

SMART VIRUSES That Just Won't Die    Next-Generation **HARD DRIVES**

# PCWORLD



SEPTEMBER 2002 • TECHNOLOGY ADVICE YOU CAN TRUST™ • AOL KEYWORD: PCWORLD • WWW.PCWORLD.COM



We Test 12 **Online PC Stores** to Find the Best Prices, Choice & Service



Web Marketers Reach New Depths of Sleaze: How to **Guard Your PC**



Our Lab Pinpoints the **Top Values** in Today's Super-Fast Notebooks

## COMPLETE 2002 buyers guide

DESKTOPS, NOTEBOOKS,  
BROADBAND, NETWORKING,  
DIGITAL CAMERAS, PDAs,  
CAMCORDERS, CELL PHONES,  
VIDEO, RECORDABLE DVD,  
CD-RW, AND MORE...



## MicronPC TransPort GX3

**micronpc**



- ▶ 1.6GHz Mobile Intel Pentium 4 processor-M
- ▶ 56Kbps modem and 10/100 Ethernet
- ▶ Memory: 128MB std.
- ▶ Windows 2000 Professional
- ▶ 20GB hard drive
- ▶ 15" XGA active-matrix display
- ▶ 8X Max DVD-ROM drive

**\$1869.50** CDW 402794



## hp color LaserJet 4600 printer



- ▶ Resolution: 600 x 600 dpi, ImageREt 2400
- ▶ Paper handling: 500-sheet input tray, 100-sheet multipurpose tray
- ▶ Print speed: 17 ppm black and color
- ▶ Duty cycle: 85,000
- ▶ RAM: 96MB std., 416MB max.
- ▶ 1-year next day, onsite warranty

**\$1999.00** CDW 386969

## SimpleTech

### 256MB memory module

For MicronPC TransPort GX3 notebook

- ▶ Branded system specific solutions
- ▶ Supported by unlimited, toll-free technical support
- ▶ Lifetime warranty
- ▶ Intel qualified
- ▶ Guaranteed 100% compatible

**\$107.14** CDW 384257



### Antivirus Defense Small Business Edition

- ▶ Bundles McAfee's anti-virus products with their enterprise management tool, ePolicy Orchestrator, to provide SMB customers with the managed anti-virus solutions they need and want

101-250 users

**\$45.68** CDW 403222



### MultiSync FE991

19" SuperBright Diamondtron CRT

- ▶ 18" viewable image size
- ▶ 0.25-0.27mm aperture grille pitch
- ▶ Maximum resolution: 1792 x 1344 at 68Hz
- ▶ 3-year limited parts, labor and CRT warranty

**\$339.99** CDW 381678



# Innovative technology from CDW

## hp ProLiant DL360 G2 rack-mount server

- ▶ 1.4GHz Intel Pentium III processor
- ▶ Memory: 256MB std.
- ▶ 24X Max CD-ROM drive
- ▶ Two 10/100 Ethernet adapters



**\$2369.98** CDW 362823



Hard drives sold separately

## SimpleTech

### 1GB memory module kit

For hp ProLiant DL360 G2 rack-mount server

- ▶ Branded system specific solutions
- ▶ Memory type: SDRAM (Synchronous DRAM)
- ▶ Speed: 133MHz
- ▶ Guaranteed 100% compatible
- ▶ Supported by unlimited, toll-free technical support

**\$469.27** CDW 315161



Legendary Reliability™

### Smart-UPS 1400RM 2U

1400VA rack-mount battery backup

- ▶ AVR Boost and AVR Trim automatic voltage regulation
- ▶ FREE PowerChute® software
- ▶ Optional SmartSlot® accessories customization function
- ▶ \$150,000 Lifetime Equipment Protection
- ▶ 2-year limited warranty

**\$697.71** CDW 199324



### Crystal Reports 8.5 Professional Edition

- ▶ Deliver rich, interactive content from virtually any data source
- ▶ Powerful design and formatting capabilities with interactive analysis tools mean you can create the report that will meet your exact needs
- ▶ Comprehensive support for development languages make Crystal Reports 8.5 Professional Edition an essential reporting tool for database applications

**\$356.49** CDW 279711

All pricing subject to change. For all prices and products, CDW® reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or typographical errors in advertisements. All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers. Please refer to [www.cdw.com](http://www.cdw.com) for additional terms and conditions.

©2002 CDW® Computer Centers, Inc. 200 N. Milwaukee Avenue, Vernon Hills, IL 60061 PCW9374B/C 9/02





The JCPenney logo is displayed in white text on a dark blue square background. The letters are in a clean, sans-serif font. A thin vertical blue line is positioned to the left of the square.

# JCPenney®

stores | catalog | .com

Marketing and Media departments in the loop every step of the way. And because FileMaker integrates with Microsoft Office and supports XML, JDBC and ODBC, it's especially attractive to their IT department. To see if FileMaker Pro is a good fit for your business, visit [www.filemaker.com](http://www.filemaker.com) or call 800-325-2747. *What's your problem?™*

are trademarks of FileMaker, Inc. All other trademarks are the property of their respective holders.



# BE A GIGAMANIAC



**Crazy for power?** Get one of these Compaq Presario PCs, and you'll have power to burn. And edit. And render high-res graphics. And then some, thanks to the latest Intel® Pentium® 4 Processors. Just call or visit our website, and let us build one for you. You'll have more than enough gigahertz to go wild.

**COMPAQ**

Compaq PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)

\*This is a same-as-cash offer. On your Compaq card, subject to credit approval. If balance on these purchases is paid in full before the expiration of the 90-day promotional period and your Account is kept current, accrued Finance Charges will not be imposed on these purchases. If balance on these purchases is not paid in full, Finance Charges will be assessed from the purchase date at the variable Standard Rate APR. The variable Standard Rate APR is Prime Rate + 5.9 percentage points. Prime Rate + 14.4 percentage points, or Prime Rate + 19.9 percentage points (10.65%, 18.15%, or 24.65% as of 05/01/02). For Accounts not kept current, the variable Default Rate APR of Prime Rate + 21.9 percentage points (26.65% as of 05/01/02) will be applied to all balances on your Account. Minimum 10.65% APR. Minimum Finance Charge: \$1.00. **Certain rules apply to the allocation of payments and finance charges on your promotional purchase if you make more than one purchase on your card.** \$100 mail-in rebate offer valid on the purchase of this Compaq Presario 6000T PC when you buy direct between 05/12/02 through 05/07/02. \$40 mail-in rebate valid on purchase of this Compaq Presario 6000T PC when you buy direct between 06/30/02 through 09/28/02. To qualify for these offers, you must be a legal U.S. resident 18 years of age or older. Promotions are void where prohibited or restricted by law. Compaq reserves the right to modify or withdraw these promotions at any time. In order to qualify for the above mentioned mail-in rebates, you must send Compaq the fully completed mail-in rebate request form, including the model number and serial number for the qualifying product purchased, in addition to the original serial number bar code label from the product box (copies of this label will absolutely not be accepted. See the coupon for bar code label removal instructions) and a copy of your dated sales receipt (proof of purchase). The request must be postmarked within 30 days of purchase date. Any claims postmarked more than 30 days past purchase date may not be honored. Please allow 8 weeks for receipt of rebate check. Compaq is not responsible for lost.



**90 DAYS  
SAME  
AS  
CASH\***



### Digital Pro

**Presario 8000T-2.4**

**\$1649<sup>†</sup>**

**Includes \$100 Mail-In Rebate\*:**

**\$1749 - \$100 = \$1649**

Intel® Pentium® 4 Processor 2.40 GHz  
Microsoft® Windows® XP Home Edition  
512 MB PC2100 DDR SyncDRAM  
80.0 GB (5400 rpm) UltraDMA Hard Drive<sup>1</sup>  
16X DVD-ROM Drive<sup>2</sup>  
2 Front USB Ports  
56K ITU V.90 Modem<sup>3</sup>  
Integrated 10/100 Network Interface Card  
Audigy 6 Channel 5.1  
Creative Inspire 2.1 2400 Speakers  
64 MB DDR nVidia GeForce4 MX420 with TV-Out  
Compaq CV7500 17" Monitor (13.8" VJA)  
**Personalize by choosing:**  
40X CD-RW Drive<sup>4</sup> in 2nd Bay: Add \$99  
Upgrade to 128 MB GeForce4: Add \$250



### Whiz Kid

**Presario 6000T-1.8**

**\$849<sup>†</sup>**

**Includes \$30 Mail-In Rebate\*:** \$879 - \$30 = \$849

Intel Pentium 4 Processor 1.80 GHz  
Microsoft Windows XP Home Edition  
128 MB PC2100 DDR SyncDRAM  
20.0 GB (5400 rpm) UltraDMA Hard Drive<sup>1</sup>  
48X Max CD-ROM Drive<sup>2</sup>  
2 Front USB Ports  
56K ITU V.90 Modem<sup>3</sup>  
Integrated 10/100 Network Interface Card  
Integrated Soundmax II Digital Audio  
JBL Platinum Speakers with Digital Audio Port  
Integrated Extreme Intel Graphics  
Compaq CV5500 15" Monitor (13.8" VJA)  
**Personalize by choosing:**  
Compaq Optical Scroll Mouse: Add \$10  
Upgrade to Compaq CV7500 17" monitor: Add \$40\*



### Road Warrior

**Presario 2800T-1.6**

**\$1599<sup>†</sup>**

Mobile Intel Pentium 4 Processor 1.60 GHz-M  
Microsoft Windows XP Home Edition  
15.0" TFT XGA Active Matrix Display  
128 MB 266 MHz DDR SyncDRAM  
30.0 GB UltraDMA Hard Drive<sup>1</sup>  
8X DVD-ROM Drive<sup>2</sup>  
ATI Mobility Radeon 7500 with 4X AGP and 32 MB  
Dedicated DDR Video Memory  
56K ITU V.92 Modem<sup>3</sup> with Network  
Interface Card  
Lion Battery  
**Personalize by choosing:**  
DVD/CD-RW Combo Drive: Add \$100  
Upgrade to 64 MB Dedicated DDR Video Memory:  
Add \$149



### Road Scholar

**Presario 1500T-1.5**

**\$1239<sup>†</sup>**

Mobile Intel Pentium 4 Processor 1.50C GHz-M  
Microsoft Windows XP Home Edition  
14.1" TFT XGA Active Matrix Display  
128 MB 266 MHz DDR SyncDRAM  
20.0 GB UltraDMA Hard Drive<sup>1</sup>  
24X Max CD-ROM Drive<sup>2</sup>  
ATI Mobility Radeon with 4X AGP and 32 MB  
Dedicated DDR Video Memory  
56K ITU V.92 Modem<sup>3</sup> with Network  
Interface Card  
Lion Battery  
**Personalize by choosing:**  
Compaq Carrying Case: Add \$49  
Additional Battery: Add \$99

## These PCs can be designed around your interests.

**Are you an aspiring director?** A hot DJ? Or a weekend photographer? Whatever your interests are, we can design and build a desktop PC that will help you make the most of them.

**Make your own movies.** Get an IEEE-1394 port on the front of your PC to make connecting your digital camcorder fast and easy. Add a DVD+RW/R & CD-RW combo drive, and special video editing software, and you're ready to capture, edit, and show off your videos.

**Music your way.** Burn your own CD with a CD-RW drive. Then pump up the volume with Klipsch speakers.

**Picture this.** With a digital camera, scanner, and photo-quality printer, you can retouch, crop, print, and store all your photos.

Let us make it easy for you. Visit us on the Web for all-in-one MyMovieSTUDIO and MyMusicSTUDIO PC bundles. Still not sure what's right for you? Call us, and we'll help you figure it out.

toll - free

➤ Buy direct


**1-888-412-9890**

compaq.com/athome

➤ To buy direct from Compaq in Puerto Rico, call toll-free 1-800-668-5341. ➤ Para comprar de Compaq directamente en Puerto Rico, llame gratuitamente al 1-800-668-5341.

ids, or misdirected mail. All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only, and are subject to change or cancellation without notice. Illustrations may not accurately represent exact configurations priced. Retail prices may vary. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. For hard drives, GB=billion bytes. \*16X DVD-ROM drives read a minimum of 5545 Kbps and a maximum of 21640 Kbps. \*ITU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. \*40X CD-RW drive data transfer rates may vary as follows: for recording to CD-R media, the max transfer rate may be up to 6000 Kbps (use 40X discs for best performance); for writing to CD-RW media, the max transfer rate may be up to 1800 Kbps (use 4X-12X high-speed media discs for best performance); for reading CD media, the max transfer rate may be up to 6000 Kbps. Actual transfer rates may vary depending on media quality. \*48X Max CD-ROM data transfer rates may vary from 2500 to 7200 Kbps. \*8X DVD-ROM drives read a minimum of 4463 Kbps and a maximum of 10820 Kbps. \*24X Max CD-ROM data transfer rates may vary from 1500 to 3600 Kbps. Microsoft® Windows® XP Home Edition installed. Compaq, the Compaq Logo, and Presario are trademarks of Compaq Information Technologies Group, L.P. in the U.S. and other countries. Intel, the Intel Inside Logo, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. Microsoft, MS, and Windows are registered trademarks of Microsoft Corporation. Products and company names mentioned herein may be trademarks and/or registered trademarks of other companies. ©Copyright 2002 Compaq Information Technologies Group, L.P. 20018/09/02





# *Shopping List*



## *Household Articles*

DISHWASHING LIQUID ✓

SOAP ✓

TOILET PAPER ✓

## *Meats and Poultry*

CHICKEN WINGS

~~BACON~~

ROAST BEEF ✓

## *Fruits and Vegetables*

POTATOES ✓

CARROTS ✓

WATERMELON ✓

## *Desserts*

COOKIES ✓

ICE CREAM ✓

You'll want to design everything.





Nothing will be safe. Not a memo. Not a note. Not the tags on every piece of luggage you own. With CorelDRAW® Graphics Suite II, we can't blame you for wanting to design every single thing that pops into your mind.

Reshape objects freely with pressure-sensitive Roughen and Smudge brushes. Mask complex shapes in one step with an ingenious new CutOut tool. Minimize and reuse design elements with new Symbols support. All while you see exactly what you're doing in real time with the help of Live Effects. Even if what you're doing is getting a little carried away.

Corel PHOTO-PAINT®, Corel R.A.V.E., and the winner of over 350 industry awards, CorelDRAW®. Take a closer look at [www.corel.com/graphicsuiteII](http://www.corel.com/graphicsuiteII) or go to [www.corel.com/resellers](http://www.corel.com/resellers) to find out where you can get it. Available for Windows® XP and Mac® OS X.

enjoy what you do.™



graphic design  
photo editing  
web graphics  
animation

# Acer Peripherals

(Acer Communications & Multimedia)

*is now*



# BenQ

**New name. New products. Strengthened commitment to service.**



**Acer Peripherals (Acer Communications & Multimedia) is now BenQ.** BenQ was launched as an independent brand to dedicate resources to the seamless integration of technology and quality of life. With a diverse product line designed to encompass the digital convergence era, BenQ is wholly aligned to better serve consumers and partners alike.

**Continued commitment to support.** While our name has changed, our steadfast commitment to current Acer Peripherals (Acer Communications & Multimedia) customers has not. All drivers, manuals and support information are now available on our Web site. And, because we're still the same core company, we honor all warranties made by Acer Peripherals (Acer Communication & Multimedia). The biggest change you will notice is our focus on enjoyment — both in our products and service.

For more information, visit [www.AcerCM.com](http://www.AcerCM.com) or [www.BenQ.com](http://www.BenQ.com)

Email us at [ProdInfo.us@BenQ.com](mailto:ProdInfo.us@BenQ.com) or call (866) 700-2367

©2002 BenQ Incorporated. All rights reserved. All trademarks and registered trademarks are the property of their respective holders.

# BenQ

*Enjoyment Matters*





## SPECIAL ISSUE

### 88 2002 Buyers' Guide

Every edition of *PC World* assists you when it's time to buy computer products. But this month's special guide provides more buying information than we've ever assembled in one issue, covering 17 of the most important product types (and incorporating the *Top 100* product reviews section). Already know what you want to buy? Find out on page 140 where you should shop.

Cover Photography by Marc Simon



# PCWORLD

SEPTEMBER 2002

VOLUME 20 ♦ NUMBER 9

AOL KEYWORD: PCWORLD

WWW.PCWORLD.COM

## MAIN SECTIONS

### SYSTEMS

#### 90 The Box

Desktop and notebook computer systems—the platform for all things PC.



### COMPONENTS

#### 98 Inside the Box

The prime upgrade components: motherboards, CD-RW and DVD drives, hard drives, and graphics cards.



### PERIPHERALS

#### 112 Outside the Box

Printers, monitors, and scanners, as well as broadband and home networking gear.



### MOBILE GEAR

#### 128 Beyond the Box

Digital lifestyle: cameras, camcorders, PDAs, phones, and MP3 players.



