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OF THE YEAR

Gateway Servers

Gateway has a server with the performance and features for any business. Including yours. From small businesses looking for cost-efficient servers with room to grow, to large corporations that need big-time performance and scalability right out of the box.



Gateway Server Satisfaction Guarantee.

If you are not completely satisfied with your Gateway server, you can return it within 90 days of purchase. No questions asked. Ask a Gateway Sales Representative for complete details.¹

Prices starting at

\$1699 Gateway® 955 Server

- Intel® Xeon™ Processor 1.8GHz with 512K L2 Cache (upgradeable to Dual 3.06GHz processors with 533MHz FSB)
- 256MB PC2100 ECC DDR SDRAM (expandable to 6GB)
- 36GB Ultra 320 SCSI hot-swap 10Krpm hard drive² (upgradeable to three 146GB hard drives)
- Integrated Dual-Channel Ultra 320 SCSI with Embedded RAID 0/1³
- Gateway Server Manager Software
- 3-Year Parts, Labor, 3-Year On-site – Next Business Day Limited Warranty, HW Tech Support as long as you own it³
- FCC Class A Emission Standard⁴
- 4-Hour On-site Response service available³

Prices starting at

\$2199 Gateway® 975 Server

- Intel® Xeon™ Processor 2.40GHz with 533MHz FSB and 512K L2 Cache (upgradeable to Dual 3.06GHz processors)
- 512MB PC2100 ECC DDR SDRAM (expandable to 6GB)
- 36GB Ultra 320 SCSI hot-swap 10Krpm hard drive² (upgradeable to seven 146GB hot-swap hard drives)
- Integrated Dual-Channel Ultra 320 SCSI with Embedded RAID 0/1³
- Gateway Server Manager Software
- 3-Year Parts, Labor, 3-year On-site–Next Business Day Limited Warranty, HW Tech Support as long as you own it³
- FCC Class A Emission Standard⁴
- 4-Hour On-site Response service available³

Prices starting at

\$399 Gateway® 920 Server

- Intel® Celeron® Processor 2.20GHz with 512K L2 Cache (upgradeable to 3.06GHz processor with 533MHz FSB)
- 128MB PC2100 ECC DDR SDRAM (expandable to 4GB)
- Single 60GB ATA100 7200rpm IDE hard drive² (upgradeable to three 200GB hard drives)
- Integrated Dual-Channel ATA 100 and one ATA 66 IDE controllers
- Gateway Server Manager Software
- 1-Year Parts, Labor and On-site Limited Warranty³
- FCC Class B Emission Standard⁴
- 4-Hour On-site Response service available³

Prices starting at

\$1299 Gateway® 960 Server

- Intel® Xeon™ Processor 1.80GHz with 512K L2 Cache (upgradeable to Dual 3.06GHz processors with 533MHz FSB)
- 256MB PC2100 ECC DDR SDRAM (expandable to 4GB)
- 36GB Ultra 320 SCSI hot-swap 10Krpm hard drive² (upgradeable to four 146GB hot-swap hard drives)
- Integrated Dual-Channel Ultra 320 SCSI
- Gateway Server Manager Software
- 3-Year Parts, Labor and On-site Limited Warranty³
- FCC Class A Emission Standard⁴
- 4-Hour On-site Response service available³

Prices starting at

\$2499 Gateway® 980 Server

- Intel® Xeon™ Processor 2.40GHz with 533MHz FSB and 512K L2 Cache (upgradeable to Dual 3.06GHz processors)
- 512MB PC2100 ECC DDR SDRAM (expandable to 4GB)
- 36GB Ultra 320 SCSI hot-swap 10Krpm hard drive² (upgradeable to eight 146GB hot-swap hard drives)
- Integrated Dual-Channel Ultra 320 SCSI
- Gateway Server Manager Software
- 3-Year Parts, Labor and On-site Limited Warranty³
- FCC Class A Emission Standard⁴
- 4-Hour On-site Response service available³



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Prices starting at

\$999

NEW

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- Intel® Pentium® 4 Processor 2.4GHz
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- 17" color monitor (15.9" viewable area)
- Microsoft® Windows® XP Professional
- 3-Year Parts, Labor, On-site, Limited HW & SW Tech Support for as long as you own it³

Upgrade to Intel® Pentium® 4 Processor with⁴
HT Technology at 2.4GHz for \$40



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NEW

Gateway® E-6100 Desktop

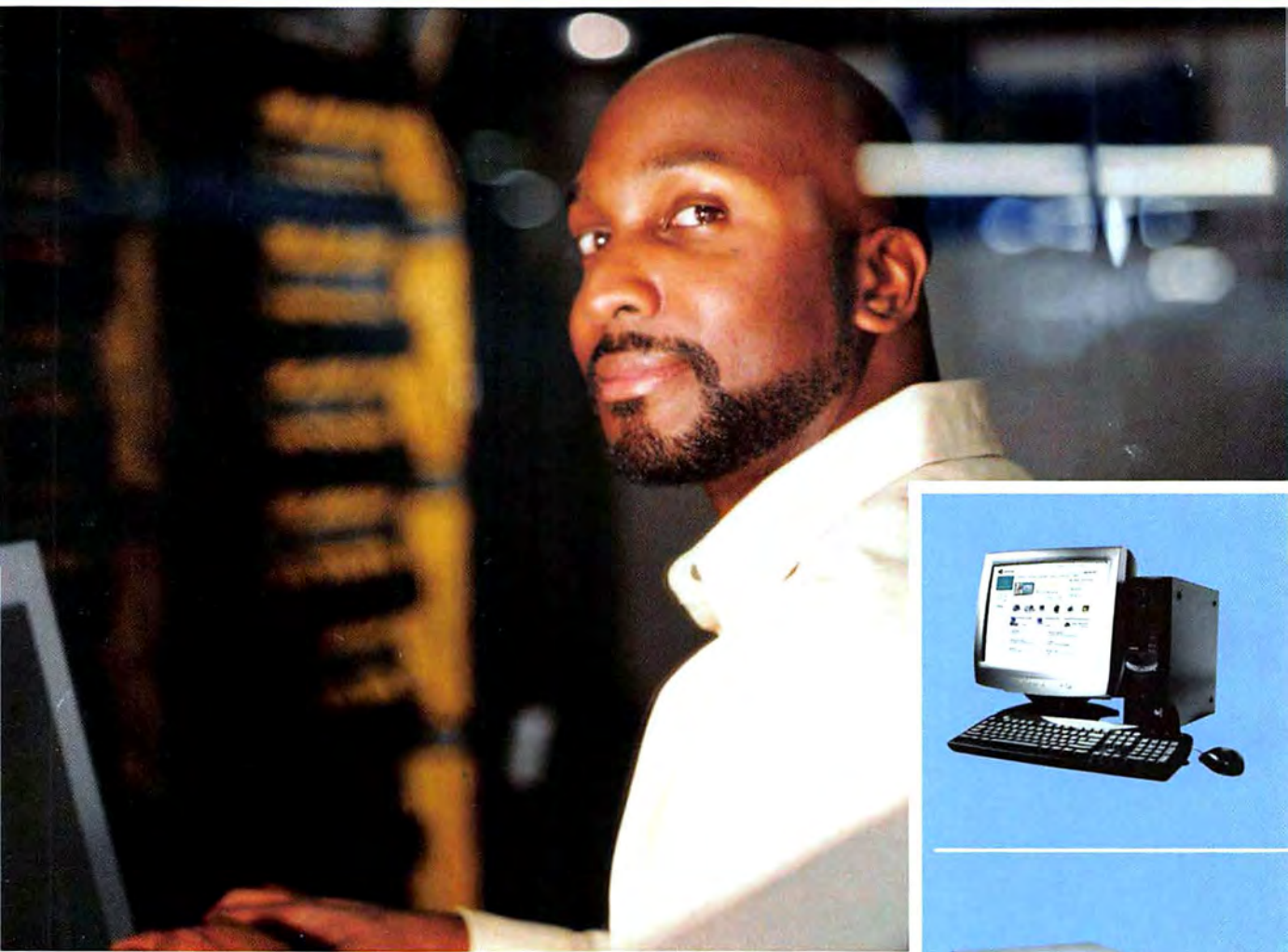
- Intel® Pentium® 4 Processor with⁴ HT Technology at 2.4GHz and 800MHz FSB
- 256MB 400MHz DDR SDRAM
- 80GB 7200rpm hard drive²
- 20x min/48x max CD-ROM drive
- 17" color monitor (15.9" viewable area)
- Microsoft® Windows® XP Professional
- 3-Year Parts, Labor, On-site, Limited HW & SW Tech Support for as long as you own it³



Gateway recommends Microsoft® Windows® XP Professional for Business.

Prices and configurations subject to change without notice or obligation. Prices exclude shipping, handling and taxes. Not responsible for typographical errors. ¹Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Gateway will attempt to resolve your issue remotely. If this is not possible, Gateway will dispatch a technician. Gateway cannot guarantee but will make every available attempt to resolve your issues by a particular time. On-site, 4-Hour Support and Next Business Day dispatch service is not available in all locations. See agreements for specific terms and limitations.

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From the desktop to the networking center, Gateway has powerful, reliable solutions for any computing need. That includes the need for a helping hand, because we offer a full range of services that are just as powerful as our computers. Take a look at everything Gateway can do for you.



End-to-End Network Lifecycle Services

From your first network to your latest upgrade. Gateway's total network lifecycle support keeps your connectivity reliable, fast and secure around the clock. On-site, online or over the phone, we are your single point of contact every step of the way.

Network Planning and Design

Keep your network capability current and specific to your business needs. A network consultation with a Certified Gateway Networking Engineer includes:

- Discussion of your business objectives, industry and technology requirements
- Survey your work site
- Evaluation of your current hardware and software
- Development of a custom network blueprint, including recommendations for hardware, software, implementation plans, plus time and cost estimates

Call to set up an appointment.

Custom Integration and Installation

Gateway is your one-stop resource for a wide range of custom-built, factory-configured computing solutions delivered directly to your site. Gateway can install:

- Client-supplied software images
- Custom hardware and security components
- Asset/info tags

Installation services include:⁷

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- Internet and/or wireless access setup
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- Setting up shared drives, printers and network settings

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- Access to Gateway's Network Support Center team of Microsoft® and Novell®-certified engineers
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- Remote IT services including Network OS support and system management
- Annual consultation to reassess your network requirements and provide recommendations for expansion
- Customized support package to fit your needs

Contact your Gateway Account Executive for details.

Asset Recovery⁸

Gateway offers a disposition solution, as well as services to market or dispose of outdated technology equipment, including:

- Planning and consulting
- De-Installation of legacy equipment
- Removal of old equipment in an environmentally sound manner
- Data removal to ensure data is wiped clean on disposed or resold systems
- Data migration; port/convert applications
- Project Management—Implement and integrate project with minimal disruption to company operations

Contact your Gateway Account Executive for details.

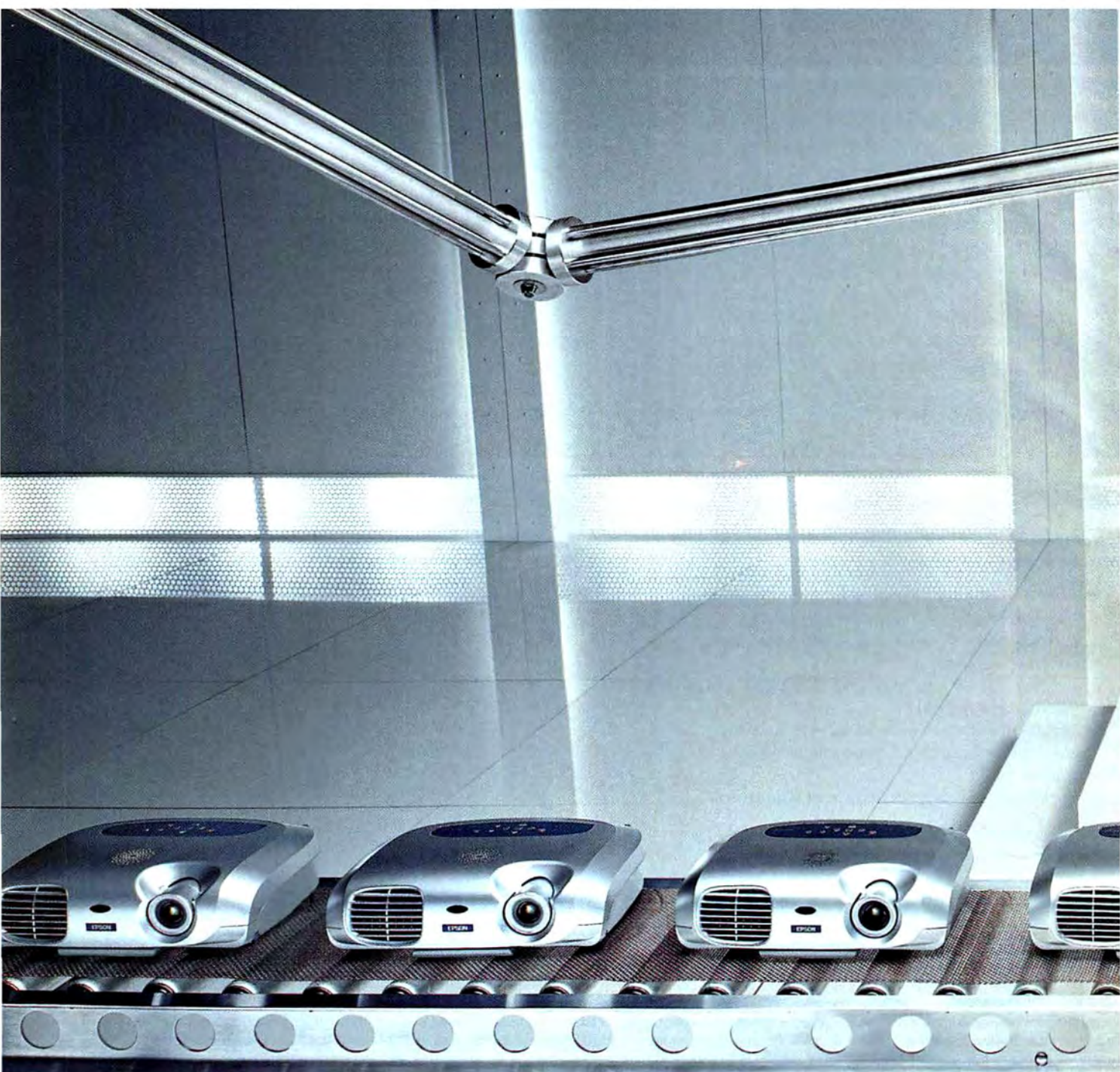
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Small and Midsize Business Corporate and Enterprise



AOL Keyword: Gateway

Prices and configurations subject to change without notice or obligation. Prices exclude shipping, handling and taxes. Not responsible for typographical errors. ¹The Server Satisfaction Guarantee is offered to customers who purchase a new Gateway server during the term of the promo. Customer has 90 days after receipt to return server if dissatisfied (server must be in same condition as purchased). Customer must remove all confidential information from server and cannot hold Gateway responsible for any information not removed. Proof of purchase by serial number is required before Gateway will refund the original purchase price of the server and original shipping fees only. Any additional fees, such as installation services, will not be refunded. Customer is responsible for return shipping fees. Limited time offer. ²Hard drive accessible capacity varies; GB=1 billion bytes. ³Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Gateway will attempt to resolve your issue remotely. If this is not possible, Gateway will dispatch a technician. Gateway cannot guarantee but will make every available attempt to resolve your issues by a particular time. On-site, 24-Hour Support and Next Business Day dispatch service is not available in all locations. See agreements for specific terms and limitations. ⁴FCC Class A products may not be sold for home use. ⁵Feature only offered in Microsoft® Windows Operating Systems. ⁶Performance may vary depending on the system configuration and software applications used. ⁷Installation provided by third parties. Not available in remote locations. Call for details. ⁸Value of trade-in (market price) is determined by third party. Credit determined is applicable toward Gateway® E-Series desktops, business notebooks and servers. Ten (10) unit minimum trade-in to qualify for program services. For organizations trading in less than 10 units, there is a self-service trade-in program with unique prices, terms and conditions that can be accessed at the following Web site: www.gateway.tradeups.com. Unit pricing defined as PC, Notebook, Monitor or Server with weight limit of 40 lbs. There is a \$30-per-unit fee on all systems regardless if they have resale value or not; charge is for pick up of systems, transportation and for remarketing services for systems with resale value or for disposal of systems with no resale value in accordance with new EPA disposal guidelines. Credit cannot be applied toward program fee. Customer must have equipment located near a truck access such as a loading dock at their location. Copyright ©2003 Gateway, Inc. All rights reserved. Gateway Terms and Conditions of Sale apply. Gateway.com and Gateway Country Stores, LLC, are separate legal entities. Gateway, the Spotted G Gateway Logo, the Spotted G Logo and the Black and White Spot Design are trademarks or registered trademarks of Gateway, Inc. in the U.S. and other countries. Intel, Pentium, Xeon, Intel Inside, and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. Ad Code: 112886



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thing we didn't need to double check. The price.

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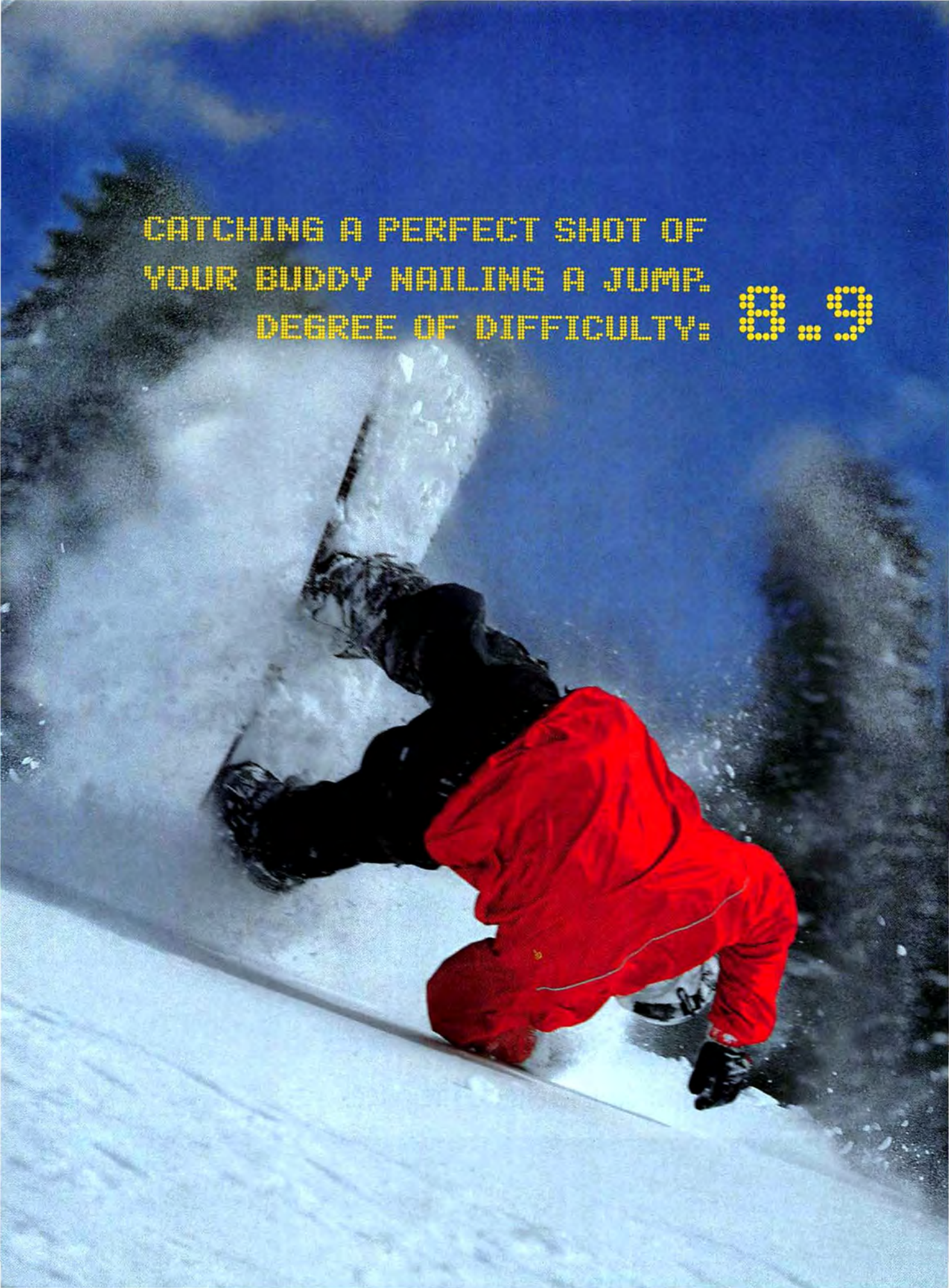
▷ Tested: 60 functional tests, 12 image quality tests, 1-hr. lamp-on test
▷ Trusted: Epson is chosen 5 to 1 by leading experts as most reliable

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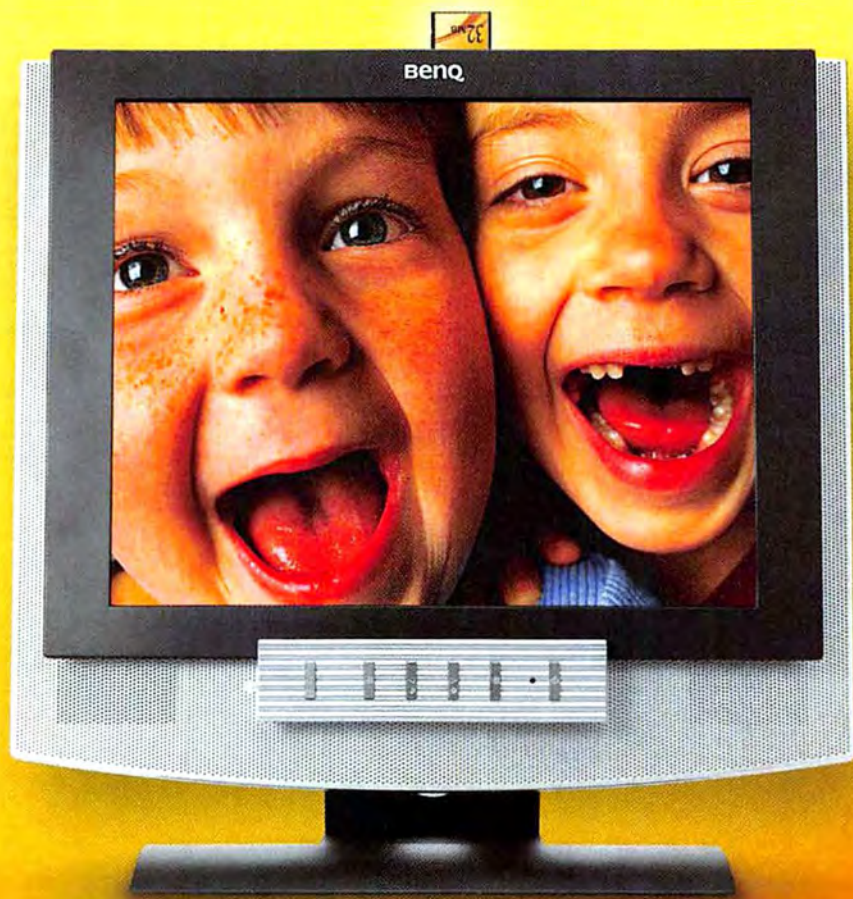
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Instant preview

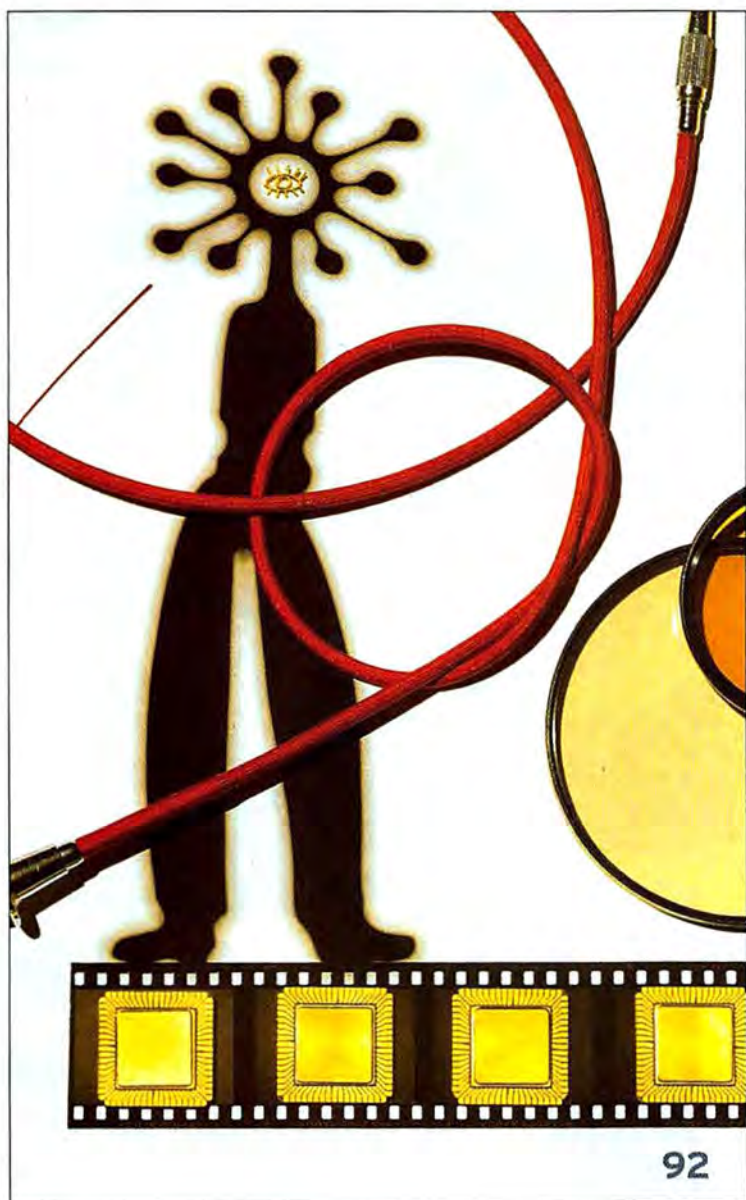


Instant review



Now, digital photo displays are brighter and clearer than ever before with the new FP591 (15") and FP791 (17") LCD monitors. In addition to reviewing digital photos in an instant, without connecting to a computer or memory card reader, you also get ground-breaking 16ms response time for flicker-free motion images and SRS® technology for incredible stereo surround sound. All from BenQ, the second largest LCD monitor manufacturer in the world. Memories of a lifetime can now be viewed in an instant, thanks to BenQ. Visit www.BenQ.com/2003/PCWorld-July-FP591 for more details.

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WORLD CLASS PRODUCTS

80 Best of 2003



After much deliberation, we've chosen the finest products and services of the year in over 50 categories, from PCs to software to Internet apps. Check out the bounty of worthy winners—and on the flip side, find out which companies and products turned in dubious achievements.



Cover photography by Marc Simon

PCWORLD

20TH ANNIVERSARY YEAR
JULY 2003
VOLUME 21 ♦ NUMBER 7
AOL KEYWORD: PCWORLD
WWW.PCWORLD.COM

FEATURES

THE DESKTOP DARKROOM

92 One-Stop Digital Photography Guide

Are you looking to achieve picture perfection? Our guide offers help with every step: finding a camera, organizing your shots, editing your images, and getting great prints.

VIRUS & SPYWARE FIGHTERS

109 Pest Zappers

These days, your PC needs the strongest defenses you can get against viruses and spyware. We lab-tested eight antivirus scanners and four anti-spyware utilities to uncover the best combination of packages to keep your PC vermin-free.



DESKTOP REPLACEMENT LAPTOPS

119 One PC With Everything—to Go!

Do-anything notebooks have big screens, powerful CPUs, and enough battery life to let you swear off desktop PCs forever. We put six desktop replacements to the test and found that some of them can really move.

ON THE COVER





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BenQ projectors keep you moving.



Your mobile toolkit is now complete. Laptop, PDA, cell phone...digital projector. The new SL705X redefines power and portability. Offering a stunning combination of 1100 ANSI lumens, 600:1 contrast ratio, and native 1024x768 (XGA) resolution, you'll project everything from slideshows to home videos in dazzling, lifelike quality. BenQ's projectors include a DLP chipset to ensure high-quality, digitally-based images that won't fade or degrade over time. Weighing in at only 3.8 pounds, and a petite 2" thick, this perfect travelling companion is well suited to work on the road and life at home.

For more information, visit www.BenQ.com/2003/PCWorld-SL705X
To contact us, visit www.BenQ.com/ProdInfo or call (866) 700-2367

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**First Year
Xpress Xchange™**

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TOP 100

- 128 Pentium M Has Juice
The mobile CPU runs well and gets good mileage.
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Accessories for high-tech toys can add up quickly.
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Cure Microsoft maladies.
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Stephen Manes wonders if Net sewage is damnable.

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TAKE OUR SURVEY

A GREAT CHANCE AT A GREAT PRIZE

Visit www.pcworld.com/pcwinput to rate this issue, and you might win a Canon PowerShot S400 Digital Elph. Enter the drawing from June 4 through July 4, 2003. You'll need the subscriber number from your magazine's mailing label to take the survey online. The site has official rules and tells how nonsubscribers can participate in the prize drawing.

COMING UP IN AUGUST

Online Freebies: Find the Web's best free tools and services.

Removable Storage: We review options from flash memory to humongous external hard drives.



NEWS & TRENDS

- 18 E-Mail Evolves
Does e-mail seem to be more trouble than it's worth these days? A slew of new products promises to help you get your in-box under control.
- 24 AMD Keeps Its Value Crown
With its new Athlon XP 3200+ chip, AMD continues to provide some outstanding values to PC buyers. Here's what our first tests show.
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Compact storage cards are growing in capacity—and dropping in per-megabyte prices.
- 26 1GB CD-RW Drives: Take a Pass
New CD-recordable technologies pack more data on a disc, but with unpalatable trade-offs.
- 28 NVIDIA's FX 5900: Slim Edge, Steep Price
Our PC World Test Center evaluates a graphics card billed as "the fastest GPU in history."

NEW PRODUCTS

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Palm Tungsten C, Palm Zire 71, Toshiba Pocket PC E755
- 54 Remote-Access Software
LapLink Everywhere, Symantec PCAnywhere
- 60 Scanner
Fujitsu ScanSnap
- 64 Music Services
Apple iTunes Music Store, AOL MusicNet, Full-Audio MusicNow
- 68 Graphics Board
ATI Radeon 9600 Pro
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HERE'S HOW

- 144 Windows Tips
Password-protect individual files and folders in Win XP and Me; kill the Messenger in XP Home.
- 146 Step-By-Step
Get the right components and build a custom PC that's suitable for your needs and budget.
- 150 Internet Tips
The ABCs of selling your tchotchkes on eBay; a safe-searching alternative to Google.
- 152 Hardware Tips
Important points to consider when shopping for a used system; monitor CPU temperature.
- 154 Answer Line
Identify and close programs running in the background on your PC; diagnose spontaneous reboots; create a Windows shutdown shortcut.

Sun Fire V100 rack-mount server

- ▶ 550MHz Sun UltraSPARC III processor
- ▶ Memory: 256MB RAM
- ▶ 40GB hard drive
- ▶ 24X Max CD-ROM drive
- ▶ 2 x 10/100 Ethernet
- ▶ Solaris 8 operating system



\$995.00

CDW 442901

Adobe® Acrobat® 6.0 Professional upgrade

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- ▶ Convert and combine any document into one PDF
- ▶ Reliably and efficiently exchange business-critical documents
- ▶ Create electronic forms
- ▶ Designed for business, creative and engineering professionals



\$139.47

CDW 471796

NEC Mitsubishi MultiSync LCD1855NX-BK

- ▶ Native resolution: 1280 x 1024
- ▶ Contrast ratio: 350:1
- ▶ Digital/Analog inputs
- ▶ 3-year limited parts, labor and backlight warranty



\$569.00

CDW 420247

Tripp Lite SmartPro UPS Systems

- ▶ Line interactive, small-footprint tower UPS system with enhanced communications and load management receptacle
- ▶ Automatic Voltage Regulation (AVR) corrects brownouts and overvoltages
- ▶ One DB9 and one USB monitoring port with PowerAlert software provides unattended shutdown and network-wide power management
- ▶ Customized load management receptacle enables selective load shedding and remote reboot of connected equipment
- ▶ Also available in rack-mount version with extended-run capability



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Toshiba Satellite M20 Centrino

TOSHIBA

- ▶ 1.3GHz Intel® Pentium® 4 processor
- ▶ Memory: 256MB RAM
- ▶ 30GB hard drive
- ▶ CD-RW/DVD combo drive
- ▶ 56Kbps modem
- ▶ 10/100 Ethernet
- ▶ Integrated 802.11b wireless
- ▶ 14.1" XGA active-matrix display
- ▶ Windows XP Professional

\$1449.95

CDW 478955



BrightStor ARCserve Backup v9 for Windows

- ▶ Enables backup to another disk volume to leverage the variable performance
- ▶ Supports CD-RW and DVD-RW drives
- ▶ Command Line interface—runs common commands directly from the command line
- ▶ Multiple NIC support
- ▶ Backs up a NAS unit with NDMP support to a locally attached tape library
- ▶ Simplified installation process



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> 9:32 am. Martha Watson counts over 1,200 name brands in order the word "more" to the legal department.

A woman, Martha Watson, is shown climbing a red rope in a large warehouse. She is wearing a red long-sleeved shirt, black pants, a red helmet, and yellow and black shoes. She is holding a black device in her hands. The warehouse has high ceilings and metal shelving units filled with boxes. The scene is brightly lit.

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This Month We Look at PDAs, Digital Cameras, Desktop Replacement Notebooks, Antivirus Software, and More

PEPPY PDAs, DYNAMIC DIGITAL cameras, powerful portable PCs, and valiant virus killers debut in this issue. A full list of the newcomers we cover follows, along with each item's star rating, if any. Visit find.pcworld.com/10860 for more on PC World's Star Ratings.



52

DESKTOP PCs

- 130 Amax P4V Value ★★★☆☆
- 130 Compaq Presario 6470NX
★★★★☆
- 130 Dell Dimension 8300
★★★★☆
- 132 Dell OptiPlex SX260 ★★★☆☆
- 130 Falcon Northwest Mach V
★★★★☆
- 130 Gateway 700XL ★★★★★
- 132 Gateway E-2000 ★★★☆☆
- 132 PC Power & Cooling SleekLine
2660 ★★★☆☆

NOTEBOOK PCs

- 120 Acer TravelMate 655LCi
★★★★☆
- 120 Alienware Area 51-m ★★★☆☆
- 134 Amax Elite 6033D ★★★☆☆
- 120 Apple PowerBook G4 (17-inch)
★★★★☆
- 120 Dell Inspiron 8500 ★★★★★
- 134 Gateway 400SP Plus
★★★★☆
- 134 Gateway 450X ★★★☆☆
- 120 Gateway 600X ★★★☆☆
- 134 Micro Express NP1024A
★★★★☆
- 134 Toshiba Satellite Pro M15-S405
★★★★☆

INK JET PRINTERS

- 137 Canon i450 Color Bubble Jet
Printer ★★★☆☆
- 66 Epson Stylus Photo 900 ★★★☆☆
- 137 Lexmark Z605 Color Jetprinter
★★★★☆

19-INCH CRT MONITORS

- 139 Hansol 920D ★★☆☆☆
- 139 Hitachi CM721F ★★☆☆☆
- 139 Philips 109B43 ★★★★★
- 139 Sony HMD-A440 ★★★★★

DIGITAL CAMERAS

- 95 Canon PowerShot S400 Digital
Elph ★★★★★
- 96 Fujifilm FinePix F700
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- 95 Minolta DiMage F300 ★★★★★
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- 52 Palm Zire 71 ★★★★★
- 52 Toshiba Pocket PC E755
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- 141 Sony DRU-510A ★★★★★
- 141 TDK Indi DVD 420N ★★★★★
- 141 Teac DV-W50E ★★★★★

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- 26 OptoRite DD0203
- 26 Plexor 52X/32X/52X Premium

ANTIVIRUS SOFTWARE

- 110 Boomerang Extensia AntiVirus
AVK Professional ★★★★★
- 110 F-Secure Anti-Virus 2003 ★★★★★
- 110 GeCAD RAV AntiVirus Desktop
for Windows 8.6 ★★★★★
- 110 Kaspersky Anti-Virus 4 ★★★★★
- 110 Panda Software Antivirus
Platinum 7 ★★★★★
- 110 Trend Micro PC-cillin 2003
★★★★☆

ANTI-SPYWARE SOFTWARE

- 114 PepiMK Software Spybot Search
& Destroy 1.2 ★★★★★
- 114 PestPatrol 4.2 ★★★★★
- 114 Webroot Spy Sweeper 1.5
★★★★☆

OTHER SOFTWARE

- 60 Corel WordPerfect Office 11
Standard ★★★★★
- 22 Kubi Software Kubi Client
★★★★☆
- 54 LapLink Everywhere 2.01 ★★★★★
- 70 Mandrake Linux 9.1 ★★★★★
- 22 Oddpost ★★★★★
- 22 Open Field Software Ella ★★★★★
- 22 Stata Labs Bloomba
- 54 Symantec PCAnywhere 11
- 66 TiVo Home Media Option ★★★★★

ONLINE MUSIC SERVICES

- 64 AOL MusicNet ★★★★★
- 64 Apple iTunes Music Store
★★★★☆
- 64 FullAudio MusicNow ★★★★★

KIOSKS FOR DIGITAL PHOTOS

- 104 Agfa E-box ★★★★★
- 104 Fujifilm Aladdin ★★★★★
- 104 Kodak Picture Maker ★★★★★
- 104 Pixel Magic IStation 200 ★★★★★
- 104 Sony PictureStation ★★★★★

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PC World Editorial
501 Second St. #600
San Francisco, CA
94107

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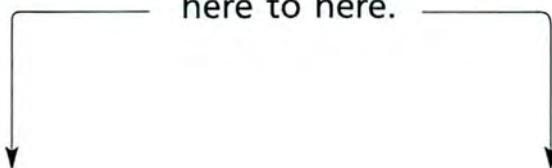
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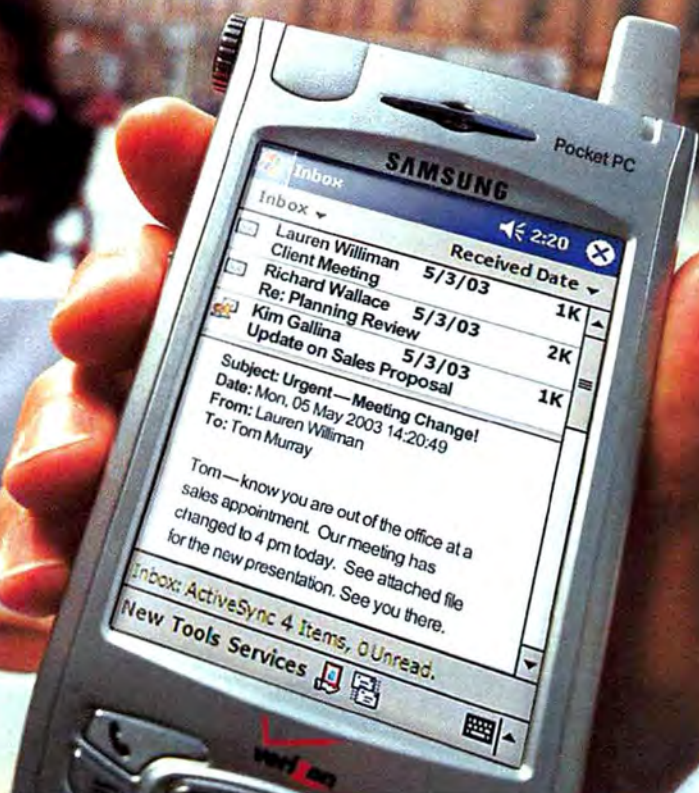
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UP FRONT

HARRY MCCrackEN

Pssst! Next Year's Best Products Are...

A few highly personal predictions for 2004.

FOR TWO DECADES NOW, *PC World* has bestowed World Class awards to the year's top products. Producing this feature is no cakewalk—not when it requires getting several dozen opinionated editors to come to a consensus in more than 50 categories.

Luckily for us, Associate Editor Eric Dahl—an expert wrangler of editors and products—has shepherded the project for the past four years. “We’ve got lots of smart people here who are passionate about technology, and that’s what makes World Class so vital,” he says. “Of course, it’s not so fun when you’re past deadline and still can’t agree whether Google—last year’s Product of the Year—is a product.”

As always, the results (see page 80) are worth the heavy lifting. And they got me thinking: What will we be oohing and ahing over when World Class time rolls around next year? Herewith, a few predictions about our hit list for 2004. If I turn out to be right, you heard it here first. And if I’m wrong...well, nobody’s perfect.

An OLED-equipped camera: One of the coolest products we’ve seen lately is Kodak’s EasyShare LS633, thanks to its OLED (Organic Light-Emitting Diode) display—the first on any camera. Unlike LCDs, the EasyShare’s big OLED looks great from any angle and doesn’t hog bat-

tery juice. One hitch: Kodak doesn’t sell this model in the United States. Here’s hoping OLEDs are commonplace when we pick next year’s best camera.

A bulletproof wireless router: Wi-Fi is one of those technologies that are fundamentally useful despite sizable drawbacks. I’d pay extra for an utterly reliable router with beefy antennas and firmware that never needed patching. As for security, 2004’s units should offer 802.11i, a robust encryption protocol.

Broadband at 30,000 feet: That’s what Boeing’s Connexion (www.boeing.com/connexion) promises; it’s just that the fragile health of U.S. air carriers has kept it out of their planes. Connexion isn’t necessarily a panacea—when I tried it on a test flight, it was flaky and sluggish. Still, it can’t arrive fast enough for this frequent (and frequently bored) flier.

An operating system that tries harder: Yes, there *was* a time when something other than a flavor of Windows was our OS



PRODUCTMEISTER Dahl with some of 2003’s winners.

pick. That would be 1995, when IBM’s OS/2 got the nod. But consider this year’s Web browser battle, which dominant-but-calcifying Internet Explorer lost to the inventive Mozilla. Like IE, Windows is coasting—and its Longhorn upgrade isn’t due until 2005. Next year could see a real race among XP, the Mac OS, and Linux.

A great phone that’s a great PDA: I happily tote Palm’s Tungsten T, this year’s World Class PDA. But I’ve come to agree with our own Stephen Manes (find.pcworld.com/35522) that the future belongs to PDA-enabled phones. The Tungsten runs Palm OS 5; Palm phones like Samsung’s SPH-i500 (also a World Class pick) are stuck on Palm OS 4.1. Upcoming phones, however, should boast the latest versions of the Palm and Pocket PC operating systems. So it’s inevitable: 2004’s best PDA will be a phone—I think.

What are your forecasts for 2004? Drop me a note at mageditor@pcworld.com and let us know. ■

Harry McCracken is editor of *PC World*.



LAST CHANCE TO WIN!

WANT A CHANCE to win a home theater? Visit www.pcworld.com/survey and take our subscriber survey on tech products, which is slated to end July 1, 2003. You’ll need your subscriber number from this issue’s mailing label. See the site for rules and details on how nonsubscribers can enter the drawing.

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EDITED BY RAMON G. McLEOD

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E-MAIL EVOLVES

NEW PRODUCTS AND WEB SERVICES HELP FIGHT THE BATTLE OF IN-BOX OVERLOAD.

BY GLENN McDONALD

THE E-MAIL program you're using today hasn't changed much from the time when a handful of messages—not hundreds—was a full in-box. But now, after years of stagnation, e-mail technology has gotten a second wind.

A flock of new programs and Web services promise to help you control, sort, and search your incoming message flood so you can save time and get more real work done, instead of wading through low-priority missives.

We took a look at some of the most promising members of the new breed. Though not

all of them may be suitable for your needs, it is likely that one or more of them can help free you from in-box bondage.

A FRESH START

IF YOU'RE serious about solving your e-mail issues and are willing to ditch your existing e-mail application to do so, Bloomba may be for you. Roughly 10MB, this standalone e-mail program from Stata Labs is currently offered as a free beta trial (a final version will ship this summer for about \$40). Bloomba's main selling point is its impressive power searching and sorting



functions. The software operates as a POP3 client (or with POP3 forwarding with Microsoft Exchange and Web-based accounts) and works in Windows 98, 2000, or XP.

Bloomba's interface closely resembles current versions of Outlook, with a familiar left-hand folder stack and viewing pane. The most obvious difference is the search control

panel anchored above the in-box. There's no need to open a separate "advanced search" window with Bloomba—it's all advanced, and it's all there in the control panel.

Spend about half an hour learning Bloomba's shortcuts and tricks, and you'll save a ton of time later. You can search within subject lines, body text, and even text attach-

ments; specify a date range for a search; and save and revisit recent or frequent searches. There are also buttons for one-click sorting and collapsing by thread or subscription.

To test Bloomba's chops, we searched for a specific name (in the recipient list, body text, or attachment) among all in-box documents from the past three months, collapsed the resulting list into a directory, and sorted by thread—all within the control panel. The software generated search results in the in-box as we tweaked the parameters.

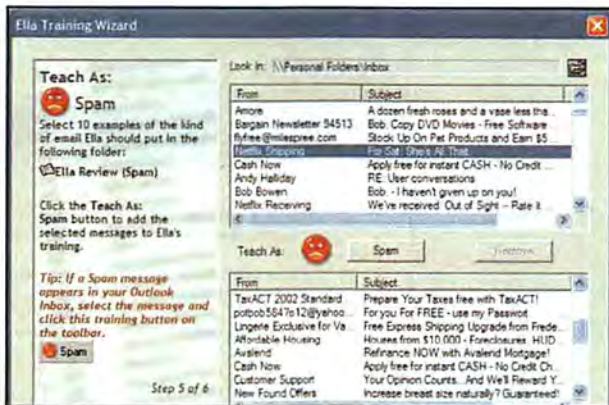
Bloomba's biggest weakness: It lacks an address book, relying instead on autocomplete technology. (But the feature should be in place by the time you read this.) Another minor drawback is its relatively generic spam protection.

Apart from these issues, Bloomba is good stuff, and clearly geared toward power users who routinely maintain a deep in-box and are willing to learn a few tricks to mine it efficiently.

MOVE THE JUNK

EAGER TO CLEAN up your in-box but unwilling to part with Outlook? An add-on called Ella may offer you a better fit.

Open Field Software's Ella is based on the idea that pre-sorting e-mail and putting the junk aside is a great way to save time. In most e-mail programs, sorting depends on finding matches in a specific part of the message, such as the sender name or the subject line. Ella takes a more sophisticated tack—it analyzes more than 100 elements of each message (from sender



ELLA ANALYZES MORE than 100 elements of incoming e-mail messages based on selections you make during the setup wizard.

to content type to message route), looking for patterns.

The process centers on the choices you make as a six-step training wizard walks you through your existing Outlook

Bloomba targets power users who keep a deep in-box.

in-box. The wizard prompts you to provide examples of the type of messages you definitely want to keep, those you may want to keep, and those you consider junk. Based on your selections, the program places your incoming mail in 'keep,' 'maybe,' and 'junk' folders.

Ella's attempts to learn by example are interesting, but its overall performance was somewhat frustrating. The wizard kept popping up whenever we launched Outlook, even after we completed the training (a bug the company is working to correct). Another known bug prevented the program from sorting the remaining messages after we finished the training.

The program divvied up subsequent e-mail messages

with some success, but the initial accuracy wasn't good enough to make us feel comfortable handing over the task full-time. Although Ella's precision should increase with

use, for a while it forces you to sort through three in-boxes instead of one—not exactly a time-saver. Billed as a smart in-box assistant, the 18MB downloadable program sells for \$30; a Pro version intended for enterprise users is expected to ship later this year.

NOW THAT'S ODDPOST

A GROWING number of users rely entirely on Web-based e-mail services for personal correspondence, since they're easy to use and accessible from anywhere. Unfortunately, free Web-based e-mail such as Hotmail and Yahoo Mail are slow, force you to view ads, and tend to offer limited tools.

