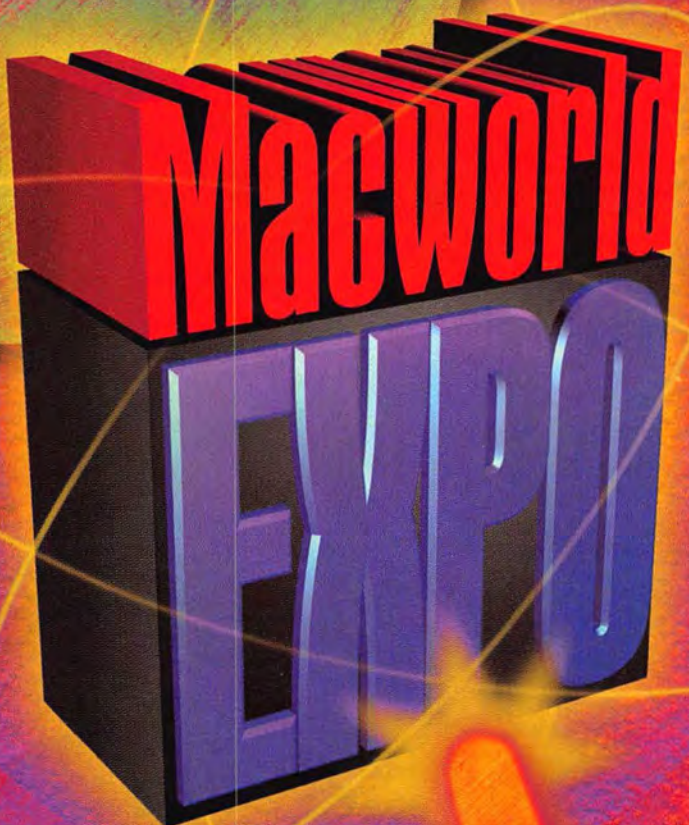
JANUARY 4-8, 1999

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In today's fast changing "wired world," it's a fact of life — Macintosh users lead the way into the creative markets, schools and the home while the others follow. Come to MACWORLD Expo/San Francisco to see what technologies, strategies and solutions the rest of the world will soon be using.

MACWORLD Expo/San Francisco is the largest Mac-focused event where you can see all the industry's leading vendors and latest innovations. There is no better opportunity to see, hear and learn so many ways to improve your productivity, business results and home computing experience. Look at all you can do at MACWORLD Expo/San Francisco:

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- *With the successful introduction of the iMac and PowerMac G3's, new products are coming to the market at an unprecedented pace. Buy these products right on the show floor—at a discounted price!*
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- *Network with other Mac professionals to share ideas and insights on getting the most from the iMac and other high-performance G3 products.*

- **TOWN MEETING:** January 4, 1999
- **PRE-CONFERENCE WORKSHOPS:** January 4, 1999
- **KEYNOTE ADDRESS:** January 5, 1999
- **EXHIBITS:** January 5-8, 1999
- **Macworld/Pro CONFERENCE:** January 5-7, 1999
- **MACWORLD EXPO USERS CONFERENCE:** January 6-8, 1999

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# Industry Leaders Speak Out!

## KEYNOTE ADDRESS:

The Macintosh industry is one of the most exciting and fast-moving places to be these days. What are the trends that will shape the industry in the year ahead? What are the technologies to keep an eye on? Hear the insights and predictions of the people who are moving the industry forward at the MACWORLD Expo keynote address. MACWORLD Expo is traditionally the place where the news is made—don't miss this opportunity to hear it first!

**Tuesday, January 5, 9:00 a.m. - 10:00 a.m.** *at the Marriott Hotel*

## TOWN MEETING:

MACWORLD Expo Conference attendees are invited to attend this opening session of MACWORLD Expo/San Francisco. Hosted by conference chairperson Paul Kent and Mac industry stalwart Bob LeVitus; come and hear experts from all corners of the Mac community speak on a variety of subjects. The MACWORLD Expo Town Meeting features lectures, debates, performance, cool demos and interactive discussions.

**Monday, January 4, 9:00 a.m. - 11:30 a.m.**

# Special Interest Environments

***ON THE MACWORLD EXPO EXHIBIT FLOOR*** **January 5 - 8, 1999**

## EDUCATION DISTRICT

The newly expanded Education District will showcase software, Internet tools, curriculum building solutions and multimedia for schools, training and home learning. Bursting with new applications, hardware, and real-world solutions from leading developers and solutions providers, the Education District will bring you new ways to enhance classroom learning.

## APPLE DEVELOPER CENTRAL

Come see the latest applications, custom solutions, multimedia, scientific and engineering solutions for the Macintosh. Annually Developer Central is one of the very best resource centers where software developers can find the tools and solutions they need to grow their companies and reduce development time and costs.

## CONSUMER APPLICATIONS AT HOME

Consumer Applications at Home will be the premier showcase for digital entertainment and consumer applications created for home use. Supported by Apple Computer, this exciting area will deliver hands-on demonstrations, solutions, and real-life business models for consumer applications, appliances and entertainment content.

## EXTENSIONS WORKSHOP FOR CREATIVE CONTENT

The Extensions Workshop is the showcase for the most popular desktop publishing, multimedia and pre-press applications. Its bound to be a major attraction at MACWORLD Expo! Join the World-Wide Power Company and XChange NA in demonstrating and reviewing cutting-edge extensions designed to help you create and publish compelling content.

## MACINTOSH GAMING CHAMPIONSHIP & EXHIBITIONS

Showcasing the latest gaming titles and environments for the iMac and other Mac products, the Macintosh Gaming Exhibitions is a high-energy interactive area to get your hands-on today's hottest games. Featuring the ultra-successful National Macintosh Gaming Championship and retail store, you will have the opportunity to demonstrate, compete, and buy the latest Mac game titles.

*Check out* ***www.macworldexpo.com*** *regularly for updates and announcements about other new special attractions on the MACWORLD Expo show floor, including areas dedicated to QuickTime™, Internet server and application development tools, video streaming and content asset management.*

Macworld EXPO

# PRE-CONFERENCE WORKSHOPS

**Monday, January 4, 1999:**
**12:00 p.m. – 7:00 p.m.**

**Make the most of your time at MACWORLD Expo/San Francisco. Take advantage of this unique opportunity to spend an entire day getting in-depth training before the conferences and exhibits begin. Full workshop session descriptions are posted on the Web at: www.macworldexpo.com.**

- **[WA]** Practical Introduction to Mac Networking
- **[WB]** Designing Web Pages with Dynamic HTML
- **[WC]** Desktop Publishing: The Big Picture
- **[WD]** Creation of High Quality Photographic Web Content
- **[WE]** Essentials of Web Publishing
- **[WF]** Putting Internet Commerce to Work
- **[WG]** Optimizing AppleShare IP in the Integrated Network Environment
- **[WH]** Macintosh Network Administration with the Apple Network Administrators Toolkit
- **[WI]** Introduction to Content Asset Management
- **[WJ]** Workflow Automation with AppleScript

# THE CONFERENCE PROGRAM

## Macworld/Pro Conference • MACWORLD Expo Users Conference

# Macworld/Pro

### The Technical Conference for Macintosh Professionals

**January 5 - 7, 1999**

Get in-depth, advanced technical training at MACWORLD Expo by participating in the Macworld/Pro Conference. Improve your skills, meet other Mac professionals with similar challenges and stay on top of your profession. The Macworld/Pro Conference is designed for:

- Webmasters, Content Creators, Web Entrepreneurs, Web Developers
- Network Managers, Network Administrators
- Support Professionals
- Developers
- Mac Platform Managers from Business, Government and Education
- IS/IT/MIS Managers
- Educators

Participate in these sessions led by a faculty of world-class instructors and lecturers and take your computing efforts to the next level. You'll emerge from this conference with enhanced skills and a wealth of new information. Here's what you can expect.

## Macintosh Networking & Communications

This track presents techniques and technologies associated with deploying Macintosh LANs, WANs, Internet/Intranets and remote access. These technical sessions take you inside the protocols and services you will encounter when using Macs on a network.

**Sessions Include:**

- Open Transport Update – the Macs on TCP/IP Report
- Tuning Open Transport
- On the Trail of Network Problems
- High Speed Connection Alternatives – Which is Best for You?
- Building a Mac-Centric Intranet

... and more

## Creative Track 1

This track hosts several theme days of education for creative professionals. "PDF Day" goes inside the world of the Portable Document Format and reveals how you can mass distribute documents to users and ensure consistent viewability. "Managing New Media Businesses Day" offers sage advice and practical tips for competing in the hot new media creative world. "Publishing Automation Day" offers 3 solution filled sessions for optimizing publishing workflow processes to save you time and money.

**Sessions Include:**

- Introduction to PDF
- PDF in the Real World
- Color Management: Digital Proofing
- Pub Auto: Working in RGB
- Pub Auto: Taking Content In-House

... and more!

## Creative Track 2

The second Creative Track features full days of courses for professional Webmasters, Digital Video and Broadcast pros, and some fascinating and informative sessions about Content Asset Management. Attend these sessions and you will go inside these hot areas and discover new means to enhance your skills.

**Sessions Include:**

- Web Day: Understanding and Applying XML
- Web Day: Top 20 Tips for Webmasters
- Video Day: Producing Interactive TV for WebTV
- Video Day: Production for Digital Broadcast
- Content Management: Web-Based Content Management

... and more!

## Creative Track 3

Creative Track 3 offers a comprehensive curriculum of Color Management courses. Learn how to insure color from source through delivery in these hot, timely and cutting edge sessions. The track is rounded out with a series of practical sessions on Pre-Flighting, Web Audio and QuickTime™ that will provide excellent advice on these ground breaking technologies.

**Sessions Include:**

- Color Management: ColorSync Workflow
- Color Management: Deploying Color Servers
- Create Biz: Issues in Running a Web Design Agency
- Pre-flighting or How to Save $400 at the Service Bureau
- Delivering Audio on the WWW

... and more!

## Managing the Mac Platform

The Macintosh continues to be a platform in transition. Environments that deploy Mac OS and related technologies are being forced to evolve along with the platform. It is now more critical than ever to approach Mac systems management methodically no matter what size your organization.

**Sessions Include:**

- Managing Your Hardware Assets
- Software License Compliance
- Backup Planning and Disaster Recovery
- Planning the Next Generation Mac
- Technical Overview of USB

... and more!

# MACWORLD Expo Users Conference

**January 6 - 8, 1999**

Learn from the professionals about how to use your Mac at work, at home, at school and on the road by participating in this conference program.

## Maxing Your Mac

Put your Macintosh in full throttle and squeeze every bit of performance out of it. Whether you're working with an old Mac or the latest fully loaded model, you'll get a lot of sound advice and useful tips from experts.

**Sessions Include:**

- Connect your New iMac to Your Old Stuff
- Fabulous Powerbook Speedups
- How to Get the Most from Your iMac
- Mysteries of the System Folder Revealed – Part I & II
- Troubleshooting - Unlikely Solutions

... and more!

## The MACWORLD Expo Gallery

Creative people have always chosen the Macintosh as the best tool for turning their vision into reality. This track features renown artists from around the Mac community demonstrating their dazzling works and explaining how they used Mac-based tools to achieve their stunning success. See why the Macintosh is still the premiere environment for bringing creative ideas to life.

**Sessions Include:**

- 3D Techniques
- Making Beautiful Music: The Macintosh Musician
- Ho-Hum to WOW in 60 Seconds Flat
- How'd they do that (with Adobe Illustrator!)
- Creative Macintosh Layout Techniques

... and more!

## Crash Courses

Need to get the scoop on the latest technology? Want to get up to speed with the hottest tools? Attend our Crash Courses for a quick hit of technology explanations to help make you a more informed Macintosh user.

**Sessions Include:**

- Getting Started with Digital Photography
- Getting Setup for the Internet
- Other Uses on the Mac
- Your First Web Page
- How the Internet Works

... and more!

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# THE CONFERENCE PROGRAM

## Macworld/Pro Conference • MACWORLD Expo Users Conference

### Top Tools

Extend your mastery of a variety of Mac tools by attending these power-user sessions. Whether you're wondering how to get more out of the tools you use every day or learn what a new tool can do for you, these sessions will unlock the secrets of your favorite programs and get you up to speed quickly with advanced features you didn't know were available.

**Sessions Include:**

- Advanced Filemaker Techniques
- Just Flash It!
- Better HTML
- Hot Quark Tips and Tricks
- Digital Wizardry with Photoshop

... and more!

### Apple Technology Tutorials

Inside your Macintosh are some of the most advanced and innovative system technologies available on any computer platform. Gain in-depth understanding of these technologies, learn why they're special.

**Sessions Include:**

- Introduction to QuickTime™ 3.0
- Understanding ColorSync
- Secrets of AppleScript Wizard
- Mac OS Update
- Setting Up a LAN with AppleShare IP

... and more!

### Center Stage

We've invited some of the luminaries from the Mac community to share their visions, educate, entertain and enlighten you in these sessions. On Center Stage you'll gain new perspectives from some of the most progressive thinkers in our industry.

**Sessions Include:**

- How to Be a Mac Power User
- Renegade Publishing
- How to Ruin the Internet
- Delivering on the Promise of the Web: Making Everyone a Desktop Publisher

... and more!

### Small Office/Home Office (SOHO)

It's never been easier or more fun to use Macintosh technology to launch and operate a small company, home-based business or to telecommute from your home office. Learn from experts how to put technology to work for you painlessly to create a lean, mean business machine.

**Sessions Include:**

- Putting Your Small Business on the Web
- Be a Mac Office—Even if Your Clients are on Windows!
- Telecommuting Essentials
- Small Business Intranet Instruction Kit: Part I and II
- Macintosh Telephony for Small Business

... and more!

### For Educators Only

The Macintosh paradigm for computing ease-of-use has made it the platform of choice for educators world-wide. This track showcases innovative applications and techniques that can enhance both learning and teaching opportunities in your school.

**Sessions Include:**

- A Taste of Apple Staff Development
- Practical uses of QuickTime™ in Education

... and more!

### *Macworld* Magazine Presents

*Macworld's* editors, columnists and featured guest speakers present the hottest topics straight off the pages of the industry's premier publication.

**Sessions Include:**

- *Macworld* Magazine's Presents Vision Thing Live
- *Macworld* Magazine's Presents Newsmakers... A Candid Discussion
- *Macworld* Magazine's Best of Show
- Ask the Experts
- The Game Hall of Fame
- The Best of *Macworld* Magazine's Mac Secrets

... and more!