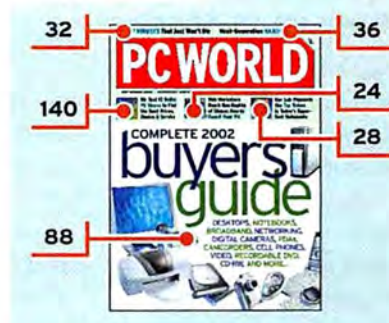
### BUYING SITES

#### 140 Best Places to Buy

We evaluate 12 online shopping sites for PC products to find out which ones offer the best deals with the least hassle.



## ON THE COVER





## WHERE'S THE TOP 100?

Don't worry. This month only, we cover the *Top 100* categories and more in our Buyers' Guide, starting on page 88, with charts, close-ups, and other special features.

Charts: Rankings and detailed comparisons of select products.

Close-ups: Key features to look for when you shop.



## DEPARTMENTS

- 19 Up Front
- 41 Letters
- 49 Consumer Watch  
PC makers are dwindling.
- 57 Web Savvy  
Browse with bookmarklets.
- 59 Home Office  
Increase your Word power.
- 61 Bugs and Fixes  
Virus hoaxes hurt, too.
- 190 Full Disclosure  
Apples keep tempting.

## RESOURCES

- 14 How to Contact PC World
- 172 PC World Marketplace
- 188 Advertiser Index



## NOW AT PCWORLD.COM

### DOWNLOADS

#### How to Uninstall Files

These downloads get rid of stray entries and unwanted programs.  
[find.pcworld.com/30164](http://find.pcworld.com/30164)

### FUTURE GEAR

#### The Real Pocket PCs

Forget PDAs. True PCs the size of a paperback book are on the way.  
[find.pcworld.com/30167](http://find.pcworld.com/30167)

## COMING UP IN OCTOBER

**Stop It, Already:** Steve Bass explains how to break your PC of its most annoying hardware and software habits, once and for all.

**Practical Upgrades:** Discover five ways to improve your computer's capabilities, and learn how you can avoid snags along the way.

**Graphics Boards:** The PC World Test Center put current and next-generation models through their paces, and we find two Best Buys.

**Dynamite Downloads:** We review 25 great freeware and shareware programs, and tell you the pitfalls to look out for when downloading.

## NEWS & TRENDS

- 24 **Web Ad Ambush**  
Financed by ad dollars from big names, online marketers are embracing more-aggressive tactics.
- 28 **Notebooks Zip to 2 GHz-Plus**  
Laptops based on Intel's new 2-GHz Pentium 4-M offer only modest performance improvements.
- 32 **The Virus That Won't Die**  
Klez threatens to become the most prolific virus ever, as harmful strains continue to vex users.
- 34 **Magnificent Seven-Color Printing**  
Epson's Stylus Photo 2200 outguns other photo ink jet printers by providing a seventh ink color.
- 36 **Your Next Hard Drive**  
Serial ATA drives are faster and will allow more-compact PC designs; capacity is on the rise, too.
- 36 **Gigabit Networking for Small Offices**  
New 1000-mbps ethernet products put higher transfer speeds within reach of small businesses.

## NEW PRODUCTS

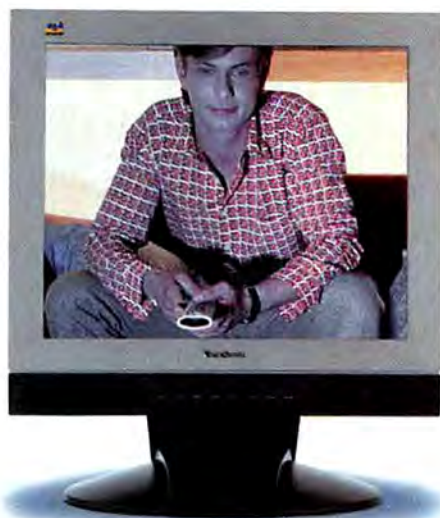
- 68 **Web Browsers**  
Mozilla 1, Netscape 7, RapidBrowser XP
- 70 **Wireless Networking Hardware**  
U.S. Robotics Access Point, PC Card, and Adapter
- 72 **Image Editor**  
Adobe Photoshop Elements 2
- 74 **Notebook**  
Alienware Area-51m
- 79 **Compression Software**  
Aladdin StuffIt Deluxe 7.5, PentaWare PentaZip 5.1
- 80 **Database Software**  
FileMaker 6  
*See page 69 for a complete list of new products reviewed.*

## HERE'S HOW

- 158 **Windows Tips**  
Use Windows' passwords for desktop security—or turn them off; download a handy card-file utility.
- 162 **Internet Tips**  
Opt out of spam; log off Outlook Express the right way; get RealOne free without the hassles; a power chatting tool; Domain Name Buyer's Guide RIP.
- 164 **Step-By-Step**  
Ensure that your new drives run at optimal speed.
- 166 **Hardware Tips**  
Find the best use for an old PC; uncover the source of Windows error messages; silence your modem.
- 170 **Answer Line**  
Share Works files with non-Works users; customize the Places Bar in Windows' dialog boxes.



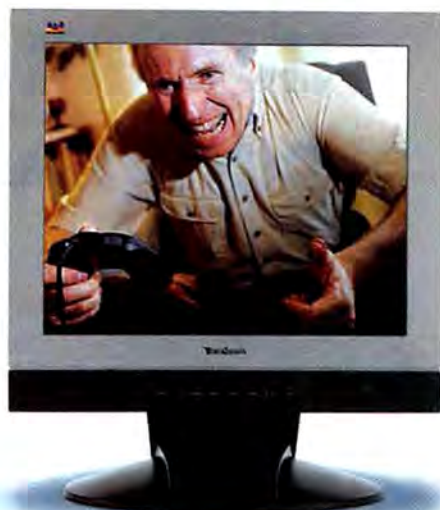
# Be all that you can be.



CHANNEL SURFER



MOVIE GOER



VIDEO GAMER

## Without ever leaving your desktop.

### NextVision™ 5 from ViewSonic® It turns your display into a high-resolution multi-media center.

You multitask every day. To stay competitive, you have to. Shouldn't your computer monitor do the same? ViewSonic, the Visual Technologies™ leader, introduces a revolution in desktop productivity and convenience. The new NextVision 5 Video Processor transforms any CRT or LCD monitor into a powerful multi-media viewing center. Connect a cable feed or antenna and with the press of a button, switch from your computer application to full screen, ultra high resolution television viewing (up to 1024x768) via the built-in TV tuner. NextVision 5 also connects DVD players, VCRs and digital cameras. Even plug in your Xbox®, PlayStation2® or Nintendo® for a visual gaming experience like none you've seen before.



and have some fun, too. It's also great for small offices where space is too tight for a separate computer display and television. Setting up NextVision 5 is as easy as a TV. No complicated cards or software to install. Use the included cable to connect the NextVision 5 directly to your monitor (you don't even need a PC). Turn an ordinary desktop into an extraordinary viewing experience. Visit [ViewSonic.com](http://ViewSonic.com) today and See the Difference.®

Complete with 28-key remote control, NextVision 5 is the perfect desktop

addition for those looking to maximize productivity by monitoring television news or stock quotes –

*EZ Set-up with  
RGB in/out,  
S-Video input,  
Video Input,  
Stereo Audio  
inputs, audio  
line in and  
speaker out.  
Just plug  
and play.*



Availability, pricing and specifications subject to change without notice. Corporate names and trademarks herein such as Sony®, PlayStation 2®, Microsoft® Xbox® and Nintendo® are the property of their respective companies. Copyright © 2002 ViewSonic Corporation. All rights reserved. [10635-00B 07/02]

**ViewSonic®**  
*See the difference.®*

© 2002 Micron Technology, Inc. All rights reserved. The Micron logo is a service mark and Crucial Technology, the Crucial logo and Micron are registered trademarks of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners.



GET MORE MEMORY?  
HOW?

**or call toll-free 1-888-363-3065**





BizRate.com



# You need Crucial RAM.

Select your system make and model at Crucial.com, and you'll find memory guaranteed to be compatible with your system or your money back.

It's that easy! Best of all, you'll get the same top-quality memory the world's leading computer makers install in their systems. Visit Crucial.com and get great memory upgrades at low, factory-direct prices.

**256MB PC133 SDRAM**

**\$49<sup>49</sup>**

**for today's most popular systems**

Prices reflect an automatic 10% discount for ordering online. Prices may vary according to specific system requirements. The prices listed were valid on 6/27/02 when we sent this ad to the publisher; however, prices may have dramatically increased or decreased since then. Visit the FAQ section of Crucial.com to learn more about why memory prices go up and down.

**The Memory Experts<sup>SM</sup>**

**crucial<sup>TM</sup>**  
TECHNOLOGY  
A Division of Micron

Visit us today!

www.MicroExchange.com



Refurbished products from name brand manufacturer's like Compaq, Dell, HP, IBM and more.

You never have to worry about quality, since our products are put through stringent testing and certification standards to ensure "like new" appearance and performance.

If you have questions our friendly online experts at 1-800-284-0406 are ready to help you with questions or ordering.

**MICRO EXCHANGE**™ Since 1985

acer  
The Search of a New Day at Acer

DELL  
IBM

hp HEWLETT  
PACKARD

COMPAQ

Quantum  
Leadership in Data Protection Solutions

All pricing subject to change. For all prices and products, MicroExchange reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or typographical errors in advertisements. All products sold by MicroExchange are third party products and are subject to the warranties of any of the applicable manufacturers. Please refer to www.microexchange.com for additional terms and conditions. ©2002 MicroExchange™, 13760 Diplomat Drive, Dallas Texas 75234 All rights reserved. All registered trademarks and trademarks are the property of their respective owners.

PCWORLD

PHONE:  
415/243-0500

FAX:  
415/442-1891

E-MAIL:  
letters@pcworld.com

WORLD WIDE WEB:  
www.pcworld.com

AOL KEYWORD:  
pcworld

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

EDITORIAL DIRECTOR Kevin McKean  
EDITOR Harry McCracken CREATIVE DIRECTOR Robert Kanes

## EDITORIAL

EDITOR, PCWORLD.COM & EXECUTIVE EDITOR,  
NEWS Ramon G. McLeod

MANAGING EDITOR Kimberly Brinson

EXECUTIVE PRODUCER Andrew Eisner

EXECUTIVE EDITORS Edward N. Albro,  
Tracey Capen, Randy Ross

ASSISTANT MANAGING EDITOR

Paul-Michael King

SENIOR EDITORS Yarden Arar, Rex  
Farrance, Rebecca Freed, Karl Koessel,  
Michael S. Lasky, Aoife M. McEvoy,  
Alan Stafford, Peggy Watt

SENIOR ASSOCIATE EDITORS

Richard Baguley, Andrew Brandt,  
Tom Mainelli, Anne B. McDonald,  
Dennis O'Reilly, Anush Yeghazarian

SENIOR REPORTER Tom Spring

ASSOCIATE EDITORS Grace Aquino,  
Seán Captain, Lisa Cekan, Eric Dahl,  
Alexandra Krasne, Kalpana  
Narayananurthi, Melissa J. Perenson

SENIOR PRODUCER, DOWNLOADS  
Max Green

SENIOR COPY EDITORS

Stephen Compton, Steven Gray,  
Frederic Fane Wolfer, Tracy Yee

RESEARCH EDITOR Kristina Saar

EDITORIAL PRODUCTION ASSOCIATE  
Henry Pham

ASSISTANT TO THE EDITORIAL DIRECTOR  
Laura Blackwell

EDITORIAL ASSISTANT  
Felicia Williams

BUSINESS MANAGER Thomas Pena

## ART AND DESIGN

DEPUTY ART DIRECTOR Barbara Adamson

ASSOCIATE ART DIRECTORS Kate Godfrey,  
Pierre Granier

ASSISTANT ART DIRECTOR Beth Kamoroff

DESIGNER Sean McDonald

ASSOCIATE DESIGNERS Diego Aguirre,  
Marlene Tobias

## CONTRIBUTING EDITORS

Steve Bass, George Campbell,  
Scott Dunn, Brad Grimes, Judy Heim,  
Stuart J. Johnston, Anne Kandra,  
Dan Littman, Stephen Manes,  
James A. Martin, Stan Miestkowski,  
Scott Spanbauer, Lincoln Spector,  
Kirk Steers, Carla Thornton,  
Daniel Tynan, Kim Zetter

## PC WORLD TEST CENTER

TEST CENTER DIRECTOR  
Ulrike Diehlmann

MANAGER OF BENCHMARK DEVELOPMENT  
James Motch

SENIOR PERFORMANCE ANALYSTS

Elliott S. Kirschling, Jeffrey Kuta

PERFORMANCE ANALYSTS

Tony K. Leung, Thomas Luong

SENIOR TEST CENTER COORDINATOR  
Julian Weatherby

TEST CENTER COORDINATOR  
Julio C. Giannobile

## PCW COMMUNICATIONS

PRESIDENT AND CHIEF EXECUTIVE OFFICER  
Jeff Edman

PUBLISHER Bob Ostrow

SENIOR VP, COO/CFO Vicki Peilen

SENIOR VP, HUMAN RESOURCES

Richard Willoughby

VP, CONSUMER MARKETING

Shawne Burke Pecar

FOUNDER David Bunnell

FOUNDING EDITOR Andrew Fluegelman

## SUBSCRIPTION SERVICES

MAIL: PC World Subscriber Services,  
P.O. Box 37571, Boone, IA 50037-0571.  
(Include a mailing label with  
correspondence.)

INTERNET: [www.pcworld.com/customer](http://www.pcworld.com/customer)

E-MAIL: [pcwcustserv@cdsfulfillment.com](mailto:pcwcustserv@cdsfulfillment.com)  
(Send your full name and the address at  
which you subscribe; do not send  
attachments.)

PHONE: In the U.S. 800/234-3498  
New orders 800/825-7595

FAX: 515/432-6994

## QUESTIONS AND SUBMISSIONS

Send material electronically to the  
appropriate online address listed below,  
or mail it to PC World. We reserve the  
right to edit letters. PC World pays \$50  
for published *Here's How* tips and  
questions; accepted submissions will be  
acknowledged by payment. Editors  
cannot guarantee personal responses to  
all questions.

ANSWER LINE: [answer@pcworld.com](mailto:answer@pcworld.com)

BUGS AND FIXES: [bugs@pcworld.com](mailto:bugs@pcworld.com)

CONSUMER WATCH:

[consumerwatch@pcworld.com](mailto:consumerwatch@pcworld.com)

FULL DISCLOSURE: [steve@cranky.com](mailto:steve@cranky.com)

HARDWARE TIPS: [kirk\\_steers@pcworld.com](mailto:kirk_steers@pcworld.com)

HOME OFFICE: [homeoffice@pcworld.com](mailto:homeoffice@pcworld.com)

INTERNET TIPS: [nettips@spanbauer.com](mailto:nettips@spanbauer.com)

LETTERS: [letters@pcworld.com](mailto:letters@pcworld.com)

ON YOUR SIDE: [onyourside@pcworld.com](mailto:onyourside@pcworld.com)

PRIVACY WATCH:

[privacywatch@pcworld.com](mailto:privacywatch@pcworld.com)

STEP-BY-STEP:

[stan\\_miestkowski@pcworld.com](mailto:stan_miestkowski@pcworld.com)

WEB SAVVY: [websavvy@pcworld.com](mailto:websavvy@pcworld.com)

WINDOWS TIPS: [scott\\_dunn@pcworld.com](mailto:scott_dunn@pcworld.com)

## NEW PRODUCT ANNOUNCEMENTS

Address press releases to *New Products*  
at PC World, or call 415/978-3212.

## REPRINTS AND PERMISSIONS

You must have permission before  
reproducing any material from PC  
World. Write to PC World, Reprints and  
Permissions, 501 Second St. #600, San  
Francisco, CA 94107; include a phone  
number. To order reprints of your com-  
pany's editorial coverage in PC World,  
call 717/399-1900 ext. 142.

## BACK ISSUES

PC World issues and article copies are  
available on microfilm and microfiche  
from UMI, 300 N. Zeeb Rd., Ann  
Arbor, MI 48106-1346; 800/521-0600.

## MAILING LISTS

Occasionally we make our subscribers'  
names available to other companies  
whose products may interest you. To  
have your name excluded from these  
mailings, send a request with your  
mailing label to Subscriber Services,  
P.O. Box 37571, Boone, IA 50037-0571  
or e-mail us at [pcwcustserv@cdsfulfillment.com](mailto:pcwcustserv@cdsfulfillment.com).