Oddpost is different. For \$30 a year, this speedy Web-based service includes many of the features of a full-fledged desktop client. In fact, it works almost exactly like today's Outlook, but it runs on the Web. (It's also a World Class winner; see page 86.)

IN BRIEF

Product Pipeline

PC-READY IPODS: Apple's popular iPod digital music players are more PC-friendly than ever. To accompany the launch of its iTunes Music Store (not yet available to PC users but expected to be later this year; see page 64), Apple unveiled three thinner and lighter iPods. The new units, offered in capacities of 10GB for \$299, 15GB for \$399, and 30GB for \$499, feature USB 2.0 support for PC users without FireWire connectivity. (The USB 2.0 cable sells separately for \$19.) find.pcworld.com/35570

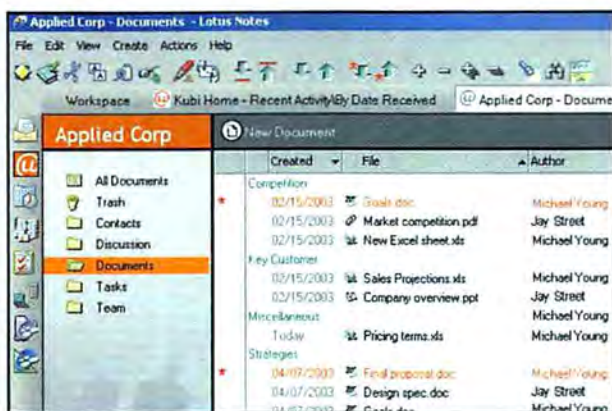


Tidbyte

MUSIC DEBATES: A federal judge has dismissed a lawsuit against file-swapping services Grokster and StreamCast Networks, ruling that they can't be held liable for illegal file trading done over their networks. Though individuals do use such services to illegally share copyrighted content, these networks also have substantial legal uses, the judge concluded. The decision, which the RIAA is expected to appeal, represents an almost complete turnaround from previous rulings against peer-to-peer services and even individual file swappers.

Created to be your new in-box, Oddpost also grabs messages from POP3 servers (you can customize your From and Reply To fields to retain your current identities). But it does not retrieve messages from non-POP3-supported Web-based services—you must autoforward those accounts.

Nicely designed, Oddpost has a drag-and-drop interface that takes advantage of technology in recent versions of the Internet Explorer browser to let you move messages between folders without having to reload the Web page. This is a significant evolutionary step for Web-based mail, as any dial-up user frustrated by slow, constantly reloading pages can tell you. With Oddpost, you can do pretty much anything—composing, sorting, filing, deleting, sending, and filtering—within a single



KUBI CLIENT FOR NOTES lets users categorize documents for easier access by the team members working on a specific project.

page. The one downside: The service works only with Internet Explorer 5.0 or higher.

As for spam, Oddpost has a basic screener that stops and redirects overtly spammy mail to a junk folder. It also has a feature for individually marking messages as legit or spam. Oddpost then uses a statistical analysis technique

to adjust itself to what you consider spam. Beyond that, Oddpost doesn't try to sort your mail, but its lightning speed makes doing that yourself easier and quicker.

MORE-USEFUL E-MAIL

A DISTINCTLY different type of e-mail add-on called Kubi Client targets corporate folks

interested in using e-mail more effectively. Instead of sorting or filtering incoming messages and spam, Kubi Software's product aims to eliminate messy threads and attachments by incorporating groupware options into your e-mail. It works with Microsoft Outlook 2000 and 2002, as well as with the groupware-oriented IBM Lotus Notes 5 and 6, and it requires an e-mail account on a Microsoft Exchange, IBM Lotus Domino, or POP3 server.

Kubi Client lets business users share documents, contacts, task lists, and team folders (it even lets Notes and Outlook users cross-collaborate). Team members create task-specific spaces that look much like your other e-mail folders, except that all team members can access and update them. When you are using the col-

SNEAK PEEK

NEXT OUTLOOK TACKLES IN-BOX FLOOD

MICROSOFT FEELS your e-mail pain: It's no coincidence that of all the applications in the company's popular Office suite, Outlook is getting by far the most visible makeover in the next version, due later this summer.

It starts with a new look: The in-box, instead of sitting on top of the preview pane, is now a slim column sandwiched between the Outlook shortcut bar on the left and a much larger preview pane on the right. This layout creates much more room for the actual message (though in-box subject lines may be slightly truncated).

Microsoft has also greatly improved Outlook's ability to locate specific messages—important when you receive dozens a day. For example, you can save the parameters



OUTLOOK 2003 has a new design that offers a larger preview pane.

and results of a search to a folder that displays updated search results whenever you open it. And these search folders are virtual, which means that a single message can show up in multiple search folders.

Outlook 2003 also includes improved

junk-mail filtering. The default 'low' setting catches only obvious spam, but if you set it on 'high', it's likely to grab the occasional nonspam message (so keep an eye on the Junk E-Mail folder). You can also turn off the filter altogether, or instruct Outlook to treat everything as spam except messages from identified trusted senders.

Another useful management tool: When e-mail arrives that Outlook identifies as legit, the program notifies you with a small, semitransparent window that shows the sender, the header, and a few words of text. The window quickly fades away, adding a charming Cheshire cat-like touch to this newly invigorated desktop fixture.

—Yardena Arar



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FEATURES COMPARISON

MASTER E-MAIL: NEW WAYS TO GET CONTROL

FROM STAND-ALONE services to plug-ins to new clients, these tools help fight in-box overload.

E-MAIL PRODUCT	Description	Cost	Comments
Bloomba ¹ find.pcworld.com/35591	E-mail client is search savvy and works with POP3 and forwarded accounts.	Free beta; \$40 at launch	Slick interface makes power searching easy, but spam protection is minimal.
Ella find.pcworld.com/35594	Outlook 2000 and 2002 plug-in prioritizes incoming mail.	\$30	Versatile, trainable sorting tool, but a little buggy. (★★★★☆)
Kubi Client find.pcworld.com/35597	Program adds collaboration tools to Outlook 2000 and 2002, and to Lotus Notes 5 and 6.	\$149	Nicely integrated collaboration features, but pricey. (★★★★☆)
Oddpost find.pcworld.com/35600	Highly efficient Web-based e-mail works alone, with POP3 accounts, and forwarded Web mail.	\$30 per year	Speedy Web interface plus trainable sorting; basic spam filter. (★★★★☆)

¹ Beta version, not rated.

laboration tools, Kubi Client opens two windows above your in-box with panes that list all active projects. You can also open panes that display e-mail threads, timelines, task lists, and shared documents.

Kubi Client is essentially a workgroup application posing as an e-mail add-on. Directed at corporate users, Kubi carries a price tag of \$149 per

user (enterprise licenses are available); also, some of the product's high-end features will require the company's upcoming server software.

Licensed users can invite others to participate on a guest basis at no additional cost, and Kubi Client's easy integration and potential for group projects make the slightly pricey program worth considering.

Overall, we found all four of the products useful in their own unique ways.

For ambition and potential, Kubi Client is the standout, pushing e-mail toward workgroup collaboration.

Bloomba gets high marks as well for empowering users to employ their best filtering asset—their own two eyes—more effectively. ■

NEW SPAM SLAMMERS

EVERYBODY HATES SPAM, as the burgeoning of the spam-blocking industry shows. The latest development: Web-based e-mail with sender verification technology.

It works like this: Sign up for a service and access all of your e-mail through its Web interface (including messages received via existing POP3 accounts). The service places e-mail from persons not on your address list in a "pending" folder while it fires off an authentication request to the sender. Spammers' automated systems can't reply, so the junk message never reaches your in-box. And individual senders need respond only once for the service to recognize them in the future.

User authentication is a promising antispam strategy, but it adds some unavoidable hurdles for legitimate senders and mailings. For instance, to

subscribe to an automated newsletter, you must create a sometimes problematic alias to ensure that the newsletter gets through.

We evaluated two new Web-based e-mail services: Block All Spam (www.blockallspam.com) and Mailblocks (www.mailblocks.com). Both are \$10 per year, and in our tests both worked as advertised, shuttling junk mail into a pending folder while awaiting a response that never came. When retrieving POP3 messages,

Mailblocks worked well; Block All Spam's feature was not yet functioning at this writing.

Of the two, Mailblocks certainly felt more polished; we ran into frequent Web page stalls and browser crashes while using Block All Spam. The latter product does, however, offer more features, including a calendar and a task scheduler.

—Glenn McDonald



IN BRIEF

Tidbytes

TURBOTAX CHANGES:

Intuit will not require TurboTax users to activate their prepaid software next season. The antipiracy measure did not bring in the additional sales that the company had sought. The policy did, however, draw customer complaints and a lawsuit that is still in progress, seeking unspecified restitution for users who had to deal with the unexpected effects of the copy controls.

COAXIAL NET: Are you looking to set up a home network but finding the current plethora of wired and wireless options lacking? Here's yet another alternative: Pure Speed from Coaxsys. Using your coaxial cable TV wiring, the standard supports data transfers up to 100 megabits per second and won't interfere with cable television or broadband. The hardware (one hub and two adapters) to connect two computers will cost about \$350. find.pcworld.com/35711

Did You Know?

COMMUNICATING by telephone? That's so last century. Eighty percent of business executives and IT leaders surveyed by META Group South Africa consider e-mail to be a more valuable communications tool than the telephone. And for 74 percent of survey respondents, losing e-mail access for five days would be more difficult than losing phone access.

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AMD KEEPS ITS VALUE CROWN

NEW ATHLON XP 3200+ GETS A FASTER 400-MHZ BUS AND IS STILL A GOOD DEAL.

AMD HAS COOKED up the best value for PC buyers all year long—and its newest chip continues to do so. In our first tests, production-level systems from Polywell and Sys based on the 2.2-GHz Athlon XP 3200+ chip easily outran top Pentium 4-based PCs on business apps. And each saves you \$100 to \$400.

To find the sweet spot of power and price, though, consider an Athlon XP 3000+ PC. These models run many apps at much the same pace and save you another \$150.

The Athlon XP 3200+ offers only minor design changes over the 3000+. AMD has, however, raised the frontside bus speed slightly, from 333

MHz to 400 MHz. (Intel's latest 3-GHz P4 chips sport an 800-MHz frontside bus, but it made little difference in our tests; see June's *News & Trends*, find.pcworld.com/35675.)

Polywell's Poly 880NF3-3200 (priced at \$2255) turned in a scorching PC WorldBench 4 mark of 139, and Sys Technology's Sys Performance 3200+ (\$2895) finished close behind at 134. These scores are comparable to the 136 average of three similarly configured Athlon XP 3000+ PCs. But the new Athlons widen their siblings' lead over three of the 3-GHz P4 systems carrying 800-MHz buses, which averaged a score of 126 on PC WorldBench 4.

Similarly, the 3200+ systems



FEATURING AMD's Athlon XP 3200+: The \$2255 Poly 880NF3-3200 (right) and the \$2895 Sys Performance 3200.

beat the 3-GHz P4 PCs on the AutoCAD test, which is one of only two PC World tests where the 800-MHz bus seemed to boost newer P4 units over older ones. On the other hand, Intel led on the Musicmatch test and the Return to Castle Wolfenstein game test.

Only on the Unreal Tournament 2002 game test, however, did the 3200+ PCs show significant improvement over older AMDs (see chart).

MORE TO COME

CURRENT Athlons will soon be eclipsed by AMD's Athlon 64 chip (formerly known as

Clawhammer): Expected in September, the new chip will be compatible with 32-bit and 64-bit computing and will introduce a new memory interface that could seriously speed up applications. In addition, "Prescott," Intel's next chip, will also arrive this year, with double the Level 2 cache and better hyperthreading.

But if you want to buy an AMD-based power desktop now, go ahead—you'll get a good value with the top-of-the-line Athlon XP 3200+, and an even better deal if you go one step down to the 3000+.

—Laurianne McLaughlin ■

TEST REPORT

ATHLON PCs SPARKLE ON BUSINESS AND GRAPHICS APPS

ATHLON XP 3200+ PCs best show their mettle on PC WorldBench 4 and make good strides versus P4 PCs on Unreal Tournament.

SYSTEM	Processor	Memory	Frontside bus (MHz)	PC WorldBench 4 score <small>Faster</small>	Return to Castle Wolfenstein ¹	Unreal Tournament 2002 ²	TIME (IN SECONDS) REQUIRED TO RUN TEST			
							AutoCAD	Photoshop 7.0.1	VideoWave 1.5 (DIVX)	Musicmatch 7.1
Poly 880NF3-3200 find.pcworld.com/35654	2.2-GHz Athlon XP 3200+	1GB DDR400 SDRAM	400	139	103	253	231	275	67	161
Sys Performance 3200+ find.pcworld.com/35657	2.2-GHz Athlon XP 3200+	1GB DDR400 SDRAM	400	134	101	238	233	283	79	163
Average of three systems ³	2.17-GHz Athlon XP 3000+	1GB DDR SDRAM	333	136	96	226	226	281	76	163
Average of three systems ³	3-GHz Pentium 4	1GB DDR400 SDRAM	800	126	120	237	257	287	80	147
Average of three systems	3.06-GHz Pentium 4	1GB PC1066 RDRAM	533	121	117	213	273	293	76	144



FOOTNOTES: ¹Frames per second at 1024 by 768 resolution and 32-bit color. ²Two systems used DDR400 and one DDR333. One system ran Windows XP Professional; the others, Windows XP Home. ³These systems ran Windows XP Home. **HOW WE TEST:** We tested all PCs with Windows XP Professional operating system unless otherwise noted. We tested all P4 systems with hyperthreading turned off. All were tested with PC WorldBench 4. For complete details, go to find.pcworld.com/35672. Tests developed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** A higher score is better on PC WorldBench 4, Return to Castle Wolfenstein, and Unreal Tournament; on all others, lower is better. Best scores in bold.

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CONSUMER ALERT

FLASH-MEMORY BARGAINS BLOOM

PORTABLE FLASH MEMORY CAPACITIES ARE INCREASING—AND DECREASING IN PRICE.

WANT EXTRA FLASH memory for your MP3 player, digital camera or PDA? You're in luck. Prices are dropping fast, thanks to heated competition between makers. And high-capacity products—holding up to 4GB—will soon debut.

How much can you save? At the beginning of 2002, 256MB Secure Digital cards sold for roughly \$200; forthcoming 512MB and 1GB SD cards (expected by this fall) will carry suggested retail prices of \$170 and \$330, says Gartner analyst Joe Unsworth (see chart).

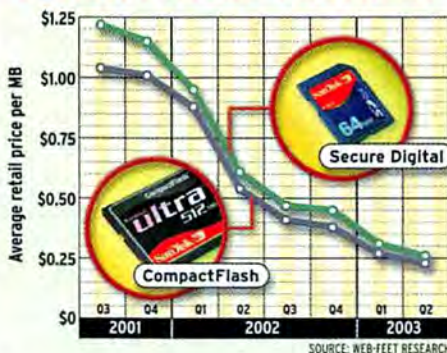
These new capacities are pushing down prices of smaller cards. Right now, 128MB and 256MB cards are particu-

larly good bargains, says Mike Kuppinger, digital media product manager for Kingston Technology. Such SD cards cost \$55 and \$75, while same-size CompactFlash cards go for \$10 less.

If you require even more room, SanDisk this summer plans to ship 2GB and 4GB CF cards at prices of \$499 and \$999, respectively. That's expensive, but a year ago, 1GB CF cards sold for \$800 and up.

MiniSDs—cards about two-thirds the size of regular SD cards—have also arrived, in capacities up to 64MB, with

FLASH PRICES PLUMMET



SOURCE: WEB-FEET RESEARCH

256MB on the way. Designed for cell phones, MiniSDs may move into PDAs; adapters let them fit into SD slots. A 32MB SanDisk version with adapter costs \$29. Also on the tiny side is the XD-Picture Card from

Fujifilm and Olympus, used in cameras, and now up to 256MB (\$190); add \$60 for an adapter to fit CF slots.

SD and CF dominate the flash-market, with a share of over 50 percent between them in 2002, according to Gartner Research. Most of the other formats should last, but Kuppinger says Smart

Media may be on its way out.

Bottom line: Stick with one flash format as you choose new devices; otherwise, it gets expensive, says Alan Niebel, CEO of Web-Feet Research.

—Laurianne McLaughlin ■

STORAGE

1GB CD-RW DRIVES: TAKE A PASS

CAPACITY BOOSTED BY NEW TECHNOLOGIES, BUT SPEED AND COMPATIBILITY ISSUES ABOUND.

DO YOU LIKE the idea of squeezing a gigabyte of data or more onto cheap CD-R discs that usually hold only 700MB? I did, but my enthusiasm waned quickly after I tried drives incorporating a pair of new CD-recordable technologies developed by Plextor and Sanyo.

Plextor's GigaRec technology, found in the company's latest 52X/32X/52X Premium drive, increases the capacity of CD-Rs while also trying to maintain compatibility with other drives that can read CD-R discs.



PLEXTOR'S Premium (top) and Sanyo's Optorite drives dramatically increase capacities of ordinary CD-R discs.

GigaRec audio and data discs played fine in firmware-updated 40X and 48X Plextor CD-RW drives, but worked with only modest levels of success

in non-Plextor drives and home CD/DVD players. Unfortunately, GigaRec disables buffer-underrun protection, too, and writes at a painfully slow 4X, or 30 minutes per disc.

Sanyo's HD-Burn is another CD-writing technology, but it debuts on the OptoRite DD0203 drive, which supports DVD+R/RW and DVD-R/RW. HD-Burn technology can pack data so tightly that only DVD or DVD/CD laser assemblies can read or write it—after a firmware upgrade. Its lack of compatibility with the vast

installed base of CD equipment aside, my tests showed that HD-Burn doubled the capacity of normal 700MB CDs to 1.4GB and wrote far faster than the GigaRec drive did—24X on the OptoRite unit with buffer underrun protection.

—Jon L. Jacobi ■

52X/32X/52X Premium

Plextor

List: \$129

find.pcworld.com/35630

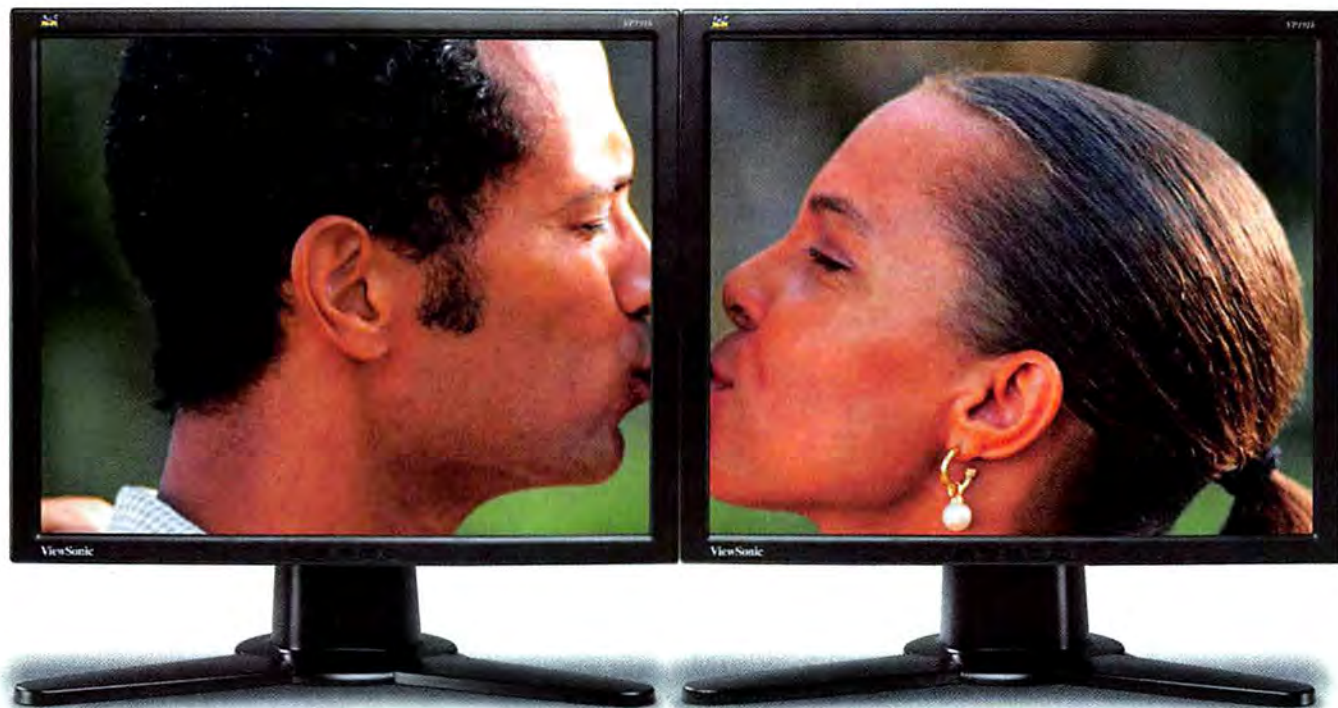
DD0203

OptoRite

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GRAPHICS

NVIDIA'S FX 5900 CHIP: SLIM EDGE, STEEP PRICE

IT'S QUIETER, BUT THE 5900 IS NOT MUCH FASTER ON TODAY'S GAMES.

NVIDIA PROMOTES its new GeForce FX 5900 Ultra chip as "the fastest GPU in history." That may be, but if so, it isn't by much: In tests with current games, the 5900 Ultra, equipped with 256MB of SDRAM, gave a relatively small performance boost over the NVidia 5800 Ultra and a reference card based on ATI's Radeon 9800 Pro chip (both with 128MB) in the same PC.

NVidia is eager to make up for the shortcomings of its last release, the GeForce FX 5800 Ultra, which was late and used a cooling mechanism so loud that some critics called it "the lawnmower." The 5900 Ultra is far quieter, but it still occupies two slots and will cost you: \$500 for 256MB models and \$400 for 128MB ones (cards should be in stores now).

NVIDIA'S hefty new GeForce FX 5900 Ultra graphics card.



In our tests, the 5900 Ultra improved the games *Serious Sam 2* and *Unreal Tournament 2002* by just a few frames per second over a 5800 Ultra-based card at 1280 by 1024. Only at 1600 by 1200 did the 5900 pull markedly ahead of the 5800 (see chart).

Similarly, ATI's 9800 Pro produced about 10 fps more than the 5900 at lower resolutions of UT (not shown), but it dropped off at higher ones.

In the UT antialiasing test, the 5900 trailed both of its

main rivals. And although the 5900 has a reworked anisotropic filtering engine, the ATI card provided superior image quality in our subjective tests. Antialiasing softens jagged edges on 3D images, and anisotropic filtering helps smooth scenes where textured images, like a tiled floor, start in the foreground and extend back.

The 5900 Ultra's features are more tuned for forthcoming games. One such feature, UltraShadow, renders shadows and scenes more efficiently, making games like the upcoming *Doom III* and *Half-Life 2* run both faster and smoother, NVidia says. But such titles won't be in stores until fall. So for the time being, save your money.

—Alexandra Krasne ■

TEST REPORT

NVIDIA'S 5900 ULTRA IS BETTER AT HIGH-RES

THE NEW chip shows its power at 1600 by 1200 resolution on *Serious Sam 2* and *Unreal Tournament*.

SYSTEM	Memory	Serious Sam 2		Unreal Tournament 2002		Antialiasing at 1024 by 768, 32-bit color
		1280 by 1024 at 32-bit color	1600 by 1200 at 32-bit color	1280 by 1024 at 32-bit color	1600 by 1200 at 32-bit color	
NVidia GeForce FX 5900 Ultra reference card	256MB	134	124	162	138	130
MSI FX5800 Ultra-TD	128MB	131	114	156	124	138
ATI Radeon 9800 Pro preproduction card	128MB	122	114	158	123	136



FOOTNOTE: Go to find.pcworld.com/35660 for product information. **HOW WE TEST:** We test graphics cards under Windows XP Professional on PCs with 1.73-GHz Athlon 2100+ CPUs and 512MB of DDR SDRAM. To test each board, we use manufacturer-supplied drivers. **CHART NOTES:** Italicized entries reference other contenders in the top performance class. All results are expressed in frames per second; higher scores are better. Best scores in bold.

IN BRIEF

Product Pipeline



TIMELY STORAGE: Looking for a new place to store your data? Try your wrist. The LAKS Memory Watch offers up to 256MB of storage space on a working (and even water-resistant) wristwatch. It securely stores your files and connects to your PC through its integrated USB cable, which can remain hidden when not in use. You can security-code files placed on the watch so that only you may access them. A 32MB version is priced at around \$48, while the 256MB model will cost you approximately \$174. find.pcworld.com/35567

Top 5 Downloads

Head to find.pcworld.com/35486 to find these files.

- Clean System Directory 1.7** 70KB
This software helps to remove stray DLLs from your system.
- SpyBot Search and Destroy 1.1 rel 4** 3.5MB
Protect your privacy by removing spybots and replacing them with empty dummies.
- Sygate Personal Firewall 5 Build 1175** 5MB
Protect your sensitive files from threats that come from either inside or outside your network.
- Irfanview 3.8** 832KB
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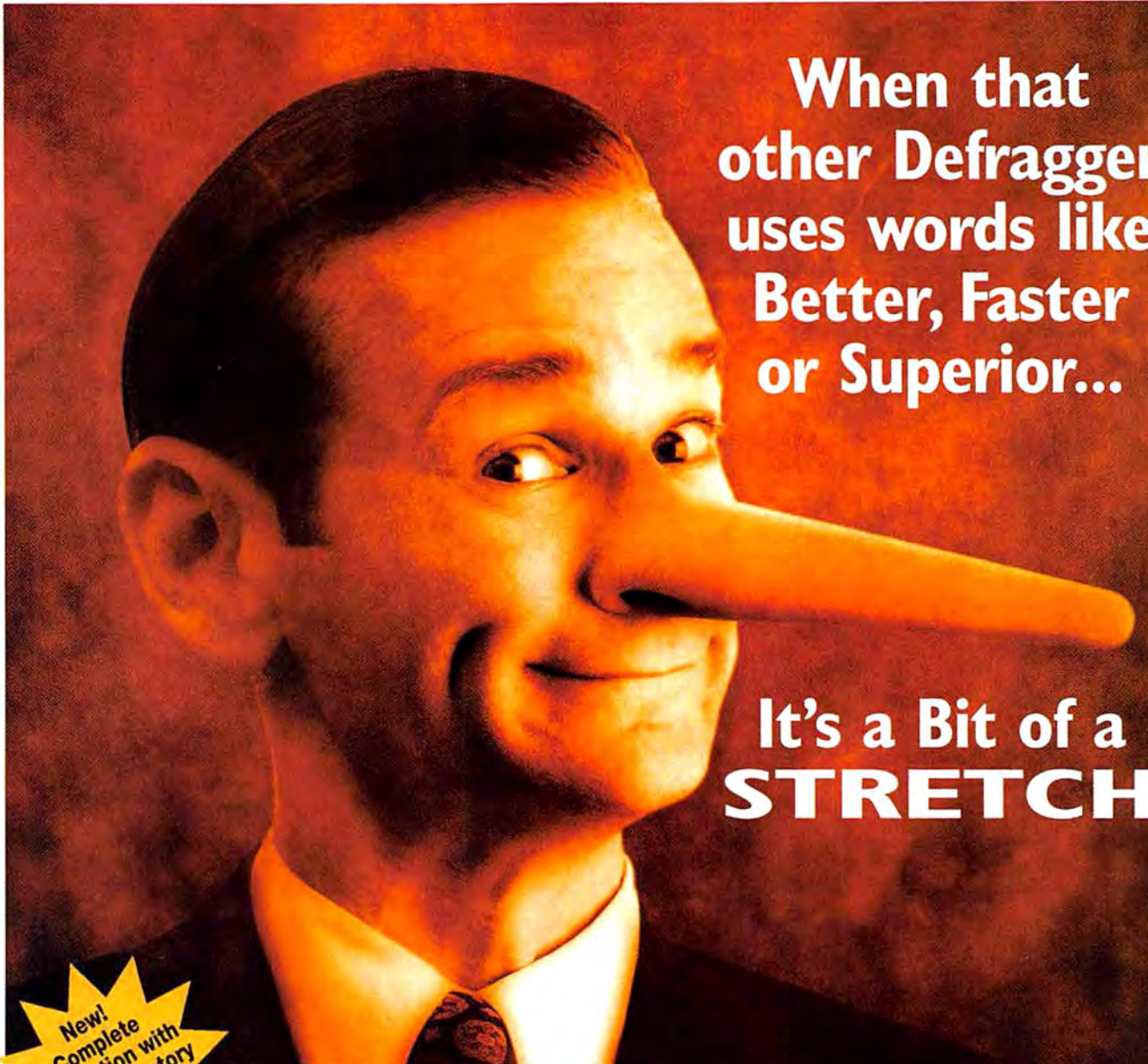
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KILLING DATA ON OLD DRIVES

THE SAME weekend I read "Hard Drives Exposed" by Tom Spring [*News and Trends*, May], I went to a local computer sale. My buddy bought a 10GB hard drive for \$22. Not only did it have confidential information, it also had working versions of Windows Me and Microsoft Office. I guess you hit the nail on the head.

Paul Lenzen, Watertown, Minnesota

YOUR SIDEBAR "Data Killing 101" recommends using software to destroy data. My approach: After taking apart my old hard drive as much as possible, I pounded away at it with a hammer for about 5 minutes. Yes, this is a crude and barbaric way to dispose of an old drive, but I feel that it is better to be safe than sorry.

Angelo Salerno Jr., Jersey City, New Jersey

LEST WE FORGET

PC Pioneer Adam Osborne Recalled

I AM SURPRISED that PCWorld.com has no mention of the recent death of Adam Osborne, who introduced the first portable.

Osborne really understood the importance of making a computer that worked for the masses and could work anywhere. I loved my Osborne machine. I used it from June 1981 until December 1987, when a disk drive finally gave out. I still have it—in storage back in the States—because it

CALIFORNIA'S new privacy law, SB1386, takes effect this summer. It requires every entity doing business in California to report real or "potential" security breaches involving identifiable names, associated Social Security numbers, credit card numbers, passwords, and so on. Destroying the hard drive—simply by drilling a few holes through the disk—is both cost-effective and prudent.

*Stephen Richard Levine
Westlake Village, California*

YOU DON'T MENTION using computer manufacturers' software restoration discs to sanitize old hard disks. Aren't these discs acceptable for data killing?

George Bollman, via the Internet

AS NOTED IN your report, simply doing a high-level reformat is largely useless. However, what about running the fdisk command from the command prompt? Would running fdisk, followed by high-level reformatting (without changing partition arrangements), do the trick?

Scott Ochiltree, via the Internet

Editor's response: Drilling holes could still leave recoverable data on the disk. Simply restoring a system to its original state won't stymie a determined data sleuth (it also leaves the operating system intact). Even using the fdisk utility and reformatting is insufficient. The safest approach: Use a wiping program that overwrites the disk with multiple passes. See the June Answer Line (find.pcworld.com/35603) for details.

CRACKING DOWN ON SPAM

AS I SEE IT, most e-mail programs work in reverse of what they should be doing ["Natural-Born Spam Killers," May]. That is, when you install an e-mail program in your machine, it should not let any information in unless you give it an e-mail address to accept. If you type in only five addresses, mail from those addresses is all you should get. The millions of dollars we spend for antispam programs would come to an end. Wouldn't that be great!

Paul Jennings, Loris, South Carolina

News reports say AOL, MSN, and Yahoo are cracking down on spammers. But these Net services all miss one key point: Spammers often create a fraudulent free e-mail address through them, spam thousands, and then kill the address, knowing that it will soon be blocked by most recipients. A simple way to curb this practice is to place temporary limits on the e-mail accounts. For the first six months of an account's existence, limit the total number of e-mail messages sent out to something reasonable—say, 100 a day (obviously, incoming mail shouldn't be affected). After six months, the limit should be lifted. At the least, spammers would have to wait six months before they could use a fraudulent address.

*Tim Danner
Allentown, Pennsylvania* ▶

The word plasma excites you

The phrase surround sound makes your heart flutter

DVD, HDTV, MP3 and PDA are your new alphabet

You're always the first one to get your hands on the new toy

And when it comes to finding the right price,

The smaller it is, the bigger your eyes become

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I FEEL THAT your evaluation of MailWasher Pro 3 does the program a grave injustice. Filters have sometimes deleted messages I wanted. My ISP has spam-fighting software on its servers, yet I kept getting more spam. But 11 months ago I heard about MailWasher. It's fantastic. Before MailWasher, I got as many as ten spam messages a day. Now I sometimes go for weeks without getting any.

Mark Eby, El Paso, Texas

HELP ON THE CHEAP

ON APRIL 1 (an auspicious date), I activated my cable modem. My installer noted that I had half, or less, of the expected bandwidth. I spent the next several days e-mailing my PC vendor and trying various fixes and downloads, to no avail.

Then *PC World* [May] arrived. In "Cheap Tweaks," an item suggested analyzing the TCP/IP setting through SpeedGuide.net, and if needed, downloading and optimizing the setting with the site's optimizer.

I followed the advice and achieved a bandwidth of over 500 kbps. Thanks to *PC World* I went from severe aggravation to elation in about 15 minutes.

Thomas T. McGranahan Sr., via the Internet

YOUR "CHEAP TWEAKS" item on adding foreign punctuation came at the right time. Our company just released one of our applications to our global community in Europe. I was finding it difficult to correspond with users via e-mail, because I needed many of those special marks, especially for names. I felt I was spelling

names incorrectly if I didn't use the right marks, but they were difficult to get to. Your little paragraph helps immensely.

However, I had no luck searching Word help for "foreign punctuation" (perhaps you did not use Word 2000).

David C. Everett, via the Internet

Editor's response: The list of shortcuts is only in Word 2002 and 2003, a point omitted during the editing process. Go to find.pcworld.com/35588 to download the list.

—Dennis O'Reilly

TWEAKS WE NEED

HARRY MCCracken's May *Up Front* editorial ["Cheap Tweaks Tech Firms Should Make"] declares, "Software should not install anything in a user's system tray without asking permission. Period." Amen!

But software should not install anything in a user's system tray, on a user's desktop, or in a user's Quick Launch bar without asking permission. And if permission is withheld, it shouldn't install itself anyway.

T. R. Valentine, Plano, Illinois

THE PROBLEM isn't that companies are indifferent to these tweaks; it's a matter of who would pay for them. The mantra for all companies is: Cut costs and make profits. For example, to consumers, long file names would be a nice, simple convenience; but for a software company, it may require reengineering a huge library of program and data files. There is little return on such a task, so why pursue it?

Jason McMahon, Dolgeville, New York

KEEPING TRACK OF PATCHES

DESPITE WHAT the patch history item says [*Bugs and Fixes*, May], there are two simple ways to obtain the information. The first one: Go to Windows Explorer at C:\Windows. The first item should be a listing of Microsoft fixes installed.

Or go online to Microsoft Windows Update; one option is a button to see download history, including dates and titles, and whether a download was successful.

Charles G. Voelker, via the Internet

PC World welcomes letters to the editor. We reserve the right to edit for length and clarity. Send e-mail to letters@pcworld.com. ■

CORRECTIONS

IN JUNE'S "The Entertainers," the URL for the HP Digital Media Receiver EW5000 mentioned on page 110 should have been find.pcworld.com/34028.


In June's *Top 15 Notebook PCs*, the value Best Buy should have been listed as the Compaq Presario 2100Z.


May's photo editing review in *New Products* should have said that Jasc Software offers its customers free, unlimited toll-call support.


PC World regrets the errors.


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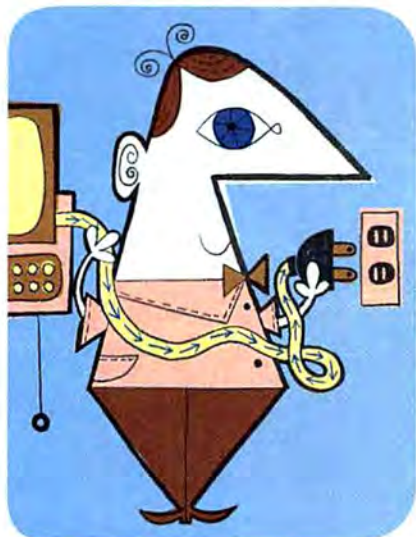
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1 Plug In to Log On

The Buzz: A brazen new competitor to DSL and cable is "within striking distance of being the third major broadband pipe into the home," says FCC Chairman Michael Powell. Broadband over power line, or BPL (currently being offered in pilot programs by a dozen or so utilities around the country), promises to deliver high-speed Internet access straight from the electrical socket in your wall. Long written off as an also-ran technology, BPL

has new spark, thanks to technical advances that address problems of interference and in-line transformers that scramble signals. The last hurdle will be getting the FCC's approval. Considering Powell's enthusiasm—and the general belief that BPL will cost less than cable or DSL—a green light could be imminent.

Bottom Line: The FCC is touting BPL as a potential way to offer service to hard-to-reach rural consumers. I'm just hoping that the prospect of price wars will lower my DSL bill. Power to the people!

2 Send a Spam, Go to Jail

The Buzz: Virginia may be for lovers, but not for spam lovers. The state's new antispam law imposes strict penalties—including jail time—for anyone convicted of sending more than 10,000 pieces of "fraudulent" junk e-mail (with, say, false return addresses) in a day. And Virginia isn't alone: Arizona and Michigan are close to passing similar legislation.

Bottom Line: It's more window dressing than real deterrent. Expect issues of state (not to mention country) jurisdiction to keep spammers out of the slammer, as offenders simply relocate. How do you say "spam" in Belarusian?

3 I Got the DVD Blues

The Buzz: Attention, videophiles! Sony's ground-breaking new DVD recorder has arrived. This deluxe deck packs a whopping 23GB (that's 2 hours of high-definition video) on a single-sided, single-layer disc. The unit's technology, dubbed Blu-ray, relies on short-wavelength blue lasers instead of garden-variety red. The catch? It costs about \$3800 and it's available only in Japan. Sony is keeping quiet on when Blu-ray will hit our shores. I'm betting on this year's holiday season.

Bottom Line: It's obscenely expensive, unavailable in the States, and spelled wrong. But you know you want it. Tru?



4 Betting on 64 Bits

The Buzz: AMD's new 64-bit Opteron chip—aimed at the server market—has a few tricks up its silicon sleeve: Not only does it run 64-bit apps with élan, but it also handles existing 32-bit software at full clock speed (1.8 GHz). Plus, it's got OS support from Microsoft and sundry Linux makers, and native apps coming from Oracle and IBM. But will top-tier hardware vendors opt for Opteron?

Bottom Line: To succeed in the server chip market, you must face the wrath of Intel, which is pushing its 64-bit Itanium 2. Bet on backroom arm-twisting as Intel tries to squash AMD like a software bug. ■

NAGGING QUESTION

How Do You Pronounce Linux?

THAT DEPENDS ON whom you ask. Given that the open source OS was named after its creator—Finnish programming wizard Linus Torvalds—some say "lienux" (rhymes with "sly ducks"). But that assumes Torvalds' first name is pronounced the same as Linus Van Pelt's (from *Peanuts*), which it



isn't. In Finnish, it's more like "lee-noose," which is why Torvalds himself, in an online audio clip (find.pcworld.com/35489), calls it "lee-nooks." Most commonly heard these days, however, is "linics" (rhymes with "clinics"). In truth, you can call it whatever you want; just don't call it Windows.

Contributing Editor Steve Fox covers buzz-worthy products, ideas, and trends. Contact him at steve_fox@pcworld.com. Visit find.pcworld.com/31643 for more Plugged In.



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CONSUMER WATCH

ANNE KANDRA

**AVOID THE AVALANCHE
OF ACCESSORIES**

**PRIVACY WATCH: RADIO
TAGS TRACK PURCHASES**

**ON YOUR SIDE: DATA
MUNCHED IN REPAIR**

You Want RAM With That?

Buying a new high-tech toy? Don't forget to budget for extra essentials.



RECENTLY A friend called and asked me to help her shop for a new digital camera. Always eager for a diversion—especially if it involves shopping—I agreed to meet her at a nearby electronics store.

My friend, a digital photography newbie, hadn't planned to spend a dime more than the camera's \$350 price tag. But if you've ever shopped for a digital camera, you know that the process is rarely that simple—or that cheap.

Sure enough, after my friend purchased a memory card larger than the paltry one the camera came with, extra batteries, a

charger, a decent case, and a media card reader, her bill was more than \$500. And that didn't even include lots of other nice-to-have but nonessential accoutrements she'd once pondered, such as a wide-angle lens, filters, and software for editing images and organizing photos.

Digital cameras may have more accessories than Martha Stewart's living room, but there's no lack of extras—or unplanned expenses—for almost any tech toy you might be considering. The trick for the tech-savvy shopper is to get just the add-ons that you really need and avoid

a grand total that takes over your credit card bill. Here's how to figure out which extras are important, along with some suggestions for saving a few bucks on the stuff that you do buy.

THE CARTRIDGE HABIT

LET'S START WITH printers. Great deals on ink jet models can really suck you in, making you forget the machines' constant hunger for new ink cartridges.

Suppose you're looking at an ink jet printer that costs \$120. If you print an average of 500 pages a month, you'll likely be buying replacement cartridges 12 times a year. If those cartridges cost \$20 for black and \$35 for color, in a year you'll have spent over \$650 on ink. You could save by buying recycled or no-name cartridges, but their quality might be spotty.

What's the alternative? If color isn't essential to you, maybe you should take a look at a black-and-white laser printer. A laser toner cartridge costs about \$60, but you'll print five times as many pages as you would with a black ink cartridge. Prices for low-end monochrome lasers have dropped to about \$150—just the cost of a cartridge or two more than the cost of an ink jet. And low-end color lasers are now as cheap as \$400, meaning that anyone who prints hundreds of pages a month should probably consider one.

If you're going to stick with an ink jet printer, think about this: Some ink jets use a separate cartridge for each color, so if you anticipate using more of any particular color—for example, if your company logo is mostly blue—it might be worth considering one of these models.

Some of the impetus for adding ►

accessories comes not from your own needs, but from a salesperson's hype. Such tricks won't work if you're purchasing technology you really know. But if you're buying in a technology category for the first time, you could get stung. A salesperson might try to persuade you to get a foldable keyboard along with a new PDA, or to upgrade to high-end headphones for your MP3 player. (Be especially wary if you place an order online and are asked to call to complete the order; that's often a ploy to get you on the phone with a high-pressure salesperson. For more on such tactics, read "Camera Confidential" at find.pcworld.com/35381.)

To resist the hype, whether you're in the market for a digital camera, a notebook computer, or anything else, it's important to determine before you go shopping which specific accessories you must have—and can afford.

Start by deciding exactly how you want to use your new device. If you're perusing digital video cameras, your expenses will be very different depending on whether you plan to produce high-quality marketing films or you just want to record your six-year-old's dance recital. A serious videographer may need to upgrade a PC's processor, add an extra hard drive for all that footage, and spend hundreds of dollars on sophisticated editing software. A home-movie auteur may need little more than what comes with the camera.

LAPTOP CHOICES

IF YOU'RE LOOKING FOR a notebook PC strictly for business travel, obviously you'll need basics like a good carrying case and extra batteries. But if you plan to use the system as a home-office desktop replacement, you might want to spring for a bigger, higher-resolution monitor, a

mouse, or a docking station (see "One PC With Everything—To Go!" page 119).

Any notebook these days should be equipped to hop onto a Wi-Fi network. Getting the system equipped at the factory for wireless networking is easier—and not much more expensive. But if you've already set up your home or business network, you might consider installing a wireless access card yourself; that way you can get a card from the same company that manufactured the rest of your network equipment. Doing so could head off compatibility problems and make techs less likely to try to pass the buck if you have to call for support.

No matter how careful you are with your gear, always get a protective case for portable devices like notebooks and PDAs. If you don't already have a surge protector, spend a few bucks for one. And if you're planning to take that new ►

PRIVACY WATCH

Tracked by the Shirt on Your Back?

ONE DAY, NOT LONG from now, virtually any store, restaurant, or business may be able to identify you, note what clothing you're wearing—and possibly even detect how much money you have in your wallet—as you enter the establishment.

With little fanfare the new technology that could make this possible, called RFID, or radio frequency identification, is rolling out on a massive scale. RFID tags potentially could be placed in clothing, laptops, even currency. The chips that run RFID tags are barely detectable flakes of silicon, some no bigger than a grain of salt. Each tag uses radio frequencies to transmit a code that uniquely identifies the tag.

How might the tags identify you? If, for instance, you buy a sweater using a credit card, your name could be forever linked with that particular plaid cardigan.

Alien Technology, an RFID tag maker, projects that within three years the company will sell 10 billion RFID tags a year and that the cost of a single tag will drop below 5 cents, cheap enough that they may start to appear in most products.

RFID readers within about 15 feet of some tags can pick up their signals. Global databases will let businesses keep track of every location where an RFID signal has been read.

That's what worries privacy advocates: how easily companies can read the tags and keep logs, identifying and profiling con-

sumers long after the tagged products those consumers bought leave the store. "In the future, [RFID] tags could take away from your ability to move about anonymously," says Katherine Albrecht, the founder and director of CASPIAN (Consumers Against Supermarket Privacy Invasion and Numbering), a consumer group opposed to customer profiling through companies' use of supermarket discount cards.

While RFID has the potential to identify us all, the technology's supporters say that is not its primary purpose. It exists to ensure that store shelves are constantly stocked with razors, batteries, and blue jeans. And there's reason to be optimistic that this emerging industry will do the right thing when it comes to privacy.

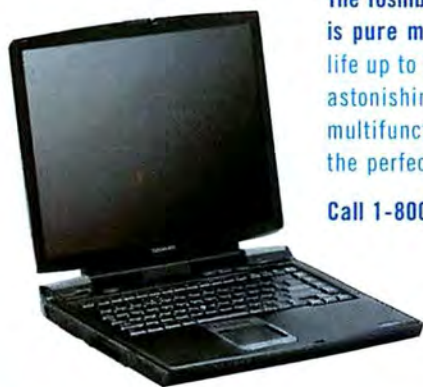
Acutely aware of the privacy concerns connected with RFID technology, an advisory council associated with the Auto-ID Center, an RFID research group based at MIT, has proposed an RFID bill of rights for consumers. Among the group's recommendations is to disable tags as they pass through the checkout area.

Companies will choose to protect consumers' privacy because they don't want to alienate buyers, says Kevin Ashton, executive director of the Auto-ID Center. "Most companies are not evil, cackling maniacs trying to rip people off. They're just trying to do a good job."

—Andrew Brandt



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For many of us, going technology shopping feels a lot like going to the toy store when we were young—we want all the matching outfits, and the action hero's spaceship. But remember, when you get to the cash register, mom and dad won't be paying the bill. ■

Anne Kandra is a contributing editor and Grace Aquino and Andrew Brandt are senior associate editors for PC World. E-mail them at consumerwatch@pcworld.com. To read more Consumer Watch, Privacy Watch, or On Your Side columns, go to find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.

ON YOUR SIDE

Hard-Drive Repair Horror



THE METAL COVER on one of my floppy disks broke off and got lodged inside my Compaq Presario 710 notebook. So I sent the laptop to HP for repair. Before sending it, I stated on a service form that I did not give HP authority to work on my hard drive.

Days later a technician working on my laptop told me that an error message popped up, stating 'operating system cannot be found'. The rep asked for my permission to wipe the drive clean. I denied permission and requested that my computer be returned immediately.

I received my computer the next day and was shocked to find that the hard drive had been removed and replaced. All my files were gone.

M. Chrystal Solola, Munster, Indiana

On Your Side responds: HP spokesperson Kris Dahl says that after a technician installed a new floppy drive, Solola's computer wouldn't boot because the hard drive had stopped working. A tech replaced it to get the laptop back to working condition.

Dahl explains that HP's notebook warranty stipulates that if a component fails, HP can choose to replace it. Once that part has been removed from the computer, it becomes HP's property. The company's policies also state that it is not responsible for damage to or loss of data.

If possible, always back up your data—including programs you installed—before sending out your PC for repair.