### Goodies

These light-hearted sessions are just for fun! Come join fellow members of the Macintosh user community as we celebrate technology in this wild, weird and wonderful track.

**Sessions Include:**

- Better Living Through Home Electronics – Gadgets
- Palm Pilot & Macintosh – A Match Synched in Heaven
- The Game Gurus
- Home Networking for the Two Computer Family
- Sports on the Internet

... and more!

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### Travel to MACWORLD Expo/San Francisco Made Easy and Convenient!

Early booking is strongly advised to ensure best hotel selection. Hotel reservations will be assigned on a first-come first-served basis based on availability. Rates shown are per night, per room, and do not include room tax, currently 14% San Francisco occupancy tax. After December 1, 1998 the convention rate may not apply.

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**Email: macworld@chmrooms.com.**

# MACWORLD EXPO / SAN FRANCISCO ADVANCE REGISTRATION FORM

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**All Conference and Keynote Sessions are on a first-come, first-served basis, with the exception of the Pre-Conference Workshops. Please choose your package and fill out the form completely. Incomplete forms will be returned. Please use one form per person; make photocopies for additional people.**

| | Early Discount Registration *on or before 12/4/98 via phone, www, fax or mail* | Regular Registration *(12/5/98-12/30/98) via phone, www or on-site* |
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| Includes: Pre-Conference Workshops • Lunch (Mon. only) • Keynote Presentation • Macworld/Pro Conference Sessions • MACWORLD Expo Users Conference Sessions • Exhibits • Town Meeting | | |
| W **(Write in your Workshop selection code– see list on page 3 of ad. Forms without workshop selection will be returned.)** | | |
| ☐ **Package 2 – Macworld/Pro and Pre-Conference Workshop (Jan. 4-7)** | **$795** | **$895** |
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| ☐ **Package 3 – Macworld/Pro Conference (Jan. 5-7)** | **$595** | **$695** |
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WHAT IS YOUR JOB FUNCTION? (Check One Only)
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- ☐ 29. DP/IS Management/CIO
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- ☐ 41. Training
- ☐ 42. Other_____

WHAT IS THE SIZE OF YOUR ORGANIZATION?
- ☐ 43. Under 50
- ☐ 44. 50-99
- ☐ 45. 100-499
- ☐ 46. 500-999
- ☐ 47. 1000 & Over

WHICH PERSONAL COMPUTERS DO YOU USE? **(Check all that apply)**
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- ☐ 49. Macintosh Performa Series
- ☐ 50. Macintosh Quadra Series
- ☐ 51. Macintosh Workgroup Series
- ☐ 52. PowerMac
- ☐ 53. iMac
- ☐ 54. PowerMac G3
- ☐ 55. PowerBook G3
- ☐ 56. IBM PC or compatible desktop
- ☐ 57. IBM Laptop/Notebook
- ☐ 58. Other_____

ARE THE COMPUTERS AT YOUR ORGANIZATION NETWORKED?
- ☐ 59. Yes
- ☐ 60. No

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- If you register between Dec. 5 and Dec. 30, you MUST pick up your badge on-site at the On-Site Badge Pick-Up Counter.
- All international (including Canada) attendees must pick up badge on-site at the On-Site Badge Pick-Up Counter.
- Confirmation of registration will be sent once registration is processed. Pre-registration deadline is December 4, 1998
- U.S. Badges will be mailed after December 22 for registrations received through 12/4/98.
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EDSE9AD1

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111 WEB
115 MOTION



# A Strong Batch of DeBabelizer

## Tips for Automating the Ultimate Image-Manipulation Utility

by Jim Heid

Today's designer wears more hats than a millinery model. In addition to producing printed materials, you might also be involved in Web-site and CD-ROM projects. Where graphics and images are concerned, each medium has its own unique requirements—color catalogs need high-resolution images, for instance, while Web sites need fast-downloading ones. These disparate requirements probably force you to spend more time than you'd like just converting files. Open a high-resolution TIFF file, shrink it down for the Web, save it as a JPEG; rinse and repeat.

But there is a way to automate this grunt work. Designers and multimedia producers have long sworn by Equilibrium's DeBabelizer, the ultimate graphics-manipulation and file-conversion utility. DeBabelizer can open and save every major graphics file format and most of the minor ones. It lets you apply quality-optimized color palettes, tweak brightness and contrast, crop and resize, and much more. Best of all, you can automate these processes and apply them to an entire collection of images.

But before swearing by DeBabelizer, many designers find themselves swearing *at* it. It's ironic that visually oriented people must rely on a program that can be ugly and awkward, has cluttered dialog boxes, and makes you use the Open command to delete a file.

DeBabelizer's beauty lies beneath its rough exterior, and the best way to break through that exterior is in small steps. What follows is a road map for mastering the product's automation features, with a sidebar ("Put Your File Conversion on Autopilot") showing how to tackle a common conversion scenario.

### The DeBabelizer Difference

All image-editing programs can convert between file formats, resize images, and reduce bit depth; many also have batch modes that let you automate these tasks. So why grapple with a program as arcane as DeBabelizer?

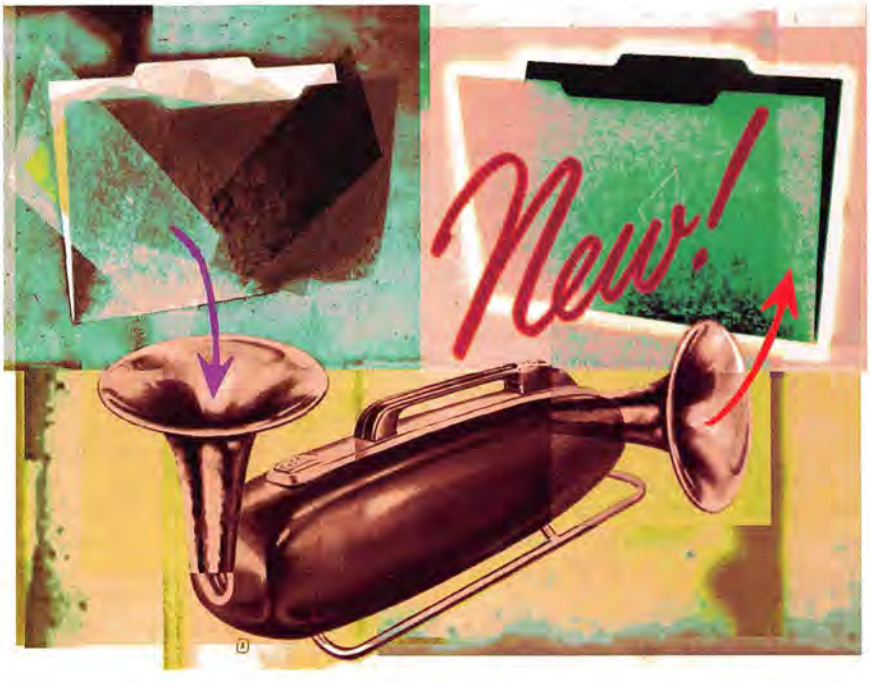
For one, DeBabelizer's ability to create custom color palettes is unmatched. Even better, the utility can examine a collection of images and create a single color palette that best reflects their colors. You can then apply this SuperPalette to the images.

DeBabelizer also excels at *dithering*, the process of combining colored dots in patterns to simulate other hues. Dithering is an essential part of the bit-depth–reduction process, and DeBabelizer offers more control over dithering than any image editor.

What's more, while the batch features in image editors are limited to manipulating the contents of a single folder, DeBabelizer's autopilot can transcend a single folder and even a single computer. You can, for instance, set up a drop folder on a file server, and then tell DeBabelizer to monitor that folder so that whenever anyone tosses an image into it, a batch process executes. This can be a boon to large shops where several designers are working on their own sets of images.

Unlike image editors, DeBabelizer also supports conditional processing: you can specify that a task be performed only if certain conditions are true. The sidebar shows this capability in action; it details

*continues*




JENNIFER JESSEE

## Put Your File Conversion on Autopilot

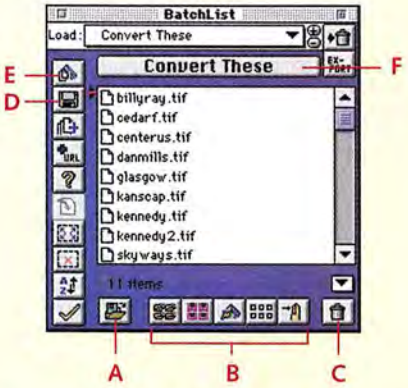
HERE'S A COMMON SCENARIO THAT SCREAMS FOR DEBABELIZER'S batch-processing talents: You've just finished producing a lavish four-color catalog. Now you need to adapt its images for use on the Web and for your company's sales force to plop into presentations and word processing documents. For the Web, you'll need to convert your original, high-resolution TIFF images into JPEG format. You'll also need to lighten the images slightly so they display well under Windows, where images appear darker than on Macs.

What's more, you'll want to create a thumbnail version of any image whose horizontal dimension is wider than 300 pixels; on the final Web site, you'll link these thumbnails to their larger counterparts. Finally, you'll need color PICT files. Here's how to make it all happen.

---

**1 Set up your folders.**
Create three folders to hold the final, converted images: JPEG Files, Thumbnail JPEG Files, and PICT Files.

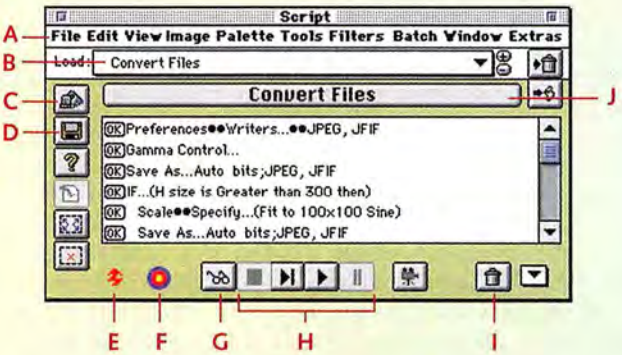
**2 Set up a batch list.**
DeBabelizer's BatchList window lets you set up lists of files to be converted. There are several ways to add files to a batch list, but the easiest is to open the folder containing the files, select the files, and then drag them to the BatchList window.




A Opens the files in this batch list.
B Performs batch-automation operations on those files.
C Removes the selected file(s) from the batch list.
D Saves this batch list.
E Creates a new batch list.
F Allows you to rename the batch list.

**3 Create an automation script.**
The most complex part of any DeBabelizer automation chore is deciding which approach to take and testing that approach.

For this project's rather complex requirements, we'll create a single script named Convert Files. Choose Script from the Window menu, then click on the New Script button (C) to clear the Script window's contents and create a new script. Name the new script Convert Files. (You can apply the Convert Files script to a single image by dragging the image's icon from the Finder to the Script window's target button, the small bull's-eye. This is a handy way to convert and scale just one image.)




A Menu of commands you can add to the script.
B Switches between scripts.
C Clears the script window.
D Saves the script.

how to set up the program so it automatically creates a thumbnail version of any image whose horizontal dimension is larger than 300 pixels.

### Choosing an Automation Option

Fleshing out a DeBabelizer batch-processing job is a form of programming. You don't actually peck out lines of program code, but you do have to apply the same logical, stepwise thought processes—thinking through what you want to accomplish and then determining the best approach.

DeBabelizer offers several batch-processing options that can be combined in various ways. One of the challenges behind automating the utility is choosing the right mix of options for the job.

**Batch Automation** Eight built-in automation routines can handle the most common format-conversion and image-manipulation tasks. If you need to convert between file formats, create custom color palettes, or generate contact sheets containing thumbnail versions of images, the Batch menu's Batch Automation command should be your starting point.

**Scripts** A *script* is a series of commands that DeBabelizer executes in sequence, much like a set of Actions in Adobe Photoshop. But DeBabelizer scripts pack far more automation power, including supporting IF-THEN operations that execute only when certain conditions are true.

You can create scripts by using the Script window to insert statements manually via the mini menu bar. But an easier way is to use the voyeuristically named WatchMe feature, which records your actions and saves them as a script. This is a terrific way to create simple scripts and to flesh out the overall structure of complex ones.

**ProScripts** DeBabelizer ships with a collection of canned scripts that perform common tasks, such as mapping a

E Action arrow—drag it to the BatchList window's Open button to apply the script to the batch list, or drag to an open image's window to apply the script to the image.

F Target button—drag an image's icon to this button to apply the script to the image.

G Turns WatchMe mode on and off.

H Controls script playback.

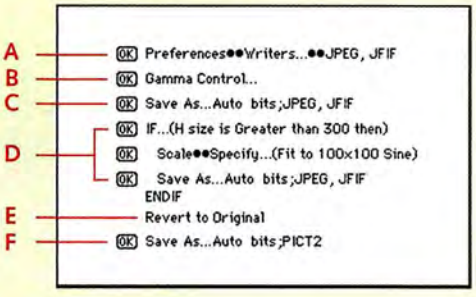
I Deletes the currently selected script line(s).

J Allows you to rename the script.

### 4 Add some commands.

To insert the script's commands, use the mini menu bar at the top of the Script window. After inserting a command, you must double-click on its name in the Script window to specify the command's settings. For example, after inserting the Gamma Control command, double-click on it to specify the gamma settings you want to apply.

Here's a guide to each of the script's key areas, along with some details on how to set them up.



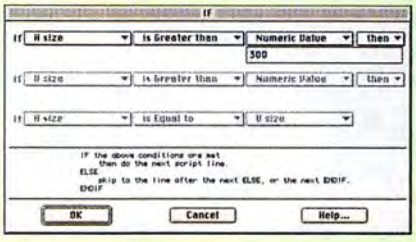

A Controls the desired quality setting for the JPEG images. To add this command, use the Script window's mini menu bar to choose JPEG, JFIF from the Writers submenu, which is within the Preferences submenu of the File menu (whew!). In the JPEG Save Options dialog box, be sure to click in the Skip Dialog check box so this command's dialog box doesn't appear every time a new image is opened.

B Specifies the gamma correction you want to apply to the image. I used 1.2, but you'll want to experiment to find the best value for your images.

C Saves the gamma-corrected images in JPEG format. When double-clicking on this command, use the resulting Save dialog box to specify the JPEG format and the destination folder (in this example, the folder named JPEG Files).