STB  
BLACKBERRY

**WHEN YOU CAN NOT ONLY WALK THE WALK AND TALK THE TALK  
BUT E-MAIL THE E-MAIL**

**THAT'S THE BUSINESS SIDE OF mLIFE.**



**AT&T Wireless**

**INTRODUCING THE VOICE-ENABLED BLACKBERRY™ 5810 FROM AT&T WIRELESS**

**AT&T WIRELESS NETWORK QUALITY + ABILITY TO TALK & E-MAIL AT SAME TIME = A MULTI-TASKING MASTER**

**1 877 400-1080 OR [ATTWIRELESS.COM/MOBILEPRO](http://ATTWIRELESS.COM/MOBILEPRO)**

© 2002 AT&T Wireless. All Rights Reserved. Requires valid, eligible agreement, subscription to an AT&T Wireless BlackBerry Access Plan, compatible devices and software. May not be available for purchase or use in all areas. Subscription to an eligible voice plan is optional, but is required for voice service. Subject to terms and conditions of applicable agreement and rate plans. Due to coverage limitations and other factors, information may not be accessible at all times. E-mail sends or receives are queued while in voice mode. Additional terms and conditions apply. The BlackBerry and RIM families of related marks, images, and related symbols are the property of Research In Motion Limited - used by permission. All other marks are the property of their respective owners.



**A sudden rain, a fast lane, a tablet PC.  
A CLAIM PROCESSED AT BREAKNECK SPEED.**







Meet the Stylistic® LT pen tablet PC. A sleek, field-friendly machine that's shifting the data processing speed of industries such as insurance into overdrive. Conveniently flat, the Stylistic LT races to the scene like no notebook can while lapping any and all PDAs with its display and processing power. With it, agents can tap in damage details, tap up policies, and wirelessly check part prices. That means less paperwork, better data and a claim settlement process that just whizzes by.

Learn how our pen tablets can give your company a competitive edge.  
Call us today at **1-800-831-3183** or visit **[www.fujitsupc.com/pentablets](http://www.fujitsupc.com/pentablets)**.

The Stylistic® LT is powered by an ultra low voltage Mobile Intel® Pentium® III processor 600MHz featuring Intel® SpeedStep® technology.

Fujitsu PCs use genuine Microsoft® Windows®  
<http://www.microsoft.com/piracy/howtotell>



**FUJITSU**

THE POSSIBILITIES ARE INFINITE

# Introducing the ultimate input/output system

COPY

RICOH

PRINT

NETWORK

The maker of the fastest network color printer in its class now brings you the fastest network color printing system in its class. The Ricoh AP3800CMF input/output system. Print & copy color at 28 ppm and black & white at 38 ppm.

SCAN

With fully functional finishing options like stapling, collating & hole punching. It scans to web. It emails. It archives. And also retrieves. Plus, it's a powerful fax. It's simply dependable.

**DEPENDABLE DIGITAL™**



1-800-63 RICOH [ricoh-usa.com](http://ricoh-usa.com)

© 2002 Ricoh Corporation

**We're in your corner.**

**RICOH®**  
Image Communication





# UP FRONT

HARRY MCCrackEN

## Shopping for Technology? Start Here

**New products, new decisions—and a new kind of buying guide.**

*2002 Buyers' Guide:* It's an unassuming name for a decidedly out-of-the-ordinary issue of *PC World*. Not that the subject matter itself is a departure—helping you choose the right technology products for your business and your home has been our stock-in-trade for almost two

decades. But we've never poured this much shopping advice or so many hardware recommendations into one issue.

And that's because there have never been so many categories to ponder. Or products to consider. Or buzzwords to decode. Sure, some dilemmas get less daunting over time—for example, selecting a desktop computer today is not the head-scratcher it was back when a garden-variety system set you back \$3000 and every bit of processing power mattered.

Still, the PC's ever-increasing versatility keeps prompting new questions. What's the least stressful way to network your house or your small office—802.11a, 802.11b, HomePlug, or HomePNA? Will busting your budget on a 4-megapixel digital camera really get you better pictures? Is the time right to invest in a rewritable DVD drive, or should you hold off? Oh, and once you've chosen a product, where should you plunk down your money?

Starting on page 88, we devote our entire feature section to solving puzzles like these. With sections on 17 product categories, the guide—spearheaded by Senior Editor Alan Stafford—represents the collective expertise of the *PC World* team in highly concentrated, seriously practical form. Why the special issue? "We put tons of buying advice in every issue, from large roundup reviews to the *New Products* section," Stafford explains. "But that information is spread over multiple issues—this guide's a one-issue reference you can pick up again and again."



**TECH ADVISOR:** Senior Editor Alan Stafford.

As you'd expect, the guide offers plenty of specific product picks—many based on benchmarking by the PC World Test Center. To ensure a long shelf life, the issue is also bursting with how-to shopping advice—what new technologies are worth your money, which specs do and don't matter, and ways to winnow the field to find the equipment that's right for you.

One thing may appear to be missing: This is the first issue of *PC World* in six years that doesn't include the *Top 100* hardware review section. However, "the *Top 100* didn't really take a break this month," says Stafford. Every product cat-

egory from that section is in the Buyers' Guide. In addition, Stafford notes that "we tested and reviewed many more products than we do in a typical month." As usual, the complete *Top 100* is available at PCWorld.com at [www.pcworld.com/reviews](http://www.pcworld.com/reviews). In fact, "thanks to a redesign, the online *Top 100* charts now include even more information than they ever have."

PCWorld.com has an interactive version of the Buyers' Guide as well, with extra tips and links to our Product Finder. The *Top 100* will return in the October issue.

### MERCHANTS WITH THE MOST

OUR GUIDE is mostly about *what* to buy. But "Such a Deal? The Best and Worst Places to Buy on the Web" (page 140) rates today's tech reseller sites—from behemoths to tiny outfits. As Contributing Editor Anne Kandra reveals, going online for gear brings both an array of benefits and a fair share of pitfalls. Prices are low, selection is sweeping, and hundreds of sellers hanker for your business. But a slick home page is no guarantee of stellar service, and prices that seem impossibly low may be just that. (Tip number 1: Do the math on shipping costs before you fork over your credit card number.)


Read Kandra's feature for a no-holds-barred report on our buying expedition. And if you've got comments on any aspect of our Buyers' Guide, drop me a line at [harry\\_mccracken@pcworld.com](mailto:harry_mccracken@pcworld.com). ■

*Harry McCracken is editor of PC World.*

**Tell Us What You Think:** Visit [www.pcworld.com/pcwininput](http://www.pcworld.com/pcwininput) and rate this issue—you could win \$500. You'll need your subscriber number from the mailing label to take this survey online. The Web site explains the official rules and also how to participate in the drawing if you're not a subscriber. You can enter from August 1 through August 30, 2002.



# SHARP®



be perceptive

Flexible. Powerful. Mobile. Zaurus — the smart, new handheld solution from Sharp. Wireless capable,\* powerful PC computing with multimedia software. A unique integrated keyboard and the freedom of the Linux® operating system. Zaurus by Sharp. It's everything you need to be mobile. [sharpusa.com](http://sharpusa.com)

\*Internet applications require purchase of a modem and available service. Screen image simulated.



Personal mobile tool *Zaurus™*

©2002 Sharp Corporation



be sharp™



another satisfied customer







brochure created using  
hp tri-fold brochure paper

## customer satisfaction starts with getting a customer

Jay and Jeremy SyCip share a unique surname and a passion for crafting unique bikes. With a little help from HP, they also craft marketing materials that are as lively as their "spicy rides." HP can help your business, too.

Create customized brochures, letterhead and more, when you download the special HP edition of Broderbund™ PrintMaster® software. It's free online at HP Business Keys, where you'll find more tools and resources to help you spice up your marketing efforts.



**PrintMaster Business Express software, free at HP Business Keys: [www.hp.com/go/7marketing](http://www.hp.com/go/7marketing)**

**MAIL-IN CERTIFICATE:** offer expires October 31, 2002

### hp brochure paper rebate



- purchase:** 1) any two hp inkjet print cartridges (or one hp twin or combo pack) **and**  
2) one of these qualifying hp brochure papers:  
- hp brochure and flyer paper, gloss (C6817A) - 50 sheets  
- hp brochure and flyer paper, matte (C6955A) - 50 sheets  
- hp tri-fold brochure paper, gloss (C7020A) - 100 sheets
- enclose:** 1) this original completed mail-in certificate  
2) the original UPC symbols from your hp inkjet print cartridges and the qualifying hp brochure paper  
3) a copy of the store-identified cash register receipt(s) or invoice(s) dated between 8/1/02 and 10/31/02 with the purchase prices circled
- mail to:** hp brochure paper rebate  
P.O. Box 8192  
Young America, MN 55551-8192  
postmark no later than 11/15/02
- receive:** a rebate check for the value of one hp brochure paper purchased  
- up to \$24.99

first name \_\_\_\_\_

last name \_\_\_\_\_

address \_\_\_\_\_

city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

phone \_\_\_\_\_

email \_\_\_\_\_

HP may contact me: email ☐ yes ☐ no postal mail ☐ yes ☐ no phone ☐ yes ☐ no

enter price paid for hp brochure paper (before tax(es)) \$ \_\_\_\_\_

Allow 8 - 10 weeks for processing. If terms and conditions are not met, rebate will not be sent. HP is not responsible for any claims, lost, damaged or delayed in transit. Rebate checks are void if not cashed within 90 days of issuance and cannot be reissued. Offer is limited to product on hand and NO substitutions with other products are eligible. Keep copies of materials submitted; originals become HP property and will not be returned. HP reserves the right to request additional information and to confirm identity of submitter. Providing false information disqualifies this claim, and may subject the submitter to criminal prosecution. Offer good in US only and void where prohibited, taxed or restricted by law. Only purchases made by an end-user customer or a commercial business from an authorized HP reseller qualify for offer. Purchases by HP resellers and internal HP orders are ineligible. Order must be received between 8/1/02 and 11/31/02. Orders postmarked or received after applicable dates and incomplete or illegible submissions will be returned as ineligible. Only original mail-in certificate and original proofs of purchase (UPC symbols) may be submitted; a copy of the store-identified cash register receipt or invoice is acceptable. Limit one offer per customer, household or commercial business, not to exceed a total of \$24.99. Sales tax(es) not included. Offer not valid with any other HP offer unless otherwise specified by those offers. If you have any questions regarding this offer, please call 1-800-728-9665, from 7 am to 6:30 pm CST, 7 days a week. **Thank you for your business!**

F01



# NEWS & TRENDS

EDITED BY RAMON G. McLEOD

## INSIDE

- 26 OUTFOX THE MARKETERS
- 28 LAPTOPS ZIP TO 2 GHZ AND BEYOND
- 32 KLEZ: THE VIRUS THAT WON'T DIE
- 34 EPSON'S MAGNIFICENT SEVEN-COLOR INK JET
- 36 YOUR NEXT HARD DRIVE
- 36 GIGABIT NETWORKS

# WEB AD EXPLOSION

FINANCED BY CORPORATE AD DOLLARS, SOME ONLINE MARKETERS ARE GETTING SNEAKIER—AND MORE ANNOYING. **BY TOM SPRING**



HAS YOUR browser's home page changed suddenly in recent months? Does your desktop sport a toolbar you don't remember asking for? Is your system tray crowded with mystery applications? You're not imagining things: Online advertising is more cunning, aggressive, and infuriating than ever. More than 25 percent of top Web destinations now use some kind of in-your-face marketing tactics, according to the Internet research firm Cyveillance.

Worse, corporate America is financing some of these intrusive ad campaigns. A *PC World* investigation shows that in today's complex Web economy, even reputable companies such as Citibank, Ford, and Sears can wind up paying commissions to aggressive Web marketers—often without realizing it. And since the marketers have little or no government regulation to hamper them—and enjoy the powerful incentive of lucrative

ILLUSTRATION: JEFF BERLIN



ad budgets to underwrite their costs—the new and aggravating practices aren't likely to go away anytime soon.

Perhaps you've experienced some of these tactics, such as InternetFuel's method of pelt-ing you with pop-up advertisements as you leave a site, or Search-Explorer.com's mouse-over downloads that can cause software to be downloaded to your PC's hard drive after you merely roll your pointer across an advertisement. Programs from Brilliant Digital Entertainment, Cydoor Technologies, and Gator may ride along when you install downloaded file-sharing software or Internet utilities. Then there are those InternetAlert pop-up advertisements: They look like Windows' system warnings.

There's nothing illegal about these actions, and they don't run afoul of any government regulations. Rudy Grahn, an analyst for Jupiter Research, says advertising regulations—which historically have been aimed at broadcast and print media—simply haven't yet caught up with the latest online strategies.

Yet the targets of aggressive marketing, including consumers and businesses, must contend with the adverse impact on PC and network performance (for details, see [find.pcworld.com/30152](http://find.pcworld.com/30152)). And irritated Web surfers have made their feelings abundantly clear on gripe sites. "What I don't understand is why this...isn't illegal," wrote one typical poster at Spywareinfo.com, which tracks online privacy issues.

"Seems like a clear form of cyberterrorism to me."

Fueling this ad explosion is an estimated \$9.6 billion that the GartnerG2 research firm says will be spent on Internet advertising in 2002. Web sites can now earn bounties for snagging your attention, your browser, your hard drive, or your name. For example, sites can earn up to 5 cents for each



"The reason there's an upsurge in advertising sleazeware is because it works."

PESACH LATTIN,  
author of *Adbumb* newsletter

visitor who installs marketing software from the Webmaster Revenue Network, according to the company's Web site ([www.wrn.net](http://www.wrn.net)). They can collect as much as 20 cents for learning your zip code and e-mail address, say people who are familiar with the industry. And Web sites that ran those ubiquitous advertisements for X-10 wireless cameras may have earned up to \$45 for each \$90 sale they generated,

according to Pesach Lattin, who is the author of the online marketing e-newsletter *Adbumb*. Adds Lattin: "The reason there's an upsurge in advertising sleazeware is because it works."

### YOU DON'T EVEN NEED TO CLICK

WHILE MOST marketing software requires the user to click his or her assent before it installs, some newer technologies bypass this step. Earlier this year, for example, sites ran an ad that automatically downloaded a toolbar from Search-Explorer.com if the user moved their mouse over the ad while their browser was set to a low level of security. AdPowerZone, which created the toolbar, says it has the ability to track "every Web site the user visits, allowing our advertisers to send special offers to our users in real time while they are online." About 1.3 million people downloaded the software over a four-week period, the firm says.

AdPowerZone's president, Yves Lavoie, says that by mid-July only one Web site was still offering the mouse-over download.

He notes that automatic installs occurred only if users had set their Web browsers to allow them.

Similar browser settings may enable some of Bonzi Software's pop-up ads to create a directory on your hard drive and download the company's marketing mascot, an animated purple gorilla that pitches to you whether you are online or off. "All we are trying to do is grab your ▶

## IN BRIEF

### Product Pipeline

#### TWO DVD DRIVES IN ONE:

Look for the first multifor-mat rewritable-DVD drives to be on store shelves later this fall. Hitachi, Panasonic, and Samsung all expect to ship drives that can write to DVD-R, DVD-RW, and DVD-RAM, as well as to CD-R/RW; expect the drives to sell for between \$300 and \$500. What these multiple-format drives still lack, however, is the ability to write to the third leading rewritable format, DVD+RW+R.

#### NOW HEAR THIS:

Best known for its mice, keyboards, and Webcams, Logitech is getting into the cell phone earpiece business. This fall the company will introduce a new line of wired and wireless headsets for popular cell phones. Prices are expected to range from \$15 for an entry-level corded model to just under \$100 for a cordless unit.

### Did You Know?

**1 BILLION** NO KIDDING! The PC industry shipped its 1 billionth personal computer earlier this year, according to research firm Gartner Dataquest. The milestone, a combination of desktop and notebook PC sales around the world, comes nearly 25 years after the 1974 introduction of the Altair PC—generally recognized as the first commercially successful PC. The 2 billion mark is expected to be reached much faster—in 2008, Gartner says.



attention the same way the employee outside Wal-Mart does by telling you what's on sale as you walk in," says Bonzi's John Epstein.

Britain-based C2 Media's MP3 Search application, which is distributed by sites such as MP3Search.com, promises to help you locate digital music. When we installed the software in April, however, it also switched our browser home page and default search engine to the Lop.com Web site. A Lop.com toolbar—with ads for Citibank, the Columbia House Record Club, Ford, and Sears—appeared, as did 89 new bookmarks, many of which pointed to Lop.com. And landing on Lop.com triggered a flock of pop-up and pop-under ads.

### INFORMED CONSENT?

WE SHOULDN'T have been surprised. The software's user agreement outlined the various changes that would be made to our system. But not everyone reads such agreements carefully. And at least one site distributing the software, PornLabs.com, advised Webmasters to rename the download as "mp3\_finder.exe" or "napster2.exe" in order to "help induce the surfers to run and accept the software."

PC World tried to contact the owners of PornLabs.com, who are listed with the Web domain name registrar VeriSign as Toiling Robots, but could not reach them. C2 Media founder and coprincipal Alex Shamash says he knows nothing

about Toiling Robots. As for the downloads, he says, "Everybody knowingly accepts the terms of the software." And C2 Media is just one of many companies that make money by generating ad "impressions"—an industry term used to refer to the number of times an ad is displayed—and the resulting traffic to customer sites.

How do ads from big companies such as Citibank and Ford wind up on tiny Web sites? Corporations or their agencies often place a certain percentage of ads through middlemen such as Advertising.com, ClickXchange, or Commission Junction. Such middlemen may, in turn, route the ads to hundreds or thousands of affiliated sites.