Ultimately HP issued Solola a full refund of \$1260 for the notebook.

—Grace Aquino

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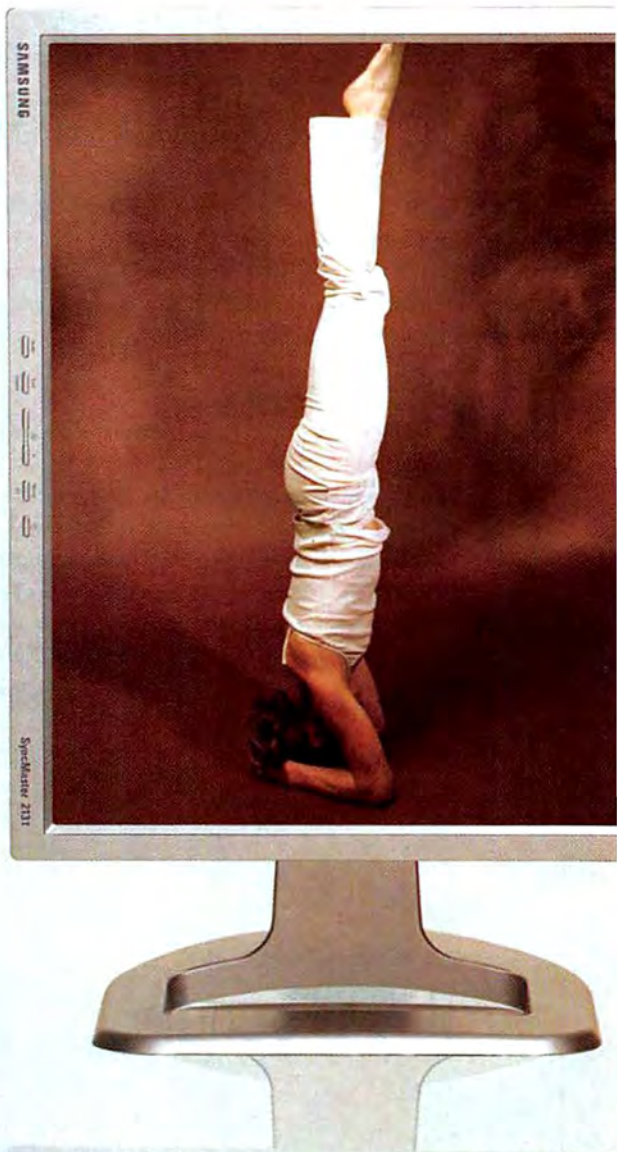
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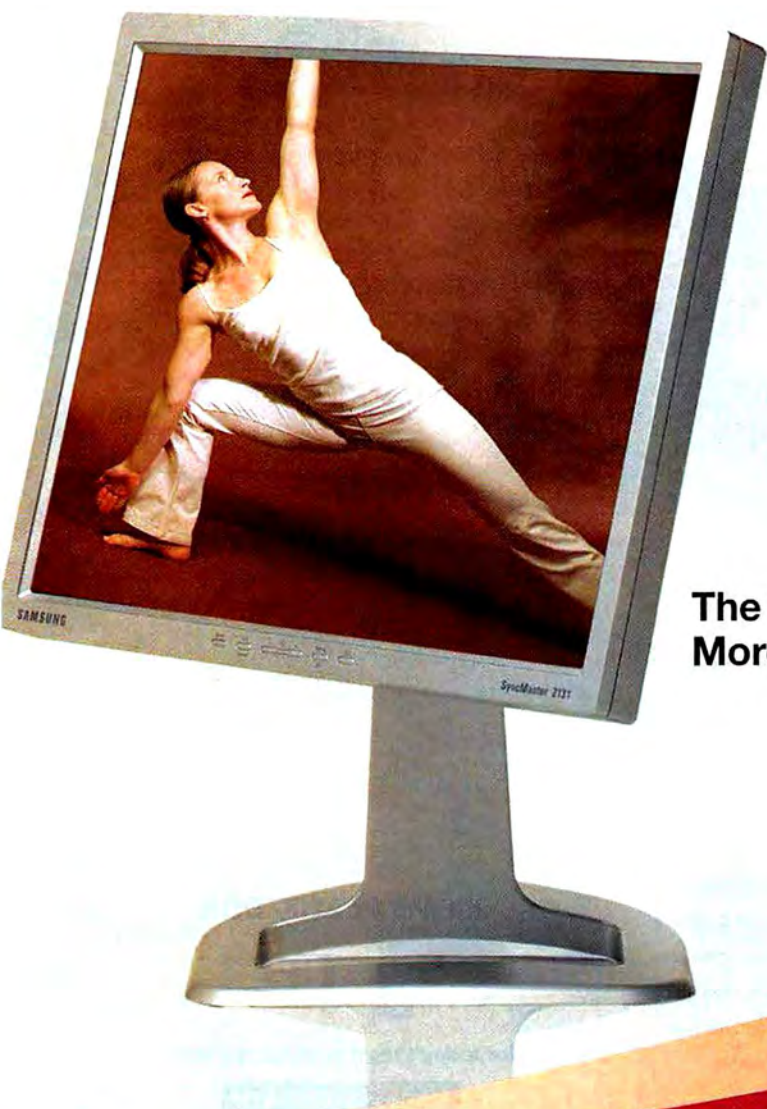
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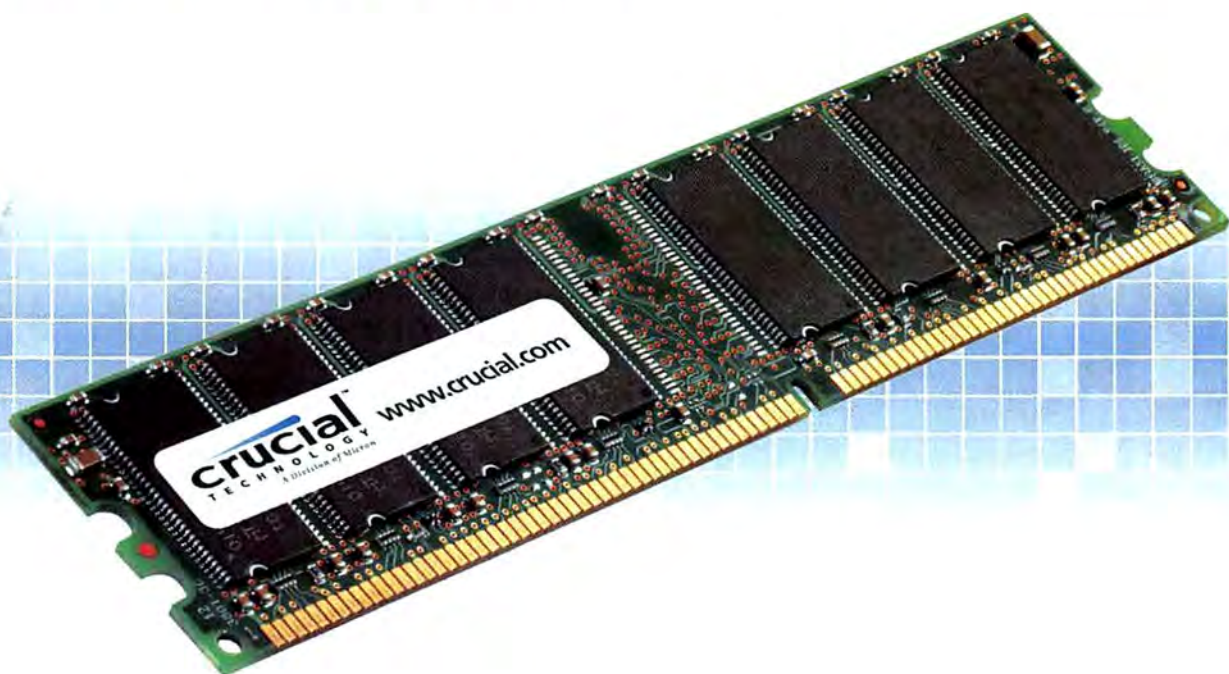
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HOME OFFICE

STEVE BASS

Move Big Files Without Breaking a Sweat

Five ways to shepherd your multimegabyte behemoths from here to there.



WE'VE BEEN SENDING files to each other via e-mail for so long, it's become second nature. That's fine for files that can fit on a floppy, but what about those mondo 5MB PowerPoint presentations, or humongous 40MB video files? I've come up with five nifty ways—most free, and the rest dirt cheap—to give these files wings.

Outlook Express 6 has a cool file-transfer feature. The program will effortlessly—and automatically—break a large file attachment into chunks and send each part in a separate e-mail message. The file is reassembled—again automatically—in the recipient's in-box. The catch? Both ends must use Outlook Express or another e-mail client that supports multipart messages—otherwise the person on the receiving end gets files containing gobbledygook. So it's best to use this feature to send large attachments only to known OE users. Click *Tools•Accounts* and choose your e-mail account. Select *Mail•Properties•Advanced*, check *Break apart messages larger than*, and enter **1000** into the KB

field. Outlook Express will then break apart any attachment over 1MB.

But this is computing, folks, so sometimes the magic doesn't work. When it fails, simply highlight all the messages in your in-box that contain parts of the file, then select *Messages•Combine and Decode*. Reorder the messages if necessary, then click OK. The reassembled file will open; save it by choosing *File•Save As*. Nice, eh?

Another option is Yahoo's Briefcase online service, a handy, free way to move and store up to 30MB of data. Just upload files into your briefcase, then use the service to send your buddy or co-worker an e-mail message with a link to the file. I have multiple briefcases, some private, some available to others. It's a great service, provided you can deal with Yahoo's confusing registration and its intrusive, blaring ads. One other caveat: No single file can be larger than 5MB. Go to briefcase.yahoo.com to give it a try.

UP, UPLOAD, AND AWAY

ALTERNATIVELY, YOU CAN make large files accessible by uploading them to a Web site. Finding a Web site for file storage is a snap. If your ISP doesn't offer free Web storage, go to find.pcworld.com/34874 to check out the 100 Best Free Web Space Providers site. To upload files to my storage site, I use the free FTP Explorer program; visit find.pcworld.com/34877 to download your copy. Once the files are uploaded, all I need to do is send the recipients a link to them.

Many people use instant messengers from AOL, Yahoo, MSN, and my favorite, Cerulean Studios' Trillian.cc site, to transfer files of virtually unlimited size with

just a few keystrokes. If you lose the connection in mid-transfer, though, you must start again from scratch. And if you have a router with a built-in firewall, all bets are off—unless you have a computer-savvy friend (no, not me) to help you navigate the tricky firewall exception settings.

PAY A LITTLE, STORE A LOT

IF YOU TRANSFER lots of files—and you need plenty of space to store them—use a fee-based file-holding Web site. Their methods vary, but most of these services let you send an e-mail message containing a link for file retrieval. The catch is that pesky fee, though many sites do give you a free trial. I like MagicVortex (www.magicvortex.com). The service provides a free 30-day, 30MB trial, and it has eight plans to choose from—including a one-day, 50MB account for \$4. Another site, Xdrive.com, has a free 15-day trial and offers 75MB of storage for \$5 per month.

But there's an even better deal to be had. Zmail.com provides up to 5MB of free storage; a buck a year gets you 20MB, and 50MB costs only \$10 a year. To share data, you tell recipients your user name and password. The site has some download restrictions, but they're not onerous: You can download only twice the amount of your Zmail 'disk' per day, and only five times your disk's amount per week.

Before I tried these services I never would've imagined that file management could be such a moving experience. ■

Contributing Editor Steve Bass runs the Pasadena IBM Users Group. Contact him at homeoffice@pcworld.com, and visit find.pcworld.com/31610 for more Home Office columns. Go to find.pcworld.com/25821 to sign up for his online newsletter.

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BUGS & FIXES

STUART J. JOHNSTON

Medicine for IE, Outlook, and Windows

Two new cumulative patches address Microsoft security shortcomings.

SOMETIMES THIS column seems like a TV hospital drama, with every patient hanging by a thread. All too often, Windows (or one of its main components) is on life support, and you're the physician on call. And this episode could be a season finale: Internet Explorer and Outlook Express require a pair of big, cumulative patches to deal with five really bad bugs, while Windows itself needs attention stat.

The IE patch repairs four major glitches in versions 5.01 through 6 that could let a miscreant completely take over your PC or wipe your hard drive clean. With two of these holes, simply visiting a bad guy's Web site could initiate the attack; you wouldn't even have to click something.

Of course, if you stay away from places you wouldn't want your mother to see, your PC is much less likely to end up in the computer hospital in critical condition. To play it



safe, grab Microsoft's patch at find.pcworld.com/35357.

Outlook Express 5.5 and 6 contain a vulnerability that could allow a cracker to cause just as much harm. Merely receiving an e-mail—without opening it—could automatically trigger the attack. But

there's a twist: Though the hole is in OE, you're also in danger if you run Outlook 98 through 2002 without a certain update (more below). Why? Because Outlook uses OE to provide some important features. If you run Outlook Express 6 or Outlook 2002 under the default Medium security setting, or Outlook 98 or 2000 with the Outlook Security Update (find.pcworld.com/31973) loaded, you can block an automated e-mail attack.

But you're still vulnerable to clicking a tarnished link either in an e-mail or on a bad guy's Web site. Go to find.pcworld.com/35360 to get the cure.

Microsoft also discovered a security threat in its Java Virtual Machine, which has shipped with Windows since Windows 95, as well as with many versions of IE. The VM enables IE, Outlook, and Outlook Express to run Java applets. However, one key feature of the VM is broken: the part that ensures Java applets are not malicious.

Preventive medicine is the best kind. Visit find.pcworld.com/35363 for an updated version of the VM. ■

Stuart J. Johnston is a contributing editor for PC World. Visit find.pcworld.com/31580 to see more Bugs and Fixes columns.

IN BRIEF

Sony Cyber-shot Checkups

OWNERS OF Sony's DSC-P1 Cyber-shot digital camera, listen up: Corrosion may occur at the connection point between the power adapter and the camera, which can make the camera think it needs recharging more often than it should. If your camera has the faulty part, Sony will service it for free. Browse to find.pcworld.com/35366 or call Sony at 800/222-7669.

XP SP-1 Patch Redux

MICROSOFT ISSUED a patch to fix problems some users had with Windows XP Service Pack 1, but then quickly withdrew it when the new patch caused even-more-serious slowdowns (details at find.pcworld.com/35369). By the time you read this, Microsoft will have released a revised version of the patch. If your PC is dragging, uninstall the Q811493 patch. Get the revised patch at find.pcworld.com/35435.

BUGGED?

FOUND A hardware or software bug? Tell us about it via e-mail at bugs@pcworld.com.

BOGUS SECURITY ALERTS MAY HAVE VIRUSES

PHONY MICROSOFT security alert e-mail messages, with fake, possibly virus-laden "patches" attached, are making the rounds (more details at find.pcworld.com/35372). Our tips below and a sharp eye will help you spot the scam before you become a victim.

- Microsoft never sends patches (or any software) as e-mail attachments. It distributes software through its Web sites.
- If you've never signed up for any of Microsoft's alerts, and you receive an e-mail that claims to be from Microsoft, just delete it.
- Genuine Microsoft alerts always contain a PGP digital signature, which displays scrambled text bracketed by 'Begin PGP Signature' and 'End PGP Signature'. Most of the bogus e-mail messages don't even contain a PGP signature. Any e-mail purporting to be from Microsoft that lacks the signature is probably fake.

NEW PRODUCTS

EDITED BY ANNE B. McDONALD

Pumped-Up PDAs



**YOU CAN HAVE YOUR HANDHELD
AND YOUR WI-FI (OR A CAMERA)
TOO, BUT HOW USEFUL ARE
THESE EXTRAS?**

NEW PALMS: the Zire 71 (left)
and the Tungsten C.

HANDHELDS

WHAT WILL THEY put on a personal digital assistant next? Two new handhelds for the executive suite, a Palm and a Pocket PC, feature built-in Wi-Fi, while Palm's new addition to its consumer-oriented Zire line boasts an imaginatively designed built-in camera. All three play your digital music, and one even comes with a joystick for games.

Unfortunately, the cool-sounding add-ons that come with shipping models of the Palm **Tungsten C**, Palm **Zire 71**, and Toshiba **Pocket PC E755** aren't always easy to use or flawlessly crafted. And they take a toll on battery life.

WI-FI TO GO

DESIGNED WITH power business users in mind, both the \$499 Tungsten C and the \$599 Pocket PC E755 feature built-in Wi-Fi (802.11b), but with both I sometimes found it difficult to detect and/or establish links to Wi-Fi networks

that Wi-Fi-enabled notebook PCs easily picked up.

Overall, though, I found the Tungsten C's setup routine considerably friendlier than the Toshiba E755's. The Wi-Fi Setup utility on my shipping Tungsten C was able to walk me through the required configuration in a few seconds, and I was immediately able to visit my favorite Web sites using the included browser (which resizes pages to make them easier to see and to scroll through on a small screen).

The Palm Tungsten C has a pleasing thumb keyboard, with firm and well-spaced keys. You also have the option of using Graffiti 2, the successor to the original Graffiti handwritten-character recognition software; the new version has slight modifications that should make it easier for newbies to learn. The Palm 5.2.1-based unit also has a headset port and the same circular navigation button that's

found on other Tungstens. The lithium ion/polymer battery runs down within a day or so of heavy Wi-Fi use, but it lasts a couple of days longer if you turn off the Wi-Fi radio.

Toshiba's metallic Pocket PC E755, in contrast, looks like the heavy-duty executive accessory it's meant to be. In most respects, the E755's hardware and software are what you'd expect from a high-end handheld based on Pocket PC 2002: You get the same processor as the Tungsten C's; an appealing, brightly lit, 240-by-320, 65,536-color screen; a

Pocket PC E755

Toshiba

Street: \$599

★★★★☆

Imposing corporate PDA with Wi-Fi; current setup is a hassle.

find.pcworld.com/35606

Tungsten C

Palm

Street: \$499

Versatile, powerful Palm with easy-to-use Wi-Fi.

★★★★☆

find.pcworld.com/35477

Zire 71

Palm

★★★★☆

Street: \$299

A decent Palm for multimedia, but the built-in camera is mediocre at best.

find.pcworld.com/35480

52 HANDHELDS

Palm Tungsten C, Palm Zire 71, Toshiba Pocket PC E755

54 REMOTE-ACCESS SOFTWARE

LapLink Software LapLink Everywhere 2.01, Symantec PCAnywhere 11

PDA STYLUS PEN

Belkin Quadra 4-in-1 Pen

NOTEBOOK DOCK

Sherpaq Oyster

60 OFFICE SUITE

Corel WordPerfect Office 11 Standard

SCANNER

Fujitsu ScanSnap

64 MUSIC SERVICES

AOL MusicNet on AOL, Apple iTunes

Music Store, FullAudio MusicNow

66 PHOTO PRINTER

Epson Stylus Photo 900

MULTIMEDIA

TiVo Home Media Option

68 GRAPHICS

ATI Radeon 9600

Pro

70 OPERATING SYSTEM

Mandrake

Linux 9.1



60

headset port and a tiny speaker that's more suitable for playing voice memos than music; a collection of stripped-down Office apps; and several handwriting and software-keyboard data input options.

The E755's principal selling point is its built-in Wi-Fi capability. In my tests with a shipping unit, however, wireless configuration was far from intuitive. The unit has no wizard; instead, its setup process presents you with a number of tabs at the bottom of the screen, but little instruction on how to use them. The complicated configuration made logging on to networks a hassle every time. The company says, though, that by the end of June the E755 will ship with the new Pocket PC 2003 operating system, which will have a Wi-Fi configuration wizard.

SMILE, YOU'RE ON PDA

THE ZIRE 71 is the second entry in Palm's consumer line, launched last fall with the \$99 Zire. The Zire 71 isn't quite so cheap; still, \$299 does not seem excessive for a PDA offering the latest version of the Palm OS (5.2.1), an attractive 320-by-320 transreflective 65,536-color screen, and multimedia extras (plus enough juice to support them), as well as a built-in camera.

The camera is completely hidden when the PDA's slate-

FEATURES COMPARISON

Color, Peppy Processors, Storage, and More

WE FOUND configuring the Tungsten C's built-in Wi-Fi was easy, but the E755's was more difficult.

PDA	Processor	Memory	Flash slots	Dimensions ¹	Weight ²	Extras
Palm Tungsten C	400-MHz Intel PXA255 with XScale Technology	64MB of RAM	Secure Digital	4.8 by 3.1 by 0.7	6.3	Built-in Wi-Fi
Palm Zire 71	Texas Instruments OMAP310	16MB of RAM	MultiMediaCard, SDIO, Secure Digital	4.5 by 2.9 by 0.7	5.3	Camera ³
Toshiba Pocket PC E755	400-MHz Intel PXA255 with XScale Technology	64MB of SDRAM, 32MB Flash	CompactFlash, Secure Digital	4.9 by 3.1 by 0.6	6.7	Built-in Wi-Fi

¹ In order: height, width, depth (measurements in inches).

² In ounces.

³ Maximum resolution is 640 by 480.

blue front is closed. Sliding the front of the case up reveals the camera's lens on its back, and uncovers a shutter button sitting below the unit's LCD screen—the screen then functions as the camera's display. It's a nifty design, though the low-resolution color images the camera captures are worth e-mailing but not printing.

The Zire 71 did better with music: Tunes stored on a Secure Digital card and played over a headset using RealOne software sounded good (card and headset not included). The device also makes a pretty decent pocketable video game player (the tiny joystick navigator is a nice touch). I wish it had some sort of charging light—you have no way of telling whether the Zire 71 is recharging while it's in its cradle. But that wouldn't stop me from recommending the Zire 71 for someone who wants

a multimedia-oriented Palm.

The Zire 71's gimmicky camera is less an asset than its ability—thanks to a respectable processor and the Palm 5.x OS—to support games and playback of music and video: For buyers who want a midrange PDA that doubles as a leisure-time toy, it's one of the best out there.

For business travelers whose companies are standardized on Pocket PCs, the E755 may still shape up as a worthy competitor to Hewlett-Packard's IPaq Pocket PC H5450, which also has built-in Wi-Fi capability. However, the problems I had accessing a fairly simple Wi-Fi network would

give me pause when considering a purchase of this PDA. The Tungsten C, on the other hand, looks like a winning companion for just about any well-heeled traveler wanting to take advantage of Wi-Fi's increasing ubiquity in hotels, airports, and coffee bars.

—Yardena Arar ■



TOSHIBA'S WI-FI-enabled Pocket PC E755.

New Ways to Remotely Access Your PC

REMOTE ACCESS

USING A remote-access program can be like performing a puppet show underwater. Everything works, but often slowly. New versions of LapLink's LapLink Everywhere and Symantec's PCAnywhere don't radically improve things.

LapLink Everywhere 2.01 is a Web-based service that lets end users run computers remotely via a browser—even browsers on PDAs. There are multiple payment schemes; your best pick is the \$120 annual fee for the software and unlimited remote access. It's



TO REMOTELY run a PC, access its e-mail, or do more with LapLink Everywhere 2.01, just click your choice of options on the left.

such as an end-of-session message that looks like an error, it lacks this company's usual spit and polish. The beta

version of **PCAnywhere**

11 I looked at is largely aimed at IT and help desk staffers who need to remotely configure and troubleshoot enterprise PCs. It is more difficult to master, in part owing to an "improved" interface, but it is also nimble and powerful.

It's a snap to use LapLink Everywhere. Install its software on the host computer and leave it on. Then hit the road and fire up a browser on a PC, laptop, kiosk, or PDA/Web-

phone; go to www.mylaplink.com; enter your ID and password; and click the desired option to the left. For example, click the PC Desktop item, and once the host computer's Windows desktop appears you can run any of its apps. The catch: Your browser must support Java for remote control and ActiveX controls for copying multiple files. Many Pocket PCs and Palms support only the former.

PCAnywhere 11 sticks with direct PC-to-PC connection via the Internet, LAN, and dial-up modem. The biggest change for end users—a new interface—is a tad confusing, in part because you can do the same thing too many ways. For example, to start a remote file transfer, you could click Remotes at the top of the vertical toolbar to the left, then click Start File Transfer in the Actions section below. Or you could right-click the Connection item in the window to the right, or select a File menu option. I'd prefer a more streamlined command path.

Bottom line: Wait until both companies iron out the wrinkles. Or try our 2003 World Class winner in this category, Expertcity's GoToMyPC (find.pcworld.com/33143).

—Robert Luhn ■



SYMANTEC'S PCAnywhere 11 sports a new, sometimes confusing user interface.

easy to get up and running, but it was clearly rushed to market. From incomplete documentation to interface quirks

LapLink Everywhere 2.01

LapLink Software

★★★★☆

Adds true Web remote control via browser, but has too many design inconsistencies.

List: \$120 per year with unlimited remote access

find.pcworld.com/35507

PCAnywhere 11

Symantec

(Beta software, not rated)

This powerful remote-control program is aimed mostly at IT professionals; its new interface is somewhat confusing.

List: \$200

find.pcworld.com/35462

QUICK TAKES

PDA Pen Lights the Way

THERE ARE lots of multi-function pens out there, but Belkin's **Quadra 4-in-1 Pen** stands alone with its combination of ball-point pen, PDA stylus, LED flashlight, and 500-foot-range presentation laser pointer. This sleek, matte-aluminum \$20 pen uses four watch batteries to power the LED and laser. Fortunately, the replacement batteries are cheap (about \$3 for ten), because with any significant use you will need new ones often. find.pcworld.com/35450

—Michael S. Lasky

Dock On

IF YOUR DESK space is at a premium, the \$149 Sherpaq **Oyster** docking station cleverly lets you use your notebook screen to replace a bulky monitor: Simply open the PC and set it into the



Oyster, attach a mouse and keyboard via the included USB ports, hide any power boxes and wireless remote receivers inside the Oyster, and you are ready to go. find.pcworld.com/35531

—Michael S. Lasky



Grow Quickly

Today the enterprise is more global than ever. Growing quickly means having the tools that connect people and information to take advantage of opportunity, no matter where or when.

In concert with leading-edge companies, Microsoft has created the Microsoft Mobile Partner Advisory Council (MPAC). The goal — to bring the brightest minds in the industry together and make mobile, connected technologies a reality.



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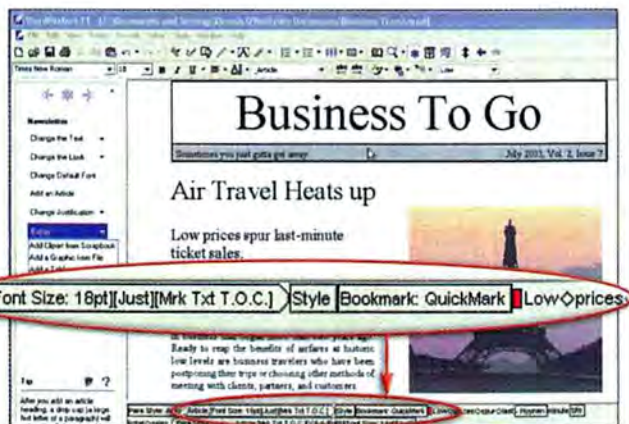


The 'Other' Office Suite

OFFICE SUITE

IF YOU THINK that your only business-productivity software options are an old version of Microsoft Office or a new version of Microsoft Office, think again: Corel has released a new edition of its venerable WordPerfect Office suite.

WordPerfect offers one key feature that Word currently doesn't: Reveal Codes, which allows you to view and make changes to a document's formatting. In my tests with a \$300 shipping copy of **WordPerfect Office 11 Standard**, I found that function enhanced



WORDPERFECT OFFICE 11's new ability to print formatting codes allows multiple users to collaborate on documents more easily.

with the ability to print formatting codes, which allows multiple users to collaborate on documents more easily.

WordPerfect Office 11 also makes files universally accessible, no matter which office suite created them. The new WordPerfect Office Conversion Utility, for example, lets you convert batches of any type of Microsoft Office file to the WordPerfect format, and a new Document Map (similar to Microsoft Word's) makes it easy to move from page to page in lengthy documents.

Other updates: The suite's Quattro Pro 11 spreadsheet now features QuickSubtotal, which simplifies data analysis by letting you apply totals to a selected column. And the Show On The Go feature in Corel Presentation 11 converts presentations into self-executing slide shows that you can play on any Windows

computer. Presentations even allows you to save your work in the PowerPoint 95 and 97 file format (.ppt), just as WordPerfect supports Word 2002 (.doc) and Quattro Pro supports Excel 95 and 97 (.xls).

And for people who loved WordPerfect's old DOS interface (circa version 5.1), it's back. Just choose the Classic Mode option.

WordPerfect Office 11 is a slightly less expensive alternative that doesn't sacrifice features, functionality, or any Microsoft interoperability.

—Dennis O'Reilly

WordPerfect Office 11 Standard

Corel

★★★★☆

Basic office-suite features and functionality for about \$100 less than the market leader.

List: \$300

find.pcworld.com/35456

Color Scan Directly to PDF

SCANNER

IT'S HARD to imagine cleaning up a messy desk by putting one more thing on it, but that could happen with Fujitsu's useful and innovative ScanSnap color scanner.

At the touch of a button, this \$495 device, which doesn't claim much desk space, can quickly scan up to 50 single-sided or double-sided documents into your PC at once,

converting them directly to Portable Document Format via the included full version of Adobe Acrobat 5 software. The ScanSnap also automatically names the digital documents and places them into a folder of your choice.

You can whip those piles of business cards into your PC as well, using the included CardMinder software. My preproduction ScanSnap did a reasonable job of recognizing information from the cards and sorting it into the correct fields in CardMinder's database. The software displayed a scan of each card above the fields so that I could quickly change any incorrectly in-

terpreted data. You can easily export all information to contact programs such as Access, GoldMine, or Outlook.

Twenty pages placed in the upright scanner's paper holder fed into my PC as a PDF in under 2 minutes. The unit's optional ability to recognize and skip blank pages was impressive. The ScanSnap, which turns on and off with your PC, scans in color or black and white, and at three qualities (the default settings produced clear scans in all my tests). As you place a piece of paper into the device, its monitoring software pops up on your system's screen. A two-sided color scan at normal quality

created a file that was 947KB in size and perfectly readable.

The Fujitsu ScanSnap could be a useful tool for anyone who wants to routinely store documents digitally.

—Anne B. McDonald ■

ScanSnap

Fujitsu

★★★★☆

Innovative color desk scanner, with significant software extras.

List: \$495

find.pcworld.com/35459



FAST FEED: Fujitsu's ScanSnap excels at one-button scanning.



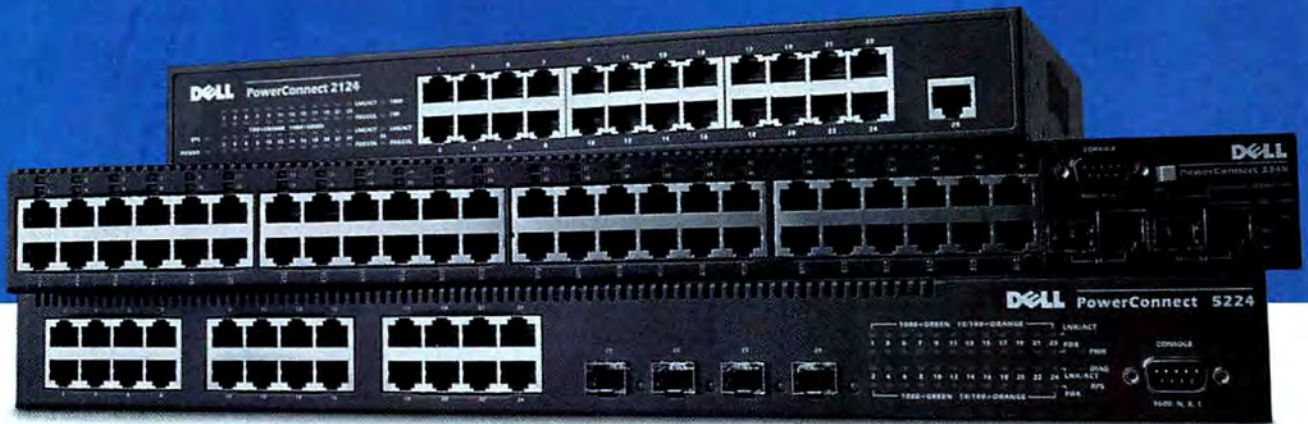
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Tolly Group Report #202149

— September 2002



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It's a Dell, so you know you're going to save money. But let's talk performance. From standard Fast Ethernet to high-speed Gigabit Ethernet over copper or fiber, Dell PowerConnect switches are designed to offer full wire-speed and non-blocking performance. Recent Tolly lab tests confirmed that the Dell PowerConnect 3248 outperformed industry leaders by as much as 47%. Plus, the PowerConnect 5224 has been lauded by *Tom's Hardware Guide* (October 2002) for its performance and manageability features for the price. PowerConnect switches also are highly interoperable and scalable, making them ideal for building a first-time network or expanding your existing one. So not only will you get one-of-a-kind Dell performance for less but, perhaps more importantly, there'll be fewer headaches too.

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\$99 E-VALUE Code: 17549-S10601

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Apple's iTunes Music Store Is a Winner

MUSIC SERVICES

IF YOU'RE hunting for music, tunes in quantity are available on peer-to-peer services, such as Kazaa, which offer millions of songs. You can't predict the quality of downloads there, however. And Hollywood continues to pressure these sites since it considers them illegal.

New services from America Online, Apple, and FullAudio offer dependable, fast, and fully legal downloads of good-quality music files as enticements to pay. FullAudio's **MusicNow** and **MusicNet on AOL**, which are subscription-based, have useful features. But Apple's **iTunes Music Store**, which offers over 200,000 songs at \$1 each for immediate down-



WHAT'S YOUR PLEASURE? FullAudio's MusicNow subscription service divides its offerings into music channels based on formats.

Store's tracks cost \$1 each, and some entire albums are available for only \$10. I downloaded 17 tracks of Jimi Hendrix's *First Rays of the New Rising Sun* for \$5 less than the CD costs on Amazon.com.

Music Store's slick graphi-

portable player, or even share them with up to three other Macs. The extent of Apple's liberties are unheard of for major-label downloads.

Music Store has some big names, but it suffers from a relatively small catalog. Although many high-quality artists are represented, not all their songs are available. And a version for Windows users isn't expected until year's end.

PC FRIENDLY

IF YOU WANT to use your PC for unlimited downloads and streams for a \$10 monthly subscription fee and tracks that cost \$1 each, try FullAudio's MusicNow (you can burn the files to CD or transfer them to any portable player that reads WMA files). The service is integrated into Windows Media Player, so you can easily mix the new tracks that you've downloaded with your existing digital music library.

MusicNow is built around different channels, such as Parking Lot, which features all jam bands. The service's streaming radio offers its best song selection—far more titles than the assortment available for on-demand streaming, download, or purchase.

YOU'VE GOT MUSIC

MUSICNET on AOL is a great improvement over the first-generation MusicNet. You choose from three monthly subscription levels: Download and stream 20 tracks for \$4; download and stream unlimited tracks for \$9; or download and stream unlimited tracks, plus burn 10 tracks, for \$18. You must be an AOL subscriber, however, so factor in that monthly subscription fee.

MusicNet's strength is its catalog—more than 300,000 tracks. But MusicNet trails the other services in digital rights. Though you can burn ten tracks a month, unused credits do not carry over. And currently, you can't download tracks to a portable player.

FullAudio's MusicNow is a good choice if you like listening to high-quality radio and rarely want to buy tracks. MusicNet on AOL is a convenient, but expensive, way to access a lot of great music. Apple's iTunes Music Store is so well designed, it may provide enough incentive to listeners for them to enjoy paying for music downloads.

—Michael Gowan ■



JAZZ IT UP: The lush iTunes Music Store interface highlights new releases, top downloads, staff favorites, and more in many genres.

load and burning, is by far the best of the three services and may be the beacon that finally draws users to pay for play.

THE MUSIC'S CORE

ITUNES Music Store requires no subscription fee—all you need is a Mac with iTunes 4 software. You can listen to a 30-second sample of any track for free; however, the other two services let you listen to a full song as much as you want before deciding to buy. Music

Store's slick graphical interface and impressive browse options make finding what you're looking for easy. But what counts here is that you really own the tracks you buy: You can burn them to disc, transfer them to an iPod

iTunes Music Store

Apple

★★★★☆

Simple pricing and user-friendly digital rights; but so far, Mac-only. List: \$1 per track

find.pcworld.com/35474

MusicNet on AOL

America Online

★★★☆☆

Great selection; prohibitive cost. List: \$4 to \$18 per month, plus AOL subscription charges

find.pcworld.com/35471

MusicNow

FullAudio

★★★★☆

Fantastic streaming radio, but limited purchase choices. List: \$10 per month, \$1 per track

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Print Photos and CDs With Epson's 900

PHOTO PRINTER

TEST Center IF TAKING photos and burning CDs top your hobby list, you've probably envisioned a device like Epson's **Stylus Photo 900**. This \$200 ink jet photo printer comes with a feeder tray that allows you to print direct-

ly onto specially coated CDs.

The shipping Stylus Photo 900 I looked at worked well as a photo printer. My test photograph looked just as sharp as those from more-expensive ink jet models, though lacking slightly in color resolution. One nice feature: The printer accommodates roll paper—good for printing a long string of 4-by-6-inch photos edge to edge, for example.

The CD-printing function did take some tweaking to make the discs look their best.

The included

Print CD software is fairly basic, so I'd suggest creating your disc labels in another graphics or image editing program, saving them to TIFF or JPEG format, and then importing them.

Using the program's default setting resulted in unprinted borders on the outer and inner edges of the disc, which were often off-center because I had to align the CD tray with the print rollers manually. To print on the entire face of the disc, I had to guess the width of the CD's printable area. I ended up with overrun ink in the uncoated middle of the disc, which came off on my fingers. And when I expanded the print area, the software

recommended that I wait 24 hours for that ink to dry before playing the CD.

You may print only on special CD-R media, which cost about the same as uncoated CD-Rs; the discs are available now online and will soon be in retail outlets, Epson says.

If you're concerned about a peeling paper label wreaking havoc on your high-speed burner or disc changer, or if you are just tired of using markers to ID your CDs, the trade-off might be worthwhile.

—Eric Butterfield



PRINT COLOR directly onto CD-Rs with Epson's 900.

Stylus Photo 900

Epson

★★★★☆

Good color photos, but color printed on CD-Rs is a bit dull.

Street: \$200

find.pcworld.com/35444

TiVo Streams Photos, Music

MULTIMEDIA

WITH TIVO'S new **Home Media Option** software upgrade, owners of the company's Series2 digital video recorders can stream music and photos from PC to TV using the popular service's oh-so-friendly remote-controlled interface. Unfortunately, at \$99 (plus \$49 for each additional TiVo), it seems a tad overpriced.

The Home Media Option requires an existing home network (wired or wireless), and

an additional free PC software download. Once you set up your network, you can also share content among networked household TiVos, and schedule recordings via the Internet. You cannot, however, transfer video from your PC to TV or share TiVo recordings via the Internet.

To test the upgrade, I connected two 40-hour TiVo devices (\$250 each, plus \$13 a month for a service subscription) to my existing 802.11b wireless network with the recommended Linksys Wireless USB Adapters (about \$69 each). I could easily access my music and photo files through TiVo's Now Playing screen. The music interface is sparse, and notably lacking is a find tool. The only audio file for-

mat TiVo supports is MP3; my collection of 192-kilobits-per-second recorded songs sounded good on my DVR-connected stereo receiver.

On the photo side, TiVo supports numerous image files but displays them as streaming-friendly 680-by-480-dpi JPEGs; they looked fine on my 32-inch television. The slide-show feature is con-

venient but doesn't let you play music at the same time.

The Home Media Option performed as advertised, and though starting from scratch would be a bit pricey for non-TiVo owners, it's less expensive for TiVo owners to upgrade than to buy a stand-alone option such as HP's \$299 Digital Media Receiver EW5000.

—Tom Mainelli ■

TiVo Home Media Option

TiVo

★★★★☆

Easy but pricey network upgrade brings music and pics to your TV.

Street: \$99 for one, \$49 for each additional unit

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TIVO'S SOFTWARE upgrade lets you stream MP3s from PC to TV.

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Radeon 9600 Pro Shines

GRAPHICS

TEST Center GAMERS often crave the ultrafast frame rates of a top graphics board, but that level of video quality comes with a cost. If a mid-range board at a good price is all you really need, look into ATI's **Radeon 9600 Pro**. This \$199 graphics card performed respectably in our tests.

The board's Radeon 9600

Radeon 9600 Pro

ATI

★★★★☆

Superb midrange gaming board, if you don't need or want the fastest and most powerful.

List: \$199

find.pcworld.com/35447

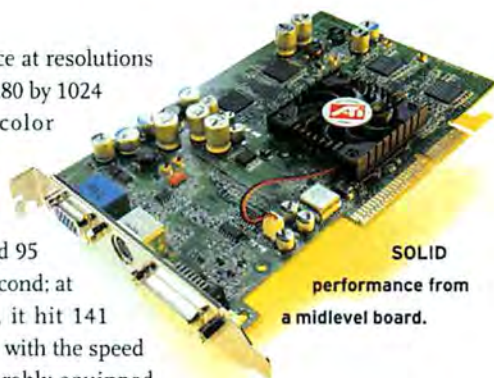
Pro chip supports DirectX 9, the latest version of Microsoft's application programming interface for rendering 2D and 3D graphics; DirectX 9-based games will arrive en masse later this year. The board also provides a healthy 128MB of DDR SDRAM and support for 8X AGP.

Many higher-end graphics cards glean extra power via a connection to the PC's power supply. This isn't necessary with the Radeon 9600 Pro: ATI's first 0.13-micron chip delivers faster clock speed but consumes less power.

In our tests with Unreal Tournament 2002, the Radeon 9600 Pro turned in exception-

al performance at resolutions at or below 1280 by 1024 with 32-bit color depth. At a resolution of 1280 by 1024, it scored 95 frames per second; at 1024 by 768, it hit 141 fps—on a par with the speed of the comparably equipped NVidia GeForce FX 5600 Ultra reference board that we reviewed in our June issue (find.pcworld.com/35501). The Radeon 9600 Pro also scored a more-than-respectable 60 fps at 1600 by 1200 resolution and 32-bit color. Visit find.pcworld.com/35504 to see our additional test results.

Serious gamers who regularly use the highest resolution or who plan to try the



SOLID
performance from
a midlevel board.

upcoming DX9 games should consider a more powerful card, perhaps one based on NVidia's new GeForce FX 5900 Ultra chip (reviewed on page 28). Our Unreal Tournament 2002 tests of engineering samples with this chip show that it can hit about double the frame rates of the 9600 Pro at 1600 by 1200 resolution and 32-bit color.

—Alexandra Krasne ■

PHOTOGRAPH: MARC SIMON

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Mandrake Upgrades Linux

OPERATING SYSTEM

MANDRAKESOFT'S \$39 **Mandrake Linux 9.1** outshines previous incarnations, but still has disappointing rough edges.

A revamped, friendlier installer hides esoteric options behind 'Advanced' buttons and reduces the number of steps. You can accept the defaults and have Mandrake up and running on your PC in less time than it takes to install a Windows operating system.

A word of warning: Mandrake offers to shrink Windows partitions to make room for

itself on your drive. I strongly recommend, however, using a trusted tool like PowerQuest's PartitionMagic to handle this instead, as Mandrake's resiz-



MANDRAKE 9.1's Update tool tracks security updates, bug fixes, and minor upgrades.

ing routines destroyed my PC's Windows XP partition.

Mandrake provides both the GNOME and KDE desktop environments, and their default visual themes match so that GNOME apps running in KDE look like KDE apps, and vice versa. The matching themes plus improved font rendering (akin to XP's ClearType) present a very appealing look.

As for applications, OpenOffice.org and K-Office suites are built in (providing word processing, spreadsheets, and presentation software); so too are solid Web browsers, e-mail clients, instant messengers, image editors,

and a financial-planning app.

However, the Mandrake Control Center (think Control Panel) contains frightening geekpeak, suffers from a poor user interface, and lacks a simple means to add a network printer. The First Time Wizard configures several e-mail clients but not Evolution (a spectacular Outlook clone).

Mandrake 9.1 is an enticing upgrade and a good choice for advanced Windows users who want to try Linux.

—Matthew Newton ■

Mandrake Linux 9.1

MandrakeSoft

★★★★☆

Powerful Linux distribution isn't terribly newbie friendly.

List: Standard \$39

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CNET.com, April, 2003.



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Presentation Myths Exposed!

Everybody makes presentations: CEOs, department heads, members of school and church committees, soccer moms—anybody with a message they need to communicate to others, usually in a group situation. A number of myths, however, have grown up around making presentations.

MYTH 1: If you know your stuff, you can wing it.

"I wouldn't recommend that," warns Fred Abbott, president, Valley View Ventures, Concord, MA. "Maybe you can wing it after you have presented the material 30 times, but even then, you risk rambling," adds Judith Hurwitz, principal, Judith Hurwitz & Associates. Seasoned presenters rehearse each presentation.

MYTH 2: Great graphics will sell any message.

Graphics certainly add value to the message and help capture and hold the audience's attention, but "graphical pyrotechnics can upstage your message, particularly if your message or the presenter is weak," notes Carol Baroudi, CEO, Baroudi Bloor, a research firm. People may leave the presentation dazzled by the graphics but confused about your

message, which is the last thing you want.

MYTH 3: Pack your entire message into the display slides.

If your idea is to distribute your presentation as you would a comprehensive written document, this makes sense, but that's not the primary purpose of the slides. "The slides are an aid. Use them to prompt yourself. They should show the key points, on which you can then elaborate," advises Hurwitz. "And never, ever just read your slides," warns Baroudi.

MYTH 4: Use all the time you are allotted for the presentation.

Presenters typically are allotted a specific amount of time. While nobody wants to pass up an opportunity in the

Continued on page 5

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BEST OF BOTH WORLDS

CTX's M730V combines LCD, video conferencing

Do you count yourself among the many home and business computer users longing for a simpler video conferencing solution that doesn't require a PhD to set up and maintain? CTX (www.ctxintl.com), a global leader in display technology, has just the technology for you.

CTX's M730V is the first-ever LCD monitor featuring a built-in video camera, making real-time video conferencing with friends or business associates as simple as it is fun and productive. The 17-inch M730V comes equipped with fully integrated camera, microphone, stereo system, and picture-in-picture features to support video conferencing. Combining CTX's heralded reputation for long-lasting,



rugged displays and high-value heritage, the M730V is technology for the times.

The camera has a 54-degree viewing angle and a high-quality lens that picks up crisp, clear images as close as 8 inches away. The M730V has both analog and

digital visual interface (DVI) inputs for high multimedia content. The three-port USB 2.0 hub connects additional peripherals and is up to 40 times faster than USB 1.1. The M730V's S-VHS and composite video capabilities provide a wider input signal enabling RGB digital interfacing.

Meanwhile, the versatile LCD display features a super-fast 16-millisecond response time. This translates into high performance for video, graphics, or gaming applications without the "visual stutter" associated with slower LCDs. The M730V has an extra-wide 160-degree viewing angle and super-sharp 1280x1024 resolution for the clearest of images.

For more information on this exciting, practical, and affordable innovation in video conferencing technology, point your browser to www.ctxintl.com.

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Spend more time with the ones you love using the first-ever computer monitor to feature a built-in camera for video conferencing. Gone are the hassles with buying and setting up Web cameras.

CTX's **M730V** 17-inch multimedia LCD monitor provides fully integrated camera, microphone, SRS surround sound system, and **picture-in-picture** (PIP) features to support **video conferencing**. With an extra-wide 160° viewing angle, 400:1 contrast ratio, 16ms response time, and 1280x1024 resolution, you'll fall in love with how great the image quality looks. The **M730V** offers the brilliant colors and vivid brightness that you'd expect in a high-end, expensive monitor. But at a great CTX price.

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The Answer Column

How long should I expect my projected image to maintain its original high quality?

Today's Digital Light Processing™ projectors provide market-leading brightness, contrast, resolution, and color fidelity. But how well will that image quality hold up after a significant amount of use? The answer hinges on two factors: user-replaceable parts, and basic projector components.