D Scales the image down if its horizontal dimension is greater than 300 pixels. The indented commands within this IF-THEN statement execute only if the condition is true.

To insert the If statement, choose IF from the Script window's Extras mini menu, then double-click on the If statement and configure its dialog box as shown.




For the Scale command, use the Fit Into Size action to maintain the image's original aspect ratio. For the Save As command, specify the JPEG format and the folder named Thumbnail JPEG Files.

After inserting and tweaking these commands, end the IF-THEN statement by choosing ENDIF from the Script window's Extras mini menu.

E Reverts to the original image in preparation for the final step.

F Saves the image as a PICT file. The destination folder is PICT Files.

After you've created the script, click on the Script window's Save icon.

### 5 Apply the script.

To apply the script to the batch list, drag the action arrow to the BatchList window's Open button, then sit back and relax while DeBabelizer crunches through each image.

collection of images to the Netscape color palette and then saving them as GIF files. These ProScripts live in a folder named DeBabelizer 3 ProScripts; to use them, you must import them into DeBabelizer via the Import command in the File menu's Import/Export DeBabelizer Resources submenu.

**AppleScripts** DeBabelizer also supports the Mac OS's scripting language, AppleScript. You can save completed DeBabelizer scripts in AppleScript form and modify them to automate not only DeBabelizer, but other programs as well. You might, for example, create a script that converts a series of images for the Web and then uses Fetch to send them to a service provider.

### Developing an Automation Style

As you work with DeBabelizer's batch-processing features, you'll find there are often many paths to the same end. Should you write a script and then execute it within the Batch Automation window? Or should you use a script to execute a particular Batch Automation routine? Or do you forgo Batch Automation entirely and use WatchMe to handle the entire project?

As a general rule, look to the Batch Automation window first. It can handle the most common conversion and manipulation jobs. If you need an extra measure of batch-processing power—IF-THEN tests, for example—then try writing a script and executing it within a Batch Automation routine.

In the end, there's often no right or wrong way to approach a batch-processing chore. What counts is that you succeed in automating the tasks at hand—and that you get home sooner than if you didn't have DeBabelizer. m

A contributor to *Macworld* since 1984, JIM HEID (www.heidsite.com) writes and lectures on Web and multimedia development tools and techniques.

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EDSE9AD2

# Bring Buttons to Life in Flash 3

## Animate Your Rollover Buttons with Actions and Movie Clips

by Katherine Ulrich

Like rats in a lab, computer users—from gamers to Web surfers—know what to do when they see a button: click on it and wait for something to happen. With Macromedia's Flash 3, a tool for creating vector-based animations, designers can create buttons that give users not just rewards but also real control over multimedia and Web environments.

In the filmmaking metaphor of Flash's interface, you place objects and elements on a stage, make frame-by-frame animations in a timeline, and create scenes. When you're done, you export your work as a movie. Flash buttons let users control the finished film by starting and stopping playback, going to a specific frame, and switching scenes.

But buttons are more than a mechanism for moving viewers from place to place; they can contain their own animations and form the foundation of sophisticated interface elements, such as pull-down menus. If you've already mastered the fundamentals of creating Flash movies, it's time to bring your buttons to life.

### Button Basics

To make a button in Flash, you first create an object called a *symbol*, a reusable element stored in a movie's library. You can modify the color, brightness, transparency, and other attributes of a symbol each time you use it, but Flash downloads the basic graphic just once.

Creating a button is similar to creating a regular Flash movie: you work with objects on a stage and frames in a timeline, and you change the look of those objects by using keyframes (see "Build a Basic Button"). But where regular movies may have hundreds of frames that play sequentially over time, buttons have four frames that play in response to certain mouse actions. The first three correspond to the three possible button states: Up (nothing is going on; the button is just sitting there waiting for someone to notice it), Over (the mouse has moved into the button area), and Down (the user has clicked on the button). The fourth frame, Hit, defines the boundary of the button.

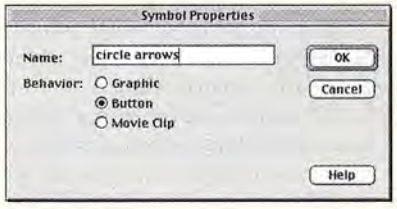
Although it's invisible to the end user, any solid graphic in the Hit frame becomes the active trigger for the button in the final movie. The Hit graphic can be

*continues*

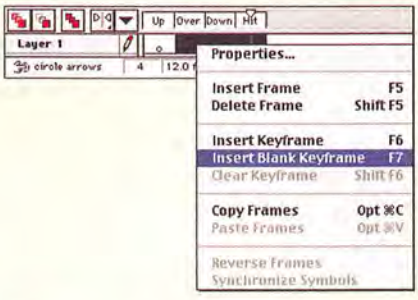
## Build a Basic Button

To get a grip on how buttons work, jump right in and make your own simple button. You'll need to create a new button symbol, then add graphics to its Up, Over, Down, and Hit frames.

1 Choose Insert: Create Symbol (F8). In the Symbol Properties dialog box, enter a name, select the Button behavior, and click on OK to enter Edit Symbols mode.




2 The button timeline has just four frames: Up, Over, Down, and Hit. By default, Flash puts a keyframe in the Up frame; you must add keyframes to place graphics in the Over, Down, and Hit frames. Click and hold in a frame to bring up the Frame menu.




3 Use a different graphic in each frame to give users feedback about the button. The Hit-frame graphic should be big enough to cover the graphics in the other button states (turn on onion skinning to check); this Hit-frame graphic needs to be enlarged.

Hit-frame graphic

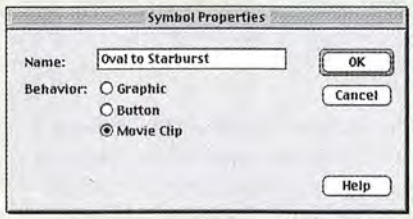
4 To see the button in action, choose Edit: Edit Movie, drag a copy from the library to the stage (the visible area of your Flash movie), and select Control: Enable Buttons. The button is now live, changing as you move the mouse over it and click on it.

TIP Another way to preview a button is to select it in the Library window and click on the Play button (the right-pointing arrow at the top of the window).

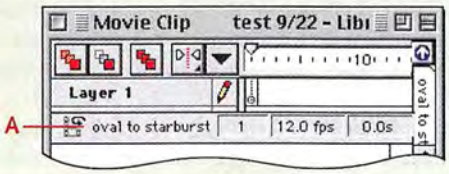
# Animated Buttons Starring Movie Clips

AT THE HEART OF ANIMATED ROLLOVER BUTTONS IN FLASH LIE MOVIE CLIPS. The process of making a movie clip is very similar to that of creating any animation in Flash; the difference is that you start by creating a symbol. Here, we'll create a simple animation that transforms an oval into a star burst.

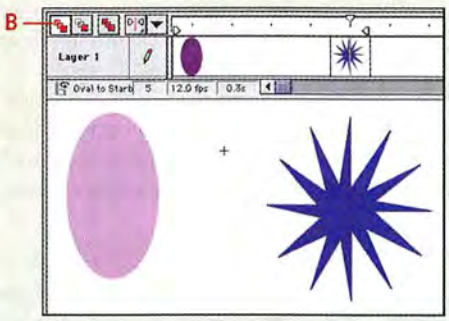
1 Choose Insert: Create Symbol (F8), enter a name, and select the Movie Clip behavior. Click on OK, and Flash brings up a new timeline and stage.



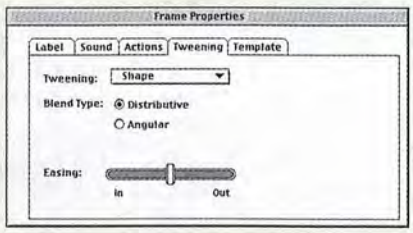

2 The status bar (A) displays the name of the symbol being edited; the filmstrip icon means that this symbol has movie-clip behavior. Select frame 5 in the timeline and choose Insert: Blank Keyframe (F7).



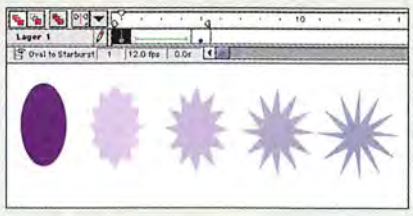

3 Place the oval in frame 1 of layer 1 and the star burst in frame 5. Turn on wireframe onion skinning (B) to help position the objects. Note: Shape tweens require that the beginning and ending objects sit directly on the stage. If you're working with a grouped object or symbol, select it and choose Modify: Break Apart (⌘-B). (You may need to repeat the command several times until all components are at the stage level.)




4 Double-click on frame 1 to bring up Frame Properties. In the Tweening tab, select Shape tweening and the blend type Distributive (for rounded shapes) or Angular (for shapes with corners). The default Easing setting keeps the rate at which the shapes transform consistent.




5 Click on OK, and Flash creates the in-between frames necessary to animate this morphing oval. Press return to watch the animation.




6 Choose Edit: Edit Movie to return to Edit Movie mode. Create two more movie clips. Now follow the steps in "Build a Basic Button," but this time place movie-clip symbols in the first three frames. (Check out www.macworld.com/more/ for a step-by-step tutorial on building a fully animated button.)

a copy of the Up, Over, or Down graphic; you can also draw a shape enclosing all the elements that make up the button and then fill the shape with color. You can even draw a shape that doesn't touch the Up, Over, and Down graphics at all. For example, an invisible square in the lower right corner of the stage could trigger a circular button that appears in the upper left corner.

### Button Feedback

We humans are like lab rats in another way: we rely on visual cues to tell us what constitutes a button. In a straightforward informational site, a button might look like something from the real world—say, a light switch or a volume knob. In more-whimsical sites or games, buttons might be camouflaged as part of the scenery. As the mouse moves over such a button, a slight change in appearance or the triggering of a sound might be the only indication of the graphic's dual purpose.

Flash 3's button symbols make it easy to provide visual feedback; you simply use a different graphic for each of the button states. Flash also lets you associate sounds with individual button frames. For buttons that emulate real-world switches or toggles, you can attach a clicking sound to the Down frame to add realism. For more-fanciful buttons, you might add sound to the rollover frame to alert users to the location of an interactive element.

### Buttons on the Move

To move beyond static three-frame buttons, you need Flash's movie-clip symbols—looping, self-contained animations that play within a single movie frame. Place a movie clip in the Up frame of a button, and you've got an animation that responds to the user's mouse.

You can vary the animations slightly for each button state or change them completely. For example, a blinking question mark might start to spin when the mouse rolls over it; clicking on the button might make the question mark change color or shape. The trick lies in creating a different movie clip for each frame of the button (see "Animated Buttons Starring Movie Clips").

Movie clips are really mini Flash movies; they can contain all the elements of a regular movie. You can nest movie clips inside other movie clips

and even nest buttons within movie clips. Because they loop continually within a single movie frame, you can use movie clips to create buttons that stay animated even when the movie containing them is paused.

### Buttons in Action

Besides looking lively, buttons should do something. To make buttons work, you need to assign them *actions*—embedded commands that control such things as starting and stopping movie playback, going to a specific frame or screen, or linking to a specified URL (see "Actions Put Buttons to Work").

You can assign actions to frames as well as to buttons. In the case of frames, Flash executes an action as soon as the movie reaches the frame containing the action. Buttons, however, respond to mouse events. That's why buttons offer one action not available to frames—On MouseEvent—which lets you define the precise mouse movement that triggers the button's actions. Note that you must attach actions to an instance of your button (a copy used in a movie), not to the frames that make up the button symbol itself.

To override the default On MouseEvent option, Release, select another parameter in the Actions tab of the Modify Instances dialog box. Press responds to the downward part of a click when the mouse is over a button. Release Outside responds when the user clicks the mouse inside the button area but then moves the mouse outside before letting go. Roll Over responds to the cursor's rolling into the button area; Drag Over responds to the cursor's moving into the button area while the mouse button is down. Roll Out responds to the cursor's moving out of the button area; Drag Out responds to the cursor's moving out while the mouse button is down.

### Give Buttons a Whirl

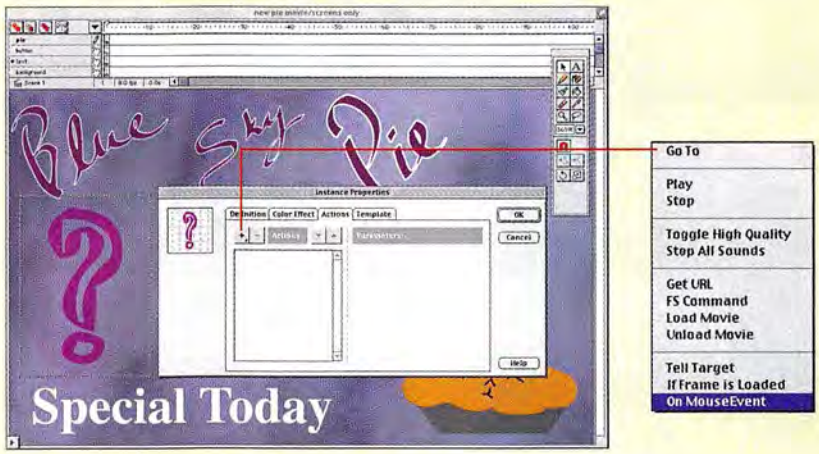
The best way to get a handle on buttons is to build some yourself. Start with a simple, static button that looks different in each state, then add movie clips and actions. With a little practice, you'll soon be building buttons that amaze even the most jaded multimedia rats. **m**

KATHERINE ULRICH is a freelance writer and editor living in San Francisco.

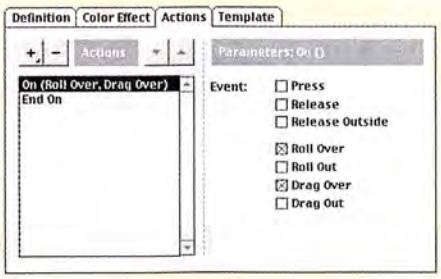
## Actions Put Buttons to Work

HOW DO YOU GIVE USERS MOUSE CONTROL OVER A FLASH MOVIE? ADD ACTIONS to your buttons. By definition, buttons always respond to certain mouse events: move the mouse into the button area and Flash displays the Over frame; click on the button and Flash displays the Down frame. You can make buttons respond to other mouse events by adding actions and setting the parameters of your choice.