ClickXchange, for example, has some 150,000 affiliates that run banner ads for 460 advertisers, according to Craig Tammel, chief technology officer. And each day hundreds more sites inquire about joining the program.

Given these numbers, it can be impractical or even impossible for a middleman to police every affiliate. For example, General Counsel and Vice President Tom McMahon at Advertising.com said he was not aware of the details of how C2 Media generated ad impressions when he was first contacted by a PC World reporter, although C2 Media was an affiliate at the time. The two companies have since ended their relationship.

Agencies and companies also place ads through brokers who buy and resell bulk inventory of online ads for a small profit, says Lattin. In these transactions, he adds, it's possible to lose control over exactly where an ad is placed—explaining how a mainstream ad can end up on a porn site even if the sponsor forbids marketing on such sites. "Half the companies [advertising with these sites] may not even know it," he says.

### A POTENTIAL FOR HUGE PROFITS

THE AFFILIATES who distribute these advertisements can earn substantial cash, as demonstrated by a recent federal court case in Philadelphia. A judge ordered Web marketer John Zuccarini to pay back \$1.8 million in "ill-gotten gains" from tricking people to view banner ads and visit Web sites run by pornographers and a self-styled psychic named Miss Cleo. Unfor-

## DEFENSE

# OUTFOX THE MARKETERS

IN THE ABSENCE of government regulation and effective self-policing of aggressive online marketing technology, consumers must fend for themselves. Here are some tips to help you cope:

- ♦ **Read the license carefully:** Check for clauses about software that seem unrelated to the application you intend to install on your PC.
- ♦ **Get software that fights adware:** Ad-aware, PestPatrol, and Spybot-Search & Destroy can remove offending software; ZoneAlarm lets you know when your PC tries to send data to the Internet.
- ♦ **Check out freebies:** Consult Spychecker.com, which maintains an online database of software that bundles advertising components.



- ♦ **Adjust your browser settings:** Make sure that your Internet Explorer security levels (select *Tools*•*Internet Options*•*Security*) are set to Medium (or higher), which prevents automatic software installations. Set the browser to prompt you before running programs like ActiveX applets that can start automatically.
- ♦ **Learn the lingo:** Don't trust an ActiveX applet just

because a dialog box tells you it's been "signed." This language just means the applet is really from the site it claims to be from. It says nothing about what the applet does.

♦ **Remove any unwanted ActiveX applets:** To do so, go to *Tools*•*Internet Options*•*General*•*Settings*•*View Objects*. Right-click any questionable programs and select *View Properties* to see where they came from. If you want to uninstall one, right-click it again and select *Remove*.

♦ **Get uninstallers:** Some adware can't easily be removed through Control Panel's Add/Remove Programs window. If this happens, check the adware company's Web site for an uninstall program that can eliminate it completely.



tunately, Zuccarini vanished without paying, and is still being sought by Federal Trade Commission investigators.

### HOW THE SYSTEM CAN GO WRONG

THE CASE offers insight into how an unscrupulous operator can exploit the system. Prosecutors said Zuccarini registered about 5500 Internet

domain names that were misspelled versions of popular, legitimate domain names—including 41 variations on "Britney Spears." Surfers who misspelled the singer's name in a Web search could wind up at a Zuccarini site where they were bombarded by multiple pop-ups. Attempting to close one of these windows or to

click a Back button simply launched new pop-ups. In this way, Zuccarini generated ad impressions for legitimate middlemen such as Commission Junction. The firm's chief executive officer, Jeff Pullen, declines to say how much Commission Junction paid Zuccarini. But he says that at that time the company typically took 20 cents out of every dollar paid to affiliate sites for running ads.

"By the law of large numbers, some people are going to try to cheat the system," Pullen adds. But he says that misuse of the Commission Junction network has never been widespread and that the company is always on the lookout for abusers.

Though the Zuccarini scam was detected, regulatory agencies are hamstrung by the fact that there are few laws gov-

erning Internet ads. The FTC has filed suit against those it considers to be clear offenders—like Web sites that trick people into downloading programs that cause their modems to dial expensive 1-900 phone numbers. But the agency has no mandate to combat certain other questionable marketing practices.

Online marketers argue



Online marketers say self-regulation is the best way to protect consumers.



that self-regulation is the best way to protect consumers. One group that already serves as an industry watchdog is the National Advertising Division (NAD) of the Council of Better Business Bureaus. Andrea Levine, its director, points to a November 2001 case in which the NAD recommended that Bonzi Software modify ads for InternetBoost modem-optimization software. The pop-up ads looked like a Windows error message that declared: "Your Internet Connection Is Not Optimized. Download InternetBOOST 2001 Now!"

The NAD recommended that Bonzi change the ad's appearance to make clear that it was marketing, not a Windows message. The group also asked the company to change the wording so as not to imply that a system defect had been detected. Bonzi changed "is

not optimized" to read "may not be optimized," and also labeled the window clearly as an ad, says NAD attorney Peter Marinello. But this summer, ads for Bonzi's InternetAlert security program again looked similar to Windows warnings. The message this time: "Your Computer's Data is Currently at Risk. Download InternetALERT now."

Consumers who don't like Gator got some relief in July, when a federal judge ordered the firm to stop delivering pop-ups over sites run by some prominent media companies. Dow Jones, the *New York Times*, and the *Washington Post*, among others, alleged that the ads hurt their revenue by directing visitors to other sites.

An attorney for Gator said the company was considering an appeal and believes it will win the case when it comes to trial.

### CHANGING THE LAW

WASHINGTON MAY yet act to stop some of the worst abuses. The Senate Commerce Committee in May signed off on S. 2201, a bill that would require Web sites to inform visitors if they intend to collect personal information—for example, by tracking Web activity—or share it with others.

For now, however, you're mostly on your own in dealing with Web advertising (for specific advice, see "Outfox the Marketers" on page 26). "As soon as you think you've seen it all, advertisers are right back in your face with something new and even more annoying," says Lattin. So read the user agreements carefully,

## IN BRIEF

### Product Pipeline

**WI-FI PDA:** The Toshiba Pocket PC E740 is the first personal digital assistant to ship with a built-in 802.11b (Wi-Fi) wireless adapter, which allows out-of-the-box Internet access via networks based on the popular standard. Carrying Intel's new 400-MHz PXA250 CPU for handhelds, the \$599 device runs Microsoft's Pocket PC 2002 and comes with 64MB of RAM, as well as slots for CompactFlash and Secure Digital media.



### Did You Know?

MUSIC WILL BE the surprise killer application that will juice the home networking market, predicts research firm Jupiter Media Metrix.

**33** About 33 percent of broadband users that the firm polled were interested in installing a home network to listen to PC music files on home stereos, according to a Jupiter Research study, which also found that sharing broadband was the first reason to adopt a network.

check your browser's security settings—and, even after taking those precautions, don't be too surprised if a wily Web marketer still manages to grab control of your PC. ►



## MOBILE

# LAPTOPS ZIP TO 2 GHz-PLUS

## NEW P4-M DEBUTS, BUT SOME VENDORS OPT FOR DESKTOP CHIP.

INTEL's Pentium 4-M processor has reached the coveted 2-GHz mark, and speed-hungry mobile users will be tempted to buy a laptop with the chip. However, while our exclusive tests found 2-GHz P4-M notebooks among the fastest units we've tested, the new models failed to make dramatic gains compared with those based on Intel's 1.8-GHz mobile chip. Since 2-GHz notebooks carry a hefty price premium, buyers seeking both good performance and a good price might prefer a 1.8-GHz unit instead.

The PC World Test Center's first tests of 2-GHz P4-M-based models showed a close race. WinBook's N4, with 256MB of RAM, scored 98 on PC WorldBench 4—that's 4 points better, or about 4 percent faster, than the average of four previously tested, com-

parably configured 1.8-GHz notebooks. A 2-GHz Gateway 600XL with 512MB of RAM scored 100. All of the tested units ran Windows XP Pro.



GATEWAY'S NEW 600XL features Intel's fastest mobile processor, the 2-GHz Pentium 4-M.

The WinBook N4 ran for 2 hours, 19 minutes in our battery test. It costs \$2794, but with a 1.8-GHz chip it sells for \$2394—significantly less.

Our Gateway test system costs \$3128 (after a \$100 rebate). Its battery held out for 2

hours, 33 minutes. The same model with a 1.8-GHz chip runs \$2828 (after rebate).

Outscoring those 2-GHz P4-M-based units in our tests were notebooks using Intel's desktop P4 processors. It's a growing trend: Consumers like desktop chips because they're fast; notebook vendors like them because they're cheaper than the mobile ones.

We tested two such models: an Alienware Area-51m and a Micro Express NP 5240, each with a 2.4-GHz Pentium 4 CPU, 512MB of memory, and Windows XP Pro. The NP 5240 scored 107 on PC WorldBench 4; the Area-51m scored 102.

The NP 5240 sells for a reasonable \$2199. The Area-51m costs \$2950; you'd pay \$3244 to get it with a 2-GHz mobile chip (we review the Area-51m in *New Products*, page 74).

Using a desktop CPU, however, generates more heat and quickly drains a battery. The NP 5240 lasted just 1 hour, 35 minutes. With an optional second battery in place, the Area-51m lasted 3 hours, 4 minutes.

Devoted mobile users probably won't tolerate such compromises. For the best performance, price, and battery life, consider buying a 1.8-GHz P4-M unit. If you simply must have a model running at the fastest mobile speed, check out a 2-GHz P4-M notebook.

—Tom Mainelli ▶

## IN BRIEF

### Product Pipeline

**SHRED ON:** You shred your company's sensitive papers before you trash them, but what about the digital information that resides on old CDs and DVDs? Now you can obliterate these files too, using Alera Technologies' \$70 DVD/CD Shredder. Just as a paper shredder makes written documents unreadable, Alera's product obliterates a disc's data layers, rendering digital information undecipherable, though the disc is unharmed. Capable of handling up to 30 discs per minute, the DVD/CD Shredder should help ensure that the next Dumpster-diver to visit your business won't find anything important to take.



### Downloads

Head to [find.pcworld.com/30032](http://find.pcworld.com/30032) to find these files.

#### TOP 5

- 1 RegClean 4.1a** 800KB  
Clean corrupted or unused Registry keys from your Microsoft Windows Registry.
- 2 Ad-aware 5.83** 872KB  
Rid your PC of advertising spyware with this freeware utility.
- 3 BIOS Wizard** 166KB  
Tweak your BIOS settings from within Windows.
- 4 Netscape 7 PR1** 30MB  
Netscape's latest browser features multiple windows, tabs, and AOL Instant Messenger.
- 5 WinSplit 1.0.8** 22KB  
Distribute large files over e-mail or on floppy disk by breaking the files into smaller pieces.

### TEST REPORT

## PERFORMANCE PORTABLES

| SYSTEM                    | CPU                  | RAM | PC WorldBench 4 score <small>Faster</small> | Battery life (hours:minutes) |
|---------------------------|----------------------|-----|---|------------------------------|
| WinBook N4                | 2-GHz P4-M           | 256 | 98  | 2:19                         |
| Gateway 600XL             | 2-GHz P4-M           | 512 | 100   | 2:33                         |
| Alienware Area-51m        | 2.4-GHz P4 (desktop) | 512 | 102   | 3:04<br>(two batteries)      |
| Micro Express NP 5240     | 2.4-GHz P4 (desktop) | 512 | 107   | 1:35                         |
| Average of four notebooks | 1.8-GHz P4-M         | 256 | 94  | n/a                          |



**HOW WE TEST:** All systems were tested with PC WorldBench 4, PC World's applications-based benchmark. For more details, go to [www.pcworld.com/benchmark](http://www.pcworld.com/benchmark). For the battery life test, we drain and fully recharge the battery twice and set power-saving options to match consistent high-performance and default profiles where possible. We report the time elapsed when the notebook shuts itself off. Higher scores are better. n/a = Not applicable.



# Get Back, Get Flat

Back to school. Back to work. Fall is a great time for an upgrade to the latest in flat screen displays from CTX. A monitor that can handle the detail in everything from spreadsheets and complex documents to presentations and graphics. One that's easy on the eyes as well as easy on space. Take a look at our award-winning family of FlatView™ LCD color monitors. We know you'll be impressed. Their high resolution and active matrix color deliver a clean and crisp display. A stylish profile and small footprint are a perfect fit for office, home, dorm or apartment. Get great features. And a great price, starting at just **\$399** (ESP).

## Where To Buy

For a location nearby to purchase your CTX FlatView™ LCD color monitor, just visit [www.ctxintl.com/wheretobuy](http://www.ctxintl.com/wheretobuy) on the web.



| Features             | PV500B            | PV720             | SV900MD           |
|----------------------|-------------------|-------------------|-------------------|
| Size                 | 15.0"             | 17.0"             | 19.0"             |
| Panel                | Active Matrix TFT | Active Matrix TFT | Active Matrix TFT |
| Resolution           | 1024 x 768        | 1280 x 1024       | 1280 x 1024       |
| Interface            | Analog            | Analog            | Analog/Digital    |
| On-Screen Controls   | Yes               | Yes               | Yes               |
| Brightness (Typical) | 200:1             | 250:1             | 250:1             |
| Contrast (Typical)   | 350:1             | 350:1             | 500:1             |
| Pivot                | Yes               | Yes               | No                |
| Power Management     | TCO '99           | TCO '99           | TCO '99           |

# CTX

COMMITTED TO XCELLENCE™

877-857-7846 • [www.ctxintl.com](http://www.ctxintl.com)



February 25, 2002  
CTX PV720A  
CTX International, Inc.





You can never be too thin or too powerful.

But it's nice to have options.







If ultra-thin and ultra-light are your business objectives, check out the **NEW Dell Latitude X200**. Only 2.8 lbs.\* and 0.8" thin, it's powered by a new Ultra Low Voltage Mobile Intel® Pentium® III Processor-M at 800MHz and a high capacity lithium ion battery that gives you over five hours of power. Looking for something more? The Latitude C400 is a lightweight powerhouse that weighs only 3.6 lbs.\* and stands merely an inch thin. It comes

with a Mobile Intel® Pentium® III Processor-M at up to 1.20GHz and Enhanced Intel® SpeedStep® technology, so you have the power to work faster and longer. When it comes to thin, light notebooks that are easy to buy and customized to fit your needs, Dell has plenty of options. So go ahead, be choosy.



## CNET Editor's Choice

Latitude C400 Notebook

– March 2002

## Dell | Small Business

### Latitude™ C510 Notebook

#### NEW Small Business Value Notebook

- Intel® Celeron® Processor at 1.06GHz
- 14.1" XGA Active Matrix Display
- 128MB PC133 SDRAM
- 20GB\* Ultra ATA/100 Hard Drive
- 16MB DDR AGP 4X ATI® Radeon™ Video
- Modular 24x Max CD-ROM/Floppy Drive
- Integrated v.92/56K\* Capable Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- Windows® XP Home Edition
- 1-Yr Mail-In Service

**\$1199** as low as **\$34/mo.**, (46 pmts\*) 60 Days Same-As-Cash for qualified customers  
E-VALUE Code: 12732-S70811

#### Recommended upgrades:

- Windows XP Professional, add \$60
- 3-Yr Next Business Day On-Site Service,<sup>†</sup> add \$298

### Latitude™ C640 Notebook

#### Network-Optimized Mobility Notebook

- **Mobile Intel® Pentium® 4 Processor-M at 1.60GHz**
- 14.1" XGA Active Matrix Display
- 128MB DDR PC2100 SDRAM (up to 1GB)
- 20GB\* Ultra ATA/100 Hard Drive
- 32MB DDR AGP 4X ATI® Radeon™ Video
- Modular 24x Max CD-ROM/Floppy Drive
- Integrated v.92/56K\* Capable Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- Windows® XP Professional
- 3-Yr Mail-In Service

**\$1699** as low as **\$48/mo.**, (46 pmts\*) 60 Days Same-As-Cash for qualified customers  
E-VALUE Code: 12732-S70816

#### Recommended upgrades:

- 8x Max DVD-ROM, add \$169
- 3-Yr CompleteCare™ Service,<sup>‡</sup> add \$169

### Latitude™ X200 Notebook

#### Thinnest, Lightest Latitude Notebook

- Ultra Low Voltage Mobile Intel® Pentium® III Processor-M at 800MHz
- 12.1" XGA Active Matrix Display
- 256MB shared\* PC133 SDRAM
- 30GB\* Ultra ATA/100 Hard Drive
- Intel® 830M Integrated Graphics up to 48MB (shared\*) SDRAM
- Integrated v.92/56K\* Capable Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- Windows® XP Professional; External 24x CD-ROM
- 3-Yr Mail-In Service

**\$1749** as low as **\$50/mo.**, (46 pmts\*) 60 Days Same-As-Cash for qualified customers  
E-VALUE Code: 12732-S70817

#### Recommended upgrades:

- X200 Media Base, FDD, 24x Max/10x Min CD-ROM, add \$299
- 3-Yr CompleteCare™ Service,<sup>‡</sup> add \$169

### Latitude™ C400 Notebook

#### Ultra-Light Notebook, Only 1" Thin and 3.6 lbs.\*

- Mobile Intel® Pentium® III Processor-M at 866MHz
- 12.1" XGA Active Matrix Display
- 256MB shared\* PC133 SDRAM
- 20GB\* Ultra ATA/100 Hard Drive
- Intel® 830M Integrated Graphics up to 48MB (shared\*) SDRAM
- 8x Max DVD with Software; 6 Cell Li-Ion Battery
- Integrated v.92/56K\* Capable Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- Windows® XP Professional
- 3-Yr Mail-In Service

**\$1899** as low as **\$54/mo.**, (46 pmts\*) 60 Days Same-As-Cash for qualified customers  
E-VALUE Code: 12732-S70818

#### Recommended upgrade:

- TrueMobile™ 1150 Integrated Wireless Solution,<sup>†</sup> add \$99



Ultra-lightweight, ultra-mobile computing. Easy as **DELL**

Visit [www.dell.com/pcworld](http://www.dell.com/pcworld) or call toll free 1-800-433-6687.