The main user-replaceable part of a projector is, of course, the lamp. In typical business projectors, from the time a projector is brand-new, the lamp's light output steadily declines until most lamps deliver about 50 percent of their original brightness.

Most users would not notice this deterioration day to day, though they probably will notice the cumulative effect and would certainly be struck by the difference when they replace the lamp. In general, users should expect to do this at around 2,000 hours of use.

No other component of a projector should fail under normal circumstances. Power supply, fan, imaging engine, lenses—all should remain "good as new" for a very long time.

Meeting this goal can be a challenge. The last decade has seen the development of very high brightness in very compact projectors. But this brightness puts great stress on projector components in the optical path. Many display technologies do not hold up well to this stress and degrade over time.

But light doesn't pass through a DLP™ chip; instead, it's reflected by the array of micromirrors. Because of this, and because it is a semiconductor device, the DLP™ chip is extremely robust and stable; therefore DLP™-enabled projectors like the BenQ PB8220 will maintain like-new image quality for the life of the projector.

When you eventually replace the lamp in a projector driven by DLP™ technology, you should immediately experience a "good as new" projected image.

To keep your projector performing at this level, it's important to follow the manufacturer's directions for proper use. In particular, the correct power-off procedure allows for proper cooling and will help you get maximum life from all projector components.



By Peter Van Kessel
TI Technology Center

Present With Pride

BenQ's DLP™ projectors feature ease of use and peerless quality

Professional presenters know that projectors employing DLP™ technology give picture quality, brightness, and accuracy that is unrivaled. By supporting the latest DLP™ DDR chip set from Texas Instruments, BenQ digital projectors deliver high-contrast digital images that won't fade or degrade over time. They will consistently produce flawless pictures and maintain their original clarity for true reliability.

Now BenQ (www.benq.com), a leader in portable projector products, has leveraged this exciting projection technology in a pair of projectors loaded with the features that can make the difference between a good presentation and a great one.



The MicroPortable SL705X is super-light and easy to use. Multi-port inputs for PCs and DVD players make it ideal for home as well as business use.

The MicroPortable SL705X offers a 600:1 contrast ratio as well as true XGA resolution and is compatible up to SVGA resolution. It offers unparalleled ease of use that allows a presenter to focus on his or her message instead of fiddling around with arcane controls. Users merely turn on the SL705X and the machine automatically detects the signal source and adjusts itself to display a crystal-clear image. The projector's keystone correction feature effortlessly restores a trapezoidal image caused by a tilted projection angle back to a perfectly rectangular shape for easy, accurate viewing.

Weighing in at a super-light 3.8



The DS650 Ultra Portable Projector uses the latest DLP™ technology. Like all of BenQ's digital projectors, it delivers great visual depth and sharpness.

pounds, and only two inches thick, the SL705X sports a manual zoom lens that facilitates projecting from any distance and a wide-angle lens for using a larger screen with shorter projection distance. Ideal for business applications, the SL705X also comes with a Presentation Wizard that allows the user to control the PC or laptop during presentations.

BenQ's DS650 Ultra Portable Projector uses DLP™ technology to deliver superior brightness of 1600 ANSI lumens, while BenQ's Dynamic Color Management System delivers sparkling color quality. The DS650's 10x digital zoom quickly pans in to amplify small-screen text; a wide-angle lens allows presenters to display a five-foot image from a distance of less than seven feet from the screen.

Like the SL705X, the HDTV-compatible DS650 also features digital keystone as well as an RS232 control port and a freeze capability that freezes the frame of a video presentation. The DS650 also offers multi-port inputs for the PC, as well as P-Scan DVD players, which allows the user to go from business to home-movie applications.

For more information on the SL705X and DS650 DLP™-based projectors, point your browser to www.benq.com.



You can obtain more information about BenQ DLP™ projectors at www.benq.com.





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Bright, clear and silent.
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The DS650 digital projector runs quiet, displays large and shines in any light. Thanks to superior, true SVGA resolution, 600:1 contrast ratio and 1600 ANSI lumens, the DS650 projects bright, sharp graphics without the need to dim the lights. Its short throw lens is perfect for small meeting rooms — delivering 25% more image at 60" screen size in just six feet. BenQ's projectors include a DLP chipset to ensure high-quality, digitally-based images that won't fade or degrade over time. Enjoy the confidence of BenQ's benchmark-setting service and support, including a three-year warranty with first year Xpress Xchange. Easy to set up and use, whisper quiet, and priced sensibly for any budget, it just may be your most valuable new employee.



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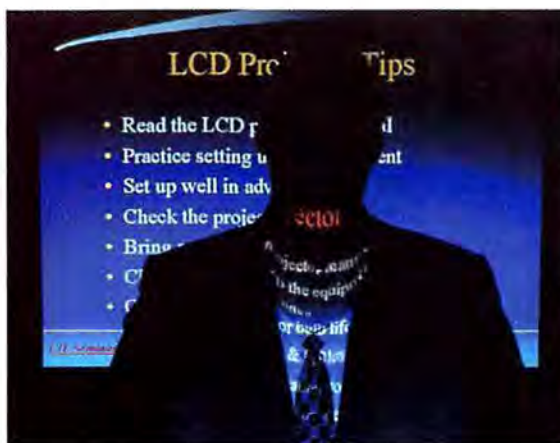
Presentation Myths Exposed!

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spotlight or let even a moment of valuable time go unused, remember to leave yourself a little extra time for the unexpected. "It's actually better if you plan a bit of time for questions and interaction with the audience," recommends Abbott. Notes Baroudi: "I try to make my presentations somewhat provocative, so I need to leave time for discussion at the end." Do not, of course, go over your allotted time.

MYTH 5: You can count on today's technology to be reliable.

Yes, the latest projectors and laptops are easy to use and the connections are pretty much plug-and-play, but that doesn't mean you should take technology for granted. "No matter how good the technology is, I always check my laptop and test the projector in advance," says



© STELLA JOHNSON

Hurwitz. "And you should pre-load the presentation. Otherwise, you could have an unpleasant surprise."

MYTH 6: You should always start with a joke to get the audience engaged.

"Only if you are good at it and you have a good joke," advises Hurwitz. First impressions are important, of course, but while you want to engage your audience from the very start, telling jokes

isn't the only method that works. Adds Baroudi: "You want to affect the audience in an emotional way, to touch them somehow." One associate, she recalls, pulled a wad of currency out of his pocket to kick off a presentation about how physical things convey information.

AND ONE LAST THING: Remember to smile.

BIG VALUE, SMALL PRICE

eMachines' success rolls on with introduction of 15.4-inch notebook

The company IDC hailed as the fastest-growing PC maker has unveiled a lightweight, wide-screen notebook PC with the user-friendliest price tag in its class. The M5305 from eMachines, Inc. (www.emachines.com) features a sharp, 15.4-inch LCD that displays up to a third more viewing area than a standard 15-inch notebook screen. The M5305 wide-screen format allows users to view two Web pages or documents simultaneously, saving time and aggravation toggling back and forth.

Sitting less than an inch-and-a-half high and weighing just 6.5 pounds, the M5305 sports three

USB ports as well as a CD-RW/DVD drive, super-spacious 40G hard drive, and built-in Ethernet interface—all for under \$1,300.

What's more, buyers are fully protected and supported by eMachine's industry-leading Customer Care program. In addition to a year of technical support featuring highly-trained call-center professionals answering calls in a minute or less seven days per week, customers can solve technical problems via BigFix®. This pre-installed client monitors the computer's performance and reports on problems before they arise. BigFix then issues alerts along with suggested fixes,



giving a host of options that put the user in control.

By delivering the kind of value and quality exemplified by the M5305, it is small wonder that sales at eMachines boomed along at a 43-percent growth clip in March of this year while PC sales otherwise languished. To learn more about eMachines and its full portfolio of "best-in-value" PCs, click on www.emachines.com.

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eMachines recommends Microsoft® Windows® XP Professional for Mobile Computing

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Save What You Need, Trash The Rest

Every computer user makes mistakes—deleting much-needed files, or leaving unwanted items in storage. Fortunately for the error-prone user in all of us, there is R-Tools Technology Inc. (www.r-tt.com), the leading maker of data recovery and undelete solutions for the Microsoft Windows environment.

Leading the way in the R-Tools lineup is R-Studio, a family of data recovery utilities that rescues data on local logical as well as physical disks, and on remote disks over networks, regardless of whether their partition structures are damaged or deleted. R-Studio includes support for RAID and dynamic disk, and it will recover encrypted files, compressed files, and alternative data streams. Not only that, but flexible parameters give users absolute control over data recovery.

R-Undelete is a low-cost, user-friendly but powerful file undelete solution capable of undeleting files on any valid logical disks visible to the host operating system. Together



R-Studio recovers your lost data and undeletes.

with R-Studio, R-Undelete can create an image file of any object the two recognize—a very useful capability if there is a risk of total data loss due to hardware malfunction. All data search, scan, and recovery can be done from this image.

The R-Mail tool is designed to rescue inadvertently deleted email messages and to recover damaged *.dbx files where folders with email messages are stored.

And for users wanting to keep their disks free and clear of unwanted data, R-Tools offers R-Wipe&Clean. This highly useful tool irretrievably deletes private records of online and offline activities, including temporary Internet files, history, cookies, auto-complete forms and passwords, and other disk-clogging material.

For more information on these exciting and practical products from R-Tools, click on www.r-tt.com.

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Dell Dimension 8300



IBM ThinkPad T40

THE GEAR OF THE YEAR

Your complete guide to 50+ hardware, software, and service winners—including today's number one product.

BY PC WORLD EDITORS • PHOTOGRAPHS BY MARC SIMON



DO YOU LOVE TO SHOP? Love poring over the tiny type in on-line spec sheets while juggling browser windows from five different Web stores? How about traipsing down the aisles of a computer store hearing dubious technical data from salespeople who'd rather be selling TVs? If you *don't* love doing these things—but still want the best tech products—you've come to the right place.

Each year at *PC World* we seek out the best of the best—hardware, software, Web sites, and services that rise above their competitors. In each category, we look for a product that mixes top performance, good value, a reliable manufacturer, and preferably a dash of innovation. In the following pages are our 59 top choices for the 21st World Class Awards, from a hybrid phone that puts the Web in your pocket to a slick new Web-based e-mail service. ►

COMPUTING

Entertainment PC

ABS Media Center PC 8500

(\$1799, find.pcworld.com/34928)

ABS'S MEDIA CENTER PC 8500 proves that computers are working their way into other rooms in your house. Designed for your living room, the 2.8-GHz Pentium 4 configuration we tested comes in a sleek, stereo-component-style case that helps it fit comfortably in your entertainment cabinet.

The 8500 runs Microsoft's Windows XP Media Center Edition, a tweaked version of Windows XP that includes the ability to record live TV much the way a TiVo digital video recorder

does. Recording TV isn't quite that easy in Media Center, but it's definitely manageable, and even fun. Well-chosen extras like Creative's Inspire 6.1 6600 speaker set round out the package. An included RF remote simplifies watching DVDs, listening to music, recording and playing live TV, and viewing photos.



Tablet PC

NEC Versa LitePad

(\$2399, find.pcworld.com/34844)

LITE IS RIGHT. NEC's slickly designed Versa LitePad is only about half an inch thick and nudges the scales at a mere 2.2 pounds. That's a perfect carrying-around weight for a Tablet PC.

More Winners

DESKTOP POWER PC

Dell Dimension 8300

(find.pcworld.com/35582)

Reliability ratings have slipped a little, but Dell PCs remain outstanding values.

DESKTOP VALUE PC

Dell Dimension 4550

(find.pcworld.com/35585)

Solid PC, soon to be updated to the 4600.

DESKTOP REPLACEMENT NOTEBOOK

IBM ThinkPad T40

(\$3249, find.pcworld.com/34817)

The speedy Pentium M-based ThinkPad T40 ran for over 6 hours in our tests.

ULTRAPORTABLE NOTEBOOK

Sharp Actius UM32W

(\$1499, find.pcworld.com/33290)

The Sharp Actius UM32W is thin, light (3.1 pounds), wireless-connected, and fast.

PDA

Palm Tungsten T

(\$399, find.pcworld.com/35561)

Highlights include a beautiful 320-by-320-pixel color screen and built-in Bluetooth.

WORLD CLASS

PRODUCT OF THE YEAR

[T-Mobile Sidekick]

(\$300, find.pcworld.com/34901)

MANUFACTURERS have been attempting to cram the Internet into our shirt pockets for ages—usually with underpowered, over-priced devices. This year, however, multiple lilliputian-but-functional Net machines beckon. Our favorite? The new color version of T-Mobile's fun, innovative Sidekick. This "hiptop" is the first wireless gadget that feels capable of putting the Web in your pocket. Its swiveling design sports both a shrunken QWERTY keyboard and a sharp color screen. On-board software includes a usable browser, e-mail, AOL Instant Messenger, and more. The unexpectedly reasonable price: \$300 for the device and as little as \$40 per month for voice/data service.

Speaking of voice, the Sidekick has, alas, a mediocre phone. But hey, we're data people. And if you're still unready to go unwired, take heart: Next year's contenders are sure to make even this breakthrough device look a tad retro.



THE BARE NECESSITIES

Spam Filter

Sunbelt Software IHateSpam for Outlook

(\$20, find.pcworld.com/31556)

UNLESS YOU NEED more Nigerian fortune scams or want to hear from questionable Viagra dealers, it's time to get a spam filter. Outlook users should try Sunbelt Software's IHateSpam 3.2. A simple toolbar lets you add filters for any junk the program might miss, manage lists of trusted senders, and send notices to spammers' ISPs. IHateSpam nabbed 94 percent of the spam in our tests out of the box, and it improved with training.



Input Device

Logitech Cordless Elite Duo

(\$100, find.pcworld.com/35120)

FROM NETWORKS to PDAs to keyboards and mice, the wireless look is in this season. Logitech's USB-based Cord-

less Elite Duo can upgrade your input system while unwiring it.

Both the optical mouse and the keyboard include scroll wheels for easier document and Web page navigation. Extra keys provide programmable one-touch access to files, applications, and Web sites. RF-based control means you don't need to be in line of sight to the wireless receiver, and a rechargeable design makes the mouse much easier to use.

Stand-Alone Utility

SiSoftware Sandra Professional

(\$35, find.pcworld.com/33083)

GOT UTILITIES? Of course you do. But a serious PC tool kit isn't complete without SiSoftware Sandra Professional (\$35 download, \$47 on a CD), the ultimate Swiss Army knife of diagnostic software. With 58 separate testing modules, Sandra allows you to probe virtually all the hidden recesses of your computer to discover hard-to-find-elsewhere information about your system's processor, motherboard, RAM, expansion cards, peripherals, and Windows software environment. The free, downloadable Standard version of the program leaves out some of the more elaborate tests, but it still provides mountains of useful data and more than enough benchmarks to help you sort out some thorny PC problems.



More Winners

OPERATING SYSTEM

Microsoft Windows XP Professional

(\$299, find.pcworld.com/35525)

Stable, full-featured, and network-ready, Pro is the best of the Windows platforms.

APPLICATION SUITE

Microsoft Office XP Professional

(\$579, find.pcworld.com/35528)

Until Office 2003 arrives near the end of the year, XP remains the best way to go. If you're on a very strict budget, try out OpenOffice.org (www.openoffice.org).

UTILITY SUITE

Symantec Norton SystemWorks 2003

(\$70, find.pcworld.com/34559)

SystemWorks bundles our favorite virus scanner with plenty of valuable utilities.

SEARCH ENGINE

Google

(www.google.com)

When your product name becomes a verb, you're onto something good. Google's still fast, still accurate, and still indispensable.

PERSONAL FINANCE SOFTWARE

Microsoft Money 2003 Deluxe

(\$60, find.pcworld.com/30392)

Money wins a tight race with Quicken as both programs tweak their interfaces to integrate more Web services.

BUSINESS ACCOUNTING SOFTWARE

ACCPAC Simply Accounting Basic

(\$39, find.pcworld.com/33314)

Our accounting winner's features rival those in the pricier QuickBooks.

PDA SOFTWARE

DataViz Documents To Go Premium 5

(\$70, find.pcworld.com/35537)

A must-have app for Palm-based access to your critical Office documents.

PRINTING AND PUBLISHING

Ink Jet Printer

Canon i850

(\$170, find.pcworld.com/35564)

WITH EXCEPTIONAL SPEED, accuracy, and versatility, the Canon i850 Photo Printer hits the target for all home-office applications. Rapid-firing clean black text at 7.7 pages per minute and printing photos at a speedy 0.8 ppm, the i850 is one of the faster ink jets we've tested. Its 4800-by-1200-dpi maximum color resolution enables this four-color ink jet printer to deliver good detail in photos on glossy photo paper. Competitively priced paper and long-lasting ink are cost-effective over the long haul. Photographs, which you can print in borderless 4-by-6-inch format, can last for up to 25 years without degrading if you use special paper and ink and store the prints under glass. And its \$170 price tag makes the i850 an outstanding value.



Photo Printer

Epson Stylus Photo 2200

(\$699, find.pcworld.com/32093)

THE FERRARI OF CONSUMER-LEVEL photo printers, Epson's Stylus Photo 2200 surpassed its competition repeatedly in our photo printing tests. At \$699, the printer is pricey, but it's well worth the money if you're a serious shutterbug. In our tests, photos came out beautifully detailed and lifelike, with brilliant, accurate colors. The 2200 sports plenty of extra features, too, such as wide-format printing (up to 13 inches wide and 44 inches long), a roll paper feeder and automatic paper cutter, and a FireWire port—and it's the only printer we've reviewed that offers a USB 2.0 high-speed port



(rather than the slower USB full-speed port). Because the 2200 uses pigmented inks rather than dye-based ones, the colors in its prints are more stable and water-resistant. Finally, the 2200 goes beyond the typical photo printer's six inks by adding a second, lighter black to enhance shading and colors. You can even swap in a different black ink designed for matte paper.

More Winners

WORKGROUP PRINTER

Lexmark T630n

(\$1100, find.pcworld.com/35663)

This reasonably priced corporate laser shot to the top of our chart in June with crisp text output and fast print speeds of 22.3 ppm for text and 11 ppm for graphics.

SMALL-OFFICE LASER PRINTER

Brother HL-5040

(\$299, find.pcworld.com/34802)

Brother's HL-5040 is USB 2.0-capable and delivers clean text and gray-scale graphics. It's fast, too—the HL-5040 churned out text at 13.1 pages per minute.

COLOR LASER PRINTER

Oki Data Oki C7300n

(\$2179, find.pcworld.com/33929)

Okay, so it's not technically a laser printer, but this LED model (an Oki Data specialty) prints laser-quality pages at 5.5 ppm in color mode.

MULTIFUNCTION PRINTER

Lexmark X5150

(\$150, find.pcworld.com/35021)

The \$150 Lexmark X5150 has versatility to spare, with scanning and copying abilities to augment print quality equal to that of similarly priced ink jets.

DESKTOP PUBLISHING SOFTWARE

Adobe InDesign 2

(\$699, find.pcworld.com/35540)

This worthy challenger to QuarkXPress continues to gain converts on both the PC and Mac sides of publishing.

WEB DESIGN SOFTWARE

Macromedia Dreamweaver MX

(\$399, find.pcworld.com/29663)

Though pricey, Dreamweaver MX contains everything you need to design and publish a professional Web site.

DIGITAL IMAGING



Digital Camera (\$500 and Over)

Olympus C-5050 Zoom
(\$799, find.pcworld.com/33212)

TOP-DRAWER IMAGE QUALITY, better-than-average battery life, plenty of high-end features, and an easy-to-use interface make Olympus's C-5050 Zoom a digital camera that's ready for serious shooters. The \$799, 5-megapixel C-5050 earned some of the best image-quality scores we've seen on our tests, particularly for outdoor photos. And it lets you take plenty of them—its battery lasted for over 370 shots. The camera supports a wide variety of methods for storing captured photos, including XD-Picture Card (a 32MB card comes with the camera), SmartMedia, CompactFlash, and IBM Microdrive.

Olympus took a new approach with the controls on the C-5050. Many of the buttons bring up rotating menus with large, easily understood icons. As you spin a dial on the back of the camera, the icons appear in a selection box. Details like this help make the C-5050 Zoom's higher-end options and settings more accessible. You can operate several features, such as zoom shooting mode, with your right hand alone. Though the camera's fold-out LCD panel is less adjustable than those found on competing units from Canon and Nikon, it can rotate up to 90 degrees—handy for shots that involve holding the camera above or below your head.

Photo Management Software

Adobe Photoshop Album
(\$50, find.pcworld.com/33125)

ORGANIZING THE SCADS of photos taken with your digital camera can be a daunting task. That's where photo management software comes in. Photoshop Album employs a simple interface that starts by asking what you want to do, whether it's acquiring new images or cleaning up and sharing old ones. From there it's easy to categorize, share, or edit your photos. Pulling together a slide show of your favorites is simple, too. ▶



WORLD CLASS

LOSER OF THE YEAR

[Microsoft's Trustworthy Computing Initiative]

EVERY SO OFTEN, Microsoft has a "eureka" moment. One happened in early 2002, when Bill Gates declared in a memo that the company needed to get serious about security and reliability. The internal message soon morphed into a very public initiative dubbed Trustworthy Computing. But while Microsoft has lately been celebrating the project's triumphs, it's tough for PC users to join the party. The last year has been downright embarrassing: Experts found holes in the company's products faster than it could correct them, and some "fixes" introduced new glitches. The low point came in January 2003, when the Slammer virus assaulted unpatched servers—including machines at a software developer in, ahem, Redmond, Washington.

All of which demonstrates why the patch approach to security is so...patchy. Of course, Microsoft says that Trustworthy Computing is a five- to ten-year initiative. So look on the bright side: Someday we may bestow a more flattering honor on this ambitious plan.

More Winners

DIGITAL CAMERA (UNDER \$500)

Canon PowerShot S400 Digital Elph
(\$499, find.pcworld.com/35324)

Canon continues to build on the superior design of its Elph line, packing a camera with 4-megapixel resolution into a compact and well-built case.

SCANNER

Epson Perfection 1660 Photo
(\$149, find.pcworld.com/31166)

The USB 2.0-equipped Perfection 1660 Photo aced our 300-dpi scanning speed tests, accurately captured color and black-and-white images, and includes such extras as a 35mm filmstrip adapter.

IMAGE EDITING SOFTWARE

Adobe Photoshop Elements 2
(\$90, find.pcworld.com/33110)

Who can argue with an image editing package that delivers most of Photoshop's power at less than one-sixth of its price? Unless you need sophisticated prepress features, Elements is the way to go.

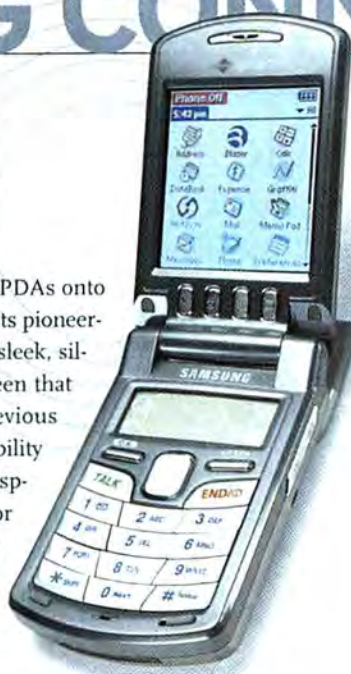
STAYING CONNECTED

Wireless Phone

Samsung SPH-i500

(\$500-\$600, depending on carrier and plan, find.pcworld.com/34994)

IN A YEAR WHEN many vendors tried to graft PDAs onto their cell phones, Samsung hit the jackpot with its pioneering SPH-i500 Palm-based CDMA phone. This sleek, silvery clamshell is the first PDA/phone we've seen that manages to keep a true cell-phone profile (previous attempts were too large) without sacrificing usability on the PDA side (helped considerably by the crispness of its inevitably smallish 65,000-plus-color screen). You have to live without a few extras such as a Secure Digital memory-card slot, but that's a small sacrifice to make if it gains you this otherwise fabulous balancing act.



Router/Gateway

Linksys WRT54G

(\$130, find.pcworld.com/33980)

LITTLE BY LITTLE, Wi-Fi (802.11) wireless networking is taking over the world. If you're ready to invest in a Wi-Fi router, we recommend an 802.11g model. This new standard is compatible with the pervasive 802.11b spec—but if you set up an all-11g network, you'll zip along about four times faster than 11b can sustain.

Our pick, Linksys's WRT54G, packs 802.11g's speed into the company's signature blue-and-black case. The unit is easy to install and contains a solid firewall. Like all current 802.11g routers, the WRT54G used a preliminary version of the spec at press time. The final standard should be approved by the time you read this, at which point a free download will bring the model up-to-date.

Web Browser

Mozilla 1.3

(free, find.pcworld.com/30047)

THE BROWSER WARS may be over, but browser innovation isn't. For five years, the open-source community has hacked away on Mozilla, a free program that is now stable, speedy, standards-compliant, and full of useful features. Unlike Internet Explorer, Mozilla blocks pop-ups with a built-in tool, manages cookies and passwords site-by-site, and includes both an IRC chat client and a powerful mail reader with intelligent spam filtering. You can surf multiple sites in one tabbed browser window (as you can in Opera, another alternative Web browser we like).



More Winners

E-MAIL SOFTWARE

Qualcomm Eudora 5.2

(\$40, find.pcworld.com/35546)

Outlook 2003 betas look promising, but Eudora is secure, flexible, and powerful.

REMOTE-ACCESS SOFTWARE

Expertcity GoToMyPC

(\$20 per month, find.pcworld.com/33143)

Offers slick, browser-based remote access.

INSTANT MESSAGING SOFTWARE

Cerulean Studios Trillian Pro

(\$25, find.pcworld.com/33275)

Useful plug-ins abound for the Pro version of this multiconnected instant messenger.

FIREWALL SOFTWARE

Tie: Zone Labs ZoneAlarm Pro 3.7 and Sygate Personal Firewall Pro 5

(\$50, find.pcworld.com/35549; \$40, find.pcworld.com/30953)

Essential protection for broadband users.

PRIVACY SOFTWARE

PepiMK Spybot Search & Destroy

(free, find.pcworld.com/35417)

Rids your PC of sneaky software that companies use to monitor your Web use.

ANTIVIRUS SOFTWARE

Symantec Norton AntiVirus Pro 2003

(\$50, find.pcworld.com/35408)

For details, see "Pest Zappers," page 109.

WEB-BASED E-MAIL SERVICE

OddPost

(\$30 per year, www.oddpost.com)

Subscription includes a 50MB account with a fantastic drag-and-drop interface.

WEB-BASED APPLICATION

Blogger

(www.blogger.com)

Helped start the blogging phenomenon.



Share Moments. Share Life.™



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**It knows that your eyes are hazel, not brown.
Camera, 1. Boyfriend, 0.**



Kodak EasyShare DX6340 zoom digital camera

A slight difference in color can make a big difference in your prints. That's why the new DX6340 has the same color science as our professional digital cameras and an expert 4X optical Schneider-Kreuznach lens—to capture even the tiniest nuances in color. Learn more at kodak.com

Just press



PLACES TO KEEP YOUR DATA



Personal Storage Device

M-Systems DiskOnKey 512MB(\$250, find.pcworld.com/35552)

THE FLOPPY DISK MIGHT not be dead yet, but if you've tried to find one around the office these days, you know it's on the way out. This 512MB flash-memory device is our favorite floppy alternative. Its USB 2.0 interface makes data transfers lightning-fast, and even in lower-capacity versions it holds much more data than you can fit on a floppy. A supersize 1GB model is also available. Pick up one of these, and you may never have to hunt for an old 3.5-inch disk again. ▶

More Winners

CD-RW DRIVE

LG Electronics GCC-4480B(\$75, find.pcworld.com/34892)

This fast 48X combo drive reads DVDs and burns CD-RW discs at 24X. Solid speed, an attractive price, and good support policies make this drive a winner.

HARD DRIVE

Western Digital Special Edition WD Caviar Series(\$80-\$350, find.pcworld.com/35579)

The Special Edition of Western Digital's 7200-rpm WD Caviar series features a large 8MB buffer that helps speed data transfers. Drives are available in capacities ranging from 40GB to 250GB.

REWRITABLE DVD DRIVE

Sony DRU-500A(\$330, find.pcworld.com/31070)

Why worry about the DVD + or - RW wars when Sony's drive can handle both? We can't think of a reason. Competing multi-format drives are on the way, but for now the DRU-500A is your best bet.

BACKUP SOFTWARE

Stomp BackUp MyPC(download \$69, CD \$79, find.pcworld.com/32843)

Backing up your PC is usually about as much fun as doing your taxes or folding fitted sheets. Stomp's BackUp MyPC helps make this essential process bearable.

CD MASTERING SOFTWARE,

DVD MASTERING SOFTWARE

Roxio Easy CD & DVD Creator 6(\$80, find.pcworld.com/33842)

The winner in both our CD and DVD mastering categories uses a three-step process to simplify creating CDs and DVDs—though it comes at the expense of some high-end options.

NO-CLASS AWARDS

WHEN GOOD TECH GOES BAD

INTUIT ANNOYED A LOT OF **[TurboTax 2002]** users, who burned up phone lines complaining about their new, buggy, and unannounced product activation feature. Competitor H&R Block took advantage of the snafu with some opportunistic marketing ("No activation required. Switch now!"), and some TurboTax users filed a class-action suit against Intuit. What, you wanted tax software to make things easier for you?

[RIAA], the Recording Industry Association of America, seems to spend an inordinate amount of time suing music-file swappers these days. Perhaps if record companies invested as much time building an online music service that worked, we wouldn't have this problem.

It seemed like a good idea at the time, but **[Microsoft's Windows Mira]** (Windows-Powered Smart Displays to you) hit stores with a resounding thud, as customers figured out that paying \$1000 or more for a wireless-connected monitor was anything but smart when fully functioning laptops cost less.

We've seen some overstated product pitches, but **[Intel's Centrino]** launch takes the cake. The chip maker hired *Tipping Point* author Malcolm Gladwell, who said that the launch of Centrino might be a landmark event akin to the fall of the Berlin Wall. Yeah, it might be. And your next-door neighbor might be dating Jennifer Garner next week.

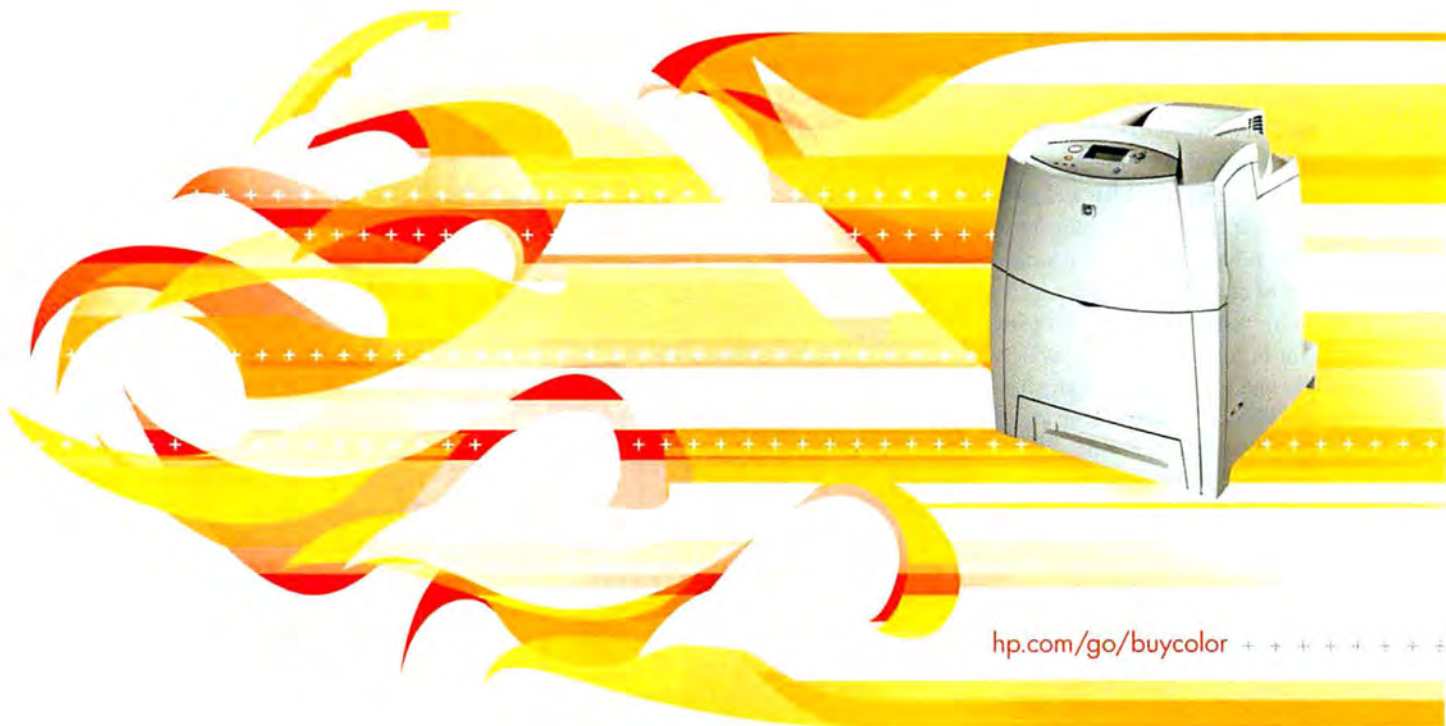
[NVIDIA] wins our Sir, Would You Mind Turning Down Your Graphics Board Award for its GeForce FX 5800 Ultra—a graphics board with a fan loud enough to scare away some hard-core gamers who don't even flinch at the zombies in Doom anymore.

Ads that look like Windows error and system messages had us thinking we'd gone back to Windows Me for a while this year. To **[Internet Washer Pro, Spyware Nuker,]** and the other products employing this tactic: Please click here to stop this forever.



Print speeds so incredible, even the colors hold fast.

With the innovative in-line technology of the HP Color LaserJet 4600, you can print faster than conventional color printers. That's up to 17 pages per minute, not just in black and white but also in color. Now what's holding you up?



hp.com/go/buycolor + + + + +

SOUND AND VIDEO



Digital Audio Player

Creative Nomad Jukebox Zen

(\$300, find.pcworld.com/32531)

IS THAT YOUR ENTIRE CD COLLECTION in your pocket, or...well, never mind. With enough space to hold 5000 songs, Creative's \$300 Nomad Zen 20GB really can store an entire CD collection. And for hard-core music fans, that's a life-changing event.

Of course, hard disk-based MP3 players are nothing new, and competitors such as Apple's iPod made choosing a winner in this category tough. The Nomad Zen gets the nod for its attractive combination of good design and

superior value. Both USB 2.0 and FireWire versions are available in a brushed aluminum case with an easy-to-read LCD screen. Though the Nomad is slightly bigger than its different-thinking competition, it is particularly adept at on-the-go music programming: You can use a simple dial and menu interface to add artists, albums, individual tracks, and playlists to the Zen's Now Playing list on the fly. The player recharges quickly, and with up to 8 hours of playing time on a full charge, it won't run out of juice on a long trip. Bottom line: The smaller, sleeker iPod may look great; but at the same price, the Nomad Zen gives you twice the storage capacity.

LCD Monitor

Samsung SyncMaster 172T

(\$680, find.pcworld.com/31385)

CONSIDER THE \$680, 17-INCH SAMSUNG 172T the yoga practitioner of LCD monitors: It's slim, elegant, and capable of performing backbends. Just over an inch thick, our flat-panel pick perches on a dual-hinged stand that lets you vary both screen height and degree of tilt. The sleek, silver LCD won't cramp your style or your desk space—and you can even fold it flat and wall-mount it, allowing the 172T to transcend the desk entirely. Combine its adaptability with its lightness (at 10.3 pounds, it's one of the lightest 17-inch monitors we've tested), and this flat-panel can become quite the traveler. Though you might not notice the ultrathin 172T if you look at it from the side, there's no such risk when viewing the display head-on. The 17-inch viewable area produces bright colors, natural flesh tones, and crisp black text with equal aplomb. The included installation guide and around-the-clock toll-free assistance will help you work out any kinks you encounter. ■



More Winners

CRT MONITOR

Samsung SyncMaster 957mb

(\$319, find.pcworld.com/35177)

The low-cost, high-res, 19-inch SyncMaster 957mb might be the last CRT you buy.

GRAPHICS BOARD

ATI Radeon 9700 Pro

(\$299, find.pcworld.com/31505)

ATI's 9700 Pro stole the 3D speed title from NVidia last fall. It's still really fast.

PC SPEAKER SYSTEM

Logitech Z-680

(\$400, find.pcworld.com/33260)

This THX-certified 5.1-speaker set takes last year's winner to the next level.

PROJECTOR

Dell 3200MP

(\$2199, find.pcworld.com/33782)

Dell's 3200MP is adept at displaying both presentations and movies.

SOUND CARD

M-Audio Revolution 7.1

(\$120, find.pcworld.com/33683)

Provides crystal-clear 7.1-channel sound.

MEDIA PLAYER SOFTWARE

Musicmatch Jukebox Plus 8

(\$20, find.pcworld.com/35558)

Musicmatch continues to do a capable job of organizing music files and playlists.

VIDEO EDITING SOFTWARE

Pinnacle Studio 8

(\$100, find.pcworld.com/34484)

Powerful video editing at a palatable price.

STREAMING AUDIO SERVICE

Listen.com Rhapsody

(\$10 per month, www.listen.com)

Real recently bought out Listen.com. We hope Real doesn't make many changes.



Color so manageable,
black and white printers will see red.

With the HP Business Inkjet 2600 and
Web JetAdmin remote management software,
you can monitor and troubleshoot without
ever having to get up from your computer.

hp.com/go/buycolor



One-Stop Digital Photography Guide

Ready to buy a new camera—or get more out of the one you already own? We **lab-test** the latest cameras, **preview** upcoming models, and **pick** the services and software you need to go from pixels to prints. ►

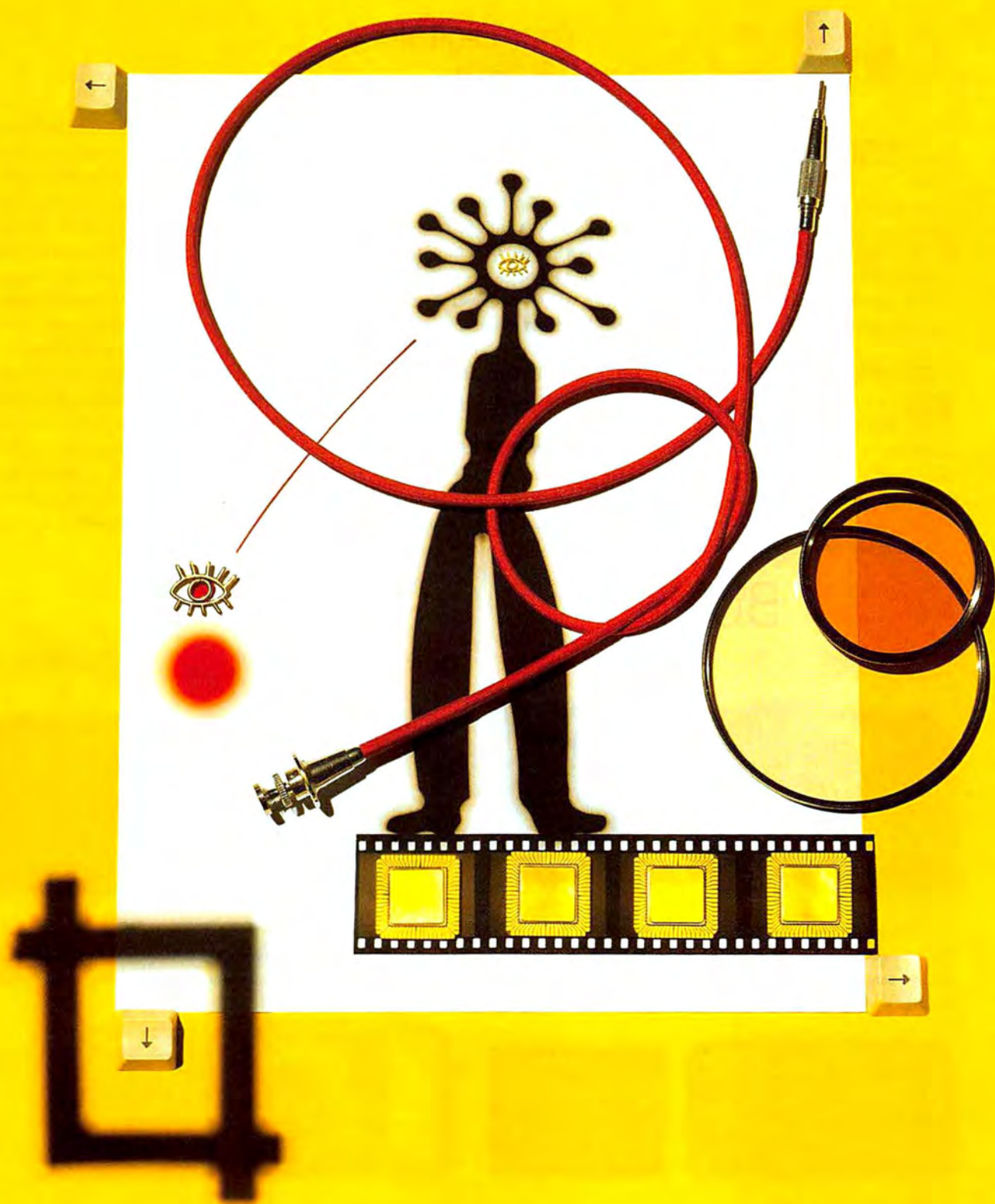
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- 104 PRINT YOUR DIGITAL PHOTOS

EDITED BY GRACE AQUINO

PHOTO-ILLUSTRATION BY PIERRE-YVES GOAVEC



CHOOSE Your Digital Camera

\$500 & Over

CAMERAS IN THIS category offer high resolution—often 5 megapixels and even greater—and sophisticated photographic controls. Some models, such as the new Minolta DiMAGE F300, are compact and light enough to carry in your pocket.

1. OLYMPUS C-5050 ZOOM

Best Buy THE C-5050 ZOOM earns our Best Buy award for a third time, thanks to its outstanding photo quality, good battery life, and advanced controls. In our lab tests it received some of the highest image-quality scores we've seen, producing fine detail, accurate exposures,

and bright colors in its shots. The only exception was an underexposed flash picture of one of our test subjects.

The boxy C-5050 is well designed, with a solid right-hand grip. The camera also sports a fold-out LCD panel that can swivel up to 90 degrees—a helpful feature when you need to hold the camera overhead or down low to snap a photo.

Although the camera comes with a 32MB XD-Picture Card, it also has slots for SmartMedia and CompactFlash cards.

2. CANON POWERSHOT S50

Best Buy THE POWERSHOT S50 is an attractive point-and-shoot camera that has terrific features and takes great pictures. At just over 4 inches long and

under 2 inches thick, it fits easily into a pocket. Though sophisticated, the S50 is simple to operate: For example, you can access seven scene modes (such as portrait and sports) via a dial on its top, whereas some cameras force you to wade through on-screen menus to change scene modes. Another nice design feature is the S50's protective sliding lens cover, which also serves as an on/off control.

In our image-quality tests, the S50 usually produced sharp, well-exposed photographs, though images taken with the built-in flash looked bleached out. We also noticed some noise (a pattern that looks like TV static) in several test photos; the effect was most noticeable in the blue skies of outdoor shots.

BEST BUYS

\$500 and Over



Olympus C-5050 Zoom

The C-5050 sports a comfortable and solid right-hand grip, and a fold-out LCD panel that can swivel up to 90 degrees. Like all cameras, it provides a full-auto mode, but it also has a slew of manual controls.

Under \$500



Olympus C-4000 Zoom

Though it's been around for a while, the C-4000 is still one of the best models we've tested, and one of the most sophisticated for the money.



Canon PowerShot S50

The S50 features a rare combination of manual controls and portable design. It has a protective sliding lens cover that also serves as an on/off control; when powered off, the camera is slim and easy to carry.



Nikon Coolpix 4300

The 4300 is light at only 10.1 ounces and very compact, but it is still quite comfortable to hold and operate, even with one hand. It also captured the best photos we've seen to date.

3. SONY CYBER-SHOT DSC-F717

AN INVENTIVE DESIGN, unique low-light shooting capabilities, long battery life, and dazzling images make the Cyber-shot DSC-F717 an appealing choice. It has an unusual, L-shape design, with a large 5X optical zoom lens forming one leg and a square body forming the other. It's neither compact nor light, and you need two hands to operate it comfortably. But for the most part, its controls are well placed. The lens rotates vertically around the body, allowing you to see the LCD screen when shooting awkward, ground-level shots or over heads in a crowd.

4. FUJIFILM FINEPIX S602 ZOOM

SHAPED LIKE a single-lens reflex camera, the FinePix S602 Zoom is a professional-looking unit. The large right-hand grip makes this 1.3-pound model easy to hold with one hand, even while you work the top-mounted controls for flash, exposure compensation, and auto-bracketing. Stand-out features include a 6X optical zoom lens and media slots for both SmartMedia and CompactFlash formats.

In our picture-quality tests, the S602 captured shades and details well but gave our mannequin overly pink skin. The camera lets you take photos interpolated to 6 megapixels—it calculates the values for additional pixels by analyzing adjacent "real" pixels. But we found no difference between shots taken with the interpolated resolution and those taken with the effective resolution of 3.1 megapixels.

5. MINOLTA DIMAGE F300

THE DIMAGE F300's stylish rectangular body weighs only 7.8 ounces, and it's compact enough to fit comfortably in almost any pocket.

In our lab tests the F300 captured colors and our mannequin's skin tone well, but some areas of our shots appeared too dark and lost detail. To its credit, the camera is relatively easy to operate, and it offers five scene modes (macro, portrait, sports, landscape, and night).

Under \$500

MANY CAMERAS in this group give you the best of both worlds—great features for creative control at a reasonable price.

Nikon's Coolpix 4300 is one example: It captured the best photos we've seen to date, and it's affordable at \$450. Other models in this category, such as Canon's new PowerShot S400 Digital Elph, are very compact and easy to use. ▶

FEATURES COMPARISON

Top Digital Cameras

CAMERA TECHNOLOGY continues to improve; more models offer sophisticated features and higher resolution. Even inexpensive cameras routinely offer 3 megapixels or better.

\$500 AND OVER			Street price (4/24/03) and specs	Image quality	Ease of use	Battery life/number of shots
	1	Best Buy Olympus C-5050 Zoom ★★★★★ Mar 03 find.pcworld.com/33212	• \$799 • 5-megapixel resolution • 3X optical zoom • 17.3 ounces	Outstanding	Very good	Good/372
	2	Best Buy Canon PowerShot S50 ★★★★★ June 03 find.pcworld.com/34838	• \$599 • 5-megapixel resolution • 3X optical zoom • 11.1 ounces	Outstanding	Very good	Fair/261
	3	Sony Cyber-shot DSC-F717 ★★★★★ Jan 03 find.pcworld.com/31526	• \$800 • 5-megapixel resolution • 5X optical zoom • 23.8 ounces	Very good	Good	Very good/491
	4	Fujifilm FinePix S602 Zoom ★★★★★ Nov 02 find.pcworld.com/30470	• \$649 • 3.1-megapixel resolution • 6X optical zoom • 20.4 ounces	Good	Very good	Very good/425
	5	Minolta DiMAGE F300 ★★★★★ find.pcworld.com/35361 NEW	• \$599 • 5-megapixel resolution • 3X optical zoom • 7.8 ounces	Very good	Good	Very good/495
UNDER \$500						
	1	Best Buy Olympus C-4000 Zoom ★★★★★ Nov 02 find.pcworld.com/30476	• \$449 • 4-megapixel resolution • 3X optical zoom • 14 ounces	Outstanding	Good	Outstanding/700
	2	Best Buy Nikon Coolpix 4300 ★★★★★ Jan 03 find.pcworld.com/32000	• \$450 • 4-megapixel resolution • 3X optical zoom • 10.1 ounces	Outstanding	Fair	Good/277
	3	Canon PowerShot S400 Digital Elph ★★★★★ find.pcworld.com/35324 NEW	• \$499 • 4-megapixel resolution • 3X optical zoom • 7.8 ounces	Very good	Very good	Fair/214
	4	Fujifilm FinePix 3800 Zoom ★★★★★ Feb 03 find.pcworld.com/32450	• \$400 • 3.24-megapixel resolution • 6X optical zoom • 13.8 ounces	Good	Good	Outstanding/546
	5	Konica Digital Revio KD-400Z ★★★★★ Feb 03 find.pcworld.com/32435	• \$350 • 4-megapixel resolution • 3X optical zoom • 7.3 ounces	Outstanding	Very good	Fair/177



HOW WE TEST: To gauge picture quality, we take a series of shots, with and without flash, at 640 by 480 resolution and at the camera's highest resolution. We shoot a complex still life and a mannequin to see how well each unit captures details and subtle coloring such as skin tones. A panel of judges reviews on-screen and printed photos and assigns image-quality scores; we then average those scores. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** Cameras are ranked based on an overall score consisting of price, picture quality, ease of use, features, battery life, and support; weights include batteries and media. Visit find.pcworld.com/35717 for more reviews; go to find.pcworld.com/10860 for details on PC World's Star Ratings.