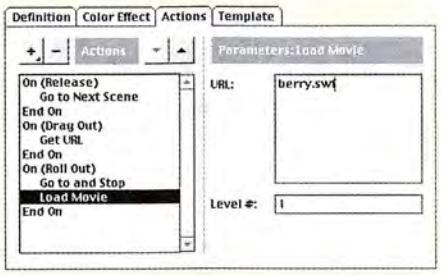
1 Select an instance of the button on the stage and choose Modify: Instance (⌘-I). In the Actions tab of the Instance Properties dialog box, click on the plus sign and select On MouseEvent from the pop-up menu.




2 Select a mouse event under Parameters. You can set multiple parameters for a mouse event—for example, to make the button respond to rollover as well as drag over.




3 Once you've set up the On MouseEvent parameters, click on the plus sign again to choose the action the button will carry out. Stringing actions together allows the button to respond differently to different mouse events. For example, On (Release) might take you to the next scene in the movie, whereas On (Drag Out) loads a movie that displays a help window. A single mouse event can also trigger several actions—for example, moving to another frame or scene in the current movie and then loading a second movie.



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# Mastering Adobe Premiere 5

## Expert Tips and Techniques for Commanding a Video-Editing Powerhouse

by Jim Heid

Some premieres are more successful than others. Just ask the producers of *Waterworld*—and of Adobe Premiere 5.0. The long-awaited upgrade of this veteran video-editing program packs professional-level features and a greatly enhanced interface (see *Reviews*, September 1998). But in a world of innumerable system configurations and dozens of different video-capture cards, Premiere 5.0 didn't always play to rave reviews. The program's debut was marred by some bugs and performance problems—and by incompatibilities with many third-party video-capture cards (see "Surviving Premiere's Flaws"). Adobe addressed some of Premiere 5.0's problems with the 5.1 update (www.adobe.com), but we'll help you navigate through the sticky points that remain.

Despite its flaws, Premiere is still a video-editing powerhouse. To take full advantage of its considerable capabilities, make it a point to learn and apply Premiere's shortcuts and timesaving features. Version 5.0 sports more of these goodies than did earlier versions, and you'll find guides to the best of them in "Taking Charge of the Monitor Window" and "Timeline Tricks." Unless otherwise noted, all processes apply to both the Mac and Windows versions of Premiere. Speaking of which . . .

### Crossing the Platform Divide

Now that Premiere 5.1 and QuickTime 3 are available for the Macintosh OS and Windows alike, it's easier than ever to set up a multiplatform editing shop. You can move Premiere 5.1 projects between platforms, but to ensure a smooth journey, keep the following tips in mind.

**File Carefully** It's a good idea to stash all the files a given project requires in a single folder. This makes it easier to move the project's assets between platforms. When you open the project on the destination platform, Premiere will display an Open dialog box and ask where the project's assets are located. Navigate your way to the folder containing the first file that Premiere is looking for, and then click on OK. Because you put all the files in the same place, Premiere will automatically locate the rest.

It's also a good idea to name files with cross-platform compatibility in mind. Specifically, be sure your Mac projects end with the .ppj file extension—that's how the Windows version of Premiere identifies project files. And if your network software truncates long file names, you might want to stick with the old-fashioned eight-by-three naming convention: a maximum of eight characters in a file name, with a three-character extension.

**Kill the Previews** Remove preview files before transferring a project from one platform to another. To delete all preview files, press and hold ⌘-option-shift (Ctrl-Alt-Shift on PC keyboards). Next, move your pointer to the work-area bar on the Timeline window. When the mouse pointer turns into a small trash icon, click the mouse. Then save your project and send it packing to the other platform.

**Use the Right Codec** For both your source clips and your project, be sure to choose a compression scheme that's available on both platforms. Cross-platform codecs include Component Video, Sorenson Video, and Cinepak, all of which are available in QuickTime 3 Pro.

It's too bad that Premiere 5.0 shipped with some bugs and that some third-party capture-card vendors have dragged their feet in releasing Premiere 5–compatible drivers. But while Premiere 5.0 may have been heckled at its debut, it's still a powerful player with a bright future. And that's more than the producers of *Waterworld* can say. ■

JIM HEID (www.heidsite.com) has been working with Adobe Premiere since version 1.0 shipped.

*continues*

GLENN MITSUI

# Taking Charge of the Monitor Window

THE MONITOR WINDOW IS A CORNERSTONE OF PREMIERE 5'S enhanced user interface. Premiere's new look-and-feel mimics that of high-end video-editing workstations, thanks in large part to the program's side-by-side Source and Program views; the former harbors individual clips, while the latter houses your whole project. You can now quickly assemble projects, using primarily the Monitor window and its battery of buttons.

### Instant Inserts

In previous versions, inserting one clip in the middle of another was a multistep process. In Premiere 5, it takes just a couple of clicks: with the new clip visible in the Source view (A) of the Monitor window, position the Timeline window's edit line (see A in "Timeline Tricks") where you want the insertion and then click on the Monitor window's Insert button (F). Premiere 5 splits the clip that the edit line bisects and inserts the new clip at that location.

### Quick Cutaways

When you use the Insert button, Premiere 5 pushes anything to the right of the edit line forward in time, extending the length of your project. But if the clip you're inserting is a two-second cutaway—say, a shot of an interviewer nodding her head in agreement to an answer—you'd want the cutaway to *replace* two seconds' worth of the clip to the right of the edit line. In cases like this, add the new clip by clicking on the Overlay button (E) instead of the Insert button.

### All the Trimmings

When you need an extra measure of editing precision, switch the Monitor window into trimming mode by pressing ⌘-T (Ctrl-T on PC keyboards). In trimming mode you can fine-tune cuts down to the single-frame level.

### Quick Editing

The Monitor window makes fast edits easy. Rather than drag a clip to the Timeline window, simply use the buttons for setting the clip's in and out points (H and G, respectively) and then drag the clip from the Source view (A) to the Program view (B).

### Opening Clips in Separate Windows

If you prefer to open a clip in its own window as you could in earlier versions of Premiere, press option (Mac) or Alt (PC) while double-clicking on a clip in the Project or Timeline window. Clicking on the collapse button (C) separates the controllers from the playback windows, enabling you to position each separately.

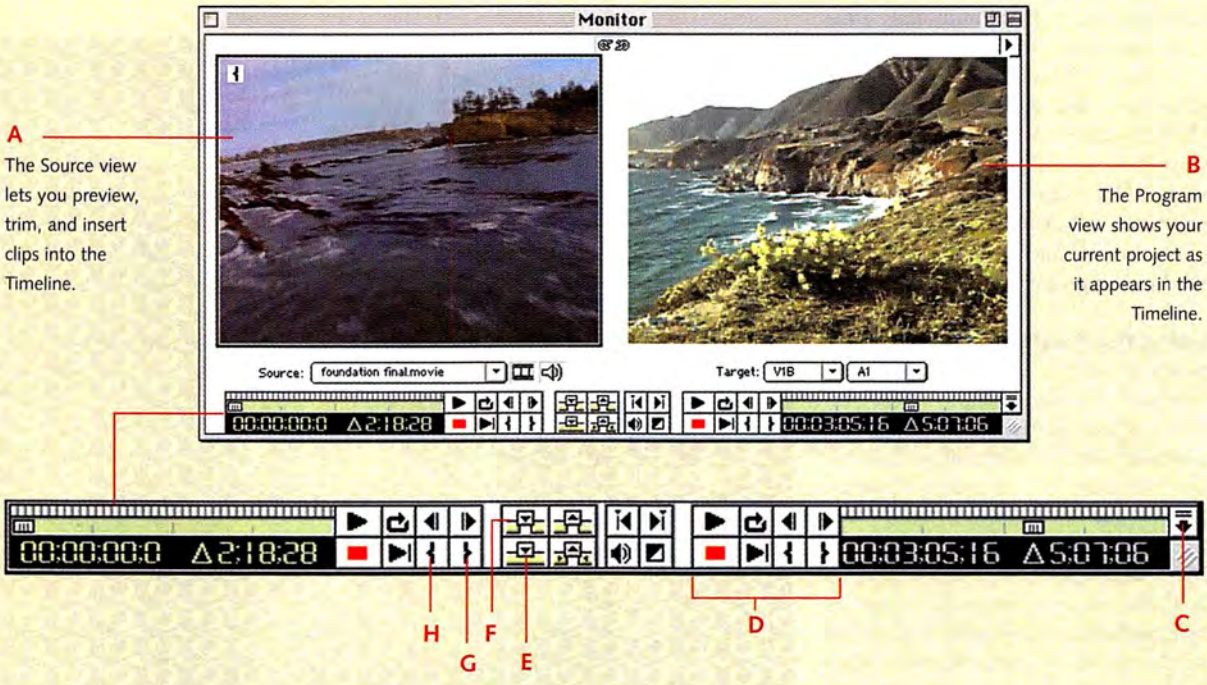
**TIP** If you have an NTSC monitor connected to your computer, you can instantly move the Source and Program images to the NTSC monitor by pressing ⌘ (Mac) or Ctrl (PC) while clicking on either image.

**TIP** If you collapse the Monitor window, you can quickly resize the Source and Program images by shift-clicking on either image.

### Taking Shortcuts

Each of the Monitor window's buttons has a handy keyboard shortcut: (E) Overlay, comma; (F) Insert, period; (G) Set clip's out point, O; (H) Set clip's in point, I.

**TIP** Here are some undocumented keyboard shortcuts for the Monitor window's transport controls (D): press L to play a clip, K to stop playback, and J to play in reverse.



## Surviving Premiere's Flaws

IF YOU'RE USING PREMIERE 5, YOU MAY FALL VICTIM TO one or more of the following "issues." Here are some ways to get around them.

### Frequent Crashes upon Launch

This could be caused by a corrupted font; try removing fonts until you isolate the flawed one.

### Frequent Crashes as You Work

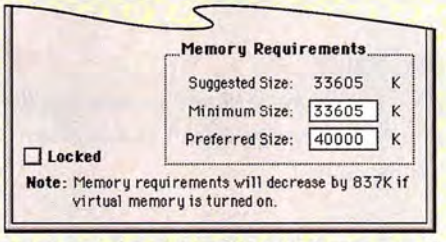
There's a good chance that your video-capture card isn't compatible with Premiere 5. Adobe changed Premiere's underlying architecture in ways that require capture-card developers to create new versions of their drivers. The rule is simple: if Adobe hasn't certified your capture hardware as being Premiere 5–compatible, don't upgrade to Premiere 5. How do you determine whether your capture hardware is Premiere 5–compatible? Check with its developer or check the compatibility matrices on Adobe's Web site at www.adobe.com/prodindex/premiere/resources.html#matrices.

### Frames Dropped during Capture

To avoid dropping video frames during captures, ensure that your Mac's CPU is devoting all its attention to Premiere. Disable AppleTalk, choose LocalTalk in the Network control panel, and insert media (floppies, CD-ROMs, Zip cartridges) in all of your removable-media drives. Also, disable any extensions that talk to the CPU extensively; examples are screen savers and calendar or timer extensions. And follow the usual rules of video capturing: capture to your fastest hard drive, and defragment that drive before capturing.

### Performance Is Slow as Molasses

Premiere 5, particularly the Mac version, is no speed demon. Some operations, such as performing a ripple delete or inserting a clip near the beginning of a large project, are downright plodding. The 5.1 update addressed a few performance problems, but you can further ensure that Premiere 5 is running at top speed by using the Finder's Get Info command to allocate at least 30MB to 40MB of memory to Premiere. And that's real RAM—always turn off virtual memory before running the Mac version of Premiere. You can allocate more than 40MB if you like, but be sure that at least 3MB remain free for the Mac OS and QuickTime.



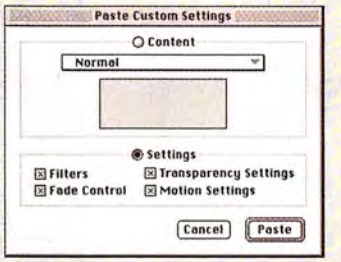

**Premiere is happiest with virtual memory off and lots of real RAM allocated.**

## Timeline Tricks

THE TIMELINE WINDOW IS THE BEST PLACE TO GET A BIG-picture overview of a project and to apply filters, transitions, and other effects. Here are some timeline tips.

### Fast Filter Copy and Paste

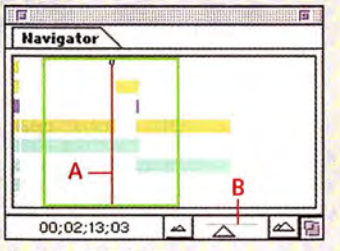
Say you've applied a few filters and special clip settings to one clip and you'd like to apply them to others. In the Timeline window, select the clip containing the effects and choose Copy. Then select the clip to which you want to apply the settings and choose Paste Custom from the Edit menu. In the Paste Custom Settings dialog box (at left), click on the Settings button and then check or uncheck attributes as appropriate.




**Paste Custom Settings Dialog Box**

### Quick Timeline Navigation

Use Premiere 5's Navigator palette to quickly move around within the Timeline window and to change the window's time scale. The edit line (A) is Premiere's equivalent of a blinking cursor in a word-processing program. To move the edit line, press shift and then drag it. To change the time scale, use this slider (B). Drag it to the left to reduce the timeline and see a more bird's eye view, and drag it right to zoom in and view finer increments of time.




**Navigator Palette**

### Toggling Snap to Edges

The Timeline window's snap-to-edges feature makes positioning clips easier by automatically snapping the clip you're dragging to the nearest clip, transition, or marker—much like the snap-to-guides feature that publishing programs provide. If you'd prefer to disengage the snap-to feature when moving a given clip, hold down the shift key while dragging the clip.

### Faster Timeline Displays

For faster scrolling, configure the Timeline window to display only clips' file names rather than thumbnail frames, and turn off the display of audio waveforms. To do both, use the Timeline Window Options dialog box, which you can display by control-clicking within the Timeline window. In the Track Format section, click on the lowest radio button, next to Filename, and uncheck Show Audio Waveforms.