Call: M-F 7a-8p, Sat 8a-5p CT

Pricing, specifications, availability and terms of offer may change without notice. Taxes and shipping charges extra, and vary U.S. Dell Small Business new purchases only. Dell cannot be held responsible for errors in typography or photography. \*Service may be provided by third party; technician will be dispatched, if necessary, following phone-based troubleshooting. To receive Next-Business-Day service, Dell must notify service provider before 5pm (depending on service contract) customer's time. Availability varies. \*2.8lb. weight represents typical system travel weight measured with standard 6-cell 20Whr battery and no external media devices. Actual system weight may vary depending on component and manufacturing variability. For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. Download speeds limited to 53Kbps. Upload speeds are less (about 30Kbps) and vary by modem manufacturer and line conditions. Analog phone line and compatible service required. \*Weight is with 4-cell battery. Weights vary depending on configurations and manufacturing variability. †CompleteCare service excludes theft, loss, and damage (due to fire or intentional damage). CompleteCare is currently not available in all states. Not available for Dell Home Sales customers in CA, FL or NY. Not available for Employee Purchase Program customers (Government, Health Care and Relationship/Faculty, Staff and Students) in CA or FL. May not be available to all customers. For complete details, visit [http://www.dell.com/us/en/gep/services/service\\_service\\_contracts.htm](http://www.dell.com/us/en/gep/services/service_service_contracts.htm). ‡Monthly payment based on 48-month QuickLoan at 12.99% interest rate for qualified Small Business customers. Your interest rate and monthly payment may be same or higher, depending on your creditworthiness. Minimum transaction size of \$500 required. Maximum aggregate financed amount not to exceed \$25,000. Under 60 Days Same As Cash QuickLoan, interest accrues during first 60 days after QuickLoan Commencement Date (which is five days after product ships) if balance not paid within these 60 days. OFFER VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY LENDER. Taxes, fees and shipping charges are extra and may vary. Not valid on past orders or financing. QuickLoan arranged by CIT Online Bank to Small Business customers with approved credit. \*Connect at a rate of 11Mbps up to 160m from connected access point. Range and speed may vary due to number of users, interference, transmission barriers (such as walls and building materials) and other factors. \*Up to 4GB of system memory may be allocated to support integrated graphics. Dell, the stylized E logo, E-Value and Latitude are trademarks of Dell Computer Corporation. Intel, Intel Inside, Pentium, Celeron and SpeedStep 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. ©2002 Dell Computer Corporation. All rights reserved.

Dell PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)



#### USE THE POWER OF THE E-VALUE CODE.

Match our latest technology with our latest prices. Enter the E-VALUE code online or give it to your sales rep over the phone. [www.dell.com/evalcode](http://www.dell.com/evalcode)



## USER ALERT

# KLEZ: THE VIRUS THAT WON'T DIE

**ALREADY THE MOST PROLIFIC VIRUS EVER, KLEZ CONTINUES TO WREAK HAVOC.**

THE KLEZ WORM is approaching its seventh month of wriggling across the Web, making it one of the most persistent viruses ever. And experts warn that it may be a harbinger of new viruses that use a combination of pernicious approaches to go from PC to PC.

Antivirus software makers Symantec and McAfee both report more than 2000 new infections daily, with no sign of letup at press time. The British security firm Message-

Labs estimates that 1 in every 300 e-mail messages holds a variation of the Klez virus, and says that Klez has already surpassed last summer's SirCam as the most prolific virus ever.

And some newer Klez variants aren't merely nuisances—they can carry other viruses in them that corrupt your data.

## HOW IT WORKS

KLEZ IS AN example of a blended threat: software that distributes itself like a virus but sometimes behaves like a worm and at other times like a Trojan horse. (Go to [find.pcworld.com/30140](http://find.pcworld.com/30140) for more on different virus types.)

Klez usually arrives in the in-boxes of un-

suspecting victims as a file attachment. It uses various subject lines, including "Klez removal tool". (For the real tool, visit [find.pcworld.com/30128](http://find.pcworld.com/30128).) Some variants also draw subject lines from random words in files on a victim's hard drive.

When the victim double-clicks the attachment, or even just previews the message, the fun begins for Klez. It pilfers addresses from the victim's e-mail address books, and also searches the hard drive for addresses from the Web browser cache or temporary files.

What makes Klez particularly insidious is that it draws both a new sender and a new recipient from the infected party's sources. This creates at least three victims: the person who first got the worm, the one who is sent the worm, and the one whose address was taken from the original victim and is used as the new sender (see "Klez's Path of Infection").

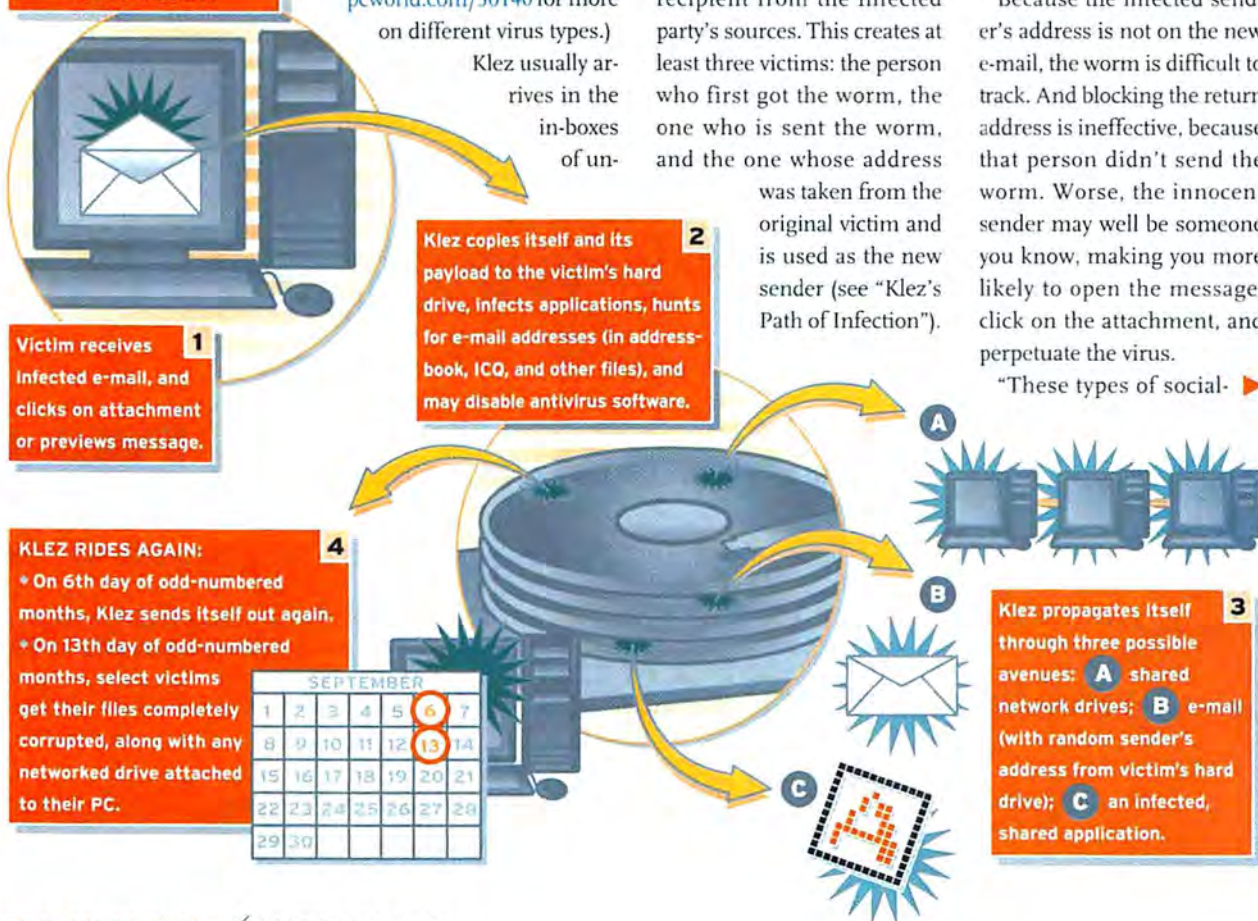
## SAFETY TIPS

- ♦ Regularly update your antivirus software.
- ♦ Install the latest IE and Outlook/Outlook Express security patches ([find.pcworld.com/30134](http://find.pcworld.com/30134)).
- ♦ Look for messages with attachments that range in size between 110KB and 150KB.
- ♦ Watch for odd subject lines that are atypical of those you normally receive.
- ♦ Use a product such as SpamKiller ([find.pcworld.com/27424](http://find.pcworld.com/27424)) to screen your mail and make deleting suspicious notes easier.

Because the infected sender's address is not on the new e-mail, the worm is difficult to track. And blocking the return address is ineffective, because that person didn't send the worm. Worse, the innocent sender may well be someone you know, making you more likely to open the message, click on the attachment, and perpetuate the virus.

"These types of social- ▶

## Klez's Path of Infection







**NO SHIRT  
NO SHOES  
NO SERVICE**

**NO RECEIPT, HOWEVER,  
IS NO PROBLEM.**

We can store your purchase information  
automatically for returns, exchanges and repairs.



**We're with you.**

[circuitcity.com](http://circuitcity.com)



engineering tricks are extremely effective," says virus researcher Sarah Gordon. People don't want to ignore a friend or colleague, she says. "They feel compelled to look at an attachment—even though they've heard the warning."

In the months since Klez was first identified, antivirus vendors have discovered seven versions of the virus. These strains share many behavioral traits but act slightly differently from one another. For example, some later versions can attack other systems over

networks by copying infected files to file servers and shared hard drives. One of the newest variants, W32.Klez.H@mm, contains another worm called Elkern that can damage an operating system beyond repair. In some instances, users must reformat the entire hard drive and reinstall Windows to purge the virus from a PC.

#### CAN YOU FIGHT BACK?

WITH THESE types of blended threats, it's not enough just to update your antivirus software's data definitions regu-

larly; you need comprehensive security protection, including both privacy and intrusion protection, according to Vincent Weafer, senior director of Symantec Security Response. Users who also make it a habit to install new security patches are better equipped to defend their PCs against the kinds of worms that attack well-known Windows weaknesses.

But even if you take all appropriate measures, others who have your e-mail address in their books may not. You won't get the worm, but you

will still get neutralized and irritating notes in your in-box.

There's little you can do to prevent such e-mail from reaching you; however, your ISP may be able to help. Some ISPs use so-called antivirus appliances that are capable of filtering millions of messages and stopping infected ones from getting to your in-box.

But ultimately, each of us who uses a PC is responsible, in a small way, for preserving our neighbors' security—by keeping our own PC clean.

—Andrew Brandt

#### INK JETS

## EPSON'S MAGNIFICENT SEVEN

### THE STYLUS PHOTO 2200 PRINTS IN SEVEN COLORS, ONE-UPPING THE COMPETITION.

USING SEVEN different color inks, the \$699 Epson Stylus Photo 2200 raises the bar for high-end ink jet photo printers. Epson adds "light black" (should that be "gray"?) to the cyan, light cyan, magenta, light magenta, yellow, and black inks offered in many quality photo printers. This enhances contrast and gradations, so even monochrome photos look great.

The 2200 also is the first printer that employs Epson's pigment-based UltraChrome inks, which produce a wider color range on a greater variety of papers than dye-based inks do. In addition, UltraChrome inks should be less prone to fading in bright light

(though Epson's claims about their archival properties seem to be less optimistic than some made for previous inks).

Epson now supplies individual ink cartridges, so you can replace one color at a time as it runs out, or you can swap two types of black ink—one for glossy paper and a second for matte.

In addition, the 2200 uses Epson's Print Image Matching (PIM) technology, which optimizes prints of photos taken with compatible cameras from major vendors.

The 2200's 2880-by-1440-dots-per-inch resolution is four times more precise than that of its predecessor, the Epson Stylus Photo 2000P, and equal to that of the cheaper (and newer) dye-based Stylus Photo



**UPSCALE INK JET:** The Stylus Photo 2200's seven colors produce superior prints—for \$699.

1280. My production-level 2200 delivered brighter colors and better detail than the 1280 did. A high-quality 8-by-10-inch color print took more than 9 minutes—slow, but still faster than most photo printers.

The 2200 produces prints up to 13 inches wide. An automatic roll-paper cutter enables

you to print a complete batch of photos unattended. The printer can support FireWire (IEEE 1394), USB 1.1 and 2.0, and parallel connections.

Casual photographers and hobbyists can do quite nicely with a sub-\$200 model, but for professionals the 2200 represents the state of ink jet art.

—Paul Jasper ►

#### Stylus Photo 2200

Epson

★★★★★

Street: \$699

[find.pcworld.com/30116](http://find.pcworld.com/30116)



# Sound BLASTER®

## Extigy™

The Impossible is Now Possible —  
Stunning **24-bit Audio Fidelity**  
on Your **Notebook**

[ it's an External **Sound Blaster** ]

Your notebook doesn't have to sound like a "tin can" because of the feeble power of integrated 16-bit audio. The Sound Blaster® Extigy™ makes stunning **24-bit** audio playback now possible with your MP3s, Internet radio, CDs, DVDs, and more, making your notebook sound like a live performance! It comes packed with Creative's proprietary audio technologies like CMSS® which can play back your stereo content in rich, digital 5.1 surround sound, and EAX® ADVANCED HD™ effects to personalize and enhance your music. Sound Blaster® Extigy™ can also be used with your desktop PC or Dolby Digital® devices like gaming consoles and set top DVD players or audio devices including CD, and MP3 players.

With easy USB connectivity, upgrading your notebook audio with Sound Blaster® Extigy™ is easy!

Approximate size:  
8" x 8" x 1.75"

### Intrigued?

Visit [www.soundblaster.com](http://www.soundblaster.com) for more information.



©2002 Creative Technology Ltd. The Creative logo is a registered trademark of Creative Technology Ltd. in the United States and/or other countries. All brands or product names listed are trademarks or registered trademarks and are property of their respective holders.

# CREATIVE



## STORAGE

## YOUR NEXT HARD DRIVE

SERIAL ATA DRIVES DEBUT, DRIVE CAPACITIES TO REACH 200GB.

THE 2-INCH-WIDE parallel ATA ribbon cables in your PC are as familiar as the old pair of sneakers in your closet. But like the soles on those shoes, parallel ATA is wearing thin, having hit its data-transfer-rate limit of 133MB per second.

Enter Serial ATA, the successor technology we examined on a prototype hard drive from Seagate. Debuting with a speed of 150 MBps and having the potential to scale up to 600 MBps, Serial ATA provides the headroom needed for faster drives in the future.

And because it uses 3-volt (instead of 5-volt) signals, it will work better with the low-power motherboard chip sets and CPUs coming soon.

Unlike parallel ATA drives, the serial model we installed in our Windows 2000 test system required no master or slave designation. We simply plugged one end of the 0.25-inch cable into the drive and the other into a supplied Silicon Image Serial ATA card that we plugged into a PCI slot. (The thin cable also permits better airflow and more-

compact system designs.)

Seagate will offer its Serial ATA drive this fall. Maxtor and Western Digital promise to provide the interface on some drives by year's end—about when Via expects to integrate it into PC chip sets. Intel plans to follow suit in 2003.

Users also have new capacities to look forward to, thanks to an increase in drive-platter areal density from 40GB to 60GB. With two platters, Seagate's Barracuda ATA V will hold 120GB. Western Digital's new Caviar model should



SERIAL ATA drives offer faster throughput and slimmer cables.

reach 200GB. Later this fall, look for both Maxtor and IBM to launch their own ultrahigh-capacity products as well. (See our hard drives buyers' guide on page 102 for more.)