1. OLYMPUS C-4000 ZOOM

Best Buy THE C-4000 HAS been a top-ranking model since we first reviewed it in November 2002, and for good reason: It's affordable and doesn't skimp on features. The camera lets you capture images as TIFF files, and its virtual-dial menu makes switching among shooting modes and user-saved settings easy.

The C-4000 delivered great-looking snapshots, though we saw some slight overexposure and loss of detail in one photo taken with flash. We did find things to quibble about, however, including a stubborn diopter adjustment wheel and cryptic menu labels. It also has an awkwardly placed thumbpad control. Situat-

ed above the top-right corner of the LCD, the thumbpad's directional arrows are hard to reach while you hold the camera with one hand. The C-4000's manual focusing mode is difficult to use, too; setting it and canceling the setting later both take a lot of button pressing.

2. NIKON COOLPIX 4300

Best Buy THE COOLPIX 4300 has what many buyers look for in a digital camera: superb photo quality, compact size, and sophisticated controls. In our image-quality tests, the 4300 earned the highest score to date, reproducing distinct shades of red and orange better than most cameras, and generating shots that looked

very sharp. The unit offers a comfortable right-hand grip and many manual settings, such as white-balance bracketing and noise reduction. Some controls can be annoying, however. Just to change the resolution, for example, you must press a button to enter the menus, and then press the thumbwheel control buttons at least 12 times. Operating other controls requires several unwieldy steps that can make the experience frustrating for users.

3. CANON POWERSHOT S400 DIGITAL ELPH

THE S400 IS A darling of a camera, elegantly designed and conveniently pocket-size. It earned very good marks in our

SNEAK PEEK

Promising Upcoming Digicams

WE LOOKED AT SEVERAL preproduction models that weren't quite ready to be lab-tested. Here are our first impressions.

FUJIFILM FINEPIX F700: The \$600 F700 boasts Fujifilm's new 6.2-megapixel image sensor, which uses SuperCCD SR technology; the company claims it increases the amount of light the sensor can capture, thereby producing detailed pics with less noise. That remains to be seen until we test a final unit.

KODAK EASYSHARE LS633: Kodak hasn't revealed when it will be sold in the United States, but the 3.1-megapixel LS633 is the first digital camera to have an organic light-emitting diode display. OLEDs are supposed to offer a wider viewing angle than LCD screens do (as much as 165 degrees). We could view the display at nearly every angle without its losing much brightness.

NIKON COOLPIX 5400: The \$799, 5-megapixel Coolpix 5400 provides a 4X optical zoom lens and simpler menus than its Coolpix 5000 and 5700 siblings do. With 15 scene modes, the 5400 will appeal to shooters more interested in getting a good picture than dwelling on the nitty-gritty of apertures, shutter speeds, and exposure compensation.

NIKON COOLPIX SQ: The 3.1-megapixel SQ sports a quirky square design and a rotating lens that swivels, allowing you to see the LCD screen at almost any angle. But the screen is small and is partially obscured by the lens section when you turn it.

OLYMPUS C-750 ULTRA ZOOM: The C-750's main selling point is its 10X optical zoom lens, which lets you take close-ups from great distances. You must use a steady hand (or a tripod), however, or you'll get blurry shots at maximum zoom. Though the flash is powerful, it's not a flamethrower, so it won't illuminate way-off-in-the-distance shots. The 4-megapixel, \$600 C-750 has full manual control and several scene modes.

SONY CYBER-SHOT DSC-V1: The \$700, 5-megapixel DSC-V1 can focus and meter in total darkness. In its NightFraming mode, the camera can take color photos (with the flash) by employing a holographic illuminator that emits a grid of red lights to help the camera focus. The V1's NightShot mode allows you to take monochrome images without the flash. But instead of switching night modes automatically, you must flip a switch to choose which mode is appropriate for your shot.

FROM LEFT TO RIGHT: the Kodak EasyShare LS633, the Sony Cyber-shot DSC-V1, and the Nikon Coolpix SQ.



PHOTOGRAPH: RICK RIZNER



SAMSUNG

DigitAllhope

Who better than Arnold Palmer to get a kid out of the rough?

That's why Samsung teamed up with CompUSA to benefit the Arnold Palmer Hospital for Children & Women. It's the only hospital in the Southeast—and one of only six in the nation—dedicated exclusively to children and women. It's a deserving cause that we're proud to support. The Four Seasons of Hope. Because no one should ever go without. For more information about Samsung's Four Seasons of Hope, visit www.fourseasonsofhope.com.

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everyone's invited™



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ACCOUNT UPDATE

WISH LIST

ORDER STATUS

ALL PRODUCTS

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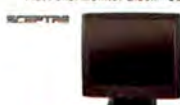
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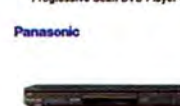
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tests, delivering vibrant colors and sharp detail, but some shots tended to be dark in spots. In our battery-life test, the camera's rechargeable lithium ion battery ran out of juice in 1 hour, 14 minutes (214 shots), making it one of the worst battery performers we've tested. On the other hand, the S400 does come with a compact charger that's easy to tote. The Elph is simple to use, but it has none of the manual controls (such as aperture- or shutter-priority) that some of its competitors offer. Still, if you're looking for a great point-and-shoot camera, this is it.

4. FUJIFILM FINEPIX 3800 ZOOM

THOUGH THE FINEPIX 3800 Zoom resembles an SLR camera that shrank in the wash, it's really more of a point-and-

shoot than an advanced model. It fits nicely in your hand; the zoom control sits right under your thumb, so you can quickly zoom in and take a picture without having to move the camera. You need two hands to operate the on-screen menus; they are simple, however, and none of the other controls require much button pressing. The camera features an aperture-priority mode and exposure value compensation, but it lacks shutter-priority mode and full manual control.

The FinePix 3800's image quality was good in our test photos, showing some accurate colors and generally good contrast, though some of the outdoor pictures appeared a little overexposed. The camera performed well in our battery-life test, holding out for a solid 3 hours, 11 minutes (546 snapshots).

5. KONICA DIGITAL REVIO KD-400Z

LIKE CANON'S DIGITAL ELPH, the KD-400Z can fit in a pocket and features a stainless-steel body. The biggest design difference is the KD-400Z's sliding cover, which protects the lens. If you support the lens with your middle finger, the camera is easy to hold and operate with one hand—not always the case with smaller models. The KD-400Z's settings and controls are simple to figure out. The camera also earned high marks for image quality, producing relatively sharp pictures and bright, accurate colors. An extra perk: The KD-400Z comes with Adobe's Photoshop Elements, one of our favorite image editors. A downside: The camera's battery conked out after an hour (177 shots)—the worst score among all models here. ▶

TEST REPORT

Picture Quality: The Best and the Rest

Nikon's Coolpix 4300 and Canon's PowerShot S50 surpassed the competition in image quality.

THE \$450 NIKON Coolpix 4300 captured the finest photographs in this review, with those of the \$599 Canon PowerShot S50 immediately following. Both cameras' images displayed accurate colors, excellent exposure, and sharp detail.

Fujifilm's \$400 FinePix 3800 Zoom and \$649 FinePix S602 Zoom trailed the rest, but that doesn't mean their photo quality was bad. Pics from each camera were simply average compared with the others.

The photos on the right reveal each camera's color accuracy, detail, and exposure. Though we show only two shots, our tests were based on several pictures.

Skin Tone and Color Accuracy



MANNEQUIN shot to test skin tone and color accuracy.



Nikon Coolpix 4300



Canon PowerShot S50



Konica Digital Revio KD-400Z



Olympus C-4000 Zoom



Olympus C-5050 Zoom



Sony Cyber-shot DSC-F717



Canon PowerShot S400 Digital Elph



Minolta DiMAGE F300



Fujifilm FinePix 3800 Zoom



Fujifilm FinePix S602 Zoom

Sharpness and Detail



STILL LIFE photo to test sharpness and detail.



Nikon Coolpix 4300



Canon PowerShot S50



Konica Digital Revio KD-400Z



Olympus C-4000 Zoom



Olympus C-5050 Zoom



Sony Cyber-shot DSC-F717



Canon PowerShot S400 Digital Elph



Minolta DiMAGE F300



Fujifilm FinePix 3800 Zoom



Fujifilm FinePix S602 Zoom



HOW WE TEST: To gauge picture quality, we take a series of shots, with and without flash, at 640 by 480 resolution and at the camera's highest resolution. We photograph a complex still life and a mannequin to see how well each camera captures details and subtle coloring such as skin tones. A panel of judges reviews the on-screen and printed photos and assigns image-quality scores; we then average those scores. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

ORGANIZE Your Digital Photos



IF YOU'RE tired of hunting and rifling through file folders to find your favorite digital pictures, an inexpensive photo-organizing application can help you locate your buried treasures. You can quickly categorize, search, move, and edit photos with a few simple clicks.

We looked at ten organizers: ACD Systems' \$50 ACDSee 5 (www.acdsystems.com), Adobe's \$50 Photoshop Album (www.adobe.com/photoshopalbum), Cerious's \$80 ThumbsPlus 5 (www.thumbsplus.com), IO's \$45 Presentation Manager 3.3 (www.go-io.com/iopm), Jasc's \$50 Paint Shop Photo Album 4 (www.jasc.com), Lifescape's \$30 Picasa 1.5 (www.lifescapeinc.com/picasa), Photodex's \$40 CompuPic 6.2 (www.photodex.com), Photools.com's \$50 IMatch 3 (www.photools.com), Preclick's free Photo Organizer (www.preclick.com), and Ulead's \$30 Photo Explorer 8 (www.ulead.com). Each company offers a free trial of its program (downloadable from its Web site), and Ulead offers version 6 of Photo Explorer for free.

These apps have the same basic features, such as sorting files by date, name, and size; adding keywords for searching; capturing images and video from digital cameras; and uploading pics to a photo-sharing Web site. But each program accomplishes tasks in different ways, and some are easier and faster to use.

We like Adobe Photoshop Album best: it's intuitive, full-featured, and ideal for all types of users. When you open the program, you're greeted with a dialog box that lets you import photos from your computer or from an external source such as a camera, a scanner, or a CD. Once the snapshots are imported, you'll see thumbnails of all of your photos.

While most organizers require you to drag and drop photos into a category, or type keywords into a box, Album lets you create visual tags and then drag and drop them onto any photo or group of photos in the thumbnail grid. Once you've categorized shots, you can search for them by date, keyword, file name, or category, as well as in less obvious but often more useful ways, such as photos you've e-mailed to Mom, or ones that you've shared online. These small differences make categorizing and searching more intuitive.

LOW-COST OPTION

LESS EXPENSIVE and a bit easier to use than Album is Lifescape's Picasa. It automatically searches your computer for photos stored on the hard drive or on an external drive, and converts the folders where they reside into window-pane-style albums. All of the albums are stacked in the main viewer, separated by title bars. Because your photos are laid out in one

workspace, Picasa is the best program of the group at providing a quick overview of what you have and swiftly rearranging and organizing them into groups.

But Picasa is not as full-featured as other apps, so it's better for people who have fewer photos to manage. You can't organize by category, and though you can add keywords to each photo, Picasa does not show a general list of keywords, as Photoshop Album does; you have to remember the ones you've used to create a cohesive list of keywords. Picasa is also incapable of burning photos to a CD.

If, however, you need to organize many different types of digital assets (including photographs, videos, and text files), consider a database-driven program such as Photools.com's IMatch or Canto's \$100 Cumulus. They are extremely customizable, allowing you to write your own scripts to manipulate files. Such flexibility makes them ideal for graphics professionals. —Lisa Cekan ▶

Adobe Photoshop Album

1. THE TIMELINE bar indicates the volume of photos you've taken each month. Move a tab across to see only photos within a date range, or click one of the bars to see only the pics taken in that month.

2. THE QUICK GUIDE window has a Create tab that lets you choose tasks, such as a slide show, an e-mail greeting card, or a Web photo gallery.

3. TAGGING PHOTOS for searching later on is easy. Create a tag, then drag and drop it onto any shot or group of shots in the thumbnail grid; the tag's icon will change to look like the picture.



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PERFECT Your Digital Photos



YOU'LL FIND many common features among image editing programs: They all allow you to crop, adjust brightness and contrast, and fix color problems. But touching up photos in an application intended

for novices can be very different from doing so in one aimed at advanced users. We looked at several apps and grouped them by approach.

Programs suitable for first-time users include Broderbund's \$50 The Print Shop 15, Microsoft's \$109 Digital Image Pro 7, and Roxio's \$45 PhotoSuite 5 Platinum. To help you through most tasks, they use walk-throughs, showing sliders and other adjusters with helpful text that instructs you how to use them; for many tasks, you simply follow the directions.

On the other hand, they often oversimplify procedures, omitting adjustments and functions. And in some cases using the walk-through can be a slow process. For example, you often can't go backward a step within a walk-through by using Undo; you must reset and start over. If you don't want to invest time learning an image editing program, however, Digital Image Pro 7 is the best choice.

More-advanced applications such as Adobe's \$90 Photoshop Elements 2, Jasc's \$95 Paint Shop Pro 8, and Ulead's \$85 PhotoImpact 8 will appeal to both skilled and first-time users. We like Photoshop Elements 2 best; its elegant interface and approach to tasks make it easier and more fun to use.

The advanced apps offer tools with a seemingly infinite range of adjustment. Clicking on a tool may cause little change in the interface, so novices may feel intimidated, but vast help libraries usually lie within easy reach. These programs don't plug instructions into the actual tool

interface—instead, you'll find them in an accompanying palette or window.

Despite their complexity, you can often accomplish fixes in fewer steps with one of the advanced programs. Plus, multiple-level undos almost always work, so you can backtrack without losing your efforts.

Powerful selection tools help you harness the applications' power by applying a fix or effect with great precision.

Finally, if you need to work in CMYK mode (necessary for professional, four-color printing), opt instead for Adobe's \$600 Photoshop. —Alan Stafford ►

Microsoft Digital Image Pro 7 Leads You by the Nose

1. A NICE TOUCH: It's easy to see open images and to select photographs for editing.

2. SIMPLE IMAGE editors make most basic adjustments easy to find and quick to use...

3. ...but manual adjustments often lack power and flexibility. For example, you must click a different menu to find Digital Image Pro's Adjust Levels, and it lacks color-sampling eyedroppers.

4. YOU CAN CREATE multiple layers in Image Pro, but you can't hide or lock them, and you can't drag to rearrange them.

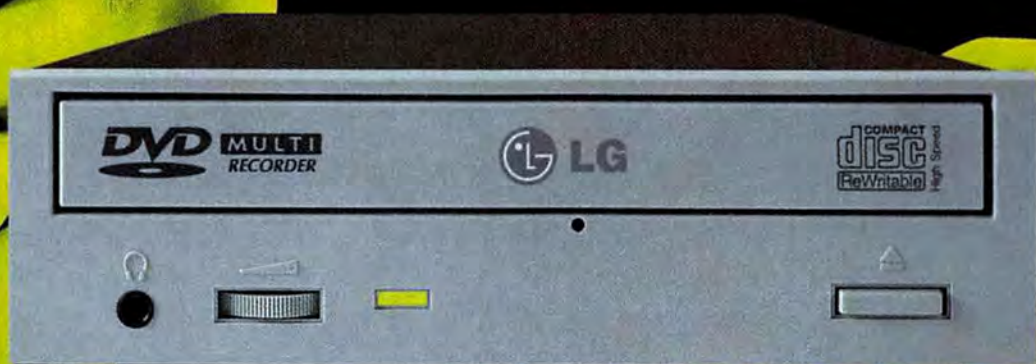
Adobe Photoshop Elements 2 Gives You More Control

1. THE ATTRIBUTES in the toolbar (above) change depending on which tool you're using, but you can still switch to other tools quickly.

2a-b. ADVANCED editors offer help, too. For example, Elements has a question field in the toolbar, Recipes (below), and Hints, which tell you what a tool does.

3. MANY TOOLS (like Levels, for adjusting lighting) provide a quick one-click-fix option. But if it doesn't work, you can try their more advanced adjustments—here, by clicking on pixels with the eyedroppers to sample output levels.

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PRINT Your Digital Photos

PHOTOGRAPHERS NOW have more options for printing digital images than ever before. You can take your images to a photo kiosk at a nearby store, order prints from an online photo-finishing site, or use an ink jet printer. We compared these three methods for photo quality, cost, and processing time. Here's what we found.

THE SETUP

THE MOST RECENT addition to photo printing is a photo kiosk, a self-service station where you can get prints of your digital photos. You can find kiosks just about everywhere—camera shops, supermarkets, drugstores, and warehouse clubs.

We tried five different kiosks: Agfa's E-box (available in some camera shops), Fujifilm's Aladdin (available in Ritz Camera and Wolf Camera), Kodak's Picture Maker (widely available in shops such as Rite-Aid, Safeway, and Walgreens), Pixel Magic IStation 200 (available in some camera stores), and Sony PictureStation (available in Sony stores, some camera shops, and in Kinko's soon). Overall, we like the Agfa, Kodak, and Sony services best for their beautiful photos, ease of use, and affordable prints.

All kiosks work in much the same way: On a touchscreen, you indicate your media (most accept CompactFlash, CD, floppy disk, Memory Stick, MultiMediaCard, Secure Digital, and SmartMedia), upload your pics, select the sizes, and print.

We also used five online photofinishers to print our shots: Club Photo (www.clubphoto.com), Ofoto (www.ofoto.com), PhotoWorks (www.photoworks.com), Shutterfly (www.shutterfly.com), and Snapfish (www.snapfish.com). Among them, we like Ofoto and Club Photo best for their handsome and reasonably priced prints. As with kiosks, you upload photos, edit them if necessary, choose which pictures you want, and place your order.

The time it takes to upload pictures can be an issue, especially if you upload many

shots or if you use a dial-up connection. We used a DSL connection and waited between 5 and 10 minutes to transfer five pics (totaling 5.8MB) at each site; Shutterfly was a tad slower than the other sites.

Finally, we evaluated a third printing option: an ink jet photo printer. We used the \$349 Epson Stylus Photo 960 because it's one of the top-ranking models on our *Top 5 Photo Printers* chart. (Visit find.pcworld.com/34337 for our review.)

PRINT QUALITY

LITTLE ELSE matters if your printed photos don't look good. Overall, we were impressed by how nice our pics turned out from all three print methods. For color and detail, we like the prints from Ofoto and Agfa's E-box best. Ofoto's prints had very nice color and contrast. Agfa's E-box produced great color and detail, though our 8-by-10-inch por- ▶

FEATURES COMPARISON

The Best—and Cheapest—Ways to Print

ONLINE PHOTOFINISHERS DELIVER impressive prints at lower prices than kiosks. But if you want prints right away, using a kiosk or an ink jet photo printer is your best bet.

PHOTO KIOSK	Print quality ¹	Ease of use	COST OF PRINT ²			Wait time for print
			4-by-6-inch	5-by-7-inch	8-by-10-inch	
Best BUY Agfa E-box ★★★★☆ www.agfa.com	Outstanding	Very good	\$0.39	\$3.99	\$6.99	24 hours ³
Fujifilm Aladdin ★★★★☆ www.fujifilm.com	Good	Fair	\$8.99 ⁴	\$8.99 ⁴	\$8.99	5 to 10 minutes
Kodak Picture Maker ★★★★☆ www.kodak.com	Good	Very good	\$6.99 ⁴	\$6.99 ⁴	\$6.99	5 to 10 minutes
Pixel Magic IStation 200 ★★★★☆ www.pixelmagic.com	Fair	Good	\$0.40	\$1.99	\$7.99	24 hours ³
Sony PictureStation ★★★★☆ www.sony.com/picturestation	Very good	Good	\$0.89	\$1.49	\$5.99	3 to 10 minutes
ONLINE PHOTOFINISHER						
Club Photo ★★★★☆ www.clubphoto.com	Very good	Very good	\$0.25	\$0.79	\$3.19	3 to 7 days
Best BUY Ofoto ★★★★☆ www.ofoto.com	Outstanding	Good	\$0.49	\$0.99	\$3.99	3 to 7 days
PhotoWorks ★★★★☆ www.photoworks.com	Good	Fair	\$0.29	\$0.99	\$2.99	3 to 7 days
Shutterfly ★★★★☆ www.shutterfly.com	Good	Very good	\$0.42	\$0.79	\$3.19	3 to 7 days
Snapfish ★★★★☆ www.snapfish.com	Good	Good	\$0.39	\$0.75	\$3.79	3 to 7 days
INK JET PHOTO PRINTER						
Epson Stylus Photo 960 ★★★★☆ find.pcworld.com/34337	Fair	Good	\$0.44 ⁵	\$0.65 ⁵	\$1.20 ⁵	3 to 10 minutes

¹ We judged five photos for color accuracy, detail, and exposure. ² Kiosk print prices are determined by the retailers, not the kiosk maker. ³ Did not provide print fulfillment; kiosk took print orders that were then completed by a minilab. ⁴ Offers 8.5-by-11-inch sheet only, which fits three 4-by-6 pictures, two 5-by-7s, several 10-size photos, or one 8-by-10. ⁵ Based on PC World calculations.

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trait looked just slightly undercontrasted.

Most of the prints were similar in quality and, overall, impressive, though we rated those from Pixel Magic's IStation 200 a notch below the others. Its print of our photo taken on a cloudy day looked greenish, a close-up of a butterfly was overcontrasted, and a flower looked pink instead of red. Fine details were also lost in our close-up shot. Still, you should be pleased by how good your prints look, no matter which of these services you use.

The kiosks and the photofinishing sites all print on photographic paper and use either a silver halide printing process (which is used in film-based prints) or a dye sublimation printer. Both processes tend to produce better color gradients than ink jets do. So even though Epson's Stylus Photo 960 scored highly on our *Top 5 Photo Printers* chart, its prints weren't quite as appealing as those from the kiosks and online services.

COST PER PRINT

YOU CAN FIND DEALS at some photofinishing sites. For example, Club Photo charges 25 cents for a 4-by-6 print, and PhotoWorks offers one 8-by-10 for \$2.99.

But at photo kiosks, prices vary more. Kiosk makers say they don't determine print prices—the retailer does. On our chart, "The Best—and Cheapest—Ways to Print" on page 104, prices for prints processed at a kiosk were based on our in-store visits in the San Francisco Bay Area. So in some cases, the cost may be less or more, depending on where you go.

In our experience, the Kodak Picture Maker and the Fujifilm Aladdin kiosks charged the most, each requiring that you print a full 8.5-by-11-inch sheet. Fujifilm was the most expensive at \$8.99 per sheet, which included one 8-by-10, two 5-by-7s, three 4-by-6s, or several 1D photos. For the same size options, a Kodak Picture Maker kiosk in Walgreens charged \$6.99.

At Agfa, Pixel Magic, and Sony kiosks, you can choose smaller sheets: 4-by-6 (usually less than a dollar) or 5-by-7 (\$1.49 to \$3.99), in addition to 8-by-10s. If you just want one or two reprints, going to

TEST REPORT

Fantastic Photofinishers

Ofoto prints bright, beautiful photos with good detail.



Original image



OUTSTANDING: Ofoto



FAIR: Pixel Magic IStation 200

PHOTOFINISHING site Ofoto reproduced the most accurate colors and sharp details of our close-up butterfly shot. Our other prints looked good too, but Pixel Magic's IStation 200 didn't do as well; colors looked oversaturated and details were lost in some areas.

one of these services can save you money.

If you invest in an ink jet, you can save even more on prints. (We estimated costs based on the prices of ink and individual sheets of paper for the Epson Stylus Photo 960; we did not factor in the initial cost of the printer itself.) For example, a single photo printed on 5-by-7-inch glossy paper runs about 45 cents for the paper and 20 cents for the ink, totaling 65 cents.

THE WAITING GAME

THE FASTEST WAY to print photos is on an ink jet printer. We clocked an 8-by-10-inch photo on the Epson using its best quality setting at 9 minutes, 48 seconds.

You can print an 8-by-10 at Fujifilm's Aladdin, Kodak's Picture Maker, or Sony's PictureStation within 3 to 10 minutes, but of course that doesn't take into account the time it takes to drive to a shop. At the Agfa E-box and the Pixel Magic IStation 200 we visited, we had to wait 24 hours to get our prints; the stands were merely touch-screen computers that let us order pictures. Instead of a self-service kiosk with a built-in printer, the prints from Agfa and Pixel Magic were processed at the shop's minilab (the same place where film gets developed). So you have to drive back to the store and pick up your prints.

Ordering prints online can take longer.

Figuring in shipping time, your prints could take a week or more to arrive. Our orders arrived in two or three days, but the services we used were on our side of the continent. If you're in a hurry, choose overnight shipping (around \$15).

FINAL TALLY

ULTIMATELY, THE PRINTING method you choose depends on how much you want to spend versus how much you're willing to wait. We saw only small variations in print quality across the board; photos look impressive overall. If you need your pics now and don't want to fuss with printing your own, go with a kiosk. If you can wait a few days, ordering prints online is the most economical choice and gets you the best quality. And if you're willing to give up some picture quality to save some money, invest in a good ink jet photo printer. —Lisa Cekan ■

Grace Aquino is a senior associate editor and Alan Stafford a senior editor for PC World. Lisa Cekan is a freelance writer based in the San Francisco Bay Area. Senior Associate Editor Richard Baguley and Executive Editor Tracey Capen also contributed to this article. Performance analyst Tony K. Leung of the PC World Test Center conducted lab tests on the digital cameras.



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More utilities than
ever claim to
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Our tests prove
they're not all
created equal.

USING A COMPUTER without taking protective measures is like playing a game of Russian roulette. Most e-mail messages, Web sites, and programs aren't loaded with anything harmful. But sooner or later, every system will take a hit from malware—any malicious programs or code that can damage or disrupt the victim's PC.

The security software we review here—antivirus scanners and their anti-spyware cousins—provide essential defenses. Our tests show that the top antivirus scanners stop almost all the nasties they are designed to catch. But antivirus software does little, if anything, to stop spyware such as surveillance programs or ad-serving apps that monitor your surfing habits. So you need anti-spyware to fill the gap. This two-part review looks at both types of packages—and chooses the best. ►

BY SCOTT SPANBAUER ILLUSTRATIONS BY JIM LUTKE

ANTIVIRUS



TO FIND THE BEST antivirus package, the PC World Test Center partnered with AV-Test.org, an independent lab at the University of Magdeburg in Germany. AV-Test.org had just completed tests of 31 antivirus programs; we asked the lab to do more rigorous testing, under Windows XP Pro, on eight widely available top

performers: Boomerang Software Extensia AntiVirus AVK Professional, F-Secure Anti-Virus 2003, GeCad Software RAV AntiVirus Desktop for Windows 8.6, Kaspersky Anti-Virus Personal 4, Network Associates McAfee VirusScan 7 Home Edition, Panda Software Antivirus Platinum 7, Symantec Norton AntiVirus 2003, and Trend Micro PC-cillin 2003. After evaluating each program for both lab performance and usability, we chose Norton AntiVirus 2003 as the Best Buy.

PERFORMANCE IN THE LAB

IN MARCH 2003 we set each program against the 288 viruses and worms (in 576 files) known to be "in the wild"—replicating in the real world—during our tests. We selected these miscreants based

on data from The WildList Organization International (wildlist.org), which compiles a monthly roster of viruses and worms on the loose.

Using default settings, each program detected 100 percent of the February 2003 WildList viruses and worms, both during hard-disk scans and when the PC accessed an infected file. But performance against the WildList shows only how programs deal with viruses and worms that the antivirus companies should already know about and include in their signature files (databases of threats) that users should update daily. It doesn't indicate how the programs will perform against thousands of so-called zoo viruses and worms that have appeared over the years and that may spread into the wild again or influence the design of future malware.

REPORT CARD

TEST
Center

Norton Is the Best Overall Virus Scanner

OUR PICK COMBINES near-top virus-hunting performance with rich features and the most intuitive design of the scanners we reviewed.

ANTIVIRUS SCANNER	Street price/ annual renewal fee (5/12/03)	Detection/ features	Ease of use/ support policies	INFECTED FILES IDENTIFIED (IN PERCENTAGE)			Scan time at default/highest settings (minutes/ seconds) ³
				Zoo viruses ²	Using 3-month/ 6-month-old definitions	In archived, compressed, and embedded files	
Boomerang Software Extensia AntiVirus AVK Professional ★★★★★ find.pcworld.com/35390	\$40/\$20	Excellent/ Fair	Good/ Fair	99.9	75.1/ 61.4	81.3	22:48/ 27:00
F-Secure Anti-Virus 2003 ★★★★★ find.pcworld.com/35393	\$53 ¹ /\$53	Excellent/ Good	Very good/ Poor	99.9	71.5/ 58.7	80.2	7:01/ 17:57
GeCad Software RAV AntiVirus Desktop for Windows 8.6 ★★★★★ find.pcworld.com/35396	\$29 ¹ /\$5	Very good/ Fair	Fair/ Good	99.6	53.6/ 44.6	65.6	4:24/ 9:41
Kaspersky Anti-Virus Personal 4 ★★★★★ find.pcworld.com/35399	\$50/\$35	Excellent/ Good	Fair/ Good	99.9	69.1/ 55.2	81.3	21:11/ 21:54
Network Associates McAfee VirusScan 7 Home Edition ★★★★★ find.pcworld.com/35402	\$50/\$15	Excellent/ Very good	Fair/ Fair	99.9	66.8/ 58.0	77.1	13:17/ 13:58
Panda Software Antivirus Platinum 7 ★★★★★ find.pcworld.com/35405	\$70/\$60	Good/ Excellent	Good/ Good	96.4	56.9/ 43.7	90.6	6:16/ 6:57
Best Buy Symantec Norton AntiVirus 2003 ★★★★★ find.pcworld.com/35408	\$50/\$15	Very good/ Excellent	Excellent/ Good	99.7	54.2/ 47.4	60.4	11:43/ 12:25
Trend Micro PC-cillin 2003 ★★★★★ find.pcworld.com/35411	\$50/\$25	Good/ Very good	Excellent/ Very good	97.9	55.8/ 43.2	85.4	6:37/ 6:40

¹ All prices include one year of virus signature updates.

² For zoo tests (of about 23,000 infectors in over 71,000 files), we ran disk scans only; results shown are for scans at highest settings. We also scanned WildList files (not shown). WildList tests—for both disk and file-access scanning using default and highest settings—yielded a score of 100 percent for all products. Results expressed to tenths of a percent.

³ Running on a 2.53-MHz Pentium 4-based PC, with 512MB of DDR RAM, Windows XP Pro, and 7GB of installed programs and files.

Nor does it show how programs handle Trojan horses (nonreplicating programs with hidden, malicious code), which aren't on the WildList.

To examine these issues, AV-Test.org configured each program at its highest settings and scanned a hard drive holding over 71,000 files containing about 23,000 viruses, worms, and Trojan horses from its "zoo" of malware. F-Secure Anti-Virus 2003, EXtendia AVK Pro, McAfee VirusScan 7.0, and Kaspersky Anti-Virus Personal caught zoo samples in 99.96, 99.95, 99.93, and 99.91 percent of the files, respectively. Norton AntiVirus 2003 (at 99.72) and RAV AntiVirus (at 99.57) trailed the front-runners only slightly, but their results for Win32 file viruses and worms—by far the most prevalent these days—were among the highest.

The other two contenders didn't do as well. PC-cillin 2003 and Panda Antivirus Platinum caught zoo samples in only 97.9 percent and 96.4 percent of the files, respectively. Panda and PC-cillin also had a tough time identifying Trojan horses, detecting them at rates of 91 percent and 83 percent, respectively (compared with an average of 99 percent for the other six products).



FACING UNKNOWN DANGERS

NO MATTER HOW well antivirus products deal with known threats, the biggest potential threat is the unknown. So most programs don't simply scan for exact matches against a database of known threats. They also use heuristics to try to identify new dangers by looking for items that may act like or contain data similar to known malware.

To get an idea of how well heuristics work, we tested versions of the antivirus utilities and signatures that were three and six months out-of-date—from well before the latest crop of malware had appeared—and scanned files containing the newest threats. Performance varied widely, but none of the programs did nearly as well as each had against known threats from the WildList and our zoo. The three-month-old versions of EXtendia AVK Pro and F-Secure did best, finding 75 percent and 72 percent of the files, respectively, with Kaspersky and McAfee close behind at 69 percent and 67 percent. The remaining scanners caught just over 50 percent. The results were 7 to 14 percentage points lower for the six-month-old programs and signatures—suggesting that heuristic capabilities depend in part on knowledge of recent infectors in order to identify new ones. The difference underscores the importance of regularly updating virus signatures; all of these programs can do so automatically (though not with the same frequency).

On May 8, just before we went to press, a worm called Fizzer appeared. None of the scanners found it using heuristics; all required signature updates. Panda issued one that day. Other vendor updates trickled out until as late as May 14—and by then the worm was rapidly spreading worldwide. ►

Though Norton has a simple, unimposing interface, it also provides easy access to advanced options and settings.

	Comments
	Superb virus scanning, but light on features and support. Tech support calls cost \$3 per minute.
	Excellent virus detection. However, program lacks key features, including scheduled scans and automatic scanning at start-up.
	Geeky interface hobbles good scanner. Various paid packages of telephone support offered for U.S. customers.
	Good scanner with a kludgy interface. Free telephone support. Optional free spyware scanning database available.
	Great virus detection, but confusing interface. Phone support is \$3 per minute or \$39 per incident. Scans PDAs; includes firewall.
	Appealing interface and features, but low virus detection rate. Phone support is \$20 per incident. Includes Sygate firewall.
	Solid virus detection combined with top features and usability. Phone support \$30 per incident. Scans PDA files and instant messaging clients.
	Great interface and support. Virus detection performance is middling. Free telephone support. Scans PDAs; includes firewall.
* Available only as a download in the U.S.	* Online version; boxed product is \$46.



Like several products that scored well in our lab tests, RAV failed to earn a Best Buy in part due to a clumsy interface that could confuse even advanced users.

utility's defaults, and then again with its most thorough configuration. Our conclusion: Slower is usually better. The pokiest programs tended to post the best scan results, and most of them found more malware when the highest settings were enabled.

PERFORMANCE ON YOUR PC

THE BEST ANTIVIRUS program should not only perform well in the lab but also run smoothly on your desktop while providing clear information and reliable tech support. For example, once it detects a virus, how well does the program explain the infection and help you eliminate it? Worms and Trojan horses are stand-alone programs that don't infect other files, so simply stopping and deleting them is enough. Viruses are trickier: The

For our final performance test, we clocked how long each program took to run on a 2.53-GHz Pentium 4-based PC carrying 512MB of DDR RAM and loaded with Windows XP Professional, Microsoft Office 2000, and other apps and files (7.15GB in all).

We did this once with the

file they infect may be important to you, so deletion is the last resort. Disinfection—removing the virus code and repairing the original file—is preferable, but not every program can clean every file. For instance, some of the programs we reviewed can't clean infected files stored inside archives such as .zip files, so you will have to open the archives and manually scan the contents. If a program can't clean or delete a file, it should at least quarantine the file so that the malicious code can't run.

Unless you're an expert, identifying the type of infection you have and the measures to take can be difficult. That's why we like programs that provide advice or that automatically take the most appropriate action. The best in this respect are F-Secure, Panda, Norton, and PC-cillin, which automatically repair, delete, or quarantine dangerous files. The others simply block the file from running or being written to disk and ask you to make the next move.

Unfortunately, ambiguous alerts or confusing configuration options prevented some of the best performers from earning the Best Buy. Kaspersky and RAV, for example, are powerful virus hunters, but their interfaces are byzantine. McAfee is confusing, too, requiring you to drill deep into the program to make adjustments. Norton, in contrast, is a breeze to navigate and configure, with clearly labeled menus that step you through making adjustments. F-Secure also provides a lean interface, but it does so by leaving out key functions such as the ability to schedule hard drive scans.

WHO CAN YOU CALL?

THE DAYS OF free telephone support are nearly gone—only Trend Micro and Kaspersky still offer it. Boomerang, GeCad, Network Associates, Panda, and Symantec offer phone support, but with hefty per-minute or per-incident fees. Still, it's nice to have this option, if you ever run into big trouble. (F-Secure doesn't offer support lines for U.S. customers.) Fortunately, all the vendors have helpful, free e-mail tech support. Six responded within two days—typically within a few hours. F-Secure and Kaspersky took over five days to answer, but they did provide useful responses.

Overall, Norton AntiVirus has the best balance of performance and usability, with an intuitive interface and generally high detection rates. If the makers of other top performers in this review manage to clean up their programs' interfaces or bolster their tech support offerings, however, Norton will face some very tough competition. ▶

DOUBLE PROTECTION

Big ISPs Take On Antivirus Protection

NATIONWIDE ISPs are offering virus scanning as a way to win new customers and hang on to old ones. MSN already scans e-mail messages and attachments on its servers, using software from McAfee; and the MSN client software incorporates a version of McAfee's VirusScan. EarthLink plans to introduce similar server and client virus scanning later this year, and AOL includes e-mail scanning in its client software. However, it's best to see these services as a supplement to, not a replacement for, a full antivirus scanner on your own PC.

"Layers of security are always better," says Brian Burke, IDC research manager. He sees ISPs evolving like other corporations, which have switched from relying solely on desktop antivirus products to adopting centralized, server-based utilities. "From a security standpoint this is very beneficial to consumers, especially those that don't keep their antivirus up-to-date," Burke concludes.

But don't assume that your service provider has you covered. One small-ISP owner we talked to (who prefers to remain anonymous) claims that antivirus scanning isn't worth the grief. "Processing the huge volume of mail an ISP receives is hard enough. Pile antivirus software on top of that, and you've got a lot of CPU and bandwidth requirements," he complains. His customers might welcome the protection of server-based scanning, he admits, but a bigger issue holds him back: "If they do get a virus, they now have someone to blame."



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ANTI-SPYWARE



ANTIVIRUS PROGRAMS COMBAT the traditional threats of viruses, worms, and Trojan horses but do little, if anything, about spyware installed by sneaky Web sites or suspicious employers, or via software downloads. Yet spyware is a growing scourge: ISP EarthLink says 40 percent of calls to its tech support are spyware-related.

We included a sampling of spyware in our antivirus zoo tests, with abysmal results. In our first round, only McAfee registered any at all, flagging one spyware component. Later, we downloaded an optional free spyware database from Kaspersky's Web site and were able to catch a handful of items with the antivirus scanner.

One reason for the tepid response from antivirus companies is a hesitancy to label spyware as malicious. While some pieces sneak onto your PC, many spyware programs are disclosed in the end-user license agreements of the freeware programs they ride in on. By accepting the agreement, you permit the installation of spyware that fetches targeted advertising or gathers marketing data.

Reading the fine print is the first step toward avoiding many types of spyware. But if the critters are already on your hard drive (and they likely are), your best defense is to run a program that scans your hard disk for known spyware files, folders, Registry entries, and tracking cookies, and then gives you the option to remove them. In addition, several anti-spyware utilities scan your PC's memory in real time to keep unwanted programs from installing and running in the first place.

Software firewalls, such as Zone Labs ZoneAlarm or Sygate Personal Firewall (both free), provide another line of defense against spyware by alerting you to and blocking programs on your PC that try to access the Internet. Several of the antivirus programs reviewed here include a firewall, something no well-connected PC should be without. See the April 2003 *Internet Tips* column (find.pcworld.com/35387) for advice on firewalls.

TO CATCH A SNOOP, SOMETIMES

WE TESTED FOUR of the best anti-spyware scanners: Lavasoft Ad-aware Plus 6, PepiMK Software Spybot Search & Destroy 1.2, PestPatrol Software PestPatrol 4.2, and Webroot Software Spy Sweeper 1.5. For each, we installed the scanner and then introduced spyware. Our collection included two utilities, IMesh 3.1 and Hotbar 4, which contained profiling and ad-serving software and files (known as adware) such as Gator GAIN and Common-Name. We also added an ActiveX control called Secret Admirer that caused our PC modem to call a 900 number associated with a porn Web site; and we installed five surveillance programs that run in stealth mode, recording keystrokes and grabbing

FEATURES COMPARISON

Ad-aware Plus and Spybot Search & Destroy: Take Two Spyware

NO SINGLE PRODUCT IS IDEAL, but Ad-aware's real-time scanner and Spybot's disk scanner together offer the best protection.

ANTI-SPYWARE UTILITY	Street price (5/12/03)	Effectiveness	Ease of use	Scans and removes programs from disks/memory	Major spyware still installed after scan/clean
Best Buy Lavasoft Ad-aware Plus 6 ★★★★☆ find.pcworld.com/35414	\$27 ¹	Good	Very good	Yes/Yes ²	EAcceleration, Gator, Hotbar, MySearch, NCase, New.net, Xupiter
Best Buy PepiMK Software Spybot Search & Destroy 1.2 ★★★★☆ find.pcworld.com/35417	Free	Very good	Good	Yes/Yes ³	Cydoor, EAcceleration, Hotbar, New.net
PestPatrol Software PestPatrol 4.2 ★★★★☆ find.pcworld.com/35420	\$40	Good	Very good	Yes/Yes	EAcceleration, Hotbar, New.net, Secret Admirer, Xupiter
Webroot Software Spy Sweeper 1.5 ★★★★☆ find.pcworld.com/35423	\$30	Good	Very good	Yes/Yes	CommonName, EZula TopText, FileFreedom, FlashTrack, New.net, Xupiter

¹ Free version also available.

² Real-time scanner not included in the free version.

³ Scans only ActiveX controls and other Web page-enabled code.



screen shots. Finally, we moused around a Web site, OrbitExplorer.com, containing ActiveX controls that can automatically install spyware if browser security is turned down.

Each product rooted out a large proportion of the freeloaders, with Spybot Search & Destroy catching the most. But no program was perfect. After scanning and opting to remove detected spyware with one program, we found that running a second or third program almost always caught all or part of a spyware item that the first had missed. With each product, we also managed to find and remove additional spyware elements when we reran the scanner. That's because spyware has many hooks into the system that try to reinstall themselves after an attempted removal. So your anti-spyware motto should be: Scan, remove, reboot, repeat.

In addition to scanning best, Spybot Search & Destroy was the most competent at removing spyware without doing harm. In contrast, PestPatrol

locked up and refused to run again after we instructed it to delete the spyware it had found.

Like antivirus utilities, the four anti-spyware programs also scan your PC's memory in real time to keep unwanted software from installing in the first place. However, we didn't see stellar performance from any of the programs. In most cases they noticed only a fraction of the spyware as we downloaded and installed it, but Ad-aware Plus performed better than the others. Memory-scanning is a brand-new feature in Spy Sweeper, which failed to find most programs we pitted it against; in Spybot Search & Destroy, it's limited to ActiveX controls and other code embedded in Web pages.

The four programs didn't differ greatly in features. You can set each to load and scan automatically at Windows start-up, and each can instantly notify you when spyware database updates are available. All four also back up files before deleting them (restoring a piece of spyware may be necessary to re-enable the free software it came with).

Beauty and the scanning beast:
Handsome Ad-aware provides the best real-time protection. Geeky-looking Spybot Search & Destroy is the best disk scanner.

Busters for Best Results

	Comments
	Friendly interface. Not designed to trap surveillance software. Memory-resident scanning available in paid version.
	Fast, thorough disk scanning, but memory scanning is limited. Repairs network drivers damaged by spyware.
	Well-organized interface provides details on detected spyware. Scans run slowly, and surveillance software scanning is not enabled by default.
	Includes home-page protection; allows scheduled scans. Memory-resident scanning results were poor.

TWO ARE BETTER THAN ONE

ANTI-SPYWARE IS STILL an infant class of software, but it's the best tool available right now. We recommend that instead of running any one program you combine our two favorites: Spybot Search & Destroy and Ad-aware. The former was the best at scanning disks in our tests, though its interface is a bit clumsy. The latter has a friendlier interface, and the \$27 Plus version has the memory-resident scanner that did best in our tests. Spybot Search & Destroy warned us that Ad-aware might mistake its quarantined files for active spyware, but we didn't encounter this problem in our evaluation. ■

Scott Spanbauer is a contributing editor and columnist for PC World. Testing performed by AV-Test.org and the PC World Test Center.

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One PC With Everything— to Go!

WE REVIEW SIX
NOTEBOOKS
THAT THINK THEY
ARE DESKTOPS—
AND HAVE THE
SPEED AND
FEATURES TO
SHOW WHY. ►

BY CARLA THORNTON



Can your ideal notebook do everything your desktop PC can? Is it every bit as fast as a desktop? Does it offer a roomy screen and keyboard, and all the same connections, slots, and drives? If you squint, can you picture your clunky, aging desktop on the recycling heap?

Stop fantasizing already. In reality, the perfect desktop replacement notebook might be out there waiting for you right now. More than ever, desktop replacements—some with fast desktop CPUs, wide-aspect screens, generous hard drives, and rewritable DVD drives—have the power and features to replace the desktop PC in your office or home.

To see what today's desktop replacement notebooks have to offer, we rounded up six disparate models for comparison. Each had a top-of-the-line CPU, at least a 15-inch screen, and at least a 40GB hard drive. Not all desktop replacements are created equal, however, so we carefully tested performance and battery life in our Test Center and compared features before choosing an overall winner.

A BIG, DREAMY PORTABLE

Best Buy

Toshiba's Satellite 2455-S305

Toshiba's well-equipped, easy-to-use Satellite 2455-S305 is one stunning-looking notebook PC. In fact, its bright blue lid almost resembles the hood of a sports car. But this laptop has more going for it than just good looks: It offers strong performance, reasonable battery life, and convenient features, thus earning our Best Buy award for best all-around desktop replacement. Among its highlights are a Secure Digital slot located on the right side of the case (see inset) for sharing information with PDAs and other gadgets, dedicated music controls on the front, a rewritable DVD drive, a FireWire port, and three USB 2.0 ports. If you're looking for a desktop replacement that puts the best of everything in one box,

the Satellite 2455-S305 definitely delivers the goods.



PHOTOGRAPHS: RICK RIZNER

FEATURES COMPARISON

Jumbo-Size Notebooks Do Everything

ALL SIX NOTEBOOKS have the features and performance to ably replace a desktop PC. They make bulky traveling companions, though.

NOTEBOOK	Street price (4/25/03)	PC WorldBench 4 performance score ¹	Faster	CPU ²	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Optical drive
Acer TravelMate 655LCi find.pcworld.com/35612	Average \$2299	Windows XP Professional Good 107		2.4-GHz Pentium 4-M	15.1	256	60	Touchpad	8X DVD-ROM and 24X/10X/24X CD-RW drive
Alienware Area-51m find.pcworld.com/35618	Expensive \$2899	Windows XP Professional Outstanding 120		3.06-GHz Pentium 4*	15.0	1024	40	Touchpad	8X DVD-ROM and 24X/10X/24X CD-RW drive
Apple PowerBook G4 (17-inch) find.pcworld.com/35615	Very expensive \$3299	Macintosh OS X 10.2 ¹		1-GHz PowerPC G4	17.0	512	60	Touchpad	DVD-R/RW drive
Dell Inspiron 8500 find.pcworld.com/35621	Expensive \$2649	Windows XP Home Good 105		2.4-GHz Pentium 4-M	15.4	512	40	Touchpad, eraserhead	DVD-R/RW drive
Gateway 600X find.pcworld.com/34524	Average \$2479	Windows XP Professional Good 107		2.4-GHz Pentium 4-M	15.7	512	60	Touchpad	DVD-R/RW drive
Best Buy Toshiba Satellite 2455-S305 find.pcworld.com/34820	Inexpensive \$1899	Windows XP Home Very good 117		2.4-GHz Pentium 4*	15.0	512	60	Touchpad	DVD-R/RW drive
ABS Awesome 3450* find.pcworld.com/34736	Inexpensive \$1899	Windows XP Home Outstanding 133		2.167-GHz Athlon XP 3000+	19-inch CRT	1024	120	n/a	16X DVD-ROM drive, 52X/24X/52X CD-RW drive

n/a = Not applicable.