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- USB compatible
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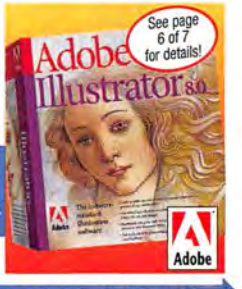


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10Base-T Ethernet
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14.1" active-matrix color display

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- 56K modem • 15" color monitor

Factory Reconditioned

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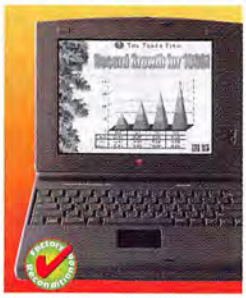
- 9" grayscale Supertwist display
- ClarisWorks 3.0

Only $299!*

Item # RCPU1188



RCPU1195: PowerBook 180: 33MHz 68030 processor, 8MB RAM, 120MB HD, 14.4Kbps modem, 10" black & white active-matrix display, ClarisWorks 3.0: .....only $499*

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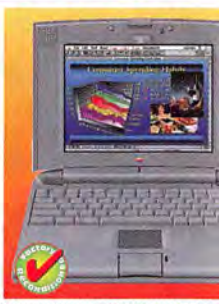
Item # RCPU1107



RCPU1196: PowerBook 540c: 33MHz 68LC040 processor, 20MB RAM, 240MB HD, 19.2Kbps modem, 9.5" active-matrix color display, ClarisWorks 3.0: .....only $799*

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- New PowerPC native AppleScript — runs five times faster than previous versions!
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- Improved Network Performance — integrated network browser makes navigating your network simple!
- New Smart Scrolling — makes navigating through your documents and Web sites more efficient than ever!

**FREE!**** A $135 VALUE!

You get all these software titles FREE** with your Mac OS 8.5 purchase!

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Small ink droplets for amazing detail!

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As low as $499.95! IN7214

Sony FD51:
- High speed 2x disk drive

SONY

Sony FD71 Digital Camera (shown).
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- 2.5" color LCD w/Solar Window™ Panel

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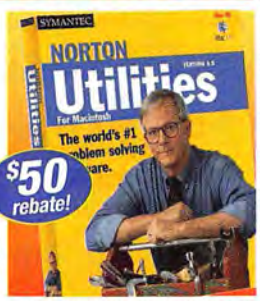


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Kodak

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- 2X zoom lens
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AC adapter and 8MB card now included!

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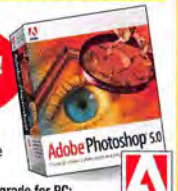


- Quickly undo or redo seven steps so you're free to experiment

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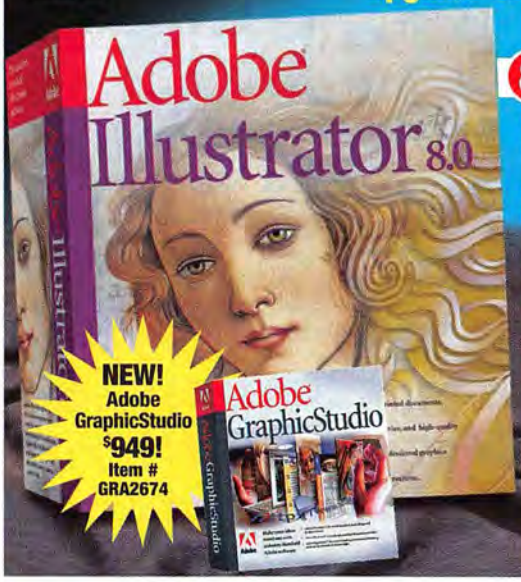
PAGE 6 OF 7

## NEW! Adobe Illustrator 8.0

Upgrade only $119.95! Ask for item # UPG0887.




NEW! Adobe GraphicStudio $949! Item # GRA2674




### 8 Great Reasons to Upgrade!

1. **Art Brush:** Save objects as Art brushes and apply to any path.
2. **Photo Crosshatch Filter:** Turn scanned photos into textured or crosshatched sketches.
3. **New Pencil Tool:** Tweak shapes easily and automatically.
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7. **Live Blends:** Blends are now live so you can edit them freely.
8. **Free Transform Tool:** Consolidate scaling, skewing, rotating, and functionality in one tool.

Full version item # GRA2649, only $359.95!

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- 1440 x 720 dpi • USB compatible
- 6ppm black/5ppm color
- Smaller ink drops for amazing detail

Only $279.95! Item # PR14065

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Ask for item # PR13559: ..... $349.95
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- 220MHz G3 Processor
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Only $479! Item # DRI2529

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- Use style sheets for individual words, not just paragraphs!
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**HP LASERJET 8000N**
**Only $2629.95!** Ask for item # PR13724.
• Prints 24ppm • 1200dpi maximum resolution
• 133MHz RISC processor

NEW!

**HP LaserJet 4000N**
**$1449!**
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As low as $179.99 ea.
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• Branded single with Jewel Cases
• 650MB capacity

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• 1280 x 960 ppi resolution
• 3X optical lens
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MITSUBISHI DIAMONDTRON CRT TECHNOLOGY

21" (19.7" viewable)
Diamondtron CRT
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## The All-in-One Power-Packed Internet System for Your Home

You've heard it a million times... "computers are hard to use and the operating systems aren't user-friendly." Then, came the Macintosh®. Now the company that started the PC revolution is helping parents, kids and students take advantage of Internet evolution. Introducing the iMac, the totally translucent computer that combines all the possibilities of the Internet with the magic of the Macintosh!

### The Most Original Mac Since the Original Mac!

#### Key Features:

- 233MHz PowerPC G3 processor
- 512K backside Level 2 cache
- 4GB IDE Hard Drive
- 66MHz system bus
- 32MB of RAM (exp. to 128MB)
- 24X CD-ROM drive
- Built-in 10/100BASE-T Ethernet
- Built-in 56K modem
- 15-inch (13.8-inch viewable) high quality display with 1024 x 768 resolution
- Incorporates a high-quality monitor with minimal flicker and crystal-clear image
- Two 12Mbps Universal Serial Bus (USB) ports which support USB devices such as printers, storage devices and hubs
- One 4Mbps Infrared (IrDA) port

#### Plus:

- 2MB SGRAM (exp. to 4MB)
- Built-in Stereo speakers w/SRS sound
- Includes 2D/3D graphics acceleration for outstanding multimedia capabilities
- Comes with a height-adjustable, space efficient keyboard
- Elegantly routes cables to avoid clutter and confusion

#### Also Includes:

- Mac OS 8.5, Microsoft Internet Explorer with Outlook Express 4.01, AppleWorks 5 (formerly ClarisWorks), Quicken Deluxe '98 from Intuit, FaxSTF from STF Technologies, MetaCreation's Kai's Photo Soap, MDK from InterPlay, Pangea Software's Nanosaur, Williams-Sonoma Guide to Good Cooking from Broderbund, and Earthlink's Total Access 2.01! Most software is pre-installed. Please call for details.

#### Additional Features:

- Like the original Mac, the iMac is totable. An integrated handle lets the 40-pound unit be easily moved and offers a place to thread a security cable.
- As with Apple's recent all-in-one education Macs, a handy rear door allows easy access to a slide-out chassis housing both the main logic board (and its RAM-and-processor daughtercard) and storage devices.

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- 1440 X 720dpi
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Reads & writes 120MB SuperDisk diskettes. Reads and writes standard HD 3.5" diskettes—in both Macintosh & PC formats!

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New Translucent case!

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*Features a high quality display—up to 14.1" diagonal.*

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*Storage will never be an issue with up to 8GB hard drive space!*

up to 300MHz

# The New G3 PowerBooks... Out-Perform Desktop Systems!

## Stellar Features at an Affordable Price!

**Processor and Memory**
- 233, 266 or 300MHz PowerPC G3 processor–fastest performance ever in a notebook!
- 66MHz system bus speed
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- 32 or 64MB RAM; 2 SO-DIMM slots support up to 192MB RAM

**Storage**
- 2, 4 or 8GB IDE hard drive
- 20X CD-ROM drive for use in expansion bay

**Expansion & Networking Ports**
- Two hot-swappable expansion bays
- ADB port, SCSI port, Serial port
- Built-in 10BASE-T Ethernet
- RJ-11 modem port, 4Mbps Infrared (IrDA) port
- PC Card Slots for two Type I, Type II or one Type III PC Card

**Graphics, Video & Sound**
- Features high-quality display, up to 14.1 inches (diagonal)
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- Includes one Lithium-ion battery for up to 3.5 hours of normal use; supports two batteries for as much as 7 hours of use

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## Why a G3?

### Designed to be as attractive as it is functional!

**Sleek ergonomics for more efficiency**

**Flip up keyboard gives easy access to RAM expansion slot & removable hard disk drive**

**New, more flexible configuration options!**

## 4 NEW Models Available! Choose Your Ideal G3!

| Order | Speed | RAM | HD | CD-ROM | Modem | Display | Weight | Was | Now | Or Lease |
|---|---|---|---|---|---|---|---|---|---|---|
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| #37390 | 233MHz | 32MB | 2GB | 20X | 56K | 14.1" Active matrix | 7.8lbs. | — | $2,799 | $112/mo |
| #37391 | 266MHz | 64MB | 4GB | 20X | 56K | 14.1" Active matrix | 7.8lbs. | — | $3,499 | $140/mo |
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| #37392 | 300MHz | 64MB | 8GB | DVD | 56K | 14.1" Active matrix | 7.8lbs. | — | $4,999 | $200/mo |
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### PowerBook G3 Accessories

*Make your PowerBook G3 totally portable with these name-brand accessories!*

| | | |
|---|---|---|
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| #31414 | Apple Floppy disk drive | $99.99 |
| #31873 | VST Charger for PowerBook G3 | $149.99 |
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*Comes with games and drivers for both Mac and PC on the FREE* **Get Connected CD.**

**FREE V.90 Upgrade!**

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### Internal Zip® for Your PowerBook!

*Faster than desktop Zip drives—no cables or batteries required!*

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**$99.99*** EPSON

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*Three standard 12" PCI slots for easy expansion of system functionality.*

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- 512K or 1MB Backside Level 2 Cache
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- 66MHz system bus
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- 32, 64 or 128MB SDRAM (3 DIMM Slots support up to 768MB)
- 64-bit memory bus

**Storage**
- 4, 6, 8 or 9GB IDE or SCSI hard drive
- 24X CD-ROM drive (#37384 & #37387 come with a DVD-ROM Drive)
- 1.44MB Floppy Disk Drive
- Iomega Zip 100MB SCSI Drive (select models)

**Expansion Options**
- Three PCI expansion slots
- One or two 5.25" SCSI expansion bay

**Networking Ports**
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- Internal/External SCSI bus
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**Graphics, Video & Sound**
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# Why a G3?

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**New, more efficient logic board design**

**Increased system bus speed to maximize processor performance**

**New, more flexible configuration options!**

## Choose the G3 That's Right for You!

| | | | |
|---|---|---|---|
| #37375 | Power Mac Desktop/266MHz/32MB RAM/512K cache/4GB IDE Hard Drive 24X CD-ROM/10BASE-T Ethernet | only $1,599 | Or lease $64/mo |
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*16" viewable image; .28mm dot pitch; resolution up to 1280 X 1024 @ 60Hz; cross-platform.*

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**$99.99*** EPSON

- Up to 1440 x 720dpi
- 6ppm black, 4ppm color
- Built-in Photo Printing

w/Mac purchase! #36133

w/iMac purchase! #36058 includes USB cable

*Price with CPU purchase. Regular price $149.

*Factory refurbished. 2 Year Warranty. While supplies last.*

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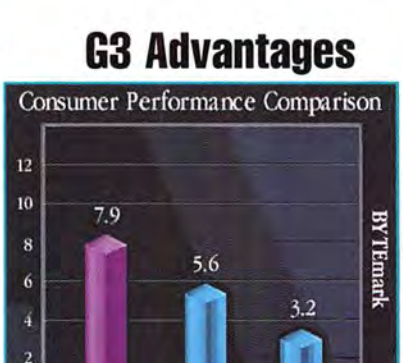


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| | *Price after $20 mail-in rebate. Exp. 12/31/98. | |
| 039 | Teleport 56k v.90 ext Fax/Modem for Mac | $129.98 |
| 113 | 3Com/USR 56k v.90 D/F for Mac | $97.98* |
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| 229 | Viking 56k v.90 external fax/modem | $99.98 |
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IBM Fast & Wide 18.2GB 7200 RPM — $999 Bare

**FIREBALL EX**
Quantum 3.2GB IDE — $139 Bare

## HARD DRIVES

### Quantum

Quantum Stratus drives carry a 3 Year Warranty
Quantum Atlas & Viking drives carry a 5 Year Warranty

| Description | Model | Access | RPM | Bare | Ext |
|---|---|---|---|---|---|
| **Ultra SCSI-3** | | | | | |
| 2.1GB Stratus SE | QM32160SES | 10ms | 5400 | $209 | $279 |
| 3.2GB Stratus SE | QM33240SES | 10ms | 5400 | $239 | $309 |
| 4.3GB Stratus SE | QM34320SES | 10ms | 5400 | $279 | $349 |
| 6.4GB Stratus SE | QM36480SES | 10ms | 5400 | $359 | $429 |
| 8.4GB Stratus SE | QM38420SES | 10ms | 5400 | $479 | $549 |
| 9.1GB Atlas III | QM309100TDS | 7.8ms | 7200 | $569 | $639 |
| 18.2GB Atlas III | QM318200TDS | 7.8ms | 7200 | $1039 | $1109 |
| **UltraWide SCSI-3** | | | | | |
| 4.5GB Viking II | QM304550PXSW | 7.5ms | 7200 | $309 | $399 |
| 9.1GB Viking II | QM309100PXSW | 7.5ms | 7200 | $499 | $589 |
| 9.1GB Atlas III | QM309100TDLW | 7.8ms | 7200 | $569 | $659 |
| 18.2GB Atlas III | QM318200TDLW | 7.8ms | 7200 | $1039 | $1129 |
| **IDE Drives** | | | | | |
| 3.2GB Fireball EX | QM303200EXA | 9.5ms | 5400 | $139 | ---- |
| 5.1GB Fireball EL | QM305100ELA | 10ms | 5400 | $159 | ---- |
| 6.4GB Fireball EX | QM306400EXA | 9.5ms | 5400 | $179 | ---- |
| 10.2GB Fireball EL | QM310200ELA | 9.5ms | 5400 | $259 | ---- |
| 12.7GB Fireball EX | QM312700EXA | 10ms | 5400 | $359 | ---- |

### Seagate

Barracuda & Cheetah drives carry a 5 Year Warranty
Medalist drives carry a 3 Year Warranty

| | | | | | |
|---|---|---|---|---|---|
| **Ultra SCSI-3** | | | | | |
| 4.5GB Medalist Pro | ST34520N | 9.5ms | 7200 | $259 | $329 |
| 6.5GB Medalist Pro | ST36530N | 9.5ms | 7200 | $369 | $439 |
| 4.5GB Medalist Pro | ST39140N | 9.5ms | 7200 | $489 | $559 |
| 9.1GB Barracuda 9LP | ST39173N | 7.1ms | 7200 | $529 | $599 |
| 18.2GB Barracuda 18 | ST118273N | 7.1ms | 7200 | $1029 | $1099 |
| **UltraWide SCSI-3** | | | | | |
| 9.1GB Barracuda 9LP | ST39173W | 7.1ms | 7200 | $529 | $619 |
| 9.1GB Cheetah 9LP | ST39102LW | 12.2ms | 10000 | $749 | $839 |
| 18.2GB Barracuda 18 | ST118273W | 7.1ms | 7200 | $1029 | $1119 |
| 18.2GB Cheetah 18 | ST118202LW | 12.2ms | 10000 | $1349 | $1439 |

### IBM

IBM drives carry a 5 Year Warranty

| | | | | | |
|---|---|---|---|---|---|
| **UltraWide SCSI-3** | | | | | |
| 9.1GB UltraStar 9ES | 00K3990 | 7.5ms | 7200 | $529 | $619 |
| 9.1GB UltraStar 9ZX | 59H6590 | 6.5ms | 1000 | $579 | $669 |
| 18.2GB UltraStar 18XP | 59H6591 | 6.5ms | 7200 | $999 | $1089 |

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Duo Master is one of the most innovative CD mastering solutions available. The solution provides a hard drive, Jaz or Syjet drive and CDR in one unit. Create your master on the hard drive, Jaz or Syjet cartridge drive and then master directly to the CD. This is the perfect CD mastering setup! Includes 5 free recordable CDs (5 CD-RWs with CD-RW drives) and 1 free cartridge with Jaz or Syjet unit. Add these prices to the internal prices above.