—Seán Captain

## ETHERNET

## GIGABIT NETS FOR SMALL BUSINESS

## 1000-MBPS NETS COME TO DESKTOPS.

GIGABIT NETWORKING over copper wiring has been available since 1999, but until very recently, high costs placed it beyond the reach of small and midsize businesses (and advanced home networkers).

Now, gigabit ethernet controllers are starting to appear on PC motherboards, notably the one inside Dell's new OptiPlex GX260. And Linksys has introduced its first line of products aimed at smaller



LINKSYS'S NEW gigabit ethernet switch and two gigabit add-in cards.

businesses that want to upgrade their PCs and network switches to the 1000-mbps (1-gbps) standard. Though prices are still fairly high, users who work with large data sets (such as enterprise-level databases) or stream video over a network should consider it.

We tested Linksys's \$499 EF24G2 EtherFast Dual Giga-

bit Switch—which offers a pair of 1000-mbps ports and 24 10/100 ports—along with the same company's \$75, 32-bit EG1032 Instant Gigabit Network Adapters on a small-office peer-to-peer network.

In prior informal tests on a 100Base TX network, upload speeds averaged 80 mbps, and download speeds averaged 92

mbps. With the gigabit network, upload speeds increased by 75 percent, and download speeds by 84 percent.

According to industry studies, this result matches that of similarly configured small networks. Linksys says PCs with a faster frontside bus than those used in our tests (133 MHz for a 1-GHz Pentium III PC and 66 MHz for a 500-MHz PIII unit) should achieve better performance. You'll also see boosts on the back end to and from a server.

A 75 percent performance gain is certainly worthwhile, but small offices using peer-to-peer networks may want to wait for further price drops and for switches with more than two 1000-mbps ports.

—Ramon G. McLeod ■

## EF24G2 EtherFast Dual Gigabit Switch

Linksys

★★★★☆

Street: \$499

[find.pcworld.com/30119](http://find.pcworld.com/30119)





## Taking cost out of your business, more important today than ever before.

That's why Brother's Commercial Division is committed to providing superior and reliable business printers that increase productivity while reducing costs. This enables businesses like yours to more

effectively address critical organizational goals and challenges.

But it is our product reliability coupled with a responsive nationwide support and service network that has companies like yours putting Brother laser printer solutions at the top of their requisition lists.

Brother's Commercial Division welcomes the opportunity to put our resources to work for you. Contact us today so we can show you how we can positively impact your bottom line while enhancing your performance.

For more information, call 1-866-455-7713, ext. 905

At your side.

# brother®

© 2002 Brother International Corporation, Bridgewater, NJ • Brother International Corporation, Nagoya, Japan  
For more information please call the Brother Fax-Back System at 800-521-2846 or visit our web site at [www.brother.com](http://www.brother.com)



Network Printer Solutions



Color Laser Solutions



Multi-Function Solutions



Desktop Laser Solutions



Fax Solutions





# GROW YOUR BUSINESS

## *by spending less on technology.*

Grow your business by spending less on technology? Surprising advice from HP, one of the world's leading technology companies. When you buy from HP, you'll enjoy benefits that offer you much more for much less. Like attractive financing rates with predictable monthly payments. Affordable prices on full-featured technology bundles and outstanding innovations, like this Compaq Evo™ N800v, featuring the Mobile Intel® Pentium® 4 Processor - M. Plus low long-term maintenance costs over the life of your HP solution.

SMB solutions from HP. Spend less. Grow more.

**Ask about our 2% cash-back lease.\***

For latest prices and to buy direct, call **1-888-811-9582**  
or visit **hp.com/solutions/growsmb** or contact your nearest  
SMB Partner Network Reseller.

# COMPAQ

brought to you by hp



Compaq PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)

Prices shown are HP direct prices; reseller and retailer prices may vary. Prices shown are subject to change and do not include applicable state and local sales tax or shipping to recipient's destination. Photography may not accurately represent exact configurations priced. Offer cannot be combined with any other offer or discount. \*Offer valid on direct purchases from the HP Small and Medium Business Store and only with purchase of select bundles. Offer available through 10/31/2002, or while supplies last. Limited order quantities. Offer is subject to change. Promotion void where prohibited or restricted by law. HP reserves the right to modify or withdraw this promotion at any time. †Lease products available through Hewlett-Packard Financial Services Company (HPFSC) to qualified commercial customers in the U.S. and are subject to credit approval and execution of standard HPFSC documentation. Monthly lease payments are based on 48-month lease term, and do not include taxes, fees, or shipping charges. Lessee has the option to purchase the equipment at the end of the lease term at its then fair market value (FMV). HPFSC reserves the right to change or cancel this program at any time without notice. 2% cash rebate lease offer - HPFSC will send customer a check for 2% of the total lease transaction amount within 60 days after HPFSC has received the first lease payment from the customer. 2% cash rebate lease offer applies to all lease transactions up to \$50,000. Some product restrictions may apply. Other fees and restrictions may apply. This offer is valid through September 30, 2002. For hard drives, GB=billion bytes. 148X Max CD-ROM drive data transfer rates may vary from 6750 Kbps to 7800 Kbps. \*Certain restrictions and exclusions may apply. For complete warranty details, call 1-800-345-1518 (U.S.). †End-user must make a one-time selection between Microsoft Windows XP Professional and Microsoft Windows 2000. If end-user desires the rejected product after selection is made, end-user must acquire and pay for the rejected product separately. †ITU V.90/V.92 modems are designed only to allow faster downloads from K56flex or V.90/V.92 compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. © Copyright 2002 Hewlett-Packard Company. During the HP-Compaq product transitions, some HP iPAQ products and packaging may be labeled with the Compaq brand. During the HP-Compaq product transitions, some HP ProLiant products and packaging may be labeled with the Compaq brand. Compaq, the Compaq logo and Evo are trademarks of Compaq Information Technologies Group, L.P., in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries. Intel, the Intel Inside logo, Pentium and Celeron are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other products mentioned herein may be trademarks or registered trademarks of their respective companies.





## Desktop Solutions

### Evo D300v Microtower

Intel® Celeron® processor 1.40GHz  
128MB PC133 SDRAM  
20GB\* Ultra ATA Hard Drive  
48X Max® CD-ROM Drive  
Integrated Intel® 3D Direct AGP Graphics  
Integrated Intel® Audio  
Embedded Intel® PRO/100 NIC  
Microsoft® Windows® XP Professional  
1 year parts and labor with 1-year next-business-day on-site warranty<sup>1</sup>

**\$579** Lease for **\$17/mo.†**

Monitor sold separately

### Evo D310 Microtower

Intel® Pentium® 4 processor 1.80GHz  
128MB PC2100 DDR SDRAM  
40GB\* Ultra ATA Hard Drive  
48X Max® CD-ROM Drive  
Integrated Intel® Extreme 4X AGP Graphics  
Integrated Intel® Audio with premium internal speaker  
Embedded Intel® PRO/100 NIC  
Microsoft® Windows® XP Professional/  
Microsoft® Windows® 2000 – dual install<sup>1</sup>  
1 year parts and labor with 1-year next-business-day on-site warranty<sup>2</sup>

**\$779** Lease for **\$23/mo.†**

Monitor sold separately

### Evo D510 Ultra-Slim Desktop

Intel® Pentium® 4 processor 1.70GHz  
128MB PC2100 DDR SDRAM  
20GB\* Ultra ATA Hard Drive  
Integrated Intel® Extreme 4X AGP Graphics  
Integrated Intel® Audio with premium internal speaker  
Embedded Intel® PRO/100 NIC  
Microsoft® Windows® XP Professional  
3 years parts and labor with 3-year next-business-day on-site warranty<sup>1</sup>

**\$859** Lease for **\$25/mo.†**

Monitor sold separately



## Notebook Solutions

### Evo N800v Notebook

Mobile Intel® Pentium® 4 Processor 1.60GHz - M  
14.1" TFT XGA Display  
256MB DDR SDRAM  
20GB\* SMART Ultra ATA Hard Drive  
DVD-ROM Drive  
ATI Mobility Radeon 7500 4X AGP Graphics with  
32MB DDR SDRAM  
Integrated Mini PCI 56K V.92 Modem<sup>1</sup>  
Integrated 10/100 NIC  
Microsoft® Windows® XP Professional  
1-year Worldwide Limited Warranty<sup>1</sup>

**\$1719** Lease for **\$49/mo.†**

### Evo N1000v Notebook

Intel® Pentium® 4 processor 2.20GHz  
15.1" TFT SXGA+ Display  
256MB DDR SDRAM  
30GB\* SMART Ultra ATA Hard Drive  
DVD-ROM/CD-RW Combo Drive  
ATI Mobility Radeon 7500 4X AGP graphics with  
32MB DDR SDRAM  
Integrated Mini PCI 56K V.92 Modem<sup>1</sup>  
Integrated 10/100 NIC  
Microsoft® Windows® XP Professional  
1-year Worldwide Limited Warranty<sup>1</sup>

**\$2149** Lease for **\$62/mo.†**

### Evo N610c Notebook

Mobile Intel® Pentium® 4 Processor 1.80GHz - M  
14.1" TFT XGA Display  
256MB DDR SDRAM  
30GB\* SMART Ultra ATA Hard Drive  
DVD-ROM Drive  
ATI Mobility Radeon 7500 4X AGP Graphics with  
32MB DDR SDRAM  
Compaq Premier® Sound™  
Integrated Mini PCI 56K V.92 Modem<sup>1</sup>  
Integrated 10/100 NIC  
Microsoft® Windows® XP Professional  
3-year Worldwide Limited Warranty<sup>1</sup>

**\$2299** Lease for **\$66/mo.†**



## Technology Solutions

### Evo D300v Microtower with \$7500 17" Monitor\*

**Compaq \$7500 17" Monitor (16" viewable)**  
Intel® Celeron® processor 1.40GHz  
128MB PC133 SDRAM  
20GB\* Ultra ATA Hard Drive  
48X Max® CD-ROM Drive  
Integrated Intel® 3D Direct AGP Graphics  
Integrated Intel® Audio  
Embedded Intel® PRO/100 NIC  
Microsoft® Windows® XP Professional  
1 year parts and labor with 1-year next-business-day on-site warranty<sup>1</sup>

**\$679** Lease for **\$20/mo.†**

### Evo N1000v Notebook with hp iPAQ Pocket PC\*

**hp iPAQ 3850 Pocket PC with Microsoft® Pocket PC 2002 operating system**  
Intel® Pentium® 4 processor 2.00GHz  
14.1" TFT XGA Display  
256MB DDR SDRAM  
20GB\* SMART Ultra ATA Hard Drive  
DVD-ROM Drive  
ATI Mobility Radeon 7500 Graphics with  
32MB DDR SDRAM  
JBL Pro Speakers  
Integrated Mini PCI 56K V.92 Modem<sup>1</sup>  
Integrated 10/100 NIC  
Microsoft® Windows® XP Professional  
1-year Worldwide Limited Warranty<sup>1</sup>

**\$1799** Lease for **\$52/mo.†**

### hp ProLiant ML330G2 Server\*

Intel® Pentium® III processor 1.26GHz  
128MB Total SDRAM 133MHz  
18.2GB\* Ultra3 SCSI Hard Drive  
Integrated Dual Channel Wide-Ultra3 SCSI Adapter  
High-speed IDE CD-ROM Drive  
1.44MB Floppy Disk Drive  
Compaq NC3163 Fast Ethernet NIC  
10/100 TX UTP  
SmartStart and Insight Manager  
1-year Limited Warranty<sup>1</sup>

**\$1299** Lease for **\$37/mo.†**





puts a customer in the palm of your hand  
(fits there, too)



**hp digital projector sb21**

Portability plus at just 2.2 pounds, with 1,000 comparable lumens it carries more than its own weight.



**hp digital projector xb31**

Packed with brightness, it's powered by 1,500 comparable lumens for outstanding image quality.

**Upgrade to a bright, lightweight digital projector from HP.**

For presentations that impress, choose HP digital projectors. Experience an unmatched 1,800:1 contrast ratio for deep blacks and rich colors—all in a sleek, lightweight package that's easy to use.

**Trade in, trade up and take 12 months to pay.**

Upgrade your technology through the HP Trade-In Program. Apply the value of your current HP and non-HP technology toward the purchase of a new digital projector.

And for a limited time, lease an HP digital projector and take 12 months to pay at a 0% implicit lease rate\*. Get your HP digital projector now for a low monthly payment. Hurry offer ends soon.

**For more information about HP digital projectors and special promotions, go to [www.hp.com/go/projector](http://www.hp.com/go/projector).**



\*12 month offer is available on orders for HP Digital Projector models sb21 and xb31 only, and is valid on leases originated between July 1, 2002 thru September 30, 2002. Implicit lease rate, assuming lessee does not exercise a fair market value purchase option at lease termination and timely returns the leased equipment to American Express Business Finance at lease termination and disregarding any charges payable by lessee other than rent payments (such as taxes, fees and shipping charges).

Terms & Conditions Apply. Financing available through American Express Business Finance Corporation to qualified customers in the U.S. Financing is subject to credit approval and execution of standard American Express Business Finance documentation. Other restrictions may apply. American Express Business Finance Corporation reserves the right to change or cancel this program at any time without notice.



# LETTERS

LETTERS@PCWORLD.COM

**TALLYING UP THE  
COST OF SPAM**

**READER'S BROWSER  
HIJACKED**

**ALIENS IN  
NEW MEXICO**



## PROTECT YOUR PC

AFTER DUE consideration, it will be fine with me if Robert Luhn and Scott Spanbauer ["Protect Your PC," July] date any two of my three younger sisters. They are currently married...but I will handle that.

The sections on antivirus software (Luhn) and firewalls (Spanbauer) were extremely well done and exactly the type of effort that sets your organization apart—concise, objective, with evaluation criteria that actually relate to the intended use of the software (I am not interested in sartorial counseling or the author's opinion on his olfactory experience when opening the box) and a broad sampling of competitive products. Great work, and thank you!

*Robert Erickson, San Francisco*

## LETTER OF THE MONTH

### Opting Out Is Asking for More

IN THE ARTICLE "Finally, Real Relief From Spam" [Web Savvy, July], Brad Grimes mentions that he opts out of spam from the "legitimate" marketers. I would have to classify that practice as being about as wise as clicking the "remove me" link in most spam. There really is no way you can know in advance whether such opt-out options will work as promised. Your e-mail address may still be added to the lists of an e-mail marketing business.

On average, my Hotmail account has re-

wow, ARE YOU folks right on about your Best Buy antispam utility, McAfee.com SpamKiller version 2.87 [[find.pcworld.com/27424](http://find.pcworld.com/27424)]! I downloaded the trial version. It took me only two days to realize that it was something I couldn't live without, and I immediately bought it. The program did take a little tweaking to set up correctly (I had to devise a workaround to get my e-mail mailing list imported). One nice thing is that you can view the "killed files" to see if anything important is in them. SpamKiller's standard filters work flawlessly and are updated automatically with the click of a button. This one piece of advice from you has paid for my subscription tenfold.

*Roy Gursky, Brentwood, California*

WHILE WE WERE thrilled that PestPatrol 3.1 was included in "Protect Your PC" as a stealthware-finding utility, we'd like to add that PestPatrol finds so much more than just spyware. In fact, it detects and deletes more than 40,000 different pests, including Trojan horses, zombie agents

ceived about 15 spam messages a day. I traced the spam and started contacting ISPs and hosts. When nothing was done, I e-mailed more aggressive letters, including threats to contact the FTC. Within a month of my doing this, spam went down to about 5 or fewer a day. I then tried the opt-out method. Currently my spam has increased to an average of 35+ a day. And I have not even signed up with any Web sites using this e-mail account.

*Nicholas P. Hillebran, Amelia, Louisiana*

for denial-of-service attacks, and many kinds of hacker tools, as well as the spyware and adware you discussed.

*Barb Rose, Director of Communications*

*PestPatrol, Inc.*

I WOULD LIKE to mention an alternative to all the mainstream antivirus packages that typically get reviewed. I have been using AVG antivirus software from Grisoft ([www.grisoft.com](http://www.grisoft.com)) for about a year and a half and have been very pleased with its quality. It has worked seamlessly within both Windows Me and XP, and I highly recommend it.

In addition to no-cost regular updates, it offers scheduled downloads and testing, e-mail integration, heuristics testing, and shell integration (for use with download agents). I particularly enjoy the virus vault, which archives all the failed attempts to infect my system. And it is visually appealing and completely free.

*Gavin S. Smith, Philadelphia*

## PC WORLD'S 20TH WORLD CLASS AWARDS

I ENJOYED READING the article on the best products of 2002 in the July issue. It was very insightful and you had good remarks. I would suggest, however, that next year you put in more budget-priced items. Most people don't have the money for top-of-the-line products and want the best bang for the buck.

*Matt Wendig, via the Internet*

YOUR JULY ISSUE is a gem. I have used Google [Product of the Year and Best Search Engine] since it came out, and I rank it as you do. The same for ZoneAlarm Pro [Best Firewall] and Ad-aware [Software Product of the Year]. I am quite happy to have paid for both.