¹ See "Your Guide to the Top 100" on page 129 for more details about the meaning of performance word scores.

² Except where noted, all Intel CPUs are SpeedStep chips, which run at a slower speed on battery power.

³ Unless otherwise noted, all notebooks come with a lithium ion battery.

Our collection consisted of Acer's portable, midweight TravelMate 655LCi; Alienware's Area-51m for gamers; Apple's PowerBook G4, with its exceptional 17-inch wide-aspect screen; Dell's Inspiron 8500, packing a 15.4-inch wide-aspect screen; Gateway's large, business-savvy 600X; and Toshiba's attractive, blue-lidded Satellite 2455-S305.

No single notebook here is the ideal desktop replacement for everyone. We loved the Dell Inspiron 8500's wide-aspect screen (with a 16:9 aspect ratio), which made it the best in the group for viewing spreadsheets and DVD movies. Unfortunately, its flimsy-feeling keyboard turned us off. The 6.6-pound Acer TravelMate is the lightest (without a power adapter), but its keyboard is too small for intensive typing. The Gateway 600X's dual internal bays offer the best expansion options, but it's heavy at almost 9 pounds, not including its power adapter. Apple's PowerBook G4 has a big, beautiful 17-inch screen and loads of cutting-edge features, but it's pricey, and its keyboard took some getting used to.

Toshiba's Satellite 2455-S305 came closest to



Incredible Hulk

The big, heavy, and bright-green Area-51m includes front-mounted music-playing controls, which allow you to listen to CDs and adjust audio when the laptop is off.

desktop replacement perfection. Though far more expensive than most comparably equipped desktop PCs, at \$1899 it was the lowest priced notebook in our group. Besides posting a very good PC WorldBench 4 score and being easy to type on, it's stylish. And like the Apple, Dell, and Gateway, it comes with a rewritable DVD drive.

Finally, we say pass on the Area-51m.

It's expensive, weighs too much at 9.7 pounds, and isn't even the best game player in the group. That honor goes to the Dell Inspiron 8500, which delivered faster frame rates in our graphics tests and has a nicer screen.

LIFE WITH A DESKTOP REPLACEMENT

THOUGH desktop PCs continue to have lower prices and better expansion options than notebooks, about 20 percent of today's notebook buyers are ditching their desktop PCs altogether, according to Jon Peddie of Jon Peddie Research, a graphics and multimedia consulting firm. Increasingly, home users—who currently purchase 60 percent of all notebooks—are responding to the latest multimedia advances in portables, Peddie says.

Desktop replacement models that cater to ►

The ABS Awesome 3450 desktop PC has a similar configuration to our desktop replacements, but stronger performance.

Battery life (hours: min) ²	Average weight (pounds) ⁴	Multi-purpose bays	Graphics	Other features ⁵	Overall design	Comments
Average/ 2:33	Average/ 7.7	1	ATI Mobility Radeon 7500	Four-in-one memory card reader, built-in 802.11a and 802.11b Wi-Fi, FireWire port	Very good	This well-designed laptop includes a Smart Card reader for extra security. It would make a fine notebook to take on the road. (★★★★☆)
Limited/ 1:05	Very heavy/ 11.3	1	ATI Mobility Radeon 9000	Built-in 802.11b Wi-Fi, FireWire port	Very good	This alien-green notebook is too heavy to tote and had below-par battery life, but it delivered swift performance. (★★★☆☆)
Not available ⁷	Average/ 7.7	0	NVIDIA GeForce4 440 Go	Bluetooth; built-in 802.11b and 802.11g Wi-Fi; FireWire 400 and FireWire 800 ports; DVI-out port	Outstanding	Unique 17-inch screen and smooth design set this laptop apart. It also comes loaded with useful software. (★★★★☆)
Average/ 2:19	Heavy/ 8.6	1	NVIDIA GeForce4 4200 Go	FireWire port	Very good	Elegant silver notebook has an extrawide screen that's useful for watching movies, but its keyboard feels flimsy. (★★★★☆)
Good/ 3:01	Heavy/ 9.8	2	ATI Mobility Radeon 9000	FireWire port, Microsoft Works 2003	Outstanding	This huge, wireless-ready unit has two modular bays, which can hold two optical drives or two batteries. (★★★★☆)
Good/ 3:07	Heavy/ 9.1	1	NVIDIA GeForce4 4200 Go	Secure Digital slot, FireWire port, Microsoft Works 2002	Very good	This notebook's Secure Digital slot and DVD burner should please creative professionals. (★★★★☆ June 03)
n/a	n/a	n/a	Sapphire Radeon 9700 Pro	Midsize tower case, built-in modem and network adapter, Microsoft Works 7	n/a	Our power Best Buy from the June Top 15 Desktop PCs chart offers faster performance, at a relatively low price.

⁴ Includes computer, AC adapter, power cord, floppy drive, and optical drive.

⁵ All notebooks come with a built-in modem and network adapter.

⁶ Single-speed desktop CPU.

⁷ PC WorldBench 4 and the PC World Test Center's battery tests do not run on the Mac platform.

⁸ Desktop included for single-purpose reference.

multimedia fans—and to business professionals looking for desktop-level power—are expensive: Prices can reach \$3000, or even higher.

For prospective buyers seeking a desktop replacement at a desktop price, Elitetgroup Computer Systems of Taipei, Taiwan, introduced a product last year that it calls a “desknote.” These systems look like notebooks, with built-in keyboards and screens, but run on desktop CPUs and use AC plugs or external battery packs. Because desknotes have fewer miniaturized components, they cost about the same as a low-end desktop PC and monitor, approximately \$800.

Despite being somewhat popular in Asia, however, desknotes haven’t yet taken off in the United



See More, Now

You can easily view two wide-open windows on the Dell Inspiron 8500.

States. In this country, most buyers looking for a desktop replacement still prefer portables that have internal batteries, which allow easy use during travel.

SPEED DREAM

MOST DESKTOP replacements use mobile processors—chips designed specifically for notebooks, such as Intel’s Pentium 4-M line. But an increasing number of vendors seeking a competitive edge are putting desktop processors in their high-end offerings.

What can you expect from a chip-pumped desktop replacement? It depends on how the notebook maker accommodates the hotter-running desktop chip. Some desktop chip-equipped portables ▶

MOBILE GRAPHICS

Desktop Graphics Power Moves to Notebooks

A NEW GENERATION of high-end graphics chips should be shipping in top-tier notebooks by the time you read this. The chips—led in performance, according to industry pundits, by ATI’s Mobility Radeon 9600—are expected to put notebooks almost on a par with desktops for the first time as serious gaming machines.

The new chip carries 128MB of dedicated RAM, and can exert control over its own clock speed to regulate thermal output. The result, industry observers say, is a breakthrough in portable gaming.

“It’s leaps and bounds better than the ATI Mobility Radeon 9000,” says Kyle Bennett, editor in chief of the computer hardware analysis site HardOCP.com.

The Mobility Radeon 9600 is based on ATI’s 3D-savvy desktop chip, the Radeon 9700. Its bag of tricks includes support for Microsoft’s DirectX 9 multimedia technology, which permits faster shading and rendering. The new chip also uses 128-bit floating-point color, according to Chris Hook, public relations manager of ATI’s mobile and integrated business unit. Hook also claims that the 9600 outperforms the GeForce FX Go 5600, NVidia’s latest mobile graphics processor (also just now shipping)—and even some desktop graphics processors—at tasks such as shading.

Aside from providing a welcome power boost, the Mobility Ra-

deon 9600 nicely fills out ATI’s line of pin- and driver-compatible mobile graphics chips. According to ATI, the cost savings and flexibility that the new mobile chip allows should spur vendors to begin permitting users to upgrade graphics chips if they wish to.

In the meantime, Alienware should soon be selling ATI and NVidia graphics daughter cards that Area-51m notebook owners can install themselves. HP and Fujitsu expect to release notebooks using the Mobility Radeon 9600 in the fall.

Most of our roundup participants came with the best-quality graphics chips available for portables at the time of our review—ATI’s Radeon Mobility 9000 or NVidia’s GeForce4 4200 Go—and up to 64MB of video memory.

In our graphics tests, the notebooks could not quite match the top frame rates turned in by true desktop

PCs, but game play on all except the Acer TravelMate 655LCi looked just as smooth as on a desktop using an LCD monitor. The Dell Inspiron 8500 performed the best, achieving a frame rate of 156 frames per second in Unreal Tournament 2002, at 1024 by 768 resolution and 16-bit color depth. The TravelMate, using ATI’s Mobility Radeon 7500 and only 32MB of video memory, suffered some annoying glitches in Unreal Tournament that could interfere with the critical ability to recognize when other players are shooting.



Graphics Upgrade

A notebook using ATI’s new graphics chip can be upgraded with pin- and driver-compatible chips that you can install yourself. To perform an upgrade, you must first remove the keyboard. Then you can simply snap the new chip into place.

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provide a performance boost and maintain adequate battery life. Others might be susceptible to overheating, and some burn through batteries too fast.

The two best performers in our roundup use desktop chips. The Alienware Area-51m comes with a 3.06-GHz Pentium 4 CPU and a hefty 1GB of RAM. Its processor is the same top-of-the-line CPU that the latest desktop PCs use. It earned a PC WorldBench 4 score of 120, almost matched by the 2.4-GHz Pentium 4—equipped Toshiba Satellite 2455-S305, which scored 117. (Because the Apple uses the Macintosh OS, we couldn't run our performance tests on it. In informal tests, basic applications ran smoothly.)

The Area-51m's score is 12 percent lower than the mark posted by the fastest desktop PC we've tested so far, the Sys Technology Performance 3000+ equipped with a 2.167-GHz Athlon XP 3000+ CPU. But on average, the two notebooks that used desktop chips outpaced the three Pentium 4-M–based models in our roundup by 11 percent. The three others used mobile 2.4-GHz/1.2-GHz Speed-



Keep Reading

The Acer TravelMate 655LCi's card reader accepts four types of cards: Memory Stick, MultiMediaCard, Secure Digital, and SmartMedia.

Step processors and earned an average score of 106.

A downside: The Area-51m took a huge hit in battery life because of its desktop processor. In our tests we had to prop up the notebook to ensure that its air vents, located on the bottom, did their job of cooling the machine, which tended to run hot. It lasted just over an hour on a charge—the worst battery life we've ever seen for a full-featured

notebook. Evidently, the Area-51m was designed primarily to be transported from place to place and then plugged in, not used in transit.

The Toshiba Satellite 2455-S305 was faster than average and won the battery life contest in this roundup at 3.1 hours. These results underscore a central truth about desktop replacements' staying power: Though many of them come with higher-capacity batteries than average notebooks, desktop replacements demand more power, which balances out to merely average battery life.

If the desktop Pentium processor draws power the way a Humvee guzzles gas, the Pentium 4-M that most large notebooks use today is a Camry. Even more promisingly, Intel's new Pentium M mobile chip sips power like a Geo Metro—we've recorded a battery life of up to 7 hours in one test—without sacrificing a lot of performance. The Pentium M processor is being introduced in lighter-weight notebook PCs first, however. For more about Pentium M and Centrino, see this month's *Top 15 Notebook PCs*, on page 134.

PROS AND CONS

Desktop Replacement vs. Desktop

NOTEBOOKS IN THE DESKTOP REPLACEMENT class have devoted fans for good reason: They have decided advantages over both full-size computers and smaller notebooks. But they certainly aren't perfect.

BEST THINGS ABOUT A BIG NOTEBOOK

When you go on the road, you can take your regular computer, along with all your commonly used files—no setup needed.

Desktop replacement notebooks are capable of delivering performance comparable to that of many full-size desktop PCs.

With several USB 2.0 ports and usually one FireWire port, desktop replacements offer plenty of connectivity options.

With modular drive bays and new upgradable mobile graphics chips, desktop replacements needn't fall behind current technology.

From rewritable DVD drives to FireWire ports, almost any feature available in desktops can be had, in some version, in a desktop replacement.

ON THE OTHER HAND...

If you travel much, you'll get sagging shoulders and an aching neck from hauling that boat anchor around. Some desktop replacement notebooks weigh up to 11 pounds, not counting the AC adapter.

You'd better not wander far from an electrical outlet. Battery life on desktop replacements tops out at 3 hours, so you'll have to keep the AC adapter handy.

Kiss parallel and serial ports good-bye, unless you're willing to invest another \$75 to \$100 in a port replicator; also be willing to live with fewer USB and FireWire ports than desktop PCs offer.

The drives to fill those bays cost extra, and few notebook makers have adopted ATI's Mobility Radeon 9600 chip yet. And the biggest notebook hard drives are still half the size of typical desktop drives.

Sure, you can have a notebook with a 40GB hard drive, a rewritable DVD drive, and a fast graphics board, but you'll pay at least \$800 more for it than you would for a comparable desktop.

YOU CAN'T HAVE EVERYTHING

UNTIL COMPONENT manufacturers figure out a way to superminiaturize bays, drives, and other features, even desktop replacement notebooks will lack some of the expansion options that desktop PCs have. You won't find PCI slots for upgrading your system with more drives. Instead of having three FireWire ports, you can expect to get one.

On the other hand, desktop replacements, the zaftig beauties of the notebook world, are large enough to offer leading-edge portable technology—and that comes pretty close to the desktop experience. Take the keyboards. They don't match the quality of an external desktop keyboard—because the 3mm keystroke doesn't feel as deep as 3.5mm, and because notebook keyboards lack separate numerical keypads. But the best-designed notebook keyboards can be almost as comfortable.

In this group, the Satellite 2455-S305 and the

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Desktop



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Workgroup—Letter/Legal



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Workgroup—Tabloid Extra



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C7300n
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C9500dxn
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Area-51m did the best job of mimicking desktop keyboards, right down to placing the keyboard at a slight slant. We liked the Gateway's keyboard almost as much, but its touchpad buttons are slightly undersize. Dell's Inspiron 8500 offers an elegantly designed pair of pointing devices (eraserhead and touchpad), but the keyboard flexed exasperatingly when we typed on it. The Acer TravelMate 655LCi's curved keyboard was the hardest to adapt to. We also had trouble getting used to the Apple's keyboard. Despite the 17-inch PowerBook's big size (15.4 by 10.2 inches), the small, cramped keyboard was crammed up near the screen. A slightly larger keyboard would make the Apple easier to use.

All six notebooks come with at least a 15-inch-diagonal screen, which supplies nearly as much viewable area as a 17-inch CRT. The Gateway includes a 15.7-inch display, and the Dell has a stunning 15.4-inch, wide-aspect display with a 1680 by 1050 native resolution. The Apple's beautiful, bright 17-inch-wide screen, however, with a native resolution of 1440 by 900, makes the other laptops' screens look puny.

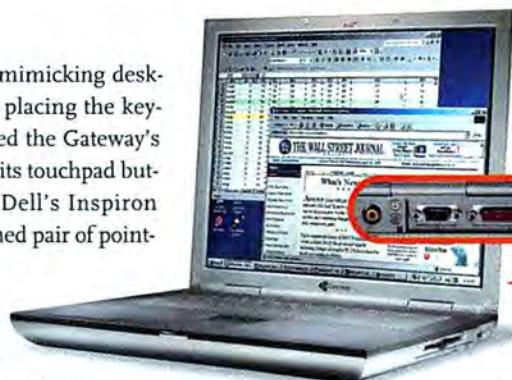
Most of our contenders offer a variety of ports, including FireWire and several USB ports. The Apple even has a faster FireWire 800 port, a notebook first. But portables shed older features faster than desktop PCs do: None of our notebooks come with an internal floppy drive; and the Toshiba lacks a parallel port—still a standard on desktops.

Among the notebooks we examined, three—the Acer, Dell, and Gateway—allow you to attach port replicators. These devices let you connect desktop peripherals such as a printer to your notebook—and disconnect them when you're ready to go—in one step.

Five of the six notebooks (all except the Apple) carry at least one removable optical drive. The Apple, Dell, Gateway, and Toshiba units came with rewritable DVD drives, just like desktops.

With two modular bays, the Gateway comes closest to providing the same amount of flexibility as a desktop PC: It can hold two optical drives, two batteries at once, or an extra hard drive.

Despite being the lightest of the bunch, the little Acer TravelMate offers the widest variety of flash-



memory options, thanks to a four-in-one reader. The card reader accepts Memory Stick, MultiMediaCard, Secure Digital, and SmartMedia cards. In addition, the TravelMate includes a Smart Card reader for security. The Apple distinguishes itself from the rest by including a DVI-out port, which you can use to drive a second analog or digital display.

Ports Galore

Like a true desktop replacement, Gateway's 600X provides a host of ports on the rear, including serial and parallel ports.

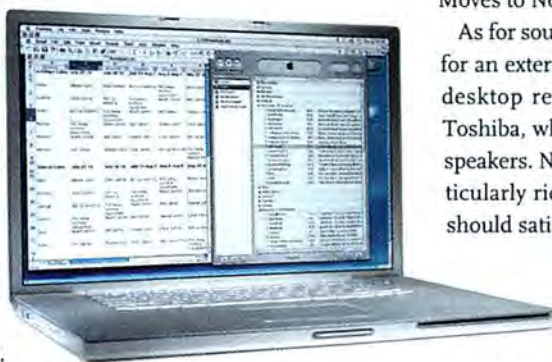
THE UPGRADE OPTION

THE SMALLER, INTEGRATED design of notebooks makes some parts harder to upgrade than their counterparts on desktop PCs. All of our roundup units except the Apple have accessible memory slots and hard drives. Other components, however, such as the graphics processor and CPU, present you with the usual notebook upgrade path: Buy a new notebook. But that may change soon.

For instance, within the next year notebook vendors will begin installing modular graphics cards that users can upgrade themselves—an industry first for portables. (See "Desktop Graphics Power Moves to Notebooks," on page 122.)

As for sound, prepare to shell out a few bucks for an external set of speakers for any of these desktop replacements, except possibly the Toshiba, which uses built-in Harman/Kardon speakers. None of the notebooks delivered particularly rich sound. The Toshiba's speakers should satisfy nonaudiophile listeners.

These days, you can get generous helpings of one or two cutting-edge features in even a \$1000 notebook. Say you want



You Want Big?

We loved the Apple PowerBook G4's 17-inch wide-aspect screen, but we found its small, cramped keyboard frustrating to use.

a 15-inch screen—some value notebook is sure to have it. But if you want a portable that delivers as much of the desktop experience as possible, you have to look at desktop replacements.

Who needs one? These portable dreamboats are for mobile users whose work requirements or comfort demand that their notebook come as close to a traditional desktop PC as possible. Database and spreadsheet crunchers, graphic artists, and (increasingly) gamers should consider a desktop replacement. And if you've been dreaming of one for yourself and have the cash—why not? ■

Contributing Editor Carla Thornton regularly covers notebooks for PC World.

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* When used with optional adapters, sold separately.



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TOP 100

EDITED BY THE REVIEWS STAFF

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Top 15 Notebook PCs Thanks to Pentium M processors, Toshiba's Satellite Pro M15-S405 (left) and Gateway's 450X have feline qualities: catlike quickness and what seems like nine lives of battery power.

134

Pentium M Leaves a Lasting Impression

TEST Center Notebooks we've tested with Intel's latest mobile CPU match the performance of many desktops, but the two Pentium M notebooks we saw this month made excellent showings on our battery-life tests as well. Gateway's 450X lasted nearly 4 hours, and Toshiba's Satellite Pro M15-S405 made our lab staff stay late by lasting for an astounding 6 hours—almost as long as the Best Buy IBM ThinkPad T40.

Dell's OptiPlex SX260, number three on our *Top 5 Corporate PCs* chart, also turned some heads; the slim computer can piggyback on a Dell LCD monitor to form a do-it-yourself all-in-one system.

Freelance writers Dan Littman, Mick Lockey, and Carla Thornton, and PC World reviews editors Richard Baguley, Eric Butterfield, Rebecca Freed, Alexandra Krasne, Kalpana Narayanamurthi, Melissa J. Perenson, and Alan Stafford contributed to the Top 100 section this month. Ulrike Diehlmann, Julio Giannobile, Elliott Kirschling, Jeff Kuta, Tony K. Leung, and Thomas Luong of the PC World Test Center performed testing on the products reviewed in this section, with logistical support from Julian Weatherby.

PHOTOGRAPHS: MARC SIMON

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Top 5 Corporate PCs It's a PC, not a briefcase: With an optional kit, you can mount Dell's OptiPlex SX260 on the back of a Dell LCD monitor (instead of having it serve as the LCD's base, as you might expect).



Top 10 Printers

The Lexmark Z605 Color Jetprinter costs just \$50-less than many software applications (and less than a full set of replacement ink cartridges for the printer).

137



Top 10 DVD Drives

Sony's DRU-510A is one of the first re-writable DVD drives to take advantage of 4X rewritable media, and it has a funky 3D-look faceplate.

141

YOUR GUIDE TO THE TOP 100

EACH MONTH, WE TEST a large number of PCs, printers, monitors, and other products. Only the best products land on the charts, which are refreshed monthly.

System configurations are shown as tested. The overall rating for each product is calculated on a 100-point scale and reflects results from our hands-on evaluations

and performance tests. A 90-point score is exceptional, while one in the 70s is above average.

The PC WorldBench 4 score is a measure of how fast a PC can run a mix of common business applications as compared with our baseline machine, a Gateway Select 1200 with a 1.2-GHz Athlon processor, 128MB of PC133

SDRAM, and a 20GB hard drive. For example, a PC that scores 120 is 20 percent faster than the baseline system. The support policies score is based on vendor support policies (not shown on charts). Please see find.pcworld.com/15720 for additional details on how we compile charts for the Top 100.

TOP 15 DESKTOP PCs

	POWER SYSTEM	Overall rating	Street price (4/25/03)	PC WorldBench 4 performance score ¹	Faster	Comments
1	Best BUY ABS Awesome 3450 find.pcworld.com/34736	89	Very inexpensive \$1929	Windows XP Home Very good 133		The speedy 3450 has an innovative pewter-toned case with a handle and a power switch mounted on top. (★★★★☆ June 03)
2	Dell Dimension 8300 find.pcworld.com/35246 NEW	86	Expensive \$3117	Windows XP Home Good 126		This well-designed Dimension with a roomy interior has a cutting-edge graphics card and plenty of disk space. (★★★★☆)
3	Sys Technology Performance 3000+ find.pcworld.com/34112	85	Expensive \$2777	Windows XP Professional Outstanding 136		Fastest PC on the chart has a strong, great-sounding, six-speaker audio system; the wireless keyboard is a nice extra. (★★★★☆ May 03)
4	Micro Express MicroFlex 30A find.pcworld.com/34742	85	Inexpensive \$2199	Windows XP Professional Very good 131		Reasonably priced and quick, the MicroFlex 30A includes a large LCD monitor and a graphics card with a TV tuner. (★★★★☆ June 03)
5	Gateway 700XL find.pcworld.com/35234 NEW	83	Very expensive \$3299	Windows XP Home Good 126		This powerful system comes with a huge amount of disk space and a rewritable DVD drive, making it ideal for video editing. (★★★★☆)
6	MPC Millennia 910i Dream Machine find.pcworld.com/34745	77	Very expensive \$3499	Windows XP Professional Fair 122		Loaded system is well equipped for working with digital media; but for a power PC, it didn't run business apps very fast. (★★★★☆ June 03)
7	Falcon Northwest Mach V find.pcworld.com/35072 NEW	76	Very expensive \$4224	Windows XP Home Good 128		This great-looking, polished-aluminum PC's performance was a bit disappointing given its fancy configuration and very high price. (★★★★☆)
Percent of overall rating ▶			10 percent	25 percent		

	VALUE SYSTEM	Overall rating	Street price (4/25/03)	PC WorldBench 4 performance score ¹	Faster	Comments
1	Best BUY ABS Awesome 3380 find.pcworld.com/34118	84	Expensive \$1749	Windows XP Home Outstanding 132		This value screamer beat all but the fastest power systems in our speed tests. It also posted top-end graphics scores. (★★★★☆ May 03)
2	Micro Express MicroFlex 24A find.pcworld.com/32891	82	Very inexpensive \$999	Windows XP Home Outstanding 131		Still one of the speediest models on the chart, this low-cost machine offers plenty of bang for the buck. (★★★★☆ Mar 03)
3	Gateway 500X find.pcworld.com/34739	80	Expensive \$1534	Windows XP Home Good 117		This system is easy to set up and comes with a pleasing LCD; overall performance was only average, however. (★★★★☆ June 03)
4	Polywell Poly 880NF2-2700 find.pcworld.com/32900	79	Very expensive \$1888	Windows XP Home Outstanding 128		Shifting from the power to the value side, this Poly earned high marks in our 3D graphics tests. (★★★★☆ Mar 03)
5	Compaq Presario 6470NX find.pcworld.com/35237 NEW	79	Average \$1298	Windows XP Home Fair 111		Somewhat slow for its CPU class, the 6470NX has a fine 17-inch CRT and enough graphics power for 3D gaming at lower resolutions. (★★★★☆)
6	Polywell Poly 880NF2-2500 find.pcworld.com/34748	78	Inexpensive \$1055	Windows XP Home Very good 125		This low-cost Poly delivers good speed for business apps; the graphics card is a bit weak for gaming. (★★★★☆ June 03)
7	Amax P4V Value find.pcworld.com/35285 NEW	75	Average \$1299	Windows XP Professional Good 118		This plain-looking business PC is modest in all respects: speed, features, price, and overall design. (★★★★☆)
8	EMachines T2460 find.pcworld.com/34148	74	Very inexpensive \$908	Windows XP Home Poor 101		Good-looking model's very low price partially compensates for its lackluster performance overall. (★★★★☆ May 03)
Percent of overall rating ▶			20 percent	20 percent		

Go to find.pcworld.com/10860 for details on PC World's Star Ratings.

¹ Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. For more details, see "Your Guide to the Top 100" on page 129.

² Total capacity in gigabytes (may represent multiple drives).

TEST
Center

SYSTEMS POWERED BY INTEL'S new 3.06-GHz Pentium 4 processor made a strong play on the power side of our chart, but failed to grab the top spot. ABS's quick Awesome 3450, equipped with a 2.167-GHz AMD Athlon XP 3000+, continues as our number one Best Buy. In fact, the three speediest power PCs on the chart are outfit-

ted with AMD's fastest Athlon XP. Of the new Pentium systems from Dell, Falcon Northwest, and Gateway, the Falcon was the swiftest by a statistically insignificant margin, and finished 3 points behind the Micro Express MicroFlex 30A, the slowest of the three Athlon XP systems.

Visit find.pcworld.com/35351 for reviews of all products tested this month and ranked in this chart.

	BASE CONFIGURATION						Extra features	Graphics quality	Setup and ease of use	Vendor's reliability/ service
	CPU	RAM (MB/type)	Hard drive ¹	Monitor	Graphics	Case type ²				
	2.167-GHz Athlon XP 3000+	1024/ DDR400 SDRAM	120	19-inch CRT	128MB Sapphire Radeon 9700 Pro	Midsize tower	Fair: 16X DVD-ROM drive, 52X/24X/52X CD-RW drive, Microsoft Works 7	Very good	Very good	Fair/ Good
	3.06-GHz Pentium 4	1024/ DDR400 SDRAM	200	18-inch CRT	128MB ATI Radeon 9800 Pro	Midsize tower	Very good: 4X DVD-R/RW drive, 16X DVD-ROM drive, V.92 modem, Microsoft Office XP Small Business Edition	Very good	Very good	Good/ Fair
	2.167-GHz Athlon XP 3000+	512/ DDR333 SDRAM	180	17-inch LCD	128MB ATI Radeon 9700 Pro	Midsize tower	Good: 16X DVD-ROM drive, 52X/24X/52X CD-RW drive, wireless keyboard and optical mouse, memory card reader, Corel WordPerfect Office 2002	Outstanding	Good	"/
	2.167-GHz Athlon XP 3000+	512/ DDR333 SDRAM	120	19-inch LCD	128MB ATI All-In-Wonder Radeon 9700 Pro	Midsize tower	Very good: 4X DVD-R/RW drive, 52X/24X/52X CD-RW drive, Pinnacle Studio 8	Outstanding	Good	"/
	3.06-GHz Pentium 4	512/ DDR400 SDRAM	500	18-inch CRT	128MB ATI Radeon 9800 Pro	Tower	Outstanding: DVD-R/RW drive, 48X/24X/48X CD-RW drive, V.92 modem, Microsoft Office XP SBE, Pinnacle Studio 8	Very good	Good	Fair/ Fair
	3.06-GHz Pentium 4	1024/ DDR333 SDRAM	240	17-inch LCD	128MB NVIDIA GeForce4 Ti 4600-based	Midsize tower	Outstanding: DVD-R/RW/+R/RW drive, 48X/24X/48X CD-RW drive, Zip 750 drive, scanner, Microsoft Office XP Pro, Pinnacle Studio 8.3.12	Very good	Very good	"/
	3.06-GHz Pentium 4	1024/ DDR400 SDRAM	116.7	19-inch CRT	128MB ATI Radeon 9800 Pro	Midsize tower	Good: 4X DVD-R/RW drive, 16X DVD-ROM drive, network adapter, Microsoft Works Suite 2003	Very good	Good	"/
	10 percent						10 percent	15 percent	5 percent	25 percent

	BASE CONFIGURATION						Extra features	Graphics quality	Setup and ease of use	Vendor's reliability/ service
	CPU	RAM (MB/type)	Hard drive ¹	Monitor	Graphics	Case type ²				
	2.25-GHz Athlon XP 2800+	512/ DDR400 SDRAM	120	19-inch CRT	128MB ATI Radeon 9700 Pro	Midsize tower	Good: 16X DVD-ROM drive, 52X/24X/52X CD-RW drive, Corel WordPerfect Office 2002	Very good	Very good	Fair/ Good
	2-GHz Athlon XP 2400+	512/ DDR400 SDRAM	80	17-inch CRT	64MB Leadtek GeForce2 Ultra	Midsize tower	Fair: 16X DVD-ROM drive, 40X/12X/40X CD-RW drive, Ulead VideoStudio 6	Fair	Fair	"/
	2.53-GHz Pentium 4	512/ DDR333 SDRAM	80	17-inch LCD	128MB MSI MS-8860 (GeForce4 MX 420-based)	Midsize tower	Good: 16X DVD-ROM and 48X/24X/48X CD-RW combo drive, Microsoft Works Suite 2003, Pinnacle Expression 2, Quicken 2003 New User Edition	Good	Very good	Fair/ Fair
	2.17-GHz Athlon XP 2700+	512/ DDR333 SDRAM	160	19-inch CRT	128MB Leadtek Winfast A250 Ultra (GeForce4 Ti 4600)	Midsize tower	Outstanding: DVD-R/RW drive, 52X/24X/52X CD-RW drive, Lotus SmartSuite 9.7	Very good	Good	"/
	2.67-GHz Pentium 4	512/ DDR266 SDRAM	120	17-inch CRT	64MB ATI Radeon 9000	Minitower	Very good: 16X DVD-ROM, 48X/12X/48X CD-RW drive, Microsoft Works 7	Very good	Fair	Fair/ Poor
	1.83-GHz Athlon XP 2500+	256/ DDR333 SDRAM	80	17-inch CRT	Integrated NVidia NForce2 using main memory	Midsize tower	Fair: 16X DVD-ROM drive, 52X/24X/52X CD-RW drive, Lotus SmartSuite 9.7, Ulead VideoStudio 6	Fair	Good	"/
	2.53-GHz Pentium 4	256/ DDR333 SDRAM	80	15-inch LCD	64MB Asus V8170 DDR (GeForce4 MX 440-based)	Midsize tower	Good: 12X DVD-ROM and 32X/10X/40X CD-RW combo drive, Microsoft Works Suite 2003	Good	Good	"/
	2-GHz Athlon XP 2400+	256/ DDR266 SDRAM	60	17-inch CRT	Integrated S3 ProSavage8 using main memory	Minitower	Good: 16X DVD-ROM drive, 40X/16X/48X CD-RW drive, Microsoft Works 7 and Money 2003	Poor	Very good	Good/ Fair
	10 percent						10 percent	10 percent	5 percent	25 percent

¹ Vertical cases are towers (over 20 inches), midsized towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Horizontal cases are desktops (5 inches or taller) or compacts (under 5 inches).

² Insufficient data to give a rating.

All three of our new power systems include rewritable DVD drives and ATI's high-end Radeon 9800 Pro, a recently released graphics board that turned in stunning frame rates in our 3D gaming tests. The Dell Dimension 8300 and the Falcon Northwest Mach V come with a gigabyte

of fast DDR400 memory, too. (After we tested the Gateway 700XL, the company changed the default RAM configuration for this system to 1 gigabyte as well—and raised the price \$100.) Not surprisingly, all of these computers are fairly expensive; the cheapest, at \$3117, is the ►



THE FALCON NORTHWEST MACH V includes cutting-edge parts, but it is very expensive.

TOP 5 CORPORATE PCs

	SYSTEM	Overall rating	Street price (4/24/03)	PC WorldBench 4 performance score ¹	Faster	Comments
1	Best Buy Compaq Evo D510 Convertible Minitorwer 2.8 GHz find.pcworld.com/32009	84	Expensive \$2012	Windows XP Professional	Outstanding 120	Top-notch performer has a roomy case; the model we reviewed can handle two displays simultaneously. (★★★★★ Jan 03)
2	IBM NetVista M42 find.pcworld.com/32015	84	Inexpensive \$1338	Windows XP Professional	Fair 106	Sluggish speed is offset by software tools like Rapid Restore, for returning the system to its original state. (★★★★★ Jan 03)
3	Dell OptiPlex SX260 find.pcworld.com/35288	76	Average \$1983	Windows XP Professional	Good 113	Diminutive case has unique mounting features and a media bay that takes Dell notebook removable optical drives. (★★★★★)
4	PC Power & Cooling SleekLine 2660 find.pcworld.com/35249	74	Average \$1517	Windows XP Professional	Outstanding 117	This 2.24-inch-tall compact can mount under a desk or in a rack; limited management tools and expansion room. (★★★★★)
5	Gateway E-2000 find.pcworld.com/35354	70	Very inexpensive \$849	Windows XP Professional	Poor 81	Bare-bones corporate desktop has a stylish case and is very affordable, but performance is well below average. (★★★★★)
Percent of overall rating ▶			20 percent	20 percent		

Go to find.pcworld.com/10860 for details on PC World's Star Ratings.

¹ Total capacity.

² Vertical cases are towers (over 20 inches), midsize towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Horizontal cases are desktops (5 inches or taller) or compacts (under 5 inches).

Dimension 8300. The Mach V is extremely expensive by today's standards at \$4224.

The ABS Awesome 3380 retains the top spot on the value side of the chart, while

systems from HP and Amax debut lower on the list. Targeting home PC buyers, HP's Compaq Presario 6470NX carries a 120GB hard drive, a moderately powerful

ATI graphics card, and a modest price of just under \$1300. HP sells this model as a fixed configuration, so you can't order your system with better graphics, a faster

TECH TREND

Recovery Time: Send Your System Into the Past

EVERYTHING NEEDS A FRESH START sometimes, including your PC. When it starts behaving badly, and your attempted remedies only make it worse, it may be time to return your computer to the state it was in when you bought it. This is a drastic solution, but when the Windows XP rollback option doesn't work or Windows just won't boot, you may not have a choice. "When something is merely uninstalled, it can still leave traces of itself in the system's Registry and in the system folders as well," says Bradd Berdelman of Falcon Northwest. "This can lead to problems and decreased performance over several months." One approach to getting rid of all the flotsam clogging up your system is to restore the machine to the way it was initially—and many vendors provide tools that can do this quickly and easily.

Nearly every system we've seen over the past few months has included a restore disc, which can take your PC back in time to when you purchased it. Falcon Northwest, for instance, provides a recovery DVD that contains the original customized setup. "This allows them to have a 'factory-fresh' operating system within 15 minutes," says Berdelman.

Other system vendors do things differently. Xi Computer bundles a copy of Norton SystemWorks 2003 Profes-

sional with its PCs; the suite includes the disk-imaging program Norton Ghost. Before shipping a system, Xi copies an image of the hard drive to CD so that the owner can use Norton Ghost to restore the drive to its original condition. Instead of bundling a restore CD, ABS creates a backup image of the hard drive (in its original state) and places it on another partition. A rescue floppy disk allows you to restore your PC from the backup image.

Not every vendor provides these tools. Systems we've tested from Micro Express came with the Windows XP CD only. With this, you have two restoration options: Reinstall Windows and then install all the required drivers, or take an image of the hard drive yourself (using a program such as Norton Ghost or Powerquest Drive Image) when you first receive the PC.

Again, restoring your system to its original state is a last resort. By using the restore CD, you will erase all the data from your hard drive; and if you've added any new devices, you may lose the drivers that you installed for them. See find.pcworld.com/35375 for our tips on what to do when Windows won't boot. And making your own backup copy of your entire hard drive isn't difficult; see find.pcworld.com/35438 for our complete guide to backing up your system and reinstalling Windows.



Visit find.pcworld.com/35714 for reviews of all products tested this month and ranked in this chart.

BASE CONFIGURATION						Extra features ¹	Graphics quality	Setup and ease of use	Vendor's reliability
CPU	RAM (MB/type)	Hard drive (GB) ¹	Monitor	Graphics	Case type ²				
2.8-GHz Pentium 4	512/DDR266 SDRAM	40	17-inch LCD	64MB NVidia Quadro4 200NVs Dual Head	Midsized tower	Very good: 12X/8X/32X CD-RW drive, Wake-on-LAN, tool-less drive bay carriers, chassis intrusion detection	Good	Good	Fair
2.4-GHz Pentium 4	256/DDR266 SDRAM	40	17-inch CRT	Integrated Intel 845G using main memory	Desktop	Good: 24X-48X CD-ROM drive, Wake-on-LAN, tool-less drive bay carriers, chassis intrusion detection	Outstanding	Poor	Good
2.8-GHz Pentium 4	512/DDR266 SDRAM	40	15-inch LCD	Integrated Intel Extreme using main memory	Compact	Very good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, removable tool-less drive bay, Wake-on-LAN, chassis intrusion detection	Outstanding	Good	Good
2.67-GHz Pentium 4	512/DDR266 SDRAM	40	15-inch LCD	Integrated Intel Extreme using main memory	Compact	Good: 8X DVD-ROM and 16X/10X/24X CD-RW combo drive, PC Card slot	Very good	Good	*
2-GHz Celeron	128/DDR266 SDRAM	40	15-inch CRT	Integrated Intel Extreme using main memory	Minitower	Good: 24X-48X CD-ROM drive, Wake-on-LAN, chassis intrusion detection, Norton AntiVirus 2003	Good	Good	Fair
15 percent						15 percent	5 percent	10 percent	15 percent

¹ All systems shipped with a network adapter.

² Insufficient data to give a rating.

CPU, or more memory. For a higher price, you can swap the CRT for an LCD or get a set of great-sounding Logitech Z-640 speakers. The Amax P4V Value system comes with a 15-inch LCD, though in our tests its image quality was merely average. The P4V Value would be fine for word processing and general use, but the 17-inch LCD monitor that came with the Gateway 500X was far superior, and that system costs only \$235 more.

Premio's Calypso 4E system failed to make the value chart. Though the system was attractively priced at \$1089, it turned in a very disappointing PC WorldBench 4 score of only 108. Still, the Calypso 4E included several nice touches, such as a front-mounted panel containing USB and FireWire ports, as well as slots for both CompactFlash and SmartMedia memory cards. Go to find.pcworld.com/35291 to read a full review of this system.

DOING BUSINESS

THIS MONTH we shift our focus to PCs for medium to large businesses, with our *Top 5 Corporate PCs* chart. Buyers of these systems are more interested in stability and manageability than cutting-edge components and 3D graphics performance.

All of the systems we reviewed for our corporate PCs chart include a range of management features that let an administrator control

them remotely. Each major vendor offers its own control software with slightly different features. IBM, for instance, includes software called Rapid Restore that allows an administrator to quickly restore the contents of the hard drive if they become damaged. Gateway and Power PC & Cooling don't sell their own management programs, but their PCs can work with other management programs.

Corporate PCs that can squeeze into tiny spaces have been around for a while, but their makers often have to jettison desirable features to keep the size down. At only 3.3 by 9.7 by 9.9 inches, Dell's OptiPlex SX260 would fit into most tight spots—you can even mount it behind the 15-inch 1054FP LCD monitor. Its modular bay can use optical drives designed for Dell's Latitude C range of notebooks, so you can share drives between them. Dell's



LegacySelect system permits an administrator to turn off the USB 2.0, parallel, and serial ports so that a user intent on stealing data can't plug in a USB floppy drive and copy data—a feature the SX260 shares with corporate systems from HP and IBM. The Power PC & Cooling SleekLine 2660 has another option for fitting in a small space: About 2 inches thick, it can be mounted underneath a desk without taking up too much room. Both systems have an Achilles heel, however, as they leave little room for expansion, and neither includes empty drive bays or PCI slots. The SleekLine does have a PC Card port, though, and both machines offer lots of USB 2.0 ports.

IBM and Dell intend to launch new systems that should be available for sale by the time you read this but weren't ready in time for our testing. IBM recently announced a new range of corporate PCs under the ThinkCenter brand. The company claims that, for quick service, all components—including the motherboard—in the new systems can be removed and replaced simply by your snapping them out and back in. Meanwhile, Dell has announced the new OptiPlex 270 line, which includes the GX270 desktop and the SX270 ultrasmall systems; both use Intel's new 865G chip set and will have a wide range of corporate features, such as Serial ATA support and improved remote manageability. ■



IBM'S NEW THINKCENTER S50 allows all components to be removed without tools.

TOP 15 NOTEBOOK PCs

POWER NOTEBOOK		Overall rating	Street price (4/18/03)	PC WorldBench 4 performance score ¹ 	Comments
1	Best Buy IBM ThinkPad T40 find.pcworld.com/34817	88	Very expensive \$3249	Windows XP Professional Outstanding 124	Lightweight laptop has superlong battery life, dual pointing devices, and built-in wireless in Bluetooth, 802.11a, and 802.11b flavors. (★★★★★ June 03)
2	Gateway 450X find.pcworld.com/35312 NEW	88	Inexpensive \$1899	Windows XP Professional Very good 117	Plain-looking notebook offers a superb keyboard and combination drive. A floppy drive is optional. (★★★★★)
3	Toshiba Satellite 2455-S305 find.pcworld.com/34820	87	Inexpensive \$1899	Windows XP Home Very good 117	This notebook's eye-catching case colors, Secure Digital slot, and DVD burner should please creative professionals. (★★★★★ June 03)
4	Toshiba Satellite Pro M15-S405 find.pcworld.com/35315 NEW	85	Inexpensive \$1999	Windows XP Home Average 98	Handsome black laptop has a Secure Digital memory slot and a great keyboard, but the touchpad can be tough to use. (★★★★★)
5	IBM ThinkPad R40 find.pcworld.com/34181	85	Inexpensive \$2149	Windows XP Professional Good 107	Well-designed midsize model includes a ThinkLight to illuminate the keyboard in dim light; 802.11b Wi-Fi is an extra-cost option. (★★★★★ May 03)
6	Amax Elite 6033D find.pcworld.com/35318 NEW	83	Inexpensive \$1969	Windows XP Professional Very good 115	Unit designed for convenience includes slots for the latest types of memory cards, as well as an optical drive located on the front. (★★★★★)
7	Compaq Evo N610c find.pcworld.com/32228	82	Inexpensive \$1924	Windows XP Professional Average 101	A funky, silver wireless MultiPort module on the lid and dual pointing devices highlight this square black laptop. (★★★ Feb 03)
Percent of overall rating ▶		15 percent	20 percent		
VALUE NOTEBOOK		Overall rating	Street price (4/18/03)	PC WorldBench 4 performance score ¹ 	Comments
1	Best Buy Compaq Presario 2100Z find.pcworld.com/34823	80	Inexpensive \$1024	Windows XP Home Good 102	Bargain portable has a tricolor case, colorful status LEDs, and useful application shortcuts, but middling sound. (★★★★★ June 03)
2	Gateway 400SP Plus find.pcworld.com/35345 NEW	80	Very inexpensive \$949	Windows XP Home Average 96	Gray-and-silver notebook's memory card reader can read six formats. Has a large screen for its price. (★★★★★)
3	Micro Express NP1024A find.pcworld.com/35321 NEW	76	Average \$1499	Windows XP Professional Outstanding 111	A cool bluish-silver lid, dedicated audio controls, and a SmartMedia slot distinguish this unit. (★★★★★)
4	Compaq Presario 3005us find.pcworld.com/33764	75	Average \$1478	Windows XP Home Very good 104	Large, conservative desktop replacement offers a so-so keyboard but acres of display space on its 16-inch screen. (★★★★★ Apr 03)
5	Toshiba Satellite Pro 6100 find.pcworld.com/31829	75	Expensive \$1857	Windows XP Professional Good 100	All-black box includes built-in 802.11b Wi-Fi and a modular bay capable of accommodating an optical drive or a second battery. (★★★★★ Jan 03)
6	Dell Latitude C640 find.pcworld.com/32825	74	Expensive \$1865	Windows XP Professional Average 98	Basic-black business notebook boasts dual-pointing-device flexibility, but it's not a multimedia star. (★★★ Mar 03)
7	Chem USA ChemBook 4025 find.pcworld.com/31835	72	Average \$1699	Windows XP Home Very good 104	Surprisingly lightweight all-in-one has a full set of traditional connections and a laundry list of extras, but sound quality is poor. (★★★ Jan 03)
8	WinBook X4 find.pcworld.com/34826	72	Inexpensive \$1298	Windows XP Professional Average 91	Baby-blue notebook includes a combo drive for a reasonable price, but provides merely average performance and battery life. (★★★ June 03)
Percent of overall rating ▶		20 percent	15 percent		

Go to find.pcworld.com/10860 for details on PC World's Star Ratings.

¹ Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. For more details, see "Your Guide to the Top 100" on page 129.

² Except where noted, all Intel CPUs are SpeedStep chips, which run at a slower speed on battery power. (We performance-test all notebooks plugged in.)
³ In gigabytes.

IT'S OFFICIAL: IN THE QUEST for longer notebook battery life, Intel's new Pentium M processor rocks. Last month IBM's ThinkPad T40, equipped with a 1.6-GHz Pentium M CPU, claimed our power Best Buy award with the help of an astounding 6.3-hour battery life. This month two more long-lasting M portables hit our

chart: In our battery tests, the Toshiba Satellite Pro M15-S405 ran over 6 hours, and the Gateway 450X, almost 4 hours.

On average, the three Pentium M laptops lasted nearly 3 hours longer than did the other notebooks (mostly Pentium 4-M models) that we've tested recently.

Visit find.pcworld.com/35348 for reviews of all products tested this month and ranked in this chart.