Quantum 2GB (DUO2GBM) $270 Quantum 4GB (DUO4GBM) $340
Syjet 1.5GB (DUOSYJETM) $319 Jaz 2GB (DUO2GBJAZM) $399

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## • SCSI HARD DRIVES •

### Seagate

| | | | | | Internal | External |
|---|---|---|---|---|---|---|
| 4520MB | 7200rpm | 512K | ST34520N | 3yr | $239 | $299 |
| 4550MB | 7200rpm | 512K | ST34573N | 5yr | $439 | $499 |
| 5530MB | 7200rpm | 512K | ST36530N | 3yr | $345 | $405 |
| 9140MB | 7200rpm | 512K | ST39140N | 3yr | $459 | $519 |
| 9190MB | 7200rpm | 1024K | ST39173N | 5yr | $495 | $555 |
| 18200MB | 7200rpm | 1024K | ST118273N | 5yr | $979 | $1039 |
| ULTRA WIDE SCSI | | | | | | |
| 4520MB | 7200rpm | 512K | ST34520W | 3yr | $249 | $339 |
| 4550MB | 7200rpm | 512K | ST34573W | 5yr | $439 | $529 |
| 5530MB | 7200rpm | 512K | ST36530W | 3yr | $345 | $435 |
| 9140MB | 7200rpm | 512K | ST39140W | 3yr | $459 | $549 |
| 9190MB | 7200rpm | 1024K | ST39173W | 5yr | $489 | $579 |
| 18200MB | 7200rpm | 1024K | ST118273W | 5yr | $979 | $1069 |
| ULTRA 2 SCSI | | | | | | |
| 4550MB | 7200rpm | 1024K | ST34573LW | 5yr | $465 | $575 |
| 4550MB | 10,000rpm | 1024K | ST34502LW | 5yr | $520 | $630 |
| 9100MB | 10,000rpm | 1024K | ST39102LW | 5yr | $690 | $800 |
| 9100MB | 10,000rpm | 4096K | ST39102LW4 | 5yr | $779 | $889 |
| 9190MB | 10,000rpm | 1024K | ST39173LW | 5yr | $529 | $639 |
| 18200MB | 7200rpm | 1024K | ST118273LW | 5yr | $989 | $1099 |
| 18200MB | 10,000rpm | 1024K | ST118202LW | 5yr | $1289 | $1399 |
| 18200MB | 10,000rpm | 4096K | ST118202LW4 | 5yr | $1399 | $1509 |

### IBM

| | | | | | | |
|---|---|---|---|---|---|---|
| 4550MB | 5400rpm | 512K | IBM34560N | 5yr | $275 | $335 |
| 9100MB | 7200rpm | 512K | IBM39130N | 5yr | $500 | $560 |
| 18200MB | 7200rpm | 1MB | IDGHS18Z | 5yr | $959 | $1019 |
| ULTRA WIDE SCSI | | | | | | |
| 4550MB | 5400rpm | 512K | IBM34560W | 5yr | $275 | $365 |
| 9100MB | 7200rpm | 512K | IBM39130W | 5yr | $500 | $590 |
| 9100MB | 10020rpm | 1MB | IDVGS9U | 5yr | **$579** | **$669** |
| 18200MB | 7200rpm | 1MB | IDGHS18U | 5yr | $969 | $1059 |
| ULTRA-2 SCSI | | | | | | |
| 9100MB | 7200rpm | 512K | IBM39130U2 | 5yr | $505 | $615 |
| 18200MB | 7200rpm | 1MB | IDGHS18U2 | 5yr | $1019 | $1129 |

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## • CD ROM DRIVES •

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| 32X - Tray load | Toshiba | XM6201BM/XM | $105 | $165 |
| 32X - 512K buffer | Plextor | PX32TSM/XM | $145 | $205 |
| 36X - Slot load | Pioneer | DRU706M/XM | $90 | $150 |

## • MISCELLANEOUS •

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| | 2GB qty 2-9 / 10+ | | $87 / $85 |
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| PCI Wide Single Channel | | A2940MUW | $259 |
| PCI Wide Dual Channel | | A3940MUW | $439 |
| PCI FireWire + Wide SCSI | | AHA8945 | $559 |
| PCI Ultra 2 | | A2940MU2W | $399 |
| **ATTO Controllers** | | | |
| PCI Fibre Channel | | ATTOPCIFC | $769 |
| PCI Ultra 2 SCSI | | ATTOPCIU2 | $425 |
| above w/ RAID software & cable | | ATTOPCIU2K | $609 |
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| Complete kit for Mac G3 computers | | DVDMAC | **$349** |
| **Maxoptix Optical Drives** | | | |
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| 2.6GB media 2-4/5-9/10+ $40/36/34 | 5.2GB media 2-4/5-9/10+ $95/91/89 | | |
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|---|---|---|---|---|---|
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| 3221MB | Seagate | 5400rpm | ST33221A | 3yr | $129 |
| 4311MB | WD | 5400rpm | AC24300 | 3yr | $145 |
| 6448MB | WD | 5400rpm | AC36400 | 3yr | $175 |
| 6530MB | Seagate | 7200rpm | ST36530A | 3yr | $199 |
| 7696MB | Quantum | 5400rpm | FB307600A | 3yr | $189 |
| 8606MB | Seagate | 5400rpm | ST38641A | 3yr | $199 |
| 9140MB | Seagate | 7200rpm | ST39140A | 3yr | $229 |
| 10100MB | IBM | 7200rpm | IBM10GXP | 3yr | $270 |
| 12750MB | Quantum | 5400rpm | FB312700A | 3yr | $280 |
| 14400MB | IBM | 7200rpm | IBM14GXP | 3yr | $405 |
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| 18GB | 7,200rpm | 2 | 9.1GB Quantum Atlas drives | $1959 | $1759 |
| 18GB | 7,200rpm | 2 | 9.1GB Seagate Barracuda drives | $1969 | $1769 |
| 18GB | 10,000rpm | 2 | 9.1GB Seagate Cheetah drives | $2289 | $2089 |
| 36GB | 7,200rpm | 2 | 18GB Quantum Atlas drives | $2879 | $2679 |
| 36GB | 7,200rpm | 2 | 18GB Seagate Barracuda drives | $2929 | $2729 |
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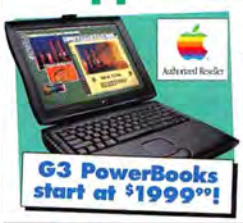


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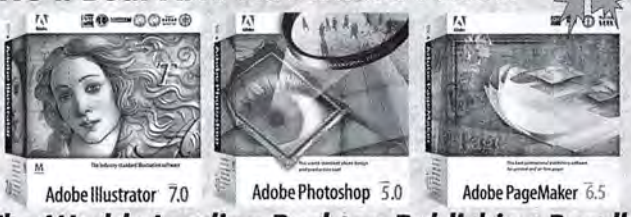

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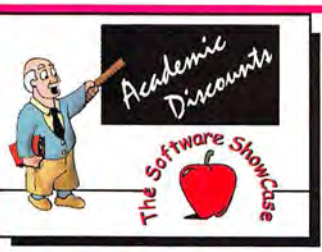


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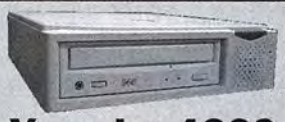

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| G3 300 Mhz 64/4gb/CD | 1875 |
| 9600 300 MHZ | Call |
| 8600 300 32-4Gb-CD | 1420 |
| G3 300 MT AV | 1959 |
| G3 266 MT AV | 1695 |

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|---|---|
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| 7200 /75/90/120 | CALL |

Call for config. not listed

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|---|---|
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| G3 292 Mhz 14" | 3795 |
| G3 266 Mhz | 2950 |
| 1400C 117 Mhz | 1095 |
| 3400cs 240 Mhz | 1585 |

G3 Power Books Call

**Demo Powerbooks**

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|---|---|
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| 540C 12/500/Mod | 625 |
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| 145 - 170 -180c-165c | CALL |
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|---|---|
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| 9600 to G3 300Mhz | Call |
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| Q800-840 to 8100 | 349 |

Call for PowerBook Upg.
Call forUpgrades not listed

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|---|---|
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| 7600 | 695 |
| 8600 | 1090 |
| 8100 16/500/CD | 590 |
| Q 650 16/120 | 150 |
| 6100 16/250 | 300 |
| SE 30 | 99 |
| Mac IIci | 65 |

**Special**

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| 72 Pin 16/32 | 45 /75 |
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| **9.1gb Medalist Pro** ST39140N 9.5ms 7200rpm 512k Cache 3yr | $499 | $549 |
| **9.1gb Barracuda** ST39173N 9LP 7.1ms 7200rpm 1024k Cache 3yr | $579 | $629 |
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|---|---|
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|---|---|
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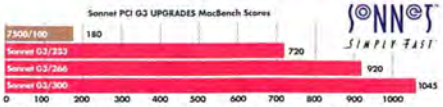


**Sonnet PCI G3 Upgrades** For the PowerMac 7300/7500/7600/8500/8515/8600/9500/9515/9600; Workgroup Server 7350, 8550, 9650; Power Comp. PowerWave; UMAX J700 & S900; and DayStar Genesis 538.

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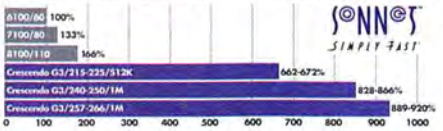


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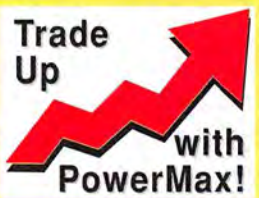


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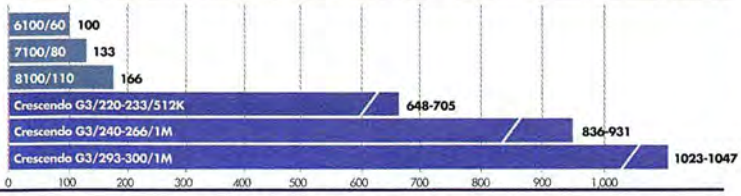


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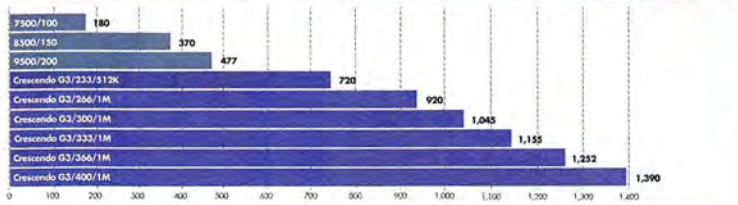


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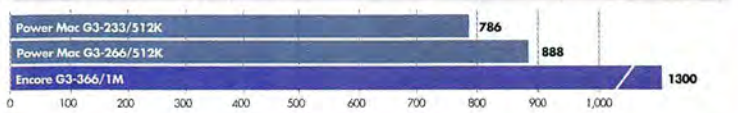