*Mark Economos, Scarsdale, New York* ▶



# PHOTOGRAPHY DIGITAL

At Mystic  
**PHOTOGRAPHY**  
comes before  
**DIGITAL**



Buy 1 Print  
Get 1 Free



## QUALITY CUSTOMER SERVICE

- 24-Hour turn-around
- Satisfaction guaranteed or your prints are FREE

Photo-quality  
digital prints

Go to our website at  
[www.MysticColorLab.com](http://www.MysticColorLab.com),  
and click on [Print@Mystic](mailto:Print@Mystic.com).  
Use Promo Code 46383

Mystic Color Lab  
Since 1969



It's Not A Picture Until It's Printed™

## LETTERS

CONGRATULATIONS on your 20th World Class Awards. As I do every year, I enjoyed their arrival. However, you awarded Best Operating System to an entrant that "can go for weeks without crashing." News flash: Operating systems are not supposed to crash.

One that doesn't, and the one I use: Linux. With the latest graphical desktop environments currently available, I'll never need to go back to Windows, nor do I want to. And my total cost? Zero.

Joe Davis, Minneapolis

YOU PICKED Pegasus Mail 4 as the best e-mail software, referring to its "Powerful and intuitive mail-filtering rules."

I disagree with the "intuitive" part, not on mail-filter rules but on overall ease of use. In Outlook, you can right-click any folder and create, rename, or delete sub-folders. You can right-click on messages and delete them. Not in Pegasus.

Instead of Pegasus or Outlook, I prefer Eudora (my company also prefers it over Outlook for security reasons). Eudora is easier to navigate and much more intuitive than Pegasus. In Eudora, I can perform with one or two mouse clicks tasks that in Pegasus take three or more mouse clicks to do. Also, Eudora has better third-party e-mail import tools than Pegasus, which does not have any.

Mario Chávez, New York

## BROWSER HIJACKING

THANKS TO Tom Spring for the online article "Has Your Browser Been Hijacked Lately?" [[find.pcworld.com/30066](http://find.pcworld.com/30066)].

Yes, my PC was "hijacked" by Lop.com—that is, my browser's home page was involuntarily redirected to this adware site, as described in the article. Too bad I did not read it 2 hours earlier—I had just finished reformatting my hard drive and reinstalling my operating system to get rid of the stealth crap! Your site's article pointed to the information necessary to remove the program.

Reddix Washington, via the Internet

**Editor's note:** For Tom Spring's broader look at abusive online marketing tactics (including browser or home-page hijacking), see *News and Trends*, page 24.

## NETWORKING = HEADACHES

I LIKE STEPHEN MANES'S tongue-in-cheek style ["Networking: You Still Need a Geek," *Full Disclosure*, July]. His is usually one of the first articles I read each month. This particular piece really hit home, as I am a professional in the area of system setup and installation, including home networking setups. I find that the things that can (and will) go wrong in a networking setup are ridiculous and not necessarily repeatable. What should happen doesn't, and vice versa.

Don Ward, Ijamsville, Maryland

## MORE ON THE TIPS ISSUE

JUNE'S "How to Print Perfect Photographs" recommended saving pictures in TIFF format (as .tif files).

I have taken around 15,000 digital pictures and have saved only about a dozen as .tif files. The reason is simple: A .tif file is *huge*, requires a massive amount of space, is difficult to deal with (because of its sheer size), and is rarely needed. ▶

## CORRECTIONS

IN AUGUST'S "Best of Today's Web," we incorrectly listed the URL for MSN's Money Central. It should have appeared as [moneycentral.msn.com](http://moneycentral.msn.com).

In July's *Top 15 Notebooks*, a photo caption should have identified the notebook shown above it as the Toshiba Satellite 5105-S607.

In July's "Drag 'n' Drop to CD-RW Easily" (*News and Trends*), we should have said that the new standard code-named Mt. Rainier is also known as EasyWrite, not Easy Writer.

In July's "Stop Stealthware" (part of "Protect Your PC"), we should have indicated that, as explained at the Eudora Web site ([find.pcworld.com/30068](http://find.pcworld.com/30068)), spyware scanners flag the sponsored version of Qualcomm's Eudora e-mail application because its AdCache folder coincidentally has the same name as a folder that exists in some stealthware.

PC World regrets the errors.





*Karen (and the rest of our team)  
would be happy to help you  
configure your Anthro Workstation.*

## **Problem: Need furniture for 68 different spaces. Solution: Anthro.**



No matter what kind of business you're in, Anthro can outfit your workplace with just the furniture you need. Anthro is found just about anywhere there's technology. And you can build them any way you like. They're modular and flexible and expand or contract according to your needs. Call us or visit us on the Web. Our folks can help you fill whatever space or spaces you have.

Contact us at [ANTHRO.COM](http://ANTHRO.COM) or 1-800-325-3841.





# Become a PC Repair Technician with at-home training



By learning at home to maintain and repair PCs, you can earn up to \$48,000 a year.\* And you'll be in high demand in this growing field — there are expected to be 14% more job openings for trained PC Repair Technicians by 2010.\*\*

With Education Direct, all learning materials and equipment are shipped to your door, and you learn in the comfort and privacy of your own home. Step-by-step lessons make learning easy but, if you have questions, you'll get unlimited help from instructors who are available by phone or e-mail.

**For FAST & FREE information  
with no obligation,**

Call **1-800-572-1685, ext. 3201**  
or visit **www.EduDirect-usa.com**

Enter ID# ASVS82S or simply return the coupon below.

\*All salary information is based on the *Occupational Outlook Handbook*, a publication of the U.S. Department of Labor. Individual student earnings vary.

\*\*Growth figures represent a ten-year period ending 2010. Source: *National Industry-Occupation Employment Matrix*, a publication of the U.S. Bureau of Labor Statistics.

**Send  
For Free  
Facts!**

**THOMSON**  
**EDUCATION DIRECT**  
Dept. ASVS82S  
925 Oak Street  
Scranton, PA 18515-0700

**Yes,** I want free information on at-home career training for the program I've checked below. I understand there is no obligation. (Please check only one program.)

- |   |   |
|---|---|
| <input type="checkbox"/> 27 PC Repair   | <input type="checkbox"/> 36 Visual C++* Programmer        |
| <input type="checkbox"/> 64 Applied Computer Science (Associate in Specialized Business Degree) | <input type="checkbox"/> 37 Visual Basic* Programmer      |
| <input type="checkbox"/> 38 PC Specialist   | <input type="checkbox"/> 82 Java* Programmer              |
| <input type="checkbox"/> 43 PC Fundamentals*  | <input type="checkbox"/> 83 Web Page Designer             |
| <input type="checkbox"/> 105 Computer Graphic Artist  | <input type="checkbox"/> 44 A+* Certification Test Prep.* |

\*Certificate Programs

Name \_\_\_\_\_

Street \_\_\_\_\_ Apt. # \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Phone ( ) \_\_\_\_\_

E-mail \_\_\_\_\_

## LETTERS

After all, how many of our images will be used as magazine covers? The much smaller .jpg file sizes are easier to archive, faster to use, and print out just fine.

*Dennis Baker, Lake Orion, Michigan*

HEY, GUYS, take it easy on Roswell ["How to Solve the Weirdest PC Mysteries," June]. Just because we had an alien ship crash here does not mean that we are all aliens. (From a proud nonalien Roswellite and novice computer user.)

*Bill Meaders, Roswell, New Mexico*

OF ALL THE ISSUES of *PC World* I have read over the years, the June "Ultimate How-To Guide" is without a doubt the finest ever. Keep up the great work.

*Marty Resnick, via the Internet*

## A MATTER OF TASTE

KEYBOARD CHOICES have a lot to do with personal taste and comfort. Recent columns on keyboards [*Home Office*, July, and *Full Disclosure*, May] both fail to mention Logitech products.

Logitech makes wonderful cordless keyboards and mice. I use the Cordless Freedom Pro. It is very comfortable, and I can take it with me outdoors or downstairs and control my speakers from a location far from my computer.

In addition, the mouse driver software has a "Web wheel" function that can be configured for speedy surfing. Logitech updates its drivers frequently on its Web site ([www.logitech.com](http://www.logitech.com)).

Even if the keyboard/mouse set were priced at \$300, it would still be my choice for elegance and ergonomic comfort.

*Linda Tiet, Edmonton, Alberta*

## THE COLOR OF THE MARKET?

THE STOCK MARKET has plunged, hitting the tech and PC stocks hardest—and (coincidentally?) Gateway, Dell, and others changed their PCs from beige to black and platinum colors.

The successful giants of merchandising—such as General Electric—chose vivid white for stoves, refrigerators, and washing machines, because white is bright and right; it's what customers want.

Black, on the other hand, is the color of

death, funeral homes, and nighttime. Maybe the PC sellers are right. Maybe black is appropriate these days.

But I prefer white.

*Edward Tottle, via the Internet*

## THE REAL COST OF SPAM

I FOUND YOUR August article "Spam Inc." interesting, but totally lacking in tallying the real cost of spam.

As a mechanical engineering firm, we make a living by spending as much time as possible actually working on engineering projects. For us, e-mail is a valuable and necessary tool. However, having to wade through 50 to 100 e-mail messages to make sure that a key client isn't ignored costs us hundreds if not thousands of dollars a year.

At \$120/hour (to make the math easy), our time is worth \$2 per minute. Let's say I spend 2 minutes per day dealing with spam, 200 days a year. That is \$400 per year, per engineer. With eight engineers, the annual cost would be \$3200!

This is a real expense, seen by every business that uses e-mail. This doesn't include the cost of disabling "crippled" e-mail addresses and creating new "clean" addresses that then have to be forwarded to hundreds of business contacts.

*Marcus H. Wilcox,*

*Walla Walla, Washington*

I'M HAVING TROUBLE understanding all the fuss about spam. I don't like it, but I have the same feelings about other kinds of unsolicited advertisements, such as those listed below. What are we going to do about them?

- Radio advertisements
- Billboards
- Newspaper advertisements
- Snail-mail junk
- Telemarketers' calls
- TV commercials
- And (last but not least) magazine ads

*Dick Jimmo, via the Internet*

*PC World welcomes your letters to the editor. We reserve the right to edit letters for length and clarity. Write to [letters@pcworld.com](mailto:letters@pcworld.com), or to Letters, PC World, 501 Second Street, #600, San Francisco, CA 94107. ■*



# Color laser for \$799!



Minolta Co., Ltd., Osaka, Japan

## magicolor® 2200 DeskLaser

### Color laser for the price of black & white.

Sharp, beautiful color prints. High-speed output. By far the best color laser printer in its class. All for a price you're used to paying for a black-and-white laser printer. Hurry! At \$799\* this deal won't last long. Call **800-523-2696**.

- 1200 dpi
- Up to 5 ppm color, 20 ppm b&w
- 32 MB RAM
- Free Ethernet® network card
- Automatic color matching
- Windows® XP/2000/NT 4.0/Me/98/95 compatibility
- Free toner cartridges included in the box, up to 6,000 prints @ 20% coverage



More  
productivity  
for Windows  
environments

Presentations



May 8, 2001  
magicolor 2200 DeskLaser  
MINOLTA-QMS



April 2002  
magicolor 2200 DeskLaser



magicolor 2200 DeskLaser

OfficeMax®

COMPUSA  
The Computer Superstore

Office DEPOT

STAPLES

**MINOLTA**  
**QMS**

The essentials of imaging

© 2002 MINOLTA-QMS, Inc. The MINOLTA-QMS logo and magicolor are trademarks or registered trademarks of MINOLTA-QMS, Inc. All other trademarks or registered trademarks are the property of their respective owners. \*Estimated street price after manufacturer's mail-in rebate. Actual reseller prices may vary. Rebate offer valid 8/1/02 - 12/31/02 or while promotional supplies last. Rebate not available in connection with printers purchased from Costco, Sam's Club, or other locations which apply an instant rebate at the time of purchase. Additional restrictions may apply.

www.minolta-qms.com



Speed, power and performance in an affordable PC.  
Have your cake and eat it too.



Select Dell desktops feature high performance Intel® Pentium® 4 Processors.

## Dell | Home Notebooks



### Inspiron™ 2650 Notebook

#### Mobile Power, Great Price

- Mobile Intel® Pentium® 4 Processor-M at 1.60GHz
- 14.1" XGA TFT Display
- 128MB DDR PC2100 SDRAM
- 20GB\* Ultra ATA Hard Drive
- 8x Max DVD-ROM Drive
- 16MB DDR NVIDIA® GeForce2 Go™ 100 AGP 4x Graphics
- Sound Blaster® Compatible
- 59Whr Li-Ion Battery (8 cell)
- Internal Modem and Network Card

**\$1479** or as low as **\$45/mo.\***  
E-VALUE Code: 12830-800814m

#### Make this your perfect PC:

- 256MB DDR PC2100 SDRAM, add \$100
- 24x CD-RW/DVD Combination Drive, add \$170
- 15" Super XGA+ TFT Display, add \$200
- Notebook Backpack, add \$79



### Inspiron™ 4150 Notebook

#### Uncompromising Performance in a Thin and Light Notebook

- Mobile Intel® Pentium® 4 Processor-M at 1.70GHz
- 14.1" Super XGA+ TFT Display
- 256MB DDR PC2100 SDRAM
- 40GB\* Ultra ATA Hard Drive
- 8x Max DVD-ROM Drive
- 16MB DDR ATI® MOBILITY™ RADEON™ 7500 AGP 4x Graphics
- Sound Blaster® Compatible Sound with Wavetable
- 66Whr Li-Ion Battery with ExpressCharge™ Technology (8 cell)
- Internal Modem and Network Card

**\$1779** or as low as **\$54/mo.\***  
E-VALUE Code: 12830-800817m

#### Make this your perfect PC:

- 40GB\* 5400 RPM Performance Hard Drive, add \$50
- 32MB DDR ATI® MOBILITY™ RADEON™ 7500 AGP 4x Graphics, add \$79
- Dell TrueMobile® 1150 Wireless Networking Internal Mini-PCI Card, add \$159
- Custom Leather Case, add \$99



### Inspiron™ 8200 Notebook

#### Ultimate Mobile Multimedia Performance

- Mobile Intel® Pentium® 4 Processor-M at 1.70GHz
- 15" Super XGA+ TFT Display
- 256MB DDR PC2100 SDRAM
- 40GB\* 5400 RPM Performance Hard Drive
- 8x Max DVD-ROM Drive; 24x CD-RW Drive with Roxio's Easy CD Creator® (2" Bay)
- 32MB DDR NVIDIA® GeForce4 440 Go™ AGP 4x Graphics
- Sound Blaster® Compatible Sound with Wavetable
- 66Whr Li-Ion Battery with ExpressCharge™ Technology (8 cell)
- Internal Modem and Network Card

**\$2099** or as low as **\$63/mo.\***  
E-VALUE Code: 12830-800820m

#### Make this your perfect PC:

- Mobile Intel® Pentium® 4 Processor-M at 1.90GHz, add \$200
- 384MB DDR PC2100 SDRAM, add \$150
- Extra Li-Ion Battery, add \$99
- Deluxe Nylon Carrying Case, add \$49

Dell PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)

\*AOL: New members only. Must register for AOL within 30 days of invoice. To avoid paying monthly membership fees, cancel during the 6-month promotional period. Even during promo period, telephone access charges on your phone bill (call your phone co. for details) and surcharges for premium services and 800# access may apply, including in AK. Availability may be limited, especially during peak times. For new, 18+ U.S. members with major credit card or checking account only. Limited time offer.