	BASE CONFIGURATION						Extra features ^a	Overall design	Battery life (hours:min) ^a	Average weight (pounds) ^a	Vendor's reliability/ service
	CPU ²	Screen (inches)	RAM (MB)	Hard drive ³	Pointing device	Multi-purpose bays					
	1.6-GHz Pentium M	14.1	512	80	Touchpad, eraserhead	1	Fair: 24X/10X/24X CD-RW drive, built-in network adapter, Bluetooth	Outstanding	Outstanding/ 6:23	Light/ 6.2	Good/Good
	1.5-GHz Pentium M	15	256	40	Touchpad	1	Good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, built-in modem and network adapter, FireWire port, Works 2003	Very good	Very good/ 3:49	Average/ 7.4	Good/Fair
	2.4-GHz Pentium 4 ⁷	15	512	60	Touchpad	1	Very good: DVD-R/RW drive, built-in modem and network adapter, Microsoft Works 2002	Very good	Good/ 3:07	Heavy/ 9.1	Good/Fair
	1.4-GHz Pentium M	15	512	40	Touchpad, eraserhead	1	Good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, built-in modem and network adapter, FireWire port	Very good	Outstanding/ 6:05	Average/ 7.6	Good/Fair
	2.2-GHz Pentium 4-M	15	256	60	Touchpad, eraserhead	1	Good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, built-in modem and network adapter	Outstanding	Good/ 3:22	Average/ 7.2	Good/Good
	2.8-GHz Pentium 4 ⁷	15	512	40	Touchpad	1	Good: 8X DVD-ROM and 16X/10X/24X CD-RW combo drive, built-in modem and network adapter, FireWire port, Works 2003	Very good	Limited/ 1:56	Heavy/ 8.5	*/*
	2-GHz Pentium 4-M	14.1	256	40	Touchpad	1	Good: 8X DVD-ROM and 16X/10X/24X CD-RW combo drive, built-in modem and network adapter	Very good	Fair/ 2:04	Average/ 6.6	Fair/Poor
	5 percent						10 percent	10 percent	5 percent	10 percent	25 percent

	BASE CONFIGURATION						Extra features ^a	Overall design	Battery life (hours:min) ^a	Average weight (pounds) ^a	Vendor's reliability/ service
	CPU ²	Screen (inches)	RAM (MB)	Hard drive ³	Pointing device	Multi-purpose bays					
	1.52-GHz Mobile Athlon 4 XP 1800+ ⁹	15	512	40	Touchpad	0	Very good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, built-in modem and network adapter, Office XP SBE 2002	Fair	Good/ 3:02	Heavy/ 8.0	Fair/Poor
	1.8-GHz Mobile Celeron ⁹	15	256	30	Touchpad	0	Good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, built-in modem and network adapter, Microsoft Works 2003	Good	Fair/ 2:58	Average/ 6.9	Good/Fair
	2.4-GHz Pentium 4-M	14.1	512	40	Touchpad	1	Fair: 8X DVD-ROM and 8X/8X/24X CD-RW combo drive, built-in modem and network adapter, FireWire port	Fair	Fair/ 2:00	Average/ 7.7	*/*
	2A-GHz Pentium 4 ⁷	16	512	40	Touchpad	0	Good: 8X DVD-ROM and 16X/10X/24X CD-RW combo drive, built-in modem and network adapter, Microsoft Works 2002	Fair	Good/ 3:03	Very heavy/ 9.4	Fair/Poor
	2-GHz Pentium 4-M	15	512	60	Eraserhead	1	Fair: 8X DVD-ROM and 8X/8X/24X CD-RW combo drive, built-in modem and network adapter	Very good	Limited/ 1:53	Heavy/ 7.8	Good/Fair
	2-GHz Pentium 4-M	14.1	256	40	Touchpad, eraserhead	1	Fair: 8X DVD-ROM and 16X/10X/24X CD-RW combo drive, built-in modem and network adapter	Fair	Good/ 3:00	Heavy/ 7.9	Fair/Fair
	2.2-GHz Pentium 4-M	15	512	30	Touchpad	0	Fair: 8X DVD-ROM and 8X/8X/24X CD-RW combo drive, built-in modem and network adapter	Fair	Fair/ 2:23	Heavy/ 7.8	*/*
	2-GHz Pentium 4-M	14.1	256	30	Touchpad	0	Good: 8X DVD-ROM and 24X/10X/24X CD-RW combo drive, built-in modem and network adapter	Fair	Fair/ 2:20	Average/ 7.3	*/*
	5 percent						10 percent	10 percent	5 percent	10 percent	25 percent

^a Word score reflects both listed and unlisted features.
³ Unless otherwise noted, all notebooks come with a lithium ion battery.

^a Includes computer, AC adapter, power cord, floppy drive, and optical drive.
⁷ Single-speed desktop CPU.
⁹ Insufficient data to give a rating.

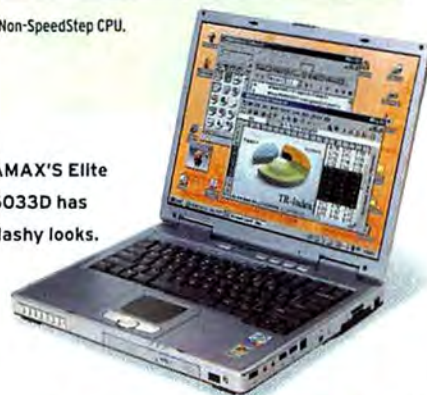
^a Non-SpeedStep CPU.

Another power newcomer, the Amax Elite 6033D, stands out for two relative rarities: a surprisingly attractive purple case and an optical drive on the front, a more convenient location.

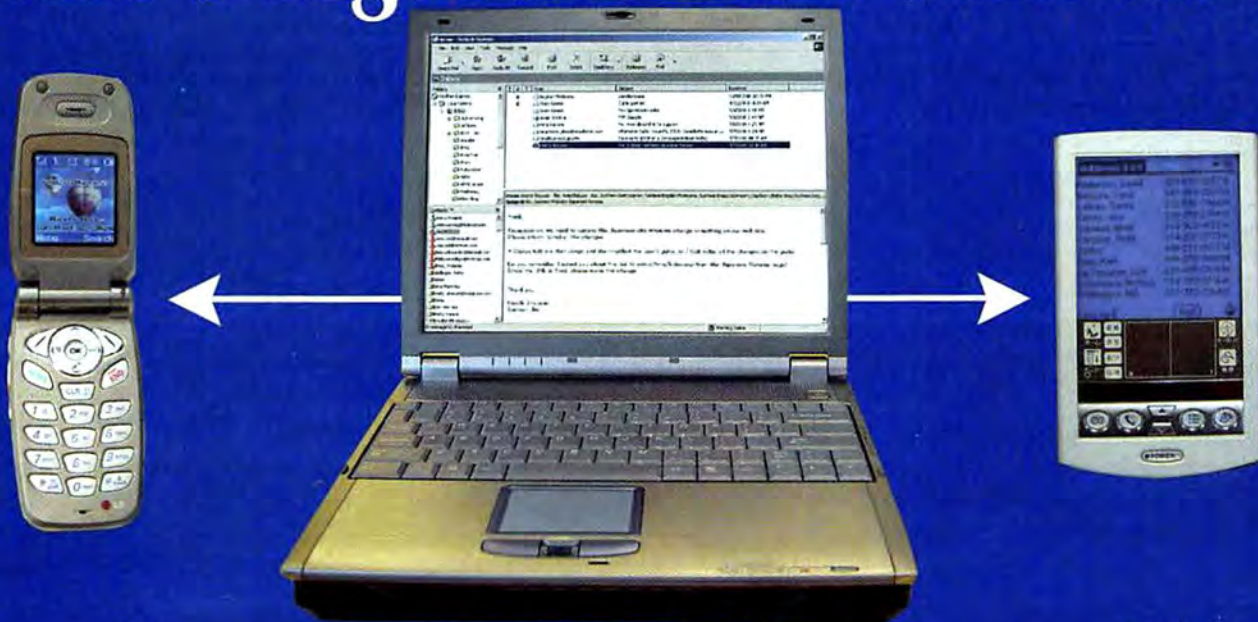
On the value list, Gateway's 400SP Plus nearly ousted the Best Buy Compaq Pre-

sario 2100Z from first place. Though a shade less well equipped, the \$949 400SP Plus has one thing the \$1024 2100Z does not: a six-in-one card reader. Finally, the new Micro Express NP1024A debuts with cool looks, a reasonable \$1499 price, and a SmartMedia card slot. ■

AMAX'S Elite 6033D has flashy looks.



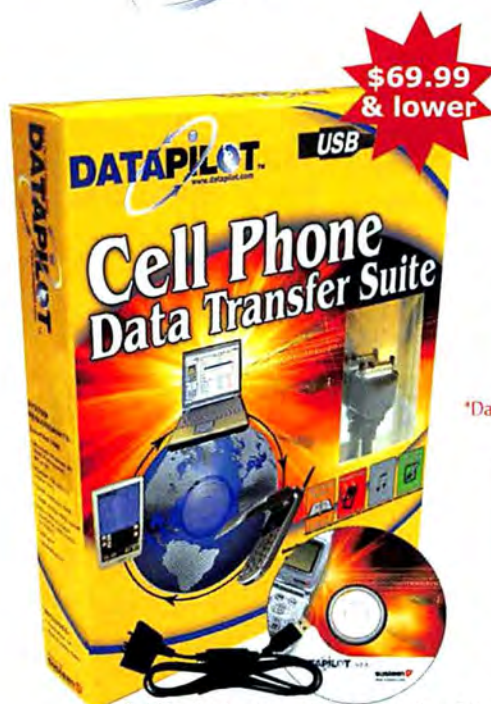
Some things have to be done daily



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TOP 10 PRINTERS

Visit find.pcworld.com/35378 for reviews of all products tested this month and ranked in this chart.

INK JET PRINTER PRICES continue to fall, but fortunately not at the expense of image quality. For instance, Lexmark's new Z605 delivered beautifully detailed gray-scale graphics and passable photo prints in our tests—and it costs only \$50. (Its ink costs are a little on the steep side, however.)

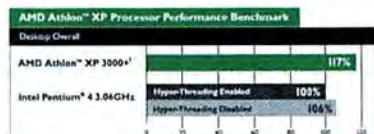
Canon's new four-color i450 earns fifth place this month. At \$100, it's twice as much as the Lexmark, but the extra cost translates into better-looking photo prints. In our tests, the i450's photos displayed the smooth transitions that we normally observe only with pricier six-color models.

	INK JET PRINTER	Street price (4/28/03)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/graphics	Cost/page yield for color inks	Comments
1	Best Buy Canon i320 Color Bubble Jet Printer find.pcworld.com/32105	\$55	95	4.7/0.7	Good/Good	\$19/170	FEATURES: Rated 10 ppm monochrome/6 ppm color. 2400-by-1200-dpi maximum resolution, 150 sheets input and output; black cartridge and one tricolor cartridge. SUMMARY: Second least-expensive model here prints clean and clear text, plus fairly accurate skin tones, but slightly washed-out photos. (★★★★★ Jan 03)
2	Best Buy Canon i550 Color Bubble Jet Printer find.pcworld.com/32108	\$130	93	7.3/1.3	Good/Good	\$36/490	FEATURES: Rated 18 ppm monochrome/11 ppm color. 2400-by-1200-dpi maximum resolution, 150 sheets input and output; black cartridge and three color cartridges. SUMMARY: An excellent all-purpose performer. Colors in photo prints looked accurate but slightly washed out. (★★★★★ Jan 03)
3	Canon S330 Color Bubble Jet Printer find.pcworld.com/32876	\$80	93	5.9/0.9	Good/Good	\$19/170	FEATURES: Rated 14 ppm monochrome/10 ppm color. 2400-by-1200-dpi maximum resolution, 100 sheets input and output; black cartridge and one tricolor cartridge. SUMMARY: This low-priced, all-purpose printer handles most basic jobs well and produces good-looking photo prints. Setup was a snap. (★★★★★ Mar 03)
4	Canon i850 Photo Printer find.pcworld.com/32096	\$170	91	7.7/2.2	Very good/Good	\$36/385	FEATURES: Rated 22 ppm monochrome/14 ppm color. 4800-by-1200-dpi maximum resolution, 150 sheets input and output; black cartridge and three color cartridges. SUMMARY: Fastest printer here is a good all-around choice, although photo prints could have been more vivid. (★★★★★ Jan 03)
5	Canon i450 Color Bubble Jet Printer NEW find.pcworld.com/35339	\$100	90	5.4/0.9	Very good/Very good	\$18/580	FEATURES: Rated 22 ppm monochrome/18 ppm color. 4800-by-1200-dpi maximum resolution, 100 sheets input and output; black cartridge and one tricolor cartridge. SUMMARY: Photo prints had a bluish cast, but their smooth gradients and transitions rivaled prints from six-color models we've tested. (★★★★★)
6	Lexmark Z605 Color Jetprinter NEW find.pcworld.com/35342	\$50	89	4.8/0.6	Good/Good	\$32/275	FEATURES: Rated 14 ppm monochrome/8 ppm color. 4800-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. SUMMARY: Gray-scale images showed excellent detail and shades; in photo prints, overall cast was slightly blue and skin tones were a bit ashen. (★★★★★)
7	HP Deskjet 3820 find.pcworld.com/30821	\$99	89	4.1/1.1	Very good/Good	\$35/450	FEATURES: Rated 6 ppm monochrome/4.5 ppm color. 1200-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. SUMMARY: Text was clear, but could have been denser. Photos looked especially bright and sharp, though one image had a blue cast. (★★★★★ Jan 03)
8	HP Deskjet 5550 find.pcworld.com/30818	\$150	88	4.8/1	Good/Good	\$35/400	FEATURES: Rated 6 ppm monochrome/4 ppm color. 4800-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. SUMMARY: Prints beautiful photos and has advanced features to sense paper type and to automatically calibrate the device. (★★★★★ Jan 03)
9	Lexmark Z55se Color Jetprinter find.pcworld.com/30830	\$85	85	6.4/1.1	Good/Fair	\$35/450	FEATURES: Rated 17 ppm monochrome/13 ppm color. 4800-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. SUMMARY: We liked this printer's black, clear text and fast printing speeds, but skin tones looked ashen in prints of our test photos. (★★★★★ Jan 03)
10	Epson Stylus C62 find.pcworld.com/30827	\$80	84	6.2/1.6	Fair/Fair	\$28/300	FEATURES: Rated 14 ppm monochrome/10 ppm color. 5670-by-720-dpi maximum resolution, 100 sheets input, 30 output; black cartridge and one tricolor cartridge. SUMMARY: Produced impressive details and excellent transitions in photos. Skin tones appeared a little too pink, though. (★★★★★ Jan 03)

HOW WE TEST: We run time tests for text, line-art, and color and gray-scale photo samples, and then a panel of judges rates image quality. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on PC World's Star Ratings. **CHART NOTES:** The overall rating we assign is based on price (25 percent), print quality (20 percent), features (15 percent), ease of use (15 percent), speed (10 percent), service and support (10 percent), and cost of consumables (5 percent). For all ratings, higher is better. Listed text speed is the average time required to print a text document and spreadsheet in different quality modes; graphics speed is the average of the speeds for printing graphics from various applications, in color and gray scale. Ink cost is for a full set of color inks, which may come in multiple cartridges; page yield is the average of vendor-specified yields for each color (excluding black).

Best of the Best

Use best components to build best systems since 1990

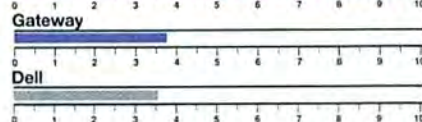


Source: PricewaterhouseCoopers
Visit www.amd.com to view the data and audit result

Customer Satisfaction
ABS® Computer



May 08, 2003



The AMD Athlon™ XP Processor
-- Extreme Performance for Windows® XP

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* Tremendous performance while working on multiple applications

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* Get rapid results when working with digital media including audio, video and digital files



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NEC 19" 22mm 1600X1200 Color Monitor
NVIDIA® SoundStorm Audio Processor Unit (APU) w/Dolby Digital Encoder
Logitech Z-640 5.1 Subwoofer/Speakers
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Chieftec Wireless Keyboard and Mouse
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AMD Athlon™ XP Processor 3000+**	\$1769
AMD Athlon™ XP Processor 2800+***	\$1669
AMD Athlon™ XP Processor 2600+****	\$1599

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AMD Athlon™ XP Processor 3000+ with QuantumSpeed™ architecture** outperforms competitive 3.0GHz processors

\$1729



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NVIDIA® nForce™2 DDR400 8X AGP Motherboard w/Dual LAN & IEEE 1394
Kingston 512MB Fast PC3200 400MHz DDR SDRAM Memory
Two 80GB 7200RPM Ultra ATA Hard Drives w/8MB Cache
Pioneer 16X DVD Player & Mitsumi 1.44MB Floppy Drive
Lite-On 52X24X52 BURN-Proof™ CD-ReWritable Drive
New NVIDIA® GeForce FX 5600 w/128MB 8X AGP Video Card w/TV-Out & DVI
NEC 19" 22mm 1600X1200 Color Monitor
NVIDIA® SoundStorm Audio Processor Unit (APU) w/Dolby Digital Encoder
Logitech Z-640 5.1 Subwoofer/Speakers
DualNet on board w/NVIDIA Networking & 3Com Networking & V.92 PCI 56K Modem
Microsoft Internet Keyboard and IntelliMouse
Microsoft Windows® XP Home Edition

AMD Athlon™ XP Processor 3200+*	\$1859
AMD Athlon™ XP Processor 2800+***	\$1629
AMD Athlon™ XP Processor 2600+****	\$1559

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AMD Athlon™ XP Processor 2700+ with QuantumSpeed™ architecture** outperforms competitive 2.7GHz processors

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Antec PlusView1000AMG Case w/Acrylic Windows 400-Watt PS & Neon Light
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Kingston 512MB Fast PC3200 400MHz DDR SDRAM Memory
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Chieftec Wireless Keyboard and Mouse
Microsoft Windows® XP Home Edition

AMD Athlon™ XP Processor 3200+*	\$1669
AMD Athlon™ XP Processor 3000+**	\$1539
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AMD Athlon™ XP Processor 2400+ with QuantumSpeed™ architecture** outperforms competitive 2.4GHz processors

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60GB 7200RPM Ultra ATA Hard Drive
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Lite-On 52X24X52 BURN-Proof™ CD-ReWritable Drive
NVIDIA® GeForce™4 MX440 8X AGP w/64MB Video Card w/TV-Out
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AMD Athlon™ XP Processor 2800+***	\$ 919
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TOP 10 MONITORS

Visit find.pcworld.com/35309 for reviews of all products tested this month and ranked in this chart.

THE SAMSUNG SYNCMASTER 957mb tops the chart again this month. It earned high marks in our tests for text and graphics, and has features such as a highlight box that you can move and resize. Though the number two Philips 109B43 has a couple of extras, its image quality fell slightly below the

Samsung's. Its price, however, beats the 957mb's by \$100.

If you have deep pockets and image quality is your top priority, you may be interested in a model that didn't make the cut: the Eizo Nanao FlexScan T766. It earned the only Outstanding rating for graphics this month—but it costs \$689.

	19-INCH CRT MONITOR	Street price (4/21/03)	Overall rating	Quality of text/graphics	Comments
1	Best BUY Samsung SyncMaster 957mb find.pcworld.com/35177	\$319	86	Very good/ Very good	FEATURES: 18-inch viewable area, .24mm ¹ flat shadow mask tube, up to 89-Hz refresh rate, up to 1756 by 1317 resolution at 70 Hz, three-year warranty, 24-hour daily toll-free support. SUMMARY: A good choice for sharp text and vivid graphics at a mid-range price. One button offers three color-temperature settings. Adjustable highlight box lets you brighten selected screen areas. Retested this month. (★★★★☆)
2	Best BUY Philips 109B43 find.pcworld.com/35162 NEW	\$219	85	Good/ Good	FEATURES: 18-inch viewable area, .25mm ¹ flat shadow mask tube, up to 91-Hz refresh rate, up to 1600 by 1200 resolution at 70 Hz, three-year warranty, 16-hour weekday toll-free support, 14 hours on weekends. SUMMARY: Colors proved lively and realistic on photographic screens. Fine-tuning the monitor's controls is intuitive, and the unit comes with image-adjustment software. Best manual of the bunch. (★★★★☆)
3	Compaq S9500 find.pcworld.com/35171	\$229	84	Good/ Good	FEATURES: 18-inch viewable area, .26mm ¹ shadow mask tube, up to 85-Hz refresh rate, up to 1600 by 1200 resolution at 70 Hz, three-year warranty, 24-hour daily toll-free support. SUMMARY: Vivid and accurate photographic screens improved on an earlier sample. The on-screen controls are simple to use and earned high marks, but image-adjusting software isn't included. Retested this month. (★★★★☆)
4	Dell M992 find.pcworld.com/35192	\$249	81	Good/ Good	FEATURES: 18-inch viewable area, .24mm ¹ flat shadow mask tube, up to 75-Hz refresh rate, up to 1600 by 1200 resolution at 70 Hz, three-year warranty, 24-hour daily toll-free support. SUMMARY: Crisp text, even for small font sizes, makes this a natural choice for heavy readers. The accompanying CD includes a color-mapping profile, and the controls are well organized. Retested this month. (★★★★☆)
5	Mitsubishi Diamond Pro 930SB find.pcworld.com/35165	\$340	81	Good/ Fair	FEATURES: 18-inch viewable area, .24mm ¹ flat Diamondtron aperture grille tube, ² up to 101-Hz refresh rate, up to 1920 by 1440 resolution at 70 Hz, three-year warranty, 24-hour daily toll-free support. SUMMARY: Unit displays clear text, and comes with easy-to-use features, such as toggling to a brighter setting with one button press. Color-adjustment software is included. Retested this month. (★★★★☆)
6	Hitachi CM721F find.pcworld.com/35195 NEW	\$266	80	Good/ Good	FEATURES: 18-inch viewable area, .24mm ¹ flat shadow mask tube, up to 85-Hz refresh rate, up to 1600 by 1200 resolution at 70 Hz, five-year warranty, 9-hour daily toll-free support. SUMMARY: Better on graphics than text, this monitor offers a fair number of features, good on-screen controls, and a thorough manual, though troubleshooting information is scant. (★★★☆☆)
7	NEC MultiSync FE991SB-SK find.pcworld.com/35180	\$270	80	Fair/ Good	FEATURES: 18-inch viewable area, .25-.27mm ¹ flat Diamondtron aperture grille tube, ² up to 89-Hz refresh rate, up to 1792 by 1344 resolution at 70 Hz, TCO'95-compliant, three-year warranty, 24-hour daily toll-free support. SUMMARY: Graphics looked detailed, but text wasn't razor-sharp. The unit's strengths include straightforward controls and such advanced features as focus control. Retested this month. (★★★★☆)
8	IBM P97 find.pcworld.com/35189	\$409	79	Good/ Very good	FEATURES: 18-inch viewable area, .24mm ¹ FD Trinitron aperture grille tube, ² up to 85-Hz refresh rate, up to 1600 by 1200 resolution at 70 Hz, TCO'95-compliant, three-year warranty, 24-hour daily toll-free support. SUMMARY: Rich, realistic colors and good-looking images suit this monitor for graphics applications. User controls could be more intuitive. Retested this month. (★★★★☆)
9	Hansol 920D find.pcworld.com/35297 NEW	\$249	78	Good/ Very good	FEATURES: 18-inch viewable area, .25mm ¹ flat invar shadow mask tube, up to 85-Hz refresh rate, up to 1600 by 1200 resolution at 70 Hz, three-year warranty, 9-hour weekday toll-free support. SUMMARY: This monitor is well priced for its high graphics quality, and the text looked fairly crisp, but we found the on-screen controls difficult to navigate and the manual not very helpful. (★★★☆☆)
10	Sony HMD-A440 find.pcworld.com/35174 NEW	\$400	78	Very good/ Good	FEATURES: 18-inch viewable area, .24-.25mm ¹ FD Trinitron aperture grille tube, ² up to 90-Hz refresh rate, up to 1280 by 1024 resolution at 70 Hz, not TCO-compliant, three-year warranty, 24-hour daily toll-free support. SUMMARY: Produced easy-to-read text and nice-looking graphics, but the price is high. Executing commands with the joystick control was frustrating. (★★★☆☆)

FOOTNOTES: ¹ Specification represents diagonal dot pitch for shadow mask monitors and stripe or varying stripe pitch for aperture grille monitors. ² Uses an aperture grille in which parallel wires near the sides of the screen are farther apart than those at the middle. **HOW WE TEST:** Color and gray-scale screens are from the DisplayMate for Windows utility (www.displaymate.com). See find.pcworld.com/34613 for testing details. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** Overall rating is based on text and graphics quality (25 percent each), price (25 percent), features and ease of use (20 percent), and service and support (5 percent); best possible rating is 100. All monitors are TCO '99 compliant unless otherwise noted. Refresh rate is the maximum at 1280 by 1024 resolution (the tested resolution for this size monitor). See find.pcworld.com/10860 for details on PC World's Star Ratings.

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- Pioneer DVD-RW & CD-RW Combo Drive
- Creative Lab SoundBlaster Live 5.1 Sound Card
- U.S Robotics 56K V.90 (3095) Fax Modem
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- Logitech 6PC W/Subwoofer Z-640 5.1 Surround sound
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CNET's Latest Review for Home Office Desktop A5003



Design :
The ZT Group Home Office Desktop A5003 is a well-designed system

Feature :
Given the price, we're surprised at just how well ZT Group outfitted our Home Office Desktop A5003 review system
- By Adam Fisher, May 8, 2003 -



AMD Athlon™ XP 2800+... \$1,869.00



Gaming Desktop

CS-A5011

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- 1.44MB Floppy Drive
- Pioneer A105 DVD-RW & CD-RW Combo
- 256MB/500MHz(25X2) NVIDIA GeForce™ FX 5600 Ultra (8X AGP) w/TV-Out & DVI
- Creative Labs SoundBlaster Audigy 2 w/ 6.1 Surround Sound
- U.S Robotics 56K V.90 Fax Modem
- Integrated NVIDIA nForce2 MCP-T DualNet Ethernet
- Enemax Mid Tower Case w/See Through Window & Blue Neon Light
- Black Logitech Cordless Elite Duo Keyboard & Optical Mouse
- Black Logitech THX Z-560 4.1 Channel Home Theater Surround Sound
- Microsoft® Windows® XP Home Edition w/SP1 (CD & Manual are included)
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- (Word 2003/Money/Encarta/Outlook/Work 2003/Picture It/Photo 2003/Streets & Trips 2003)
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AMD Athlon™ XP 3200+...\$2,019.00

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CS-A5012

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- Black Logitech Cordless Elite Duo Keyboard & Optical Mouse
- Microsoft® Windows® XP Home Edition w/SP1(CD & Manual are included)
- Microsoft® Works Suite 2003
- (Word 2003/Money/Encarta/Outlook/Work 2003/Picture It/Photo 2003/Streets & Trips 2003)
- 3 Year Limited Warranty
- Free Life time Technical support
- Free Life time Labor warranty
- (Monitor Sold Separately)

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Home Essential Desktop

CS-A5013

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- 1.44MB Floppy Drive
- 16X DVD ROM
- 52X24X52 CD-RW
- Integrated NVIDIA GeForce 4 MX440 graphic
- Integrated NVIDIA 10/100 LAN
- 56K V.92 Fax Modem
- Enemax Mid Tower Case w/See Through Window & Blue Neon Light
- Logitech Internet Keyboard and Optical Mouse
- 3PCS Speaker w/Subwoofer
- Microsoft® Windows® XP Home Edition w/SP1(CD & Manual are included)
- Microsoft® Works Suite 2003
- (Word 2003/Money/Encarta/Outlook/Work 2003/Picture It/Photo 2003/Streets & Trips 2003)
- 3 Year Limited Warranty
- Free Life time Technical support
- Free Life time Labor warranty
- (Monitor Sold Separately)

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TOP 10 DVD DRIVES

Visit find.pcworld.com/35720 for reviews of all products tested this month and ranked in this chart.

THIS MONTH WE TESTED the first burner that writes to DVD+RW media at 4X speeds, and the results are fairly impressive. In our lab tests, Sony's new DRU-510A—the latest incarnation of our previous Best Buy, the DRU-500A—shaved about 25 percent off the time required to format a

DVD+RW disc and write 1.1GB of data. The previous model took nearly 12 minutes; the 510A took less than 9 minutes.

Also new are the TDK Indi DVD 420N and the Teac DV-W50E, both modestly priced. All but one drive on the chart—the tenth-place Memorex—support 4X write-once DVD.

	REWRITABLE DVD DRIVE	Street price (\$/5/03)	Overall rating	Performance	Write speed/rewrite speed	Comments
1	Best Buy Sony DRU-510A find.pcworld.com/35495 NEW	\$330	85	Outstanding	6:51/4:40 7:43/8:43'	FEATURES: Internal IDE drive, 4X/2X DVD-R/RW, 4X/4X DVD+R/RW, 24X/16X CD-R/RW, 8MB buffer, Sonic MyDVD 4, Veritas RecordNow DX 4.6 and DLA 3.57, Veritas Simple Backup, CyberLink Power2Go, ArcSoft ShowBiz; 12-hour weekday and Saturday toll-free support. SUMMARY: Sony's updated dual-format drive shows improvements in both DVD+RW write and -RW read speeds. (★★★★☆)
2	Best Buy Pioneer DVR-A05 find.pcworld.com/32642	\$250	85	Very good	6:43/36:27	FEATURES: Internal IDE drive, 4X/2X DVD-R/RW, 16X/8X CD-R/RW, 2MB buffer, Sonic MyDVD 4, Roxio Easy CD Creator Basic 5.3, Pinnacle InstantWrite 4, ArcSoft ShowBiz, Sonic CinePlayer; 10.5-hour weekday toll-free support. SUMMARY: One of the faster DVD-RW drives, the Pioneer comes with DVD editing and authoring software. Price drops \$25 this month. (★★★★☆: Feb 03)
3	LG Super-Multi DVD-Writer GMA-4020B find.pcworld.com/31067	\$220	84	Fair	10:57/29:12	FEATURES: Internal IDE drive, 2X/1X DVD-R/RW, 2X DVD-RAM, 12X/8X CD-R/RW, 2MB buffer, BHA B's DVD 1.1, BHA B's Recorder Gold 5.09 and B's Clip 5.09, InterVideo WinDVD, DVD-RAM driver; 13-hour weekday and Saturday toll-free support. SUMMARY: The cheapest drive on the chart, this multifunction DVD-RW and -RAM burner moves up this month thanks to a \$70 price drop. (★★★★☆: Dec 02)
4	TDK Indi DVD 420N find.pcworld.com/35498 NEW	\$265	84	Outstanding	5:01/7:52	FEATURES: Internal IDE drive, 4X/2.4X DVD+R/RW, 16X/10X CD-R/RW, 2MB buffer, Pinnacle Studio 8 SE 8.4, Ahead Nero Express 5.5 and InCD 3.51, TDK Digital Mix-Master, Ahead Nero Vision Express; 10.5-hour daily toll-free support. SUMMARY: TDK's drive has a fine mix of price and performance. It includes a headphone jack and a volume-control dial, plus an easy-to-follow installation poster. (★★★★☆)
5	LaCie D2 DVD-RW U & I find.pcworld.com/34457	\$385	84	Very good	6:45/49:46	FEATURES: External FireWire and USB 2.0 drive, 4X/2X DVD-R/RW, 16X/8X CD-R/RW, 2MB buffer, Sonic MyDVD Video Suite 4, Roxio Easy CD Creator 5.3 and DirectCD 5.3, InterVideo WinDVD, DVD-RAM driver, ArcSoft ShowBiz; 11-hour weekday toll-call support. SUMMARY: Dual interfaces make this external unit ideal for sharing among several PCs, but you'll pay a premium. (★★★★☆: May 03)
6	Teac DV-W50E find.pcworld.com/35492 NEW	\$250	83	Very good	4:40/49:25	FEATURES: Internal IDE drive, 4X/2X DVD-R/RW, 16X/8X CD-R/RW, 2MB buffer, Roxio Easy CD Creator DVD Edition 5.3 and DirectCD 5.3, CyberLink Power2Go; 9-hour weekday toll-call support. SUMMARY: This model uses the same drive mechanism as the Pioneer DVR-A05, but with different software; it wrote a DVD movie faster and burned to rewritable media more slowly. (★★★★☆)
7	Alera Technologies DVD-R Quad Cruiser find.pcworld.com/33680	\$390	82	Very good	7:11/52:41	FEATURES: External USB 2.0 drive, 4X/2X DVD-R/RW, 10X/8X CD-R/RW, 2MB buffer, Ulead DVD MovieFactory 2 SE, Ahead Nero Express 5.5 and InCD 3.51, CyberLink Power2Go, Ahead Nero Vision Express; 10-hour weekday toll-call support. SUMMARY: One of two external models on our chart, this USB 2.0 drive offers fast write-once performance. (★★★★☆: Apr 03)
8	Hewlett-Packard DVD Writer Dvd300i find.pcworld.com/34454	\$300	82	Very good	3:59/8:44	FEATURES: Internal IDE drive, 4X/2.4X DVD+R/RW, 16X/10X CD-R/RW, 2MB buffer, ArcSoft ShowBiz DVD 1.3, Veritas RecordNow 4.56 and DLA 3.59, Veritas Simple Backup, CyberLink Power2Go; 24-hour daily toll-call support. SUMMARY: This model is the fastest we've tested so far at authoring a DVD movie, and it is one of the few drives to include backup software. (★★★★☆: May 03)
9	CenDyne DVR-105 4X DVD-R/RW Burner find.pcworld.com/33677	\$270	81	Very good	6:41/53:07	FEATURES: Internal IDE drive, 4X/2X DVD-R/RW, 16X/8X CD-R/RW, 2MB buffer, Sonic MyDVD 4.0, Ahead Nero Express 5.5 and InCD 3.51, InterVideo WinDVD; 12-hour weekday and 4-hour Saturday toll-call support. SUMMARY: This fine overall performer takes longer to complete our packet-writing test than competing DVD-RW drives. Software bundle is relatively mediocre. (★★★★☆: Apr 03)
10	Memorex DVD+RW/+R Internal ReWritable Drive find.pcworld.com/31421	\$240	80	Good	9:06/7:33	FEATURES: Internal IDE drive, 2.4X/2.4X DVD+R/RW, 12X/10X CD-R/RW, 2MB buffer, Sonic MyDVD 3.5, Ahead Nero Express 5.5 and InCD 3.3, CyberLink Power2Go, ArcSoft ShowBiz; 9-hour weekday toll-free support. SUMMARY: A \$20 price drop helps keep this older, no-frills model on the chart; its support hours are shorter than most, however. (★★★★☆: Dec 02)

FOOTNOTE: * Results are for DVD+R/RW, then for DVD-R/RW. **HOW WE TEST:** Drives were tested under Windows XP Home on PCs with 1.67-GHz Athlon XP 2000+ CPUs and 512MB of DDR SDRAM, using the DVD video authoring, mastering, and packet-writing software supplied by the vendor, and media from the vendor or Verbatim. **CHART NOTES:** Write speed is the time (in minutes:seconds) to write two 10-minute video files to DVD; rewrite speed, the time (in minutes:seconds) to format a blank rewritable DVD disc and to copy 1.18GB of data to the disc. DVD+RW drives format only enough space to complete a write, resulting in shorter times. Overall rating is based on performance (35 percent), price (25 percent), features (15 percent), ease of installation (15 percent), and service and support (10 percent). All drives here have buffer underrun protection and a one-year warranty. See find.pcworld.com/10860 for details on PC World's Star Ratings.



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MORE REVIEWS

MISSED AN ISSUE OF *PC World* or passed your copy along to a friend? Here's a recap of other *Top 100* topics from previous issues. To read reviews of the products ranked on these Top 10 charts, go online and type in the *PC World* Find-It

URL at the top of each chart (for example, go to find.pcworld.com/34769 for the *Top 10 Graphics Boards* chart). Next month we'll look at color laser printers, hard drives, 19-inch LCD monitors, and digital cameras under \$500.



THE ATI ALL-IN-WONDER 9700 Pro has an integrated TV tuner and a remote control so you can surf while you work.

VIEWSONIC'S VE500 earned high marks on our tests of text and image quality, especially compared with other analog-only 15-inch flat-panel monitors. A below-average price of \$289 helped it climb the chart, too.



	GRAPHICS BOARDS		LASER PRINTERS		15-INCH LCD MONITORS		CD-RW DRIVES
	find.pcworld.com/34769		find.pcworld.com/34805		find.pcworld.com/34904		find.pcworld.com/35159
POWER GRAPHICS BOARD	1 Best BUY Crucial Technology Radeon 9700 Pro find.pcworld.com/31787	SMALL-OFFICE LASER	1 Best BUY Minolta-QMS PagePro 1250W find.pcworld.com/32414		1 Best BUY NEC MultiSync LCD1560M find.pcworld.com/33005		1 Best BUY LG Electronics GCC-4480B find.pcworld.com/34892
	2 ATI All-In-Wonder 9700 Pro find.pcworld.com/34721		2 Brother HL-5040 find.pcworld.com/34802		2 Best BUY Compaq TFT 1520 find.pcworld.com/32921		2 Best BUY LG Electronics GCE-8520B find.pcworld.com/34886
	3 ATI Radeon 9700 Pro find.pcworld.com/31808		3 Dell Personal Laser Printer P1500 find.pcworld.com/34799		3 NEC MultiSync LCD1560NX find.pcworld.com/34676		3 Samsung SM-348 find.pcworld.com/34895
	4 BFG Technologies Asylum GeForce FX 5800 find.pcworld.com/34679		4 Brother HL-1850 find.pcworld.com/30101		4 ViewSonic VE500 find.pcworld.com/34673		4 CenDyne 52X CD-RW find.pcworld.com/33140
	5 MSI FX5800 Ultra-TD find.pcworld.com/34682		5 Oki Data Oki B4300 find.pcworld.com/34796		5 Samsung SyncMaster 152B find.pcworld.com/34664		5 CenDyne Multi-Purpose CD-RW/DVD-ROM Drive find.pcworld.com/34871
VALUE GRAPHICS BOARD	1 Best BUY VisionTek Xtasy 9100 64MB AGP find.pcworld.com/34709	CORPORATE LASER	1 Best BUY Lexmark T630n find.pcworld.com/34790		6 Cornea MP503 LCD find.pcworld.com/34694		6 Lite-On LTR-52246S find.pcworld.com/33149
	2 Gainward GeForce4 Power-Pack Pro/600 TV Golden Sample find.pcworld.com/28581		2 Xerox Phaser 4400/N find.pcworld.com/32405		7 Sony SDM-X52 find.pcworld.com/32933		7 Sony CRX220A1 find.pcworld.com/34898
	3 Asus AGP-V8170DDR find.pcworld.com/31790		3 Brother HL-2460N find.pcworld.com/30103		8 Dell UltraSharp 1504FP find.pcworld.com/32930		8 TDK 48X VeloCD find.pcworld.com/31757
	4 ATI Radeon 9000 Pro find.pcworld.com/30458		4 Oki Data Oki B8300n find.pcworld.com/32399		9 Samsung SyncMaster 152T find.pcworld.com/32927		9 Memorex CD-ReWritable 52X Internal Drive find.pcworld.com/33161
	5 ATI All-In-Wonder VE PCI find.pcworld.com/34724		5 HP LaserJet 4300n find.pcworld.com/34793		10 IBM T560 find.pcworld.com/32939		10 Plextor PlexWriter 48/24/48A find.pcworld.com/31061
	From the June 2003 Issue		From the June 2003 Issue		From the June 2003 Issue		From the June 2003 Issue

HERE'S HOW

EDITED BY MICHAEL S. LASKY, DENNIS O'REILLY, AND ERIC DAHL



WINDOWS TIPS

SCOTT DUNN

Password-Protect Your Sensitive Files and Folders

Windows UNTIL RECENTLY, the only way to password-protect individual files or folders in Windows 98 and Me was to buy additional software. Password protection of files has always been available in Windows 2000 or Windows XP, if the hard drive is formatted as NTFS rather than as FAT. But now there's a new way to password-protect your files in Windows Me and XP, regardless of your hard drive's format: Simply store sensitive files and folders in

a compressed folder and use that folder's built-in password protection option.

If you're using Windows Me, start by making sure that the folder compression feature is installed on your PC: Choose *Start>Settings* and click or double-click *Control Panel*. In the Control Panel window, double-click *Add/Remove Programs* and click the *Windows Setup* tab. Select *System Tools* and click *Details*. If there is no check mark next to 'Compressed Folders', click the box to check it; then click

OK and follow the prompts to add this compression feature to your system.

To compress a folder, right-click the desktop or inside any folder, and choose *New>Compressed Folder* (in Windows Me) or *New>Compressed (zipped) Folder* (in Windows XP; see **FIGURE 1**). This adds a new folder in that location with the default name 'New Compressed Folder'. Type a name for the folder and press **<Enter>**. Double-click the folder to open it.

Now open Windows Explorer or any folder window (if you have a Windows keyboard, press **<Windows>-E** to launch Explorer), and select the folders and/or files you want to password-protect. Use the right mouse button to drag the items into the new compressed folder. When you release the mouse button, choose *Move Here*. (If you left-drag, only copies will be added to the compressed folders, leaving the originals unprotected.)

If necessary, click the title bar of the compressed-folder window to activate it. Choose *File>Encrypt* in Windows Me or *File>Add a password* in Windows XP. Type your desired password in the 'Password' and 'Confirm Password' boxes, and then click OK. From now on, only users who

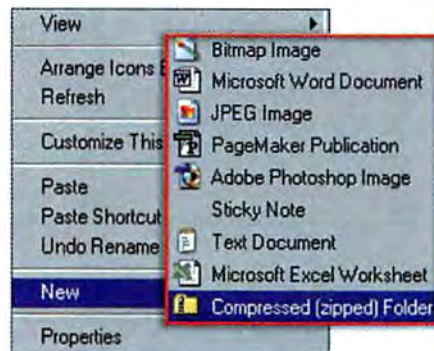


FIGURE 1: TO PASSWORD-PROTECT any file in Windows Me or XP, create a compressed folder.

ILLUSTRATION: JAMES O'BRIEN

144 WINDOWS TIPS

Keep files private in XP and Me by compressing their folders; the last word on killing Messenger in XP Home.

146 STEP-BY-STEP

The only way to get a perfect PC is to build it yourself. Follow these easy 12 steps to your dream machine.

150 INTERNET TIPS

Use EBay to turn your old computer equipment into legal tender; is Google ogling your browsing history?

152 HARDWARE TIPS

Know what to look for—and what to look out for—when buying a used PC; keep tabs on your CPU temperature.

154 ANSWER LINE

Boost your PC's performance by closing unneeded background programs; cure sudden reboots; hibernate to conserve your PC power.



146



FIGURE 2: IF YOU TRY to open a protected file, Windows will prompt you for a password.

know the password will be able to open, extract, copy, or move the files and subfolders to another folder; Windows will prompt you for your password before permitting any of these operations. If you send the folder to people who don't have Windows XP or Me, they can uncompress the folder using a program such as WinZip (www.winzip.com), but they'll still need to know the password before they can access the contents.

Keep these things in mind when you add passwords to files and folders:

"Private" isn't "impervious": Compressed-folder passwords keep files private, but they don't protect them (or even the entire compressed folder) from being deleted. If your sensitive files are important, keep backups of them in a safe place.

Add files before protecting: All of the files in your compressed folder are password-protected at the time you create the password. Any files you add to the folder subsequently will not be password-protected, so make sure the compressed folder contains every file you need to protect *before* you create the password. To protect files that you add later, open the compressed

folder and use the *File•Decrypt* or *File•Remove Password* command, and then the *File•Encrypt* or *File•Add a Password* command again to password-protect all the files in the folder. You could also compress individual files and give each its own password.

Undo the lock: If you decide to remove the password protection from a file or folder, you have two options. The first is to extract all the contents, either by dragging the file (or files) out of their window or by right-clicking the folder and choosing *Extract All* (if you prefer the "wizard" approach). Your second option is to open the compressed folder and choose *File•Decrypt* (in Windows Me) or *File•Remove Password* (in Windows XP). Either way, Windows will prompt you for your original password (see **FIGURE 2**).

Keep folder contents a secret: A password-protected folder's file names are visible even though the files themselves are inaccessible without the password. To hide them, compress a folder inside another compressed folder and password-protect the top-most folder (see **FIGURE 3**). Other users can open the top compressed folder, but not the subfolder holding the files.

Protect files on Windows 98 and on OSs using the FAT file system: If you use Windows 98 or Windows 2000 with FAT rather than NTFS, you can use the free AxCrypt encryption program to protect your files. Browse to find.pcworld.com/34661 to download a copy.

END MESSENGER: TAKE THREE

A TIP IN THE February 2003 issue (find.pcworld.com/35426) promised to help you stop Windows Messenger from launching by renaming its folder. Unfortunately, Windows XP Home Edition doesn't let you rename the folder. Instead, right-click inside the Messenger folder window and choose *New•Folder*. Name the folder **back-up** and press **<Enter>**. Select all the files in the Messenger folder and drag them into the new folder. The next time you start Outlook Express, it may take longer to launch (or it may not launch at all), but after that initial tantrum, OE will return to normal. Windows won't be able to start Messenger in the future, but the program files will still be on your system if you decide to use Messenger later on. ■

Send Windows-related questions and tips to scott_dunn@pcworld.com. We pay \$50 for published items. Visit find.pcworld.com/31607 for more Windows Tips. Scott Dunn is a contributing editor for PC World.



FIGURE 3: NEST ONE COMPRESSED folder inside another to hide the names of password-protected files.

STEP BY STEP

STAN MIASTKOWSKI

Put Together a Custom PC

DESPITE THE WIDE SELECTION and low prices of name-brand PCs, there are good reasons to consider the build-it-yourself route for your next machine. An off-the-shelf system, at any price, is essentially a compromise. It may meet your current computing needs, but if your requirements change and you want to upgrade it later, you may run into problems.

Don't expect your custom PC to save you big bucks over an off-the-shelf purchase. Building your own PC lets you match your system to your needs and your budget, giving you the most for your money. Do you need oodles of hard-drive

space for your digital photos or video? Pop in one (or more) ultrahigh-capacity drives. Into high-end audio? Go for the gold with a cutting-edge sound card.

Home-built PCs can be a lot of work, but in the end you'll have a no-compromise system that's yours alone. The downside? You are your own help desk.

For this month's *Step-By-Step*, we put together a relatively high-end system, utilizing many of the latest components. Our system is just an example of one approach that you can take.

Our purpose here isn't to show you in excruciating detail how to build the sys-

THE TOP DOWN

Benefits: Get a custom PC tuned to your needs and wallet.

Cost: As low as \$700 to \$800 for a budget system; \$5000-plus for a no-holds-barred, high-end system

Tools required: Phillips screwdrivers, needle-nose pliers, small flashlight, antistatic wrist strap (recommended)

Expertise: Intermediate to advanced

tem but rather to give you some tips on choosing the parts and pieces and avoiding problems when you put it all together. To see more-detailed PC assembly instructions, go to find.pcworld.com/33422. You will also need to choose your display, a printer, and other components. For suggestions, see our *Top 100* charts and read about the Best Buys. ■

Stan Miastkowski is a PC World contributing editor. Contact him at stan_miastkowski@pcworld.com. Visit find.pcworld.com/31676 for past Step-By-Step columns.

THE PC WORLD DO-IT-YOURSELF SYSTEM

Case: Antec Plus 660AMG Mini Tower with 330-watt power supply, **\$129**, www.antec-inc.com

Miscellaneous: keyboard and mouse, **\$40**

Motherboard: Soyo SY-KT400 Dragon Ultra Platinum Edition, **\$149**, www.soyousa.com

Processor: AMD Athlon XP 2700+, **\$180**, www.amd.com

Memory: Kingston KHX3500/512, **\$150**, www.kingston.com

Hard drives: Maxtor DiamondMax Plus 9; 60GB model, **\$110**; two 120GB models, **\$160 each**; www.maxtor.com

Floppy drive: Mitsumi 3.5" Floppy, **\$15**, www.mitsumi.com

Optical drive: Sony DRU500, **\$349**, www.sonymstyle.com

Sound: built-in sound support on Soyo motherboard

Network: built-in network support on Soyo motherboard

Operating system: Microsoft Windows XP Professional Edition, **\$299**, www.microsoft.com

FireWire: Belkin F5U501 IEEE 1394 FireWire PCI Card, **\$50**, www.belkin.com

Modem: Zoom/Modem V.92 PCI Model 3025, **\$40**, www.zoom.com

Graphics: ATI Radeon 9700 Pro, **\$320**, www.ati.com

TOTAL: \$2151

1 Case and power supply:

Remove the case's side, front, and top panels to give yourself room to work. Inside the case, you should find a box or an envelope containing critical parts and pieces for the assembly, such as hexagonal brass standoffs and screws for mounting the motherboard, drives, and other hardware. You'll also see the AC power cable and mounting brackets for drives and other peripherals. Separate the parts and read the instructions closely.