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# COMIN' AT YA

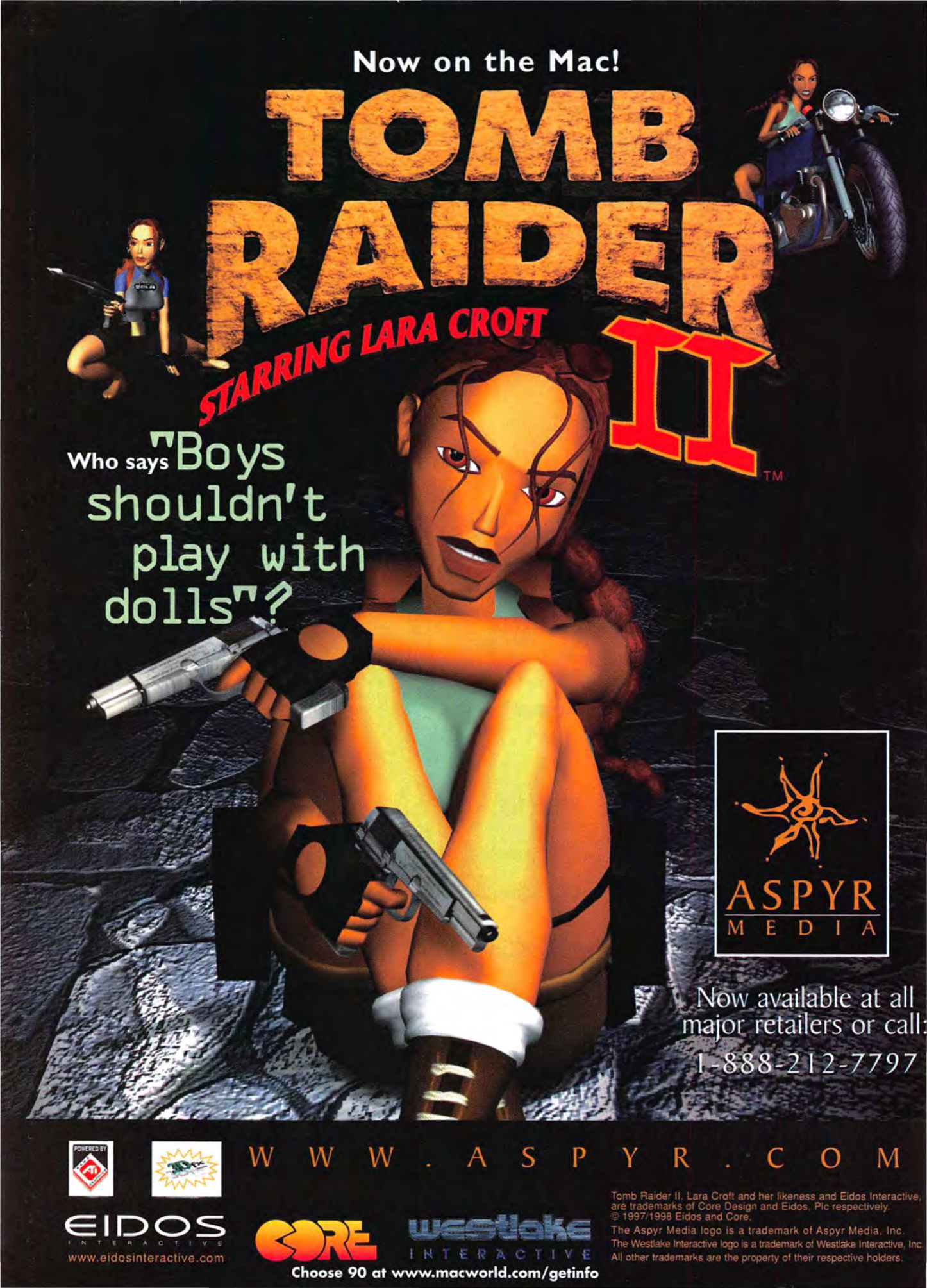
by Christopher Breen

## Games feeling flat? Immerse yourself in the action with 3-D–acceleration hardware.

**Fact: The world is not flat.** This notion, pretty well settled for the general population in the fifteenth century, seemed only to have reached the computer gaming world a couple of years ago. Until this obvious idea dawned on game designers—and, not coincidentally, until computers became powerful enough to do something about it—game environments were not only flat but pixelated to boot. No longer.

Thanks to advances in games and the hardware that runs them, many modern Mac games are visual delights. Not only are environments more expansive but games now also boast special effects such as fog, realistic shadows, reflective surfaces, and shimmering liquids. And best of all, there are no more blocky pixels—these worlds are smooth as silk.

The key to these improvements is hardware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acceleration for displaying 3-D graphics—achieved via dedicated processors that blast pixels and polygons to your monitor as quickly as possible.

Without 3-D–acceleration hardware, a game's graphical duties are left to the Mac's main processor—a processor that's already tasked with running the game, managing audio, and keeping track of where you've moved your joystick, all while doing heaven knows how many unrelated system-level housekeeping chores. With 3-D–acceleration hardware in place, the Mac can hand off these processor-intensive graphics tasks to this specialized graphics chip set. Without 3-D–acceleration hardware, games still work, of course, but they might not run as quickly and they certainly aren't as attractive.

Village Tronic MacPicasso 540 + 3D Overdrive

### The Standard Issue

Hardware isn't the only important factor in 3-D gaming. Another is the 3-D standard—or API (Application Programming Interface)—employed by the game and supported by a particular chip set. Currently two standards are commonly used in Mac games that support 3-D–acceleration hardware: QuickDraw 3D RAVE (Renderer Acceleration Virtual Engine), from Apple (www.apple.com), and Glide, an API developed by 3Dfx (www.join3dfx.com). Generally, RAVE games run on some variety of ATI Technologies' Rage chip set—the Rage II, Rage IIc, and Rage Pro—although video cards from other companies, including Mactell, support RAVE as well. Glide games work only with cards based on 3Dfx's Voodoo and Voodoo 2 chip sets.

Now that you know the basics, let's get down to the nitty-gritty: Is your Mac's on-board acceleration up to snuff, and if not, which acceleration hardware should you add to your system? To find the answer, Macworld Lab played two of today's most popular 3-D hardware-accelerated games—MacSoft's Quake and Unreal—using the built-in hardware acceleration of two Macs, as well as three PCI graphics-accelerator cards that offer either RAVE or Glide support installed on a Power Macintosh G3/266 with 128MB of RAM. Here's what we found.

### Rage in the Machine

Let's get the sad-but-true facts of gaming life out of the way first: If you have built-in hardware acceleration based on anything less powerful than a Rage Pro—that means those of you with a first-generation iMac or Power Mac G3 or any earlier machine—the RAVE version of Quake performs so poorly as to be unplayable, and Unreal refuses to run its RAVE driver at all. Quake performance on a G3 that has a built-in Rage II chip set and on the iMac with its Rage IIc chip set is lackluster, and because the Rage II doesn't support shadows adequately, large areas of the game's environment are overly dark. (At press time, Apple announced that the iMac now includes the ATI Rage Pro chip set with 6MB of dedicated RAM. This update should bring the iMac's performance in line with the Xclaim VR card tested in this story.)

If you have a Mac with on-board Rage II–based hardware acceleration, you can play the nonaccelerated versions of these games—provided that your Mac meets the games' system requirements, of course—but if you want to play the hardware-accelerated versions, you have to purchase a separate 3-D–acceleration card. iMac users, unfortunately, are precluded from doing so by the iMac's lack of a PCI slot. (Of course, Quake and Unreal aren't the only games in town.

Micro Conversions Game Wizard

## 3-D–Accelerator Cards

| Accelerator Card | Company | Phone | Price | Specs | Comments |
|---|---|---|---|---|---|
| Game Wizard | Micro Conversions | 817/468-9922 | $349.00* | 12MB of RAM, Voodoo 2 chip set, Glide support | Offers beautiful rendering and the fastest 3-D–accelerator hardware available for the Mac. |
| MacPicasso 540 + 3D Overdrive | Village Tronic | 800/317-7217 | $549.95 | 4MB of RAM, Voodoo chip set, Glide support | Very good rendering and reasonably fast, but you need both the MacPicasso and the expansion card, which makes the package too expensive for gamers. |
| Xclaim VR | ATI Technologies | 905/882-2600 | $299.00 | 4MB of RAM, Rage Pro chip set, RAVE support | So-so rendering; card is fine for Quake but not the best choice for Unreal. |
| REFERENCE SYSTEMS | | | | | |
| iMac | Apple Computer | 408/996-1010 | $1,299.00 | Rage IIc chip set, RAVE support | Rage IIc is a hybrid between Rage II and Rage Pro chip sets, running faster than Rage II. |
| Power Macintosh G3/266 | Apple Computer | 408/996-1010 | $2,129.00 | Rage II chip set, RAVE support | New desktop G3 systems feature a Rage Pro chip set. |

*8MB version, $299.

## SEE THE DIFFERENCE

As you can clearly see from these screen shots, the Voodoo 2 chip set found on Micro Conversion's 12MB Game Wizard card produces more-detailed graphics. Note the Game Wizard's finer gradations around the light sources, as well as the blending of textures on the floor and gun. Compare the Voodoo 2 and Rage Pro graphics with those of the software-rendered version of Unreal to see the benefits of 3-D–acceleration hardware.

Software only

Rage Pro

Voodoo 2

Hardware-accelerated games such as Bungie Software's Weekend Warrior, Pangea Software's Nanosaur, and Activision's MechWarrior 2 run perfectly well on a Rage II.)

ATI's (www.atitech.com) Xclaim VR Rage Pro card fared better than the Rage II in both our objective and subjective testing. RAVE games were not only faster with the Rage Pro but they looked better as well. Shadows, for example, while not adequately supported on the Rage II, look fine on the Rage Pro. This makes a big difference in a game such as Quake where, without shadows, you lose much of the game's atmosphere.

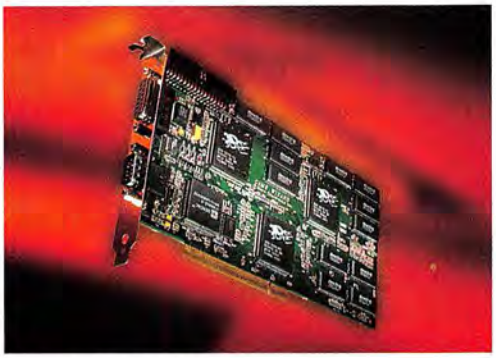
Yet despite the Rage Pro's advances over the Rage II, we found that the Rage Pro still does not perform exceptionally well in Unreal. In our test, the Rage Pro chip set found on ATI's Xclaim VR card was able to churn out only 8 frames per second in Unreal's opening flyby scene (see the benchmark, "3-D–Accelerator Tests"). Although you can improve this frame rate by reducing the quality of the graphics from within the game's Options window, you'll miss out on Unreal's flashier visual elements.

The Rage Pro card proved far better at accelerating Quake, thanks to Quake's less demanding graphics requirements. The Rage Pro–based Xclaim VR produced a very smooth 22 fps.

### The Voodoo You Do

While RAVE-supported games are definitely a big step up from the plain-vanilla software-accelerated versions, games that support 3Dfx's Glide API, running on a card with the Voodoo or Voodoo 2 chip set, will knock you out.

Once you play these games with a Voodoo card, you'll be hard-pressed to go back to anything else. Textures are beautifully smoothed, fog and smoke shroud the landscape, coronas appear around light sources, liquids shimmer, and frame rates increase. Although cards that support RAVE produce many of these same textures and lighting effects, they fail to do so as convincingly and quickly as Voodoo cards. The Voodoo-based card we tested—Village Tronic's (www.villagetronic.com) MacPicasso 540 + 3D Overdrive—produced Unreal frame rates that hovered around a reasonably playable 18 fps on our test machine. In Quake these frame rates shot up to a smooth-as-silk 26 fps. Voodoo-based acceleration cards produce similar results regardless of whose name adorns the card. You won't, however, see similar results between a card based on the original Voodoo chip set and one that sports 3Dfx's latest offering, the Voodoo 2.


ATI Technologies' Xclaim VR

We had an opportunity to examine just such a Voodoo 2 chip set in Micro Conversions' (www.microconversions.com) 12MB Game Wizard and were dazzled by the results. We're talking 31 fps in Unreal and a screaming 48 fps in Quake running at a resolution of 640 by 480 pixels. That 12MB of on-board RAM allowed us to increase Quake's screen res-

## GAMES AND STANDARDS

**What good is 3-D–acceleration hardware without games to go with it? Here's a list of games and the APIs they support.**

| Game | Company | Glide Support | RAVE Support |
|---|---|---|---|
| Carmageddon | Aspyr Media | ● | ○ |
| Dark Vengeance | MacSoft | ○ | ● |
| F/A-18 Korea | Graphic Simulations | ● | ○ |
| Havoc | Reality Bytes | ○ | ● |
| MechWarrior 2 | Activision | ○ | ● |
| Myth: The Fallen Lords | Bungie Software | ● | ○ |
| Myth II: Soulblighter | Bungie Software | ● | ● |
| Nanosaur | Pangea Software | ○ | ● |
| Quake | MacSoft | ● | ● |
| Shadow Warrior | MacSoft | ● | ○ |
| Tomb Raider II | Aspyr Media | ● | ●* |
| Unreal | MacSoft | ● | ●* |
| Weekend Warrior | Bungie Software | ● | ● |

● = yes; ○ = no. *Rage Pro or better.

F/A-18

# KOREA

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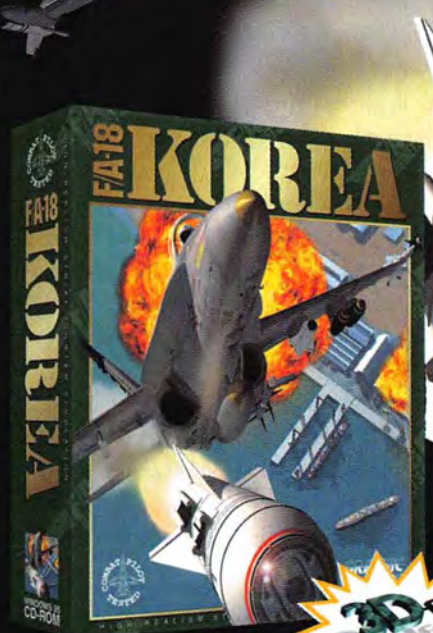


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olution to 800 by 600, and even at this more demanding resolution, Quake ran at 31 fps. Additionally, Micro Conversions promises that this card—and its 8MB sibling—will also run RAVE games. Regrettably, the RAVE drivers were unfinished at press time, but they should be available for download by the time you read this.

### NE 3D

Incidentally, if you want to play Glide-supported games on your Mac, it's also possible to use a Voodoo card intended for use with a PC.

The trick is to use the proper drivers and pass-through video cable. Griffin Technology (615/255-0990, www.griffintechnology.com) supplies the latter in its $15 NE 3D kit. Included in the kit are the pass-through cable, a monitor adapter, a CD-ROM with helpful utilities, and instructions on where to find the latest Macintosh Voodoo drivers on the Internet.

### Macworld's Buying Advice

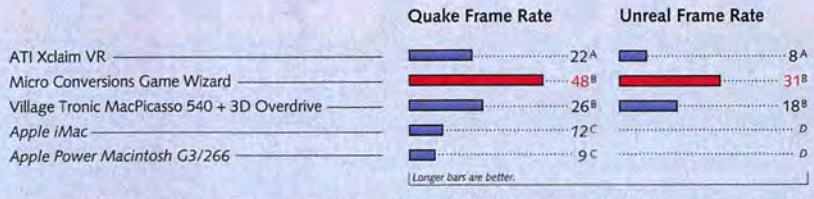
Our objective and subjective tests agree: If you're serious about games, desire the best graphics a game has to offer, have a Mac with a full-size PCI slot, and want hardware acceleration right this minute, a Voodoo card of some stripe should be in your Macintosh—assuming you can live with the relatively small number of titles that support such cards. If you're willing to wait, you should see some exciting developments in 3-D–acceleration hardware over the next few months (see the sidebar "Down the Pike"). Regardless of whether you buy now or later, one thing's certain: 3-D–acceleration hardware is your ticket to greater gaming glory. **m**

CHRISTOPHER BREEN coauthored *The Macintosh Bible Guide to Games* (Peachpit Press, 1996).