Be especially careful to use the correct screws when mounting components. Cases come with two types of screws: fine thread (for mounting the motherboard to the case and attaching floppy disk and optical drives) and coarse thread (for attaching hard drives and add-in boards). Don't force the mounting screws; if they don't go in smoothly, then you are using the wrong size.

Most cases come with the power supply preinstalled. If yours is separate, visit find.pcworld.com/33425 for tips.



2 Motherboard:

Before you install the motherboard, remove the case's generic mounting plate, where the motherboard's rear connections appear, and replace it with the custom plate that comes packaged with the motherboard. Make sure there's a brass standoff on the case for all the mounting holes on the motherboard. Be very careful not to overtighten the screws that mount the motherboard to the case—just “snug them up.”

Among the many connectors on the motherboard, the one for power is crucial. Motherboards that use AMD processors have a single, rectangular power connector. Motherboards that use the Pentium 4 have an additional, small, square power connector.

You'll also need to connect the thin cables from the front panel of the case to a line of pins on the motherboard. The most important connector is for the power switch. You'll also hook up cables for the reset switch, hard-disk activity light, power LED, and case speaker.

Go to find.pcworld.com/33770 for more on installing motherboards.



3 Processor:

Be extremely careful when mounting the CPU into the motherboard socket. Don't try to force it, and don't use your bare finger to hold the processor as you push down the locking lever, since skin oils can affect CPU cooling; use a glove or a piece of paper. As for mounting the CPU cooling fan (included with most CPUs), don't twist or move the fan once it contacts the processor surface. Double-check to make sure that the heat sink and the fan are securely attached to the CPU bracket—if they aren't, the delicate CPU can destroy itself in seconds when you move a tower case from its side to vertical. Finally, don't forget to attach the fan power cable to the appropriate connector on the motherboard.



4 Memory:

When installing RAM modules, have plenty of light. Insert the modules into the thin, bracketed memory slots, and then press them down firmly. You'll know they're correctly inserted when the brackets on each side of the RAM modules click into place. If you're not filling every slot, make sure that you place the modules into the correct ones; sometimes if there's no module in the first slot, your computer won't boot.

See find.pcworld.com/18361 for more on installing RAM.



5 Graphics card: An AGP graphics card that isn't completely seated in its motherboard slot is a surprisingly common cause of computer problems. Press the card down firmly when you insert it. Note, too, that some of the latest-generation graphics cards—like the

Radeon 9700 Pro that we used—require their own connector from the power supply. Graphics drivers are also updated regularly, so be sure to get the latest from the maker's Web site.

See find.pcworld.com/35300 for more on installing graphics cards.



6 Sound:

Audio integrated onto the motherboard has come a very long way from the tinny on-board sound of just a couple years ago. But to get the best quality, it's essential that you obtain the latest drivers from the Web site of the motherboard maker. More-advanced sound systems such as the one we used include digital inputs and outputs, which normally require an additional connection panel that fits into one of the rear slots in the PC case. Hook up the I/O panel connector to the appropriate motherboard header. The operating system installation will usually include basic sound support for the on-board audio, but to access all the features, you'll need to install the drivers after you've set up the operating system.

Note that if you opt to add a sound card to a motherboard that already has built-in sound support, you'll need to disable the built-in sound using a jumper or a setting in the motherboard BIOS.

Go to find.pcworld.com/35303 for more on installing sound cards.

7 Networking: These days almost all motherboards include a network adapter. It's a wise design choice, since most users will require one for a broadband Internet connection or a SOHO network.

Most of the time, the OS you're installing will recognize the adapter and automatically add the drivers. Sometimes it won't, in which case you'll need to install the drivers manually afterward. If you're using Windows XP, not having a network connection may prevent you from running Product Activation during the installation; you'll have to handle activation after you install the network drivers.

8 Floppy disk drive: You can build your PC without including a standard 3.5-inch floppy drive, but having one can be invaluable if you need to boot from a floppy disk to run emergency repair utilities when your PC's hard drive has problems.

Beware: It's easy to connect the ribbon cable that runs from the floppy drive to the motherboard backward. You know you've done it wrong if the floppy drive light stays on continuously when the power is on. If you encounter problems, power off your PC, disconnect one end of the cable, turn that end over, and reconnect it.

9 Hard drives: Don't skimp on hard drives—no matter what type of system you're putting together. The speed at which drives read and write data can be a major bottleneck on overall performance. Many noticeably faster 7200-rpm drives don't cost much more than 5400-rpm drives.



Make sure that the main drive is jumpered as the "master" and connected to the first IDE channel on the motherboard.

If your motherboard has RAID capabilities (like the Soyo we used), you can create a RAID 0 array. Known as "striping," this setup can combine two to four drives into a single, huge virtual drive that's much faster than a lone drive. Other RAID options create redundant drives with automatic backup.

Initial setup of the RAID array can be tricky, but it's far from rocket science. Read the instructions on RAID in your motherboard manual very carefully. You'll usually need to create a floppy disk with the RAID drivers that you install at the beginning of the Windows XP installation.

11 Modem: If you're still tied to a dial-up Internet connection, a modem that supports the new V.92 standard is a wise investment. More and more Internet service providers are supporting it. V.92 offers faster connection times and slightly better transfer rates than the old V.90 standard. And if you have call waiting, a V.92 modem allows you to put your Internet session on "hold" briefly while you answer a phone call. Check with your ISP about V.92 support.



Even if you're blessed with a broadband (cable or DSL) Internet connection, having a backup modem and dial-up ISP account for the times the broadband connection goes down is not a bad idea.

10 Optical drive: For the best results, jumper the optical drive as the master and install it on the second IDE channel of the motherboard to keep it separate from your hard drives.



12 FireWire: Having a FireWire adapter isn't necessary for connecting high-speed peripherals, since most motherboards now come standard with USB 2.0, which offers about the same speed as FireWire. But FireWire remains the best way to connect a digital video camcorder so you can download movies from it to the computer for editing.

There aren't any special tricks involved in installing a FireWire card. Just plug it into a free PCI slot and fasten it down with a screw. FireWire drivers are standard and included in the operating system; Windows XP will detect the card and install the needed driver automatically.



TOOLS AND TROUBLESHOOTING

Once you have the components, here's what you'll need before you get your hands into the hardware:

- ♦ a large, clean, well-lit workspace,
- ♦ several containers for screws and other small parts (empty coffee cups will do),
- ♦ large and small nonmagnetic Phillips-head screwdrivers,
- ♦ needle-nose pliers for removing and inserting motherboard and drive jumpers,
- ♦ a small, nonmetallic flashlight for peering into the dark recesses of the case,
- ♦ an antistatic wrist strap, available at your local electronics store,
- ♦ plenty of time (allow at least a full day),
- ♦ a source of help and advice—if you have a computer-savvy friend, include them in the fun.

Make a list of the components that will require drivers or other special software (such as the motherboard, graphics card, modem, and optical drive). Go to the Web sites of the respective component manufacturers and download the latest software for each item. If possible, place all of these drivers and programs on a CD-R so that you won't have to continually swap CDs when you're installing drivers. Check if your motherboard has a BIOS upgrade, which can be critical for compatibility with the latest processors and maximum performance.

If you run into problems: Dead-on-arrival components are rare these days, though not unheard of. If you have difficulties, the most likely cause is that you've hooked something up incorrectly. If everything's installed properly, the next step is to isolate the bad component by unplugging add-in cards and disconnecting other components one at a time until the problem goes away.

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INTERNET TIPS

SCOTT SPANBAUER

How to Make Cash on EBay: Your Auction ABCs

YOU'VE UNDOUBTEDLY browsed the myriad, disparate merchandise for sale on EBay. You may even have purchased something from the Internet's mother lode of materialism. But what about making some cold, hard cash on EBay by selling your obsolete PC equipment or that

top of EBay's home page, and then *Advanced Search*. Type a description of your item (**metric spanner**, for example), check *Completed items only*, and click *Search*. If no items show up, use a less-specific search term; if dozens appear, make your term more precise. Note the condition of

the item sold and whether it includes all the original packaging and manuals.

Check the starting price, the reserve price, and the final sale price.

Pick a price: After this research, choose a starting price high enough to satisfy you if only one person bids and low enough to ensure that at least one person will bid. Optionally, you may also set a reserve price (a lowest acceptable sale price that is hidden

then click *Continue*. In the next screens, select a category and subcategory, and choose *Continue* again. Enter a clear title for your item (EBay provides tips in a nearby link), compose a glowing but accurate description, and click *Continue*. Provide auction details (duration, and starting and reserve prices) and photos on the next page, followed by payment and shipping details—the default settings are secure and private. Review and edit your listing in the last screen (EBay will also show you what your charges will be), and then click *Submit Listing*. You're in business.

Watch the auction action: Don't just post your auction and head off to the beach. Wary buyers may need to know more about you or your item before they bid and will contact you by e-mail. EBay will e-mail you a daily report and you can also get up-to-the-minute status reports by clicking *MyEBay* (see **FIGURE 1**).

After the sale, service: Congratulations! Your item sold. Now send an e-mail to the buyer with the final price, including shipping. Once payment arrives and personal checks clear, ship that package and start looking for more stuff to sell. ■

Send your questions and tips to nettips@spanbauer.com. We pay \$50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. Scott Spanbauer is a contributing editor for PC World.

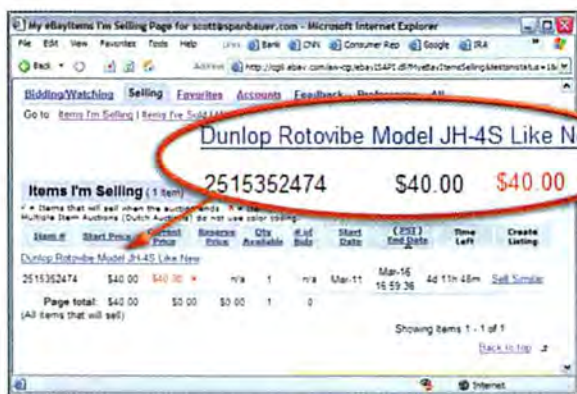


FIGURE 1: MONITOR YOUR EBAY AUCTIONS, and view and edit your buying and selling preferences, using MyEBay.

digital camera that's been collecting dust since you got a new, spiffier one? It may at first seem daunting to sell your old, tired tchotchkes on the site called America's Attic, but a few pointers will have you raking in the dough in no time.

Calling all accounts: After you register at EBay, you will need to set up a seller's account. This requires your credit card and checking account numbers for identity verification. (See find.pcworld.com/34967 for details.) If you want to receive payment via PayPal (highly recommended), go to PayPal.com and click *SIGN UP*.

Know what you're selling: Before you start an EBay auction, you need an idea of your item's worth. To find completed sales of items similar to yours, click *Search* at the

from bidders). EBay charges an insertion fee of between 30 cents and \$3.30, based on your starting or reserve price, whether the item sells or not. A low reserve, or none, reduces your fees, but could allow someone to buy your item for next to nothing. Go to find.pcworld.com/34976 for a complete explanation of EBay fees.

A picture is worth 1000 words: To sell your item, let people see it. If necessary, borrow a digital camera or Webcam. Try for well-lit, close-up photos with a plain, contrasting backdrop, and keep the final file size below 50KB for fast loading. EBay gives you one picture for free on each auction page; extra images cost 15 cents each.

Sell, baby: To list your item for auction, click *Sell* at the top of most EBay pages;

GOOGLE IS WATCHING YOU

SO YOU READ last month's "Maximum Google" (find.pcworld.com/35306) and use many of its tricks. But did you know that Google keeps track of every search you perform, identifies you with a unique ID, and has links to the U.S. Department of Defense? The people at Google Watch (www.google-watch.org)—who are perhaps justifiably paranoid—think that the preeminent search engine is a privacy time bomb. Whether you agree or not, they make a good point: However terrific, Google isn't the only good search engine. If Google Watch puts the fear of Big Brother in you, give the site's anonymous search proxy a try at find.pcworld.com/34979—it's both handy and safe.

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HARDWARE TIPS

KIRK STEERS

Stretch Your Technology Dollar With a Used PC

IF YOU'RE LOOKING for an affordable second PC, consider purchasing a used one. For Web browsing, e-mail, word processing, and other basic PC tasks, a two- or three-year-old system can satisfy all of your needs for hundreds of dollars less than a new machine would cost.

Buying a used PC is like shopping for a used car: If you know what to look for, you can get a great value; but if you don't, you can end up with a lemon. Keep these questions in mind while shopping:

Does it meet your computing needs? Know what you want from a prospective PC and make sure it's equipped to do the job. That means looking at more than just the CPU. If you need to add hardware—a network card, for example—the PC should have an unused expansion slot and an available IRQ. (Check Windows' Device Manager for the machine's IRQ assign-

ments.) If you plan to install software, remember that the latest programs are designed for big hard drives and fast systems. Depending on the age of the PC, you may have to install older versions of software that can run without problems.

The performance boost you'll get from a CPU upgrade rarely justifies the cost, but adding memory to your system is often worthwhile. If you expect to add a graphics board or sound card, make sure the PC's motherboard will accept one; some budget Celeron-based systems with graphics and sound integrated on the motherboard will not. Check the documentation.

Does it have documentation and program/system disks? A manual covering the PC's motherboard is essential. Without a manual, you won't know how to change jumpers, the BIOS, and other motherboard configuration settings. For example, adding a faster graphics card to a system that uses an integrated graphics chip may require that you disable the on-board chip by changing a jumper before you insert the new card. Likewise, you may need to adjust a jumper setting before flashing your BIOS or replacing the CMOS battery on the motherboard.

To install or reinstall drivers for graphics cards, printers, and other devices, you'll need the Windows CD-ROM.

How clean is it? Pop a key off the keyboard with the end of a pen or pencil and take a good look at what's underneath to get an

indication of the PC's environmental history. If you see lots of sand, dust, and potato chip crumbs, pass. Avoid a PC with dust-clogged fans and vents, or significant amounts of dust inside the case. A poorly ventilated case means the PC has probably been running hot.

How well does it work? If a used system is working well when you first get it, there's a good chance it will continue to run well for quite a while. Still, it pays to thoroughly test every component in the PC before the purchase.

The biggest question in evaluating a used PC is its hard drive. You may be able to spot imminent disk trouble by running ScanDisk in Windows 98 and Me (click

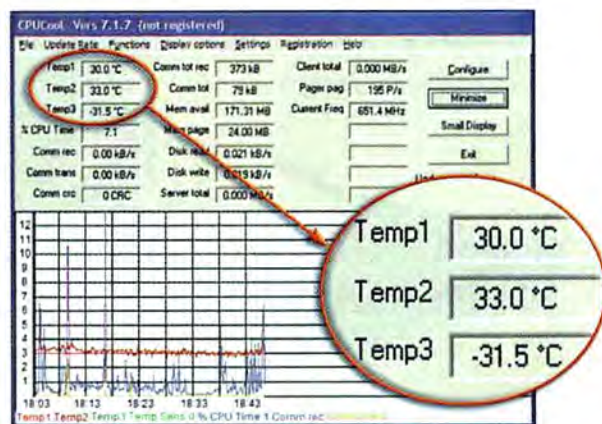


FIGURE 1: DON'T LET YOUR CPU get too hot. With CPUCool you can monitor your chip's temperature and performance.

KEEP AN EYE ON YOUR CPU'S TEMPERATURE

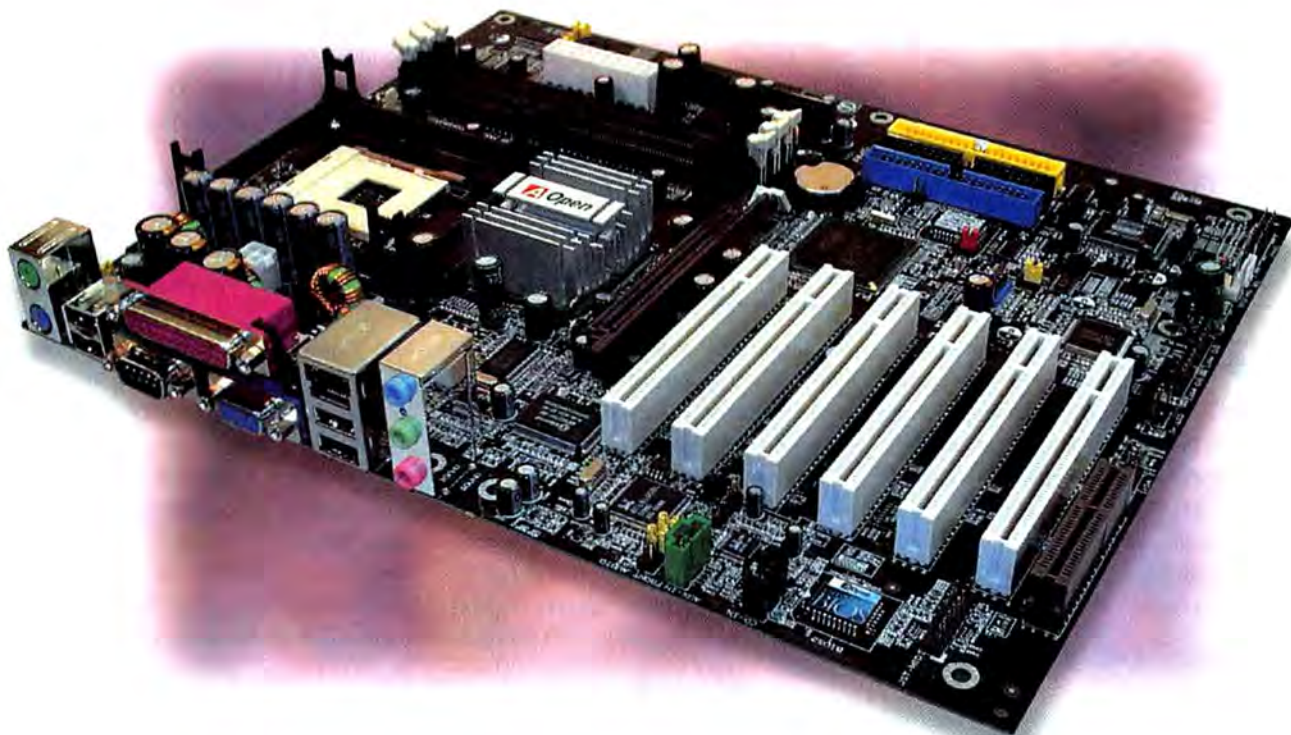
YOUR '69 MALIBU isn't the only thing that can overheat in the summer. If your PC's BIOS monitors CPU temperature—many do—you can check the chip's temperature by going into your system's Setup program before Windows loads (soon after you turn your PC on, press the key that the prompt indicates). But a handy utility from Podien called CPU-Cool makes monitoring CPU temperatures a breeze. CPUCool continually displays a wealth of techie data about your CPU's performance, including the temperature (see FIGURE 1). The program is free to try, and only \$13 to keep. Go to find.pcworld.com/34910 for your copy.

Start•Programs•Accessories•System Tools) or Error-checking in Windows 2000 and XP (open *My Computer*, right-click the hard drive, and select *Properties•Tools*).

Finally, run TuffTest or another comprehensive diagnostic program. You can go to find.pcworld.com/34907 to download the free Lite version of TuffTest, but I recommend spending \$10 for the full version of the program, which is available at www.tufftest.com. The complete program thoroughly tests all key hardware components and issues reports. It also runs from a bootable floppy. ■

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Which Background Programs Can I Close?



WHEN MY PC is slow, I press <Ctrl>-<Alt>-<Delete> to close unnecessary programs. But there are programs running that I can't identify. What are they?

Eric Andersen, Arlington Heights, Illinois

ALL SORTS OF programs run in the background on your PC. Closing unessential ones is sometimes a good idea, because doing so can increase your system's speed

Windows 2000, you also have to click the *Task Manager* button after you press <Ctrl>-<Alt>-<Delete>. But fear not: You need to be concerned with only two of the Task Manager's tabs: Applications and Processes (see **FIGURE 1**).

It's easy to figure out what to close on the Applications tab because most of the names are easy to recognize, such as Quicken and Microsoft Word. Determining which processes you can safely stop is trickier. Click *Processes* to see a long list of open executable files. When you select one and click *End Process*, you're warned that this may crash your system. It probably won't, but save any open documents to disk before you try this just the same.

If you don't recognize a specific process listed in either Close Program or Task Manager, search your hard drive for the file name. That should give you a clue as to which program launched the process. Write the name down, and then click *Cancel* to exit Close Program. Select *Start>Find>Files and Folders* (in Windows 98), *Start>Search>For Files and Folders* (in Me and 2000), or *Start>Search* (in XP).

In Windows 98, enter the file's name in the *Named* field. In Windows Me and 2000, type the name in the 'Search for files or folders named' field. In Windows XP, enter the name in the field labeled 'All or part of a file name'. Select *Local hard drives* from the 'Look in' drop-down menu. Click *Search Now*, *Find Now*, or *Search*, and locate the file among those listed in the results pane to the right.

If that doesn't help identify the mystery process or application, enter the file name in the search field of Google or your favorite search engine. You're bound to find some useful information about the file.

Here are some of the programs that may mystify you when you bring up the Windows 98/Me Close Program window.

Explorer and systray: Keep these basic Windows components open at all times.

Rnaap: This program loads when you use dial-up networking, and it stays in memory until you close Windows. Close it; Windows will reload it if necessary.

Ctfmon.exe: Microsoft claims that closing this Office XP utility for voice recognition and other text-entry alternatives may make Office unstable. The program stops loading when you uninstall Office's Alternative User Input feature.

Some common processes listed in the Task Manager's Processes tab under Windows 2000 and XP follow.

Explorer.exe, LSASS.EXE, services.exe, system, and WINLOGON.EXE: These necessary parts of Windows must keep running.

explore.exe: Ending this Internet Explorer executable file will cause all of your IE browser windows to close.

Taskmgr.exe: This is the executable file for the Task Manager program itself.

Svchost.exe: Often more than one copy of this host process for .dll files will be running. Though closing one of them probably would not cause any major harm, it could crash an application. ▶

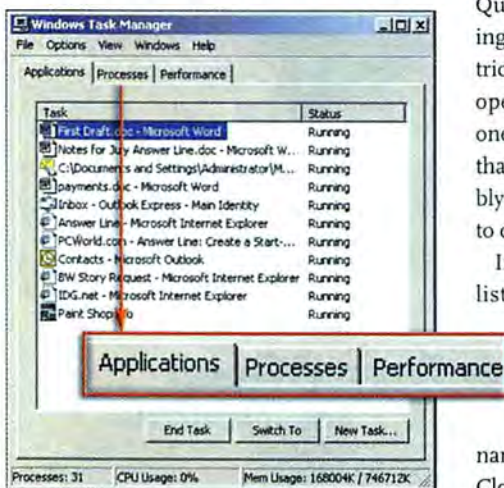


FIGURE 1: TASK MANAGER'S Applications tab lists the programs running on your PC.

and can help keep software installations trouble-free. Identifying which apps are essential and which are not takes some detective work, however.

Pressing <Ctrl>-<Alt>-<Delete> in Windows 98 and Me opens the Close Program dialog box, which lets you select an app and click *End Task*. In Windows 2000 and XP, this key combination brings up the more complicated Task Manager (in

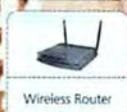
NTFS FROM A FLOPPY

WHENEVER YOUR hard drive won't boot, you probably reach for a bootable floppy disk. But bootable floppies run the old DOS operating system, which doesn't recognize hard drives formatted in the NT File System (NTFS) that Windows XP and 2000 use. The solution is NTFS.com's free program NTFS Reader for DOS. Put NTFS Reader on a bootable floppy to view the folders and files on an NTFS-formatted hard drive. You can also use the program to copy these files to a FAT-formatted or networked drive. Browse to find.pcworld.com/34706 to download NTFS Reader for DOS.

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FIGURE 2: THE FREE KILL WIN program automates exits in Windows 2000 and XP.

Msmmsgs.exe: If you don't use Microsoft Messenger (not to be confused with Windows Messenger), you can close this program without problems.

Spoolsv.exe: This is your print spooler, so Windows probably won't let you close it, lest your printer starve for data.

SUDDEN REBOOTS

MY HUSBAND'S PC just reboots out of the blue. We can't figure out what is causing this. Any ideas?

Donna Hills, Ashland, Ohio

THERE ARE A LOT of possible causes for sudden reboots. If they happen only when you run a particular application, that program is probably the culprit. Check the software vendor's Web site for an update or look for a more stable program.

Try finding the miscreant by turning off all the applications that load automatically when Windows boots: Press **<Windows>+R**, type **msconfig**, and press **<Enter>**. Click the **Startup** tab, uncheck everything, click **OK**, and reboot your system. If that solves the problem, try rechecking programs on the Startup tab one at a time (reboot between each) until the problem recurs. When it does, you've found the source.

Scan your PC for viruses (which you should be doing regularly anyway), and update your hardware drivers as well.

If these actions don't remedy your PC's involuntary reboots, the cause is most likely an overheated system. Open your PC's case and clean the dust out with a

can of compressed air (you can buy this at any computer store for about \$10).

The problem could also be related to the computer's electrical system. Try a different power cord (hey, it's cheap and easy), or replace your surge protector (not as cheap but still easy). And make sure your PC doesn't share an electrical circuit with a washing machine or other large appliance that uses a lot of power at irregular intervals.

SHOULD I SHUT DOWN MY PC?



SHOULD I TURN OFF my PC when I'm done using it for the day, or leave it on overnight?

David Cossio, El Paso, Texas

SOME PEOPLE argue that leaving a computer on is bad for it. Others take exactly the opposite view, saying it's bad to turn it off. I find neither argument convincing.

One fact is absolutely certain: Turning off your PC saves electricity—and money.

But then again, so does *hibernation*, which is faster. When you set a computer to hibernate, Windows copies everything in RAM to the hard drive and then shuts down the hardware. When you turn the PC back on, Windows restores your system to the state it was in when you started hibernation. From the hardware's point of view, the computer has been off, but to Windows, you never left. Go to find.pcworld.com/34700 for instructions on setting up your computer to hibernate.

But there are good reasons why you may want to turn your computer off instead, especially if you're using Windows 98 or Me. With these versions of Windows, the longer you go between reboots, the more unstable the environment becomes. If you only hibernate, Windows never actually closes down and restarts, and therefore it becomes more prone to crashes. This isn't a problem with Windows 2000 and XP, however.

ONE-CLICK SHUTDOWNS



WHAT IS THE command line for exiting Windows, and what are the benefits of command-line exits?

Marilee Lawrence, Fresno, California

CLOSING WINDOWS with a DOS-style command line gives you all sorts of

options for shutting down your computer. You can create an Exit Windows shortcut, for example, or set up a batch file that performs one or more maintenance chores—defragment your hard drive, back up your data, and so on—before shutting down your system.

For instructions on creating a shortcut, see Scott Dunn's January 2001 *Windows Tips* column at find.pcworld.com/34922. You may have to alter the specific command line, however, as Scott's instructions are a bit out of date.

If you want something fancier—say, a shortcut that will defrag your hard drive and then shut down—create a simple batch file: Select **Start>Programs (or All Programs)>Accessories>Notepad**. What commands you actually enter in the batch file will depend on which version of Windows you use, but the first line should launch the defragging, and the second should shut down Windows. For defragging commands for the different Windows versions, see "Defrag Automatically" in my October 2002 column (find.pcworld.com/35429). Here are the various commands for shutting down Windows.

Windows 98 and Me: **rundll.exe user.exe, exitwindows** (no space after the comma)

Windows XP Home: **shutdown -s**

Windows 2000 and XP Pro: Neither OS has a dependable shutdown command, so I recommend BK-Soft's free Kill Win (see **FIGURE 2**). Go to find.pcworld.com/34703 to download your copy. If you install Kill Win to its default C:\Killwin folder, then the command **c:\killwin\killwin.exe /s** will shut down Windows.

So, for example, if your PC is running Windows XP Home Edition, your shutdown batch file should read:

```
defrag c:
shutdown -s
```

Save this file in a convenient folder as **defragshutdown.bat**. When you're ready to shut down, just use it like a shortcut. ■

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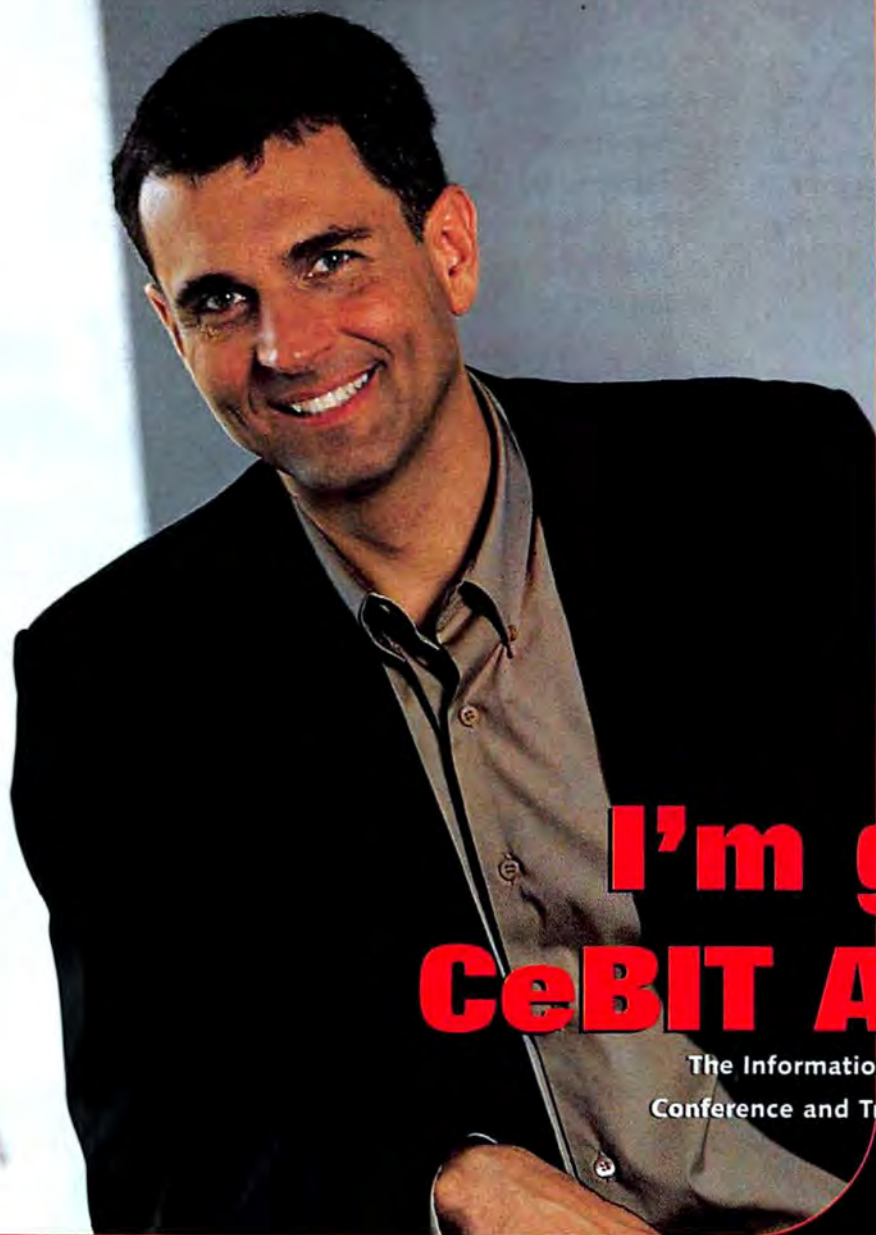
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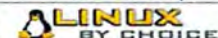
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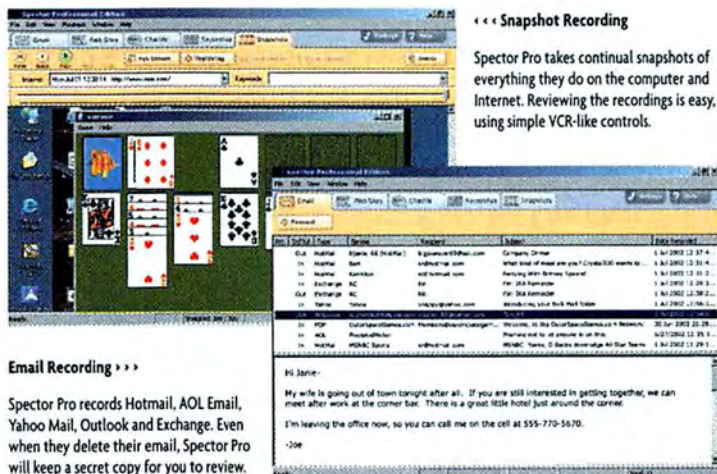
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PC Defense: It Takes an Antinet

JACK A COMPUTER INTO THE NET, and your self-preservation instinct soon turns you into the Dutch lad with his thumb in the dike. But once you begin fighting sewage that includes hackers, viruses, and spyware, you quickly run out of enough fingers, toes, and chewing gum to stem the tide. Let your guard down, and the trickle can turn into a flood.

The more time I spend keeping out intruders, the more I think of myself as the maintenance manager of a virtual dam called the Antinet—a structure that may look impervious but still has major holes. I've got ZoneAlarm Pro to protect against inbound intruders, outbound Trojan horses, and pop-ups. Norton AntiVirus fights infections. The shareware SpyBot Search & Destroy finds and removes spyware designed to invade my privacy or commit worse deeds. A version of SpamAssassin running on my Web host's server whacks time-sucking junk mail.

WEP encryption runs on my Wi-Fi network to keep out miscreants, even though I know WEP is a system made from bars of strongest marshmallow. I install Microsoft's endless security patches regularly, despite knowing that they sometimes make matters worse. I limit Windows file sharing to a single directory on my hard drive. And I create different passwords for the various Web sites I visit.

But despite all my precautions, sewage trickles in and essential fluids get dammed out. ZoneAlarm Pro crashes every couple of days when it runs into a Web page it doesn't like, and setting its pop-up and cookie blockers too aggressively makes some pages unusable. SpamAssassin



**Install all the utilities
you want—security is
still a leaky mess.**

blocks nearly 100 messages a day, but one or two are invariably things I need to read, and some junk still sneaks through. Only in the forthcoming Outlook 2003 does Microsoft begin to address the security problems in its preview pane.

And then there's the virus that mysteriously reappears on my PC every two months or so and sends itself to people in my address book. If those lucky duckies

are running Norton AntiVirus, the program recognizes the virus as W32.Magistr.39921@mm and sends it packing from their systems. But neither Norton nor any other product I've tried can find it on my hard drive, let alone neutralize it—and I don't know how ZoneAlarm could have let it pass in the first place.

Imperfect software isn't the only reason the Antinet is so leaky. Tell a site that you've forgotten your password, and the chances are good you'll receive it in an unencrypted e-mail message that any snoop could intercept. Instead, you should get a link to a secure page that challenges you for additional information. That's just one example of bad Web security that can bite you no matter how vigilant you are.

The sands keep shifting, and the leaks keep changing. Conventional wisdom once had it that NAT routers, which assign private Internet addresses to machines in a local network, effectively insulated those PCs from outside attack. Now Wi-Fi gateways routinely hand out those local addresses, letting attackers vault past the firewall into what Microsoft used to call the "Network Neighborhood."

Even if we start tossing spammers and hackers in the pokey, the need for the Antinet won't disappear anytime soon. Which is why the battle cry of the Internet user is reduced to a single word, endlessly repeated: Dam!

Visit find.pcworld.com/31595 for more columns by Contributing Editor Stephen Manes. He has been writing about PCs for two decades.



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E-VALUE Code: 16970-S0606y

Recommended upgrades:

- 512MB DDR SDRAM, add \$100
- 3-Yr Limited Warranty, 3-Yr On-Site Service, add \$119
- 15" 1504FP Dell UltraSharp® Digital Flat Panel Display, add \$360

NEW OptiPlex™ GX270 Desktop

Network-Optimized, High-Performance PC

- Intel® Pentium® 4 Processor at 2.26GHz
- 256MB Dual-Channel Shared™ DDR SDRAM
- 40GB (7200 RPM) Hard Drive
- Integrated Intel® Extreme Graphics 2
- 48x CD-ROM
- Integrated Intel® PRO Gigabit™ Network Connection
- Office XP Small Business and Adobe® Acrobat® 5.0 Bundle
- Windows® XP Professional
- 3-Yr Next Business Day On-Site Service
- Monitor Not Included

\$999 as low as **\$27**/mo., (46 pmts.)
E-VALUE Code: 16970-S0609a

Recommended upgrades:

- 80GB (7200 RPM) Hard Drive, add \$40
- 3-Yr Same-Day 4-Hour (5x10) On-Site Service, add \$99



Dell | Small Business Notebooks

NEW Inspiron™ 5100 Notebook

Mobility and Performance

- Intel® Pentium® 4 Processor at 2.40GHz
- 14.1" XGA TFT Display
- 256MB DDR PC2100 SDRAM
- 30GB Ultra ATA Hard Drive
- 16MB DDR ATI™ MOBILITY™ RADEON™ 7500 AGP 4X Graphics
- Fixed Internal 8x DVD Drive
- Internal Modem and NIC Included
- Windows® XP Home Edition, WordPerfect® Productivity Pack with Quicken® New User Edition
- 1-Yr Mail-In Service

\$1099 as low as **\$30**/mo., (46 pmts.)
E-VALUE Code: 16970-S0610c

Recommended upgrade:

- Windows® XP Professional, add \$79

NEW Latitude™ D500 Notebook

Small Business Value Notebook

- Featuring Intel® Centrino™ mobile technology
- Intel® Pentium® M Processor at 1.30GHz
- Intel® PRO Wireless 2100 802.11b 11Mbps Mini PCI Wireless Card
- 14.1" XGA TFT Display, 128MB Shared™ DDR PC2100 SDRAM
- 20GB Ultra ATA Hard Drive
- Integrated Intel® Extreme Graphics Up to 64MB Shared™ System Memory
- Internal Modem and NIC Included
- Windows® XP Home Edition, 1-Yr Mail-In Service

\$1149 as low as **\$31**/mo., (46 pmts.)
E-VALUE Code: 16970-S0611

Recommended upgrades:

- Windows® XP Professional, add \$60
- 3-Yr Next Business Day On-Site Service, add \$298

NEW Inspiron™ 8500 Notebook

High-Performance Wide Aspect Display

- Mobile Intel® Pentium® Processor-M at 2GHz
- 15.4" UltraSharp™ Wide Screen XGA TFT Display
- 256MB DDR PC2100 SDRAM
- 30GB Ultra ATA Hard Drive
- 32MB ATI™ MOBILITY™ RADEON™ 9000 AGP 4X Graphics
- Modular 8x DVD Combo Drive
- Internal Modem and NIC Included
- Windows® XP Home Edition, WordPerfect® Productivity Pack with Quicken® New User Edition
- 1-Yr Mail-In Service

\$1599 as low as **\$43**/mo., (46 pmts.)
E-VALUE Code: 16970-S0615

Recommended upgrades:

- Internal TrueMobile™ 300 Bluetooth, add \$49
- NEW Modular DVD+RW Combo Drive, add \$249



Dell | Servers and Workstations

PowerEdge™ 600SC Server

Entry-Level Value Server

- Intel® Celeron® Processor at 1.80GHz
- 128MB 266MHz ECC DDR SDRAM (Up to 4GB)
- 40GB (7200 RPM) IDE Hard Drive (Up to 120GB HD Avail.)
- Upgradeable to 480GB of Internal Hard Drive Storage
- Embedded Intel® PRO Gigabit™ NIC
- Five PCI Expandability Slots (4-64/33MHz, 1-32/33MHz)
- 1-Yr 24x7 Dedicated Server Phone Tech Support
- 1-Yr Next Business Day On-Site Service
- Small Business Pricing

\$399 E-VALUE Code: 16970-S20603g

Recommended upgrades:

- Custom-Install Site Survey, add \$199
- PV100T-TR5 Internal Tape Back-Up, add \$199
- System Including Windows® Server 2003, now \$1199

NEW PowerEdge™ 1600SC Server

Reliable, High-Performance Server

- Intel® Xeon® Processor at 2GHz
- Dual Intel® Xeon® Processor Capable (Up to 2.80GHz)
- 128MB 266MHz ECC DDR SDRAM (Up to 4GB)
- 36GB (10K RPM) SCSI Ultra320 Hard Drive (Up to 146GB HD Avail.)
- Upgradeable to 876GB of Internal Hard Drive Storage
- Embedded Intel® PRO Gigabit™ NIC
- Six PCI Slots (2-64/100MHz, 2-64/66MHz, 2-32/33MHz)
- 1-Yr 24x7 Dedicated Server Phone Tech Support
- 1-Yr Next Business Day On-Site Service
- Small Business Pricing

\$749 as low as **\$20**/mo., (46 pmts.)
E-VALUE Code: 16970-S20607g

Recommended upgrades:

- Hot-Swap Hard Drive Capability, add \$100
- PowerConnect 2124™ 24+1GB Ethernet Switch, add \$299

Dell™ Precision™ 360 Workstation

NEW Affordable, Scalable Performance Workstation

- Intel® Pentium® 4 Processor at 2.26GHz
- 256MB Dual-Channel DDR SDRAM
- 40GB (7200 RPM) IDE Hard Drive
- 64MB NVIDIA® QUADRO4 280NVS AGP 8X Graphics
- 48x CD-ROM Drive, Integrated Sound
- Integrated Intel® PRO Gigabit™ Network Connection
- Windows® XP Professional, Mini-Tower Chassis
- Lifetime 24x7 Dell Precision™ Dedicated Tech Support
- 3-Yr Next Business Day On-Site Service
- Monitor Not Included

\$899 as low as **\$24**/mo., (46 pmts.)
E-VALUE Code: 16970-S40608a

Recommended upgrades:

- 3-Yr Same-Day 4-Hour (5x10) On-Site Service, add \$199
- 17" Dell UltraSharp™ 1702FP Flat Panel Monitor, add \$499

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Dimension™ 2350 Desktop

Affordable Technology Solution

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- 128MB Shared® DDR SDRAM at 266MHz
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- 56K® DataFax Modem, Integrated 10/100 Ethernet
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for well-qualified customers*
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Dimension™ 4600 Desktop

Exceptional Performance

- Intel® Pentium® 4 Processor at 2.40GHz with 533MHz Front Side Bus
- 256MB Dual-Channel DDR SDRAM at 333MHz
- 60GB Ultra ATA/100 Hard Drive (7200 RPM)
- 17" (16:0" v.s., 27dpi) E772 Monitor
- 64MB DDR NVIDIA® GeForce 4 MX® Graphics Card with TV-Out
- 48x CD-RW Drive with Roxio's Easy CD Creator®
- Sound Blaster Live! 5.1 Digital Sound Card
- Desktop Stereo Speakers
- 56K* Telephony Modem, Integrated Intel® PRO 10/100 Ethernet
- Windows® XP Home Edition, WordPerfect® Productivity Pack with Quicken® New User Edition
- 6 Months of America Online® Membership Included
- 1-Yr Limited Warranty, 1-Yr At-Home Service*

\$949 Ask about No Interest Until 2004
for well-qualified customers
E-VALUE Code: 16970-D50609n

Dimension™ 8300 Desktop

Cutting-Edge Performance

- Intel® Pentium® 4 Processor at 2.6GHz with 800MHz Front Side Bus and HT Technology
- 256MB Dual-Channel DDR SDRAM at 400MHz
- 60GB Ultra ATA/100 Hard Drive (7200 RPM)
- 19" (18.0" v.i.s.) 24dpi M992 Monitor
- 64MB DDR NVIDIA® GeForce4 MX® Graphics Card with TV-Out
- 16x DVD-ROM Drive, 48x CD-RW Drive (2-Bay)
- Sound Blaster Live! 5.1 Digital Sound Card
- Harman Kardon HK-395 Speakers with Subwoofer
- 56K* Telephony Modem and Integrated Intel® PRO 10/100 Ethernet
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Notebook Essentials, Budget-Friendly

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- 15" XGA TFT Display
- 256MB Shared* DDR PC100 SDRAM
- 20GB Ultra ATA Hard Drive
- 8x DVD-ROM Drive
- Integrated Intel® Extreme Graphics
- Integrated Stereo Sound
- 94Whr Li-Ion Battery (12-Cells)
- Internal Fax Modem and NIC Included
- Microsoft® Windows® XP Home Edition
- WordPerfect® Productivity Pack with Quicken® New User Edition
- 6 Months of America Online® Membership Included
- 1-Yr Limited Warranty, 1-Yr Mail-In Service

\$999 Ask about No Interest Until 2004
for well-qualified customers
E-VALUE Code: 16970-D80609m

Inspiron™ 5100 Notebook

Perfect Balance of Performance and Price

- Intel® Pentium® 4 Processor at 2.40GHz
- 14.1" XGA TFT Display
- 384MB DDR PC2100 SDRAM
- 30GB Ultra ATA Hard Drive
- 24x CD-RW/DVD Combo Drive with Roxio's Easy CD Creator®
- 16MB DDR ATI® MOBILITY™ RADEON® 7500 AGP 4X Graphics
- Integrated Stereo Sound
- 94Whr Li-Ion Battery (12-Cell)
- Internal Fax Modem and NIC Included
- Microsoft® Windows® XP Home Edition
- WordPerfect® Productivity Pack with Quicken®
- New User Edition
- 6 Months of America Online® Membership Included
- 1-Yr. Limited Warranty; 1-Yr. Mail-In Service

\$1299 Ask about No Interest Until 2004
for well-qualified customers
E-VALUE Code: 16970-D80612m

Inspiron™ 8500 Notebook

Ultimate Multimedia Performance

- Mobile Intel® Pentium® 4 Processor-M at 2GHz
- 15.4" Wide-Aspect UltraSharp® XGA TFT Display
- 512MB DDR PC2100 SDRAM
- 30GB Ultra ATA Hard Drive
- 24x CD-RW/DVD Combo Drive with Roxio's Easy CD Creator®
- 64MB NVIDIA® GeForce4™ 4200 Go AGP 4X Graphics
- Integrated Stereo Sound
- 72Whr Li-Ion Battery with ExpressCharge™ Technology (9-Cell)
- Internal Fax Modem and NIC Included
- Windows® XP Home Edition
- WordPerfect® Productivity Pack with Quicken® New User Edition
- 6 Months of America Online® Membership Included¹
- 1-Yr Limited Warranty, 1-Yr Mail-In Service

\$1999 Ask about No Interest Until 2004
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NEW Dimension™ 4600 Desktop

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- 256MB Dual-Channel DDR SDRAM
- 17" (16.0" v.i.s.) E772 Monitor
- NEW 60GB (7200 RPM) Ultra ATA/100 Hard Drive
- 64MB DDR NVIDIA® GeForce4 MX™ Graphics Card
- NEW 4x DVD+RW Drive, Sound Blaster Live! 5.1 Sound
- Integrated Intel® PRO 10/100 Ethernet
- Windows® XP Home Edition, Works Suite 2003
- 1-Yr Limited Warranty, 1-Yr On-Site Service*

\$999

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for qualified customers
E-VALUE Code: 16968-S50609v

Recommended upgrades:

- Windows® XP Professional, add \$60
- 3-Yr Limited Warranty, 3-Yr On-Site Service*, add \$119
- 19" 1900FP Dell UltraSharp™ Digital Flat Panel Display, add \$690

The NEW Dell Dimension 4600 desktop: **Exceptional performance, incredible value.** Powered by an Intel® Pentium® 4 processor with HT Technology at up to 3.06GHz and loaded with dual-channel memory, the Dimension 4600 delivers the enhanced performance you need for high-end graphics and multimedia applications. Eight USB 2.0 ports ensure that you can add a wide variety of peripherals and upgrades as well. And every machine is backed by Dell's award winning service and support. Choose the system that gives you the power you want, at a price you can't resist – the NEW Dell Dimension 4600.

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