Macworld LAB TEST

## 3-D–Accelerator Tests

**Best results in red.** *Reference systems in italics.* **Test results are in frames per second.**




*A Running RAVE version of game. B Running Glide version of game. C RAVE with shadows turned off. D Won't run in hardware-accelerated mode.*

**Behind Our Tests**

All products were tested using timed demo routines that indicate how many frames per second are displayed on average in MacSoft's Quake and Unreal. Resolution was set to 640 by 480 pixels in 16 bits, and Unreal's default settings for both RAVE and Glide were used. Because Unreal's memory requirements are extreme (at least 80MB of RAM), the G3/266 was configured with 128MB of RAM so that virtual memory wouldn't be a factor.—**Macworld Lab testing supervised by Jeffy Milstead**

## DOWN THE PIKE

**THE MACINTOSH 3-D–ACCELERATION HARDWARE MARKET IS AT A** crossroads. Previously, 3-D hardware acceleration was considered a nicety—a welcome adjunct to a game but hardly a necessity. That's changing. It's no secret that nearly every game now released for the Macintosh is a port of a PC product, and increasing numbers of these PC games now support 3-D–acceleration hardware. Mac users expect their games to look as good as those of their PC counterparts; therefore, Mac games must now also support hardware acceleration.

Although RAVE is a cross-platform API, it's not a major player in the PC gaming industry. For this reason, you'd expect RAVE to fade away on the Mac, but that doesn't appear to be happening. Two of this winter's hottest games—Aspyr Media's Tomb Raider II and Bungie Software's Myth II: Soulblighter—support both RAVE and Glide (see the sidebar "Games and Standards"). The reason for RAVE support is obvious. Although Voodoo boards currently produce better-looking games, far more Mac users have RAVE-compatible hardware, thanks to Apple's inclusion of the Rage chip set on current Macintosh models. This number is only likely to increase, and game vendors simply can't ignore this market.

Micro Conversions' Voodoo 2–based Game Wizard cards are just a hint of things to come. Other companies, such as TechWorks, are also working on Voodoo 2 accelerator cards. You should also soon see a Mac gaming board based on 3Dfx's Voodoo Banshee chip—a graphics chip set that provides both 2-D acceleration and Voodoo 2–based 3-D acceleration on the same card. And for those who are looking for Voodoo on the cheap, Village Tronic should have released its $99 MacMagic, an 8MB Voodoo card, by the time you read this.

But wait, there's more. ATI has recently released the Rage 128 chip set for the PC—a powerful set of processors that supports Direct 3D and OpenGL, two popular 3-D APIs for the PC. Given ATI's dedication to the Mac market, you should see comparable Mac-compatible Rage 128–based cards released in the near future. Expect these cards to support both RAVE and OpenGL.

With these new cards and the additional memory they'll carry, you should see significant improvements in gaming performance. Not only will frame rates increase but you'll also be able to play games at higher resolutions—1,024 by 768 pixels will become the new standard. Textures will be more complex and varied, and surfaces will be more realistic—water will ripple as well as shimmer.

And as hardware becomes more capable, game programmers will create games that take advantage of these capabilities. With faster and richer game play just around the corner, the future of Mac gaming looks bright indeed.

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# The Game Room

by Philip Dyer

## Expand Your Options

IS PLAYING PC GAMES ON YOUR MAC WORTH THE HASSLE?

KNOW WHAT A MACintosh can do that a PC can't? If you said, "Maintain its owner's sanity," you'd be right! However, I was going for something a tad less caustic: Macs can emulate PCs, but PCs can't yet emulate Macs. Did you hear that? Do you realize what that means? If you own a Mac, you have access to all the software on either platform (including the latest PC-only games), right now, just by running a PC emulator. No longer do you have to stand outside the window of your mall's electronic-gaming boutique, drooling over the vast bounty of delectables beyond the glass—you can have them all right now!

At least, that's the theory.

PC emulation comes in two varieties: affordable (software) and not so affordable (hardware). The affordable stuff consists of Connectix's VirtualPC 2.1 ($160; 650/571-5100, www.connectix.com) and Insignia Solutions' SoftWindows 98 ($169 company's estimated price; 510/360-3700, www.insignia.com), two software packages that run Windows 98 right on your Mac. (Insignia also offers RealPC, a $79 DOS-only version.)

The problem is that these packages are running an operating system within an operating system, which results in a performance hit. Orange Micro provides the only Pentium cards available, ranging in base price from $549 to $849 (714/779-2772, www.orangemicro.com). I put these software emulators and the lowest-priced Orange Micro card on a Power Mac G3/300 with 128MB of RAM to see how they stacked up.

I installed two PC-only games for the test: Microsoft's Age of Empires, which has the modest requirement of a 90MHz Pentium processor, and Activision's BattleZone, which requires a 120MHz Pentium processor but recommends at least 166MHz. Under software emulation, Age of Empires was playable although sluggish; BattleZone, on the other hand, was an exercise in frustration. You could buy a ton of RAM, reduce the game's display size, and turn off sounds and textures to get a stripped-down version of the game to limp along, but is all that really worth it? (Here's a hint: no.)

### Intel Inside?

Orange Micro's Pentium cards are much better able to play PC games than their software siblings, but they do so at a cost. The only card that was ready by the time I conducted my tests was the least expensive of the company's three 200MHz cards, the $549 OrangePC 626. Tack a little extra onto that cost, since you'll want to replace the standard 16MB of RAM with at least 32MB. I pumped it up to 64MB for my tests.

The 200MHz Pentium card played Age of Empires smoothly, but BattleZone was much less enjoyable. Sure, it was playable, but it couldn't achieve anything close to smooth screen redraws. Orange Micro has announced a $649 game card, the PCfx, that will ship with a 128-bit nVidia graphics accelerator. In addition, an $849 version, the OrangePC 660, has the accelerator and two RAM slots, although you have to pay extra for RAM and Windows. Both cards were scheduled for release in November 1998.

OK, so here's the bottom line. Software PC emulators are fine for some of the simpler games that don't require a processor of more than about 90MHz, but they will never be a viable gaming option.

Orange Micro's Pentium cards offer a much better PC gaming solution, but at a much higher cost. The $649 card (when it becomes available) should offer a nice compromise between price and performance for the serious gamer. If you don't want to spend that much to play the latest, coolest PC games, I'm afraid you're stuck with the games that make it to the Mac platform.

The good news is, all indications are that the Mac gaming market is set to explode. Until that happens, spend some time exercising and communing with nature; once the Mac gaming market takes off, you won't have time for such luxuries. m

Senior Online Editor PHILIP DYER spends far too little time exercising and communing with nature.

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*continued from page 192*

Andreotta, NASA's deputy CIO for operations. "Customers can select the platforms they want and the service they require."

That's good news to people like Joe Williams, rendezvous guidance and procedures officer. "I was worried when the Wintel standard was established," he says. "But I'm still using Macs in everyday activities, [including] support of shuttle flights. I'm the guy sitting in the front-center row of the Mission Control Center, the one with the PowerBook 5300cs."

**BellSouth ADSL Service** In May 1998, BellSouth announced the availability of ADSL (for Internet connections up to 100 times faster than modems) in 30 cities—for Windows only.

Mac fan Nathan Tennies helped to inspire BellSouth's reversal with a sly tactic: he pointed out to the local paper's technology columnist that his own, rival firm (Road Runner cable modems) *was* Mac friendly. The pressure was on.

When members of the Raleigh, North Carolina, Mac user group followed up by swamping BellSouth with calls, this story fell into its usual pattern: BellSouth admitted that the response from Mac users had been enormous, way out of proportion to the supposed market-share numbers. In July, BellSouth and Apple published a joint press release. "By working directly with Apple," BellSouth said, "we are bringing the Mac version of BellSouth.net FastAccess ADSL service to market."

**Santa Barbara Department of Continuing Education** Not every Mac triumph involves a major corporation. When the Santa Barbara, California, Department of Continuing Education announced that it was about to replace its lab full of aging Macs with Wintel boxes, user-group member Harold Adams was appalled. He circulated a petition at the newspaper where he worked (the *News-Press*); within days, he had sheets full of signatures. "We let the community know how our local paper depends on Macintosh for daily productivity and output," he says.

The petition was submitted to the school board. Incredibly, Adams's simple demonstration that people *cared* resulted in new all-Mac labs, classes in Adobe Photoshop and FileMaker—and, in this era of a rebounding Apple, a community sense of having done the right thing.

### The Battles Continue

Don't bother e-mailing me accounts of *lost* battles; I'm aware that the Mac isn't always victorious. But thanks to the polite but unbending pressure from those of us who know a superior machine when we see one, the Macintosh is unmistakably retaking lost ground in workplaces and schools all over the world. At my Web site, you'll find tale after tale of the Mac's resurgence after "cancellation" at such establishments as the National Institutes of Health and the Stanford Linear Accelerator; Winona State University, Texas Christian University, and the University of Waterloo (Toronto); and school systems in Rockford, Illinois; Sarasota, Florida; Des Moines; Malvern, Pennsylvania; Portland, Oregon; and Martha's Vineyard, Massachusetts.

I thought you'd want to know about these quiet, but significant, Macintosh victories. Because one thing's for sure: you won't read about 'em in *Business Week*. **m**

DAVID POGUE (www.davidpogue.com) is a coauthor of *Macworld Mac Secrets*, fifth edition (IDG Books Worldwide, 1998).

**Here in this issue!**

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# The Desktop Critic

by David Pogue

## First the Battles, Then the War

IF THE MAC IS DEAD, WE NEVER GOT THE MEMO

THE *WALL STREET JOURNAL* told us. *Fortune* told us. And Lord knows, *Time* magazine told us: Apple "has no future." These publications' ability to draw negative conclusions from any news, no matter how positive, often bordered on the Monty Python–esque. You get the idea that if Apple won a 90 percent market share, bought out Microsoft, and hired Bill Gates to mop the bathrooms, *Business Week* would write: "Apple has all but ignored the possibility of alien invasion—an event that would cut deeply into profit margins."

Once the media seized upon the Death of Apple as their favorite slow-news-day whipping boy, a cycle of anti-Mac feeling took hold among non-Mac users. One company after another announced Mac phaseouts. We heard about banks, telecom services, and even Web pages withdrawing Mac support.

Those announcements, naturally, made further headlines. But the Apple-obsessed media are missing a story that's ten times juicier: that many of the much-hyped Mac phaseouts *never happened.* We're talking about corporations, universities, and government departments completely reversing themselves, admitting bad judgment, and eating enough crow to make Thanksgiving look like a snack.

What brings about these amazing policy reversals? It's the oldest and most reassuring story in the American book: the people spoke. Every phaseout triggers a tidal wave of resistance. Every Mac-bashing official gets a sharp, overwhelming lesson in the consequences of taking away choice. Eventually, the clueless get an education: People *care* about their Macs, and we're willing to fight for our right to use them.

You've probably already heard how Intuit's Quicken for the Mac was canceled, and then uncanceled in the face of pressure from the public (and Steve Jobs) and how the Disney Blast Web site was incompatible with Macs until Mac customers pounded down the door. But those cases are only the tip of the iceberg.

**Wells Fargo** In July 1998, Wells Fargo Bank wrote to its customers: "Online banking through Quicken for Macintosh will be discontinued, since only a small number of our customers use this service."

Or maybe not. Within five days, 700 customers wrote to complain. Mac fan Tom Chiara's polite, no-nonsense letter was among them: "Many of us would rather switch banks than use Windows

to access our account," he wrote.

Wells Fargo was big enough to admit its mistake. "We goofed," said the form letter Chiara received only 11 days later. "The service will not be discontinued as previously announced."

Put one way, Wells Fargo's original decision wasn't surprising; only 1 percent of its online customers use Macs. But 1 percent is 7,000 Wells Fargo customers; for a bank, that's quite a chunk of change.

**Yale University** In June 1997, Yale wrote to every incoming freshman: "You are strongly encouraged to select a Windows PC. Owing to uncertainties about availability of software . . . the University cannot guarantee support for Macintoshes beyond June 2000."

This edict came from a tech director named Dan Updegrove, who apparently had visions of Intel equipment grants dancing in his head (see *The Desktop Critic*, March 1998). But the reaction was overwhelming: outraged alumni, students, faculty, and Yale grad schools rushed to denounce the policy—one that made absolutely no sense in an environment where Ethernet and Web connections are all that matters.

Updegrove never did apologize or retract his decree, but it didn't matter; the university took matters out of his hands. "This year," says Yale spokesperson Tom Conroy, "Yale made no recommendation to incoming students regarding what brand of computer to buy," leaving students to make their own choices. This year's letter to entering students, in fact, reads like an ad for Apple, prominently listing Mac systems for sale (as well as Windows machines).

Oh—and guess whose name *isn't* signed to this year's letter?

**Johnson Space Center** In 1996, John Garman, chief information officer of NASA's Johnson Space Center, announced that the center would be going all Windows.

The ensuing controversy raged for two years on the Web, via e-mail, and in the nation's newspapers. This one stung; after all, NASA is *government*, our tax dollars at work. A key question: Had Garman followed federal guidelines for choosing the most cost-effective solution?

But you don't just tell the nation's leading scientists and researchers that you're taking away their favorite tools. Today, Garman is long gone, and NASA is buying more Macs. "There is no plan to standardize on one platform," says Don

*continues on page 191*

Sometimes Newer Is Better Than New

# Introducing the Latest Apple Desktop

So, you sprang the bucks for an Apple PowerBook G3 Series - a computer that's as comfortable on your desktop as it is on the road. Except, of course, for that #$%?@&! mass of cables waiting on your desk. Not to worry. Newer Technology has created the BookEndz docking station. The easiest way to connect or disconnect a monitor, keyboard, mouse, audio in and out, network or serial printer, SCSI devices, and power in seconds flat. Snap in your G3 PowerBook and you have a world class desktop machine, snap it out and you have the ultimate portable. What else do you need?

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