Prices/Availability: Prices, specifications, availability and terms of offers may change without notice. Taxes and shipping charges are extra, and vary. Cannot be combined with other offers or discounts. Valid for U.S. Dell Home Systems Co. new purchases only. Dell cannot be responsible for errors in typography or photography. **Limited Warranty:** You can get a copy of our limited warranties and guarantees by writing Dell USA LP, Attn: Warranties, One Dell Way, Round Rock, Texas 78682. To purchase warranty only or for information on other service options please call 1-800-915-2355 or visit [dell4me.com/termsandconditions](http://dell4me.com/termsandconditions). **Service:** At-Home or On-Site service





## Dimension™ 4500 Desktop

### Superior Performance, Smart Value

- Intel® Pentium® 4 Processor at 1.80GHz with 512K L2 Cache
- 128MB DDR SDRAM at 266MHz
- 40GB\* Ultra ATA/100 Hard Drive (7200 RPM)
- NEW 17" (16.0" v.i.s., 27dp) E772 Monitor
- 32MB ATI® RAGE™ Ultra Graphics Card
- 16x Max DVD-ROM Drive
- Integrated Audio
- NEW Harman Kardon HK-206 Speakers
- 56K\* PCI Telephony Modem

**\$899** or as low as **\$27/mo.\***  
E-VALUE Code: 12830-500808m

### Make this your perfect PC:

- 256MB DDR SDRAM, add \$70
- 24x/10x/40x CD-RW Drive with Roxio's Easy CD Creator®, add \$20
- Harman Kardon HK-395 Speakers with Subwoofer, add \$30
- SB Live! 1024V Digital Sound Card, add \$20
- NEW 19" (18.0" v.i.s., 26dp) M992 Flat Screen Monitor, add \$190

## Dimension™ 4500 Desktop

### Superior Performance, Smart Value

- Intel® Pentium® 4 Processor at 2GHz with 512K L2 Cache
- 256MB DDR SDRAM at 266MHz
- 40GB\* Ultra ATA/100 Hard Drive (7200 RPM)
- NEW 17" (16.0" v.i.s., 27dp) E772 Monitor
- 32MB ATI® RAGE™ Ultra Graphics Card
- 16x Max DVD-ROM Drive
- 40x/10x/40x CD-RW Drive with Roxio's Easy CD Creator® (2\* Bay)
- SB Live! 1024V Digital Sound Card
- Harman Kardon HK-395 Speakers with Subwoofer
- 56K\* PCI Telephony Modem
- 10/100 PCI Fast Ethernet Network Card

**\$1199** or as low as **\$36/mo.\***  
E-VALUE Code: 12830-500811m

### Make this your perfect PC:

- 15" Midnight Grey Flat Panel Display, add \$270
- NEW 64MB DDR NVIDIA® GeForce4™ MX Graphics Card with TV-Out, add \$20
- Harman Kardon HK-695 Surround Sound Speakers with Subwoofer, add \$30
- 80GB\* Ultra ATA/100 Hard Drive (7200 RPM), add \$60

## Dimension™ 8200 Desktop

### Cutting Edge Technology

- Intel® Pentium® 4 Processor at 2.40GHz with 533MHz System Bus
- 256MB RDRAM
- 80GB\* Ultra ATA/100 Hard Drive (7200 RPM)
- NEW 19" (18.0" v.i.s., 26dp) M992 Flat Screen Monitor
- NEW 64MB DDR NVIDIA® GeForce4™ MX Graphics Card with TV-Out
- 16x Max DVD-ROM Drive
- 40x/10x/40x CD-RW Drive with Roxio's Easy CD Creator® (2\* Bay)
- SB Live! 1024V Digital Sound Card
- Harman Kardon HK-695 Surround Sound Speakers with Subwoofer
- 56K\* PCI Telephony Modem
- 10/100 PCI Fast Ethernet Network Card

**\$1599** or as low as **\$48/mo.\***  
E-VALUE Code: 12830-500815m

### Make this your perfect PC:

- 512MB RDRAM, add \$160
- Turtle Beach® Santa Cruz™ DSP Sound Card, add \$40
- NEW DVD+RW\*/+R Drive with CD-RW including Sonic™ MyDVD™ and Roxio's Easy CD Creator®, add \$349
- NEW 64MB DDR NVIDIA® GeForce4™ Ti 4200 Graphics Card with TV-Out & DVI, add \$80

## Dell | Standard Features

Each DELL system shown here has a number of standard features, including:

- Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2002
- Dell Picture Studio Image Expert Standard Edition
- Dell Jukebox powered by MUSICMATCH®
- 6 Months America Online® Membership Included\*
- Dimension Desktops shown here include:  
1-Yr Limited Warranty,\* 1-Yr At-Home Service,\*  
Keyboard and Mouse
- Inspiron Notebooks shown here include:  
1-Yr Limited Warranty,\* 1-Yr Mail-In Service

## Dell | Solutions

### Software and Peripherals

#### Desktop:

- Epson® Stylus® C80 Color Printer (Color-Matched to System), \$149
- Lexmark® X83 Multi-Function (Prints, Scans, Copies, and Faxes), \$169
- Belkin® SurgeMaster Gold Series Surge Protector, \$39
- Canon® PowerShot™ A200, \$199

#### Notebook:

- Tripp-Lite Portable Surge Protector, \$20
- Targus® Auto/Air Adapter, \$99
- Kensington® SaddleBag, \$49
- Kensington® Slim MicroSaver® Security Cable, \$37
- Canon® BJC-85 Portable Printer, \$299

### Service and Support

#### Upgrade from Standard Warranty and Service to:

- 3-Yr Limited Warranty,\* 3-Yr At-Home Service\*:  
• Dimension 4500 and 8200, \$159
- 3-Yr Limited Warranty,\* 3-Yr On-Site Service\*:  
• Inspiron 2650, \$219  
• Inspiron 4150 and 8200, \$299

#### Accidents Happen!

Protect yourself with CompleteCare™ Accidental Damage Protection\*:

- Dimension 1-Yr, \$39
- Dimension 3-Yr, \$99
- Inspiron 1-Yr, \$99
- Inspiron 3-Yr, \$169

**With Dell, you can have it all.** Looking for the latest in PC technology? Look no further than Dell. Featuring high performance Intel® Pentium® 4 Processors, Dell PCs deliver exceptional speed and performance to any application. Whether you need a versatile desktop that's ready for anything, or a powerhouse notebook for when you're out and about, Dell can custom-build a PC that's just right for you. And since it's made to order and shipped direct, a new Dell PC is always available at a price that's right for you, too. There truly is a better way of finding, buying, and owning a computer. A better way that's easy.



The perfect PC, at the perfect price. Easy as **DELL™**

To order visit [www.dell4me.com/pcworld](http://www.dell4me.com/pcworld) or call toll free 1-800-933-0546.

provided via third-party contract with customer. Technician will be dispatched, if necessary, following phone-based troubleshooting. Availability varies. Other conditions apply. **Hard Drives:** For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. **56K Modem:** Download speeds limited to 53Kbps. Upload speeds are less (about 30Kbps) and vary by modem manufacturer and line conditions. Analog phone line and compatible service required. **Purchase Plan:** Dell Preferred Account. Offered by CIT Online Bank to qualified U.S. residents. Taxes and shipping charges are extra and vary. **TrueMobile Wireless:** Connect at rate of 11Mbps up to 100m from connected access point. Range and speed may vary due to number of users, interference, transmission barriers (such as walls and building material) and other factors. **CompleteCare:** CompleteCare service excludes theft, loss, and damage due to fire or intentional damage. CompleteCare is currently not available in all states. Not available for Dell Home Sales customers in CA, FL or NY. Not available for Employee Purchase Program customers (Government, Health Care and Relationship/Faculty, Staff and Students) in CA or FL. May not be available to all customers. For complete details, visit [http://www.dell.com/us/en/gen/services/service\\_service\\_contracts.htm](http://www.dell.com/us/en/gen/services/service_service_contracts.htm). **DVD+RW Drives:** Are not compatible with all existing drives and players. **Trademarks/Copyright Notices:** Intel, Intel Inside, Pentium and Celeron are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft, MSN and Windows are registered trademarks of Microsoft Corporation. America Online, AOL, the Triangle logo and Buddy List are registered service marks of America Online, Inc. ©2002 Dell Computer Corporation. All rights reserved.





# Yes, it's really this small.

## Our very hand-y XD-2m.

Our new XD-2m is one of the smallest projectors on the market. At only 2.4 pounds, it fits comfortably in your hand and is easy to take with you.

With crisp 1024 x 768 XGA resolution and 1100 ANSI lumens of power, it gives you presentations that are sharp and bright. And its quiet operation and advanced features make it a great travel companion.

For the newest projectors, customer direct pricing, and fast 24/7 support, call BOXLIGHT - the first name in digital projectors.



DLP™ technology by Texas Instruments offers crystal clear images with superior quality.



**XD-2m**  
(shown actual size)

| Resolution          | Brightness       | Weight | Features  | MSRP   |
|---------------------|------------------|--------|---|--------|
| 1024 x 768 true XGA | 1100 ANSI lumens | 2.4 lb | Digital keystone adjustment, manual zoom and focus, digital computer input, wireless infrared remote, ultra quiet 32dB. | \$3499 |

1.800.467.5609

Ask about our rental/leasing programs or visit us online at [www.boxlight.com](http://www.boxlight.com).  
© 2002. BOXLIGHT and the BOXLIGHT logo are registered trademarks of BOXLIGHT Corporation.

**BOXLIGHT®**  
Presenting a Better Way





# CONSUMER WATCH

ANNE KANDRA

**FEWER MANUFACTURERS,  
FEWER CHOICES**

**PRIVACY WATCH: KEEP  
AN EYE ON WEB POLICIES**

**ON YOUR SIDE: CELL  
PHONE OVERCHARGE**

## Where Have All the PC Makers Gone?

The consolidation of the PC market could be bad news for consumers.



IT'S BEEN A FEW years since I bought my last PC. I'm looking for a new one, but getting back into the market is like attending tribal council during the last few weeks of *Survivor*. Where is everybody?

Three years ago, the number of computer makers aggressively vying for your desktop—from giants like Dell, HP, and IBM and second-tier vendors like Acer, NEC, and Toshiba to lesser-known little guys like Axis, MidWest Micro, and Premio—was almost overwhelming.

Fast-forward to today. I recently hit the Web to comparison-shop for a Pentium 4 system. Six searches and several different price-comparison engines later, my list totaled a scant five vendors: Dell, Gate-

way, HP/Compaq, IBM, and Sony. My local retail stores didn't fare much better, offering most of the same brands, plus a few smaller players and one or two of the stores' own varieties.

Sure, you can find other manufacturers out there. But such companies as CyberMax, Packard Bell, and Quantex have gone belly-up in the past few years, while other PC vendors have been acquired, merged with other companies, or shifted their business model in pursuit of more-profitable pastures. All in all, there's no denying that the PC marketplace has undergone some seriously Darwinian economic pressures in the past few years.

One of the most significant and contro-

versial corporate mergers occurred last May, when two of the computer industry's biggest names, Hewlett-Packard and Compaq, joined forces. After months of corporate wrangling, political infighting, and intense courtroom dramatics, the pair finally staggered to the altar and became the "new HP" (for further information on the merger, see our news story at [find.pcworld.com/30149](http://find.pcworld.com/30149)). Although the company plans to continue marketing products under both the HP and Compaq brand names, the merger effectively removes yet another player from an industry that's already seen more shrinkage than George Costanza of *Seinfeld*.

PC manufacturing is not the only market to feel the squeeze. The floundering Internet services industry has been the poster child of corporate consolidation, as we have seen all too often during the dot-com implosion. The financial struggles of broadband provider companies like Rhythms and Covad, along with the dozens of fledgling and established Internet service providers that have been snapped up by behemoths like EarthLink, have also helped create a chaotic—and smaller—technology marketplace.

And don't get me started on the software marketplace, in which so many of the product categories are now dominated by one or two corporate giants.

Of course, there are lots of econom- ►



ic reasons why the big are getting gigantic and the little guys are fading away. Mergers are often justified by terms like "economies of scale" or "synergy." And in the technology field, as in many other parts of American corporate life these

days, it's increasingly difficult to survive with only a modest market share.

But what does all this corporate jockeying mean for PC buyers? Let's start with the bad news. The most obvious effect of a consolidated market is that customers

## PRIVACY WATCH

### Just Say 'No' to Spam—Again

**POP QUIZ:** When are reading a Web site's privacy policy and declining to receive spam or to share your personal information not enough to protect your privacy? Answer: When the site suddenly changes its policy—and your choices.

That kind of switcheroo has been happening a lot lately. Privacy policy changes have left legions of users of BestBuy.com, EBay, Hotmail, and Yahoo Mail struggling to sort through a thicket of options to avoid junk mail.

Yahoo Mail, for instance, replaced a single check box in which users could decline to receive e-mail ads with a series of more than a dozen radio buttons that were all set by default to include users in spam mailing lists.

MSN's free Hotmail service should receive some credit for swimming against the tide. Hotmail altered its privacy policy to give users more options for keeping their information out of marketers' hands. But if you signed up for the service before March 2002, you must revisit the site to protect your data (e-mail address, birth date, zip code, gender, and occupation). For instructions on protecting your privacy at Yahoo Mail and Hotmail, see *Internet Tips*, page 162.

Have you checked your EBay privacy settings lately? In February, the online auction house changed its privacy policy to reserve the right to reveal anything about you to nearly anyone. EBay requires registered users to pony up a real mailing address and telephone number, not just an

e-mail address. That policy means that EBay and its partners can harass you not only through your in-box, but also by snail mail and over the telephone.

Click *My eBay* and the *Preferences* link, followed by *Change My Notification Preferences*, to get to the page where you can opt out of telemarketing calls and junk mail. Also, be sure to scroll down and pay particular attention to the *Other Emails* and *Other Contacts* sections.

Meanwhile, at BestBuy.com, the retailer decided in June that it would merge the customer databases of its Web site users with the purchasing history of its store customers, thereby creating a massive database that the company plans to employ for targeting advertising to each user.

Best Buy spokesperson Joy Harris justifies the company's change this way: "As a shopper myself, it makes no difference to me where [retailers] keep [customer databases] or how they merge them."

"You have to assume they have customer information about [you]," Harris says, "and who cares?"

Well, I care, Joy, as do millions of other people besieged by spam and ads on their computers. The lesson: The price of privacy is eternal vigilance. Whether you register to use a free online service or you purchase something from an online store, don't neglect to check your account's privacy settings periodically to ensure that the site hasn't suddenly "given you an opportunity to receive marketing offers."

—Andrew Brandt



IT'S A  
FORCE OF  
NATURE



have fewer brands to choose from. That can be frustrating for those of us who like to shop around or who prefer to do business with smaller companies. Also, fewer vendors generally means fewer offerings on the shelf, leaving many consumers to wonder whether they'll be able to find the products or services they want—and how much those items will cost.

Another likely casualty of a consolidated personal computer market is technological advancement.

Shane Rau, an analyst at market research firm IDC, explains, "If there are fewer PC makers competing with each other, there's less incentive to innovate. So at least in the short term, consumers end up seeing fewer features and a slower pace of technological innovation."

What about prices? A highly competitive marketplace can lead to price wars as companies duke it out by slashing their prices. And clearly we've seen some incredible bargains as PC makers have bet the bank to grab market share.

### PRICE TRUCE

BUT WITH FEWER competing vendors around, the bargain basement may have bottomed out. According to Gartner analyst Martin Reynolds, consumers should not expect PC prices to drop much lower than they already have.

"Prices are aggressively low already, and there isn't a lot of room for manufacturers to cut," Reynolds explains. "The competition has been a bit too intense, as manufacturers lose money to make money—hence the amazing deals that sometimes pop up."

In fact, Reynolds theorizes, the HP-Compaq merger could actually prompt a slight PC price increase. "Consolidation happens because there are too many players and they can't make money. So as they disappear, prices will naturally rise a little bit—but only to [reasonable] levels. Sony, Dell, and Gateway will see that the price ceiling remains in place."

On the other hand, Reynolds doesn't see any of the remaining PC vendors calling it quits anytime soon.

"The market is served by a few well-differentiated players," he says. "HP [ap-

peals to] the mass market, while Gateway focuses on midrange and semiprofessional users. Dell goes after more-knowledgeable types, and Sony is leveraging its [superior] brand [name recognition]. So there are no obvious candidates for removal from the market," he concludes.

That's good news for buyers, because the PC market is moving toward a more stable balance, IDC's Rau says.

When there are too many manufacturers, customers can never be sure whether the company they buy from today will be filing for bankruptcy tomorrow. Conversely, when there are too few companies making PCs, those vendors can demand inflated prices, Rau explains.

### PLAYING A SMALLER FIELD

IF YOU ARE PLANNING to make a PC purchase soon, here are a few things to look out for before you buy:

**Ride the waves of competition.** Big manufacturers like Dell, Gateway, and HP will still try to lure customers with offers of free shipping or discounts on machines that don't have the absolute latest equipment. Consumers who are flexible about specifications and timing have a great advantage. Know what you want, and be patient enough to wait for a deal.

**Cast your net wide.** You'll find many more choices on the Web than you will at retail stores. Consider offerings from smaller vendors and "white box" makers (companies that build generic-looking PCs with off-the-shelf parts), but be careful.

Compare each component offered by an unknown vendor against those of an established one and make sure you're getting name-brand parts. Also, carefully check the details of the service and support policy and warranty—a computer with a great price isn't a good deal if the company won't stand behind it.

**Consider buying local.** Our survey late last year on PC reliability and service found that most customers of local "mom-and-pop" computer stores were extremely happy with the service they received. On average, reliability of the locally built machines was solid, but not stellar.

Ask friends for recommendations before you buy from a mom-and-pop, ►

EXPERIENCE  
IT.



Powerful. Stunning.  
And lightning fast. With Quad-Pipe architecture, RADEON™ 9000 PRO gives you all the gaming performance you need, all at a great price. Best-of-breed graphics technology provides crisp, clean, smooth 3D images. Fluid video. Detailed, realistic textures. Ultra-real lighting effects. 64MB DDR memory. And DVD. It's electrifying.

MADE WITH NO  
LIMITS IN MIND



ATI.COM

Copyright 2002, ATI Technologies Inc. All rights reserved. ATI and RADEON are trademarks and/or registered trademarks of ATI Technologies Inc. All other company and/or product names are trademarks and/or trademarks of their respective owners.

RADEON™ 9000 PRO



and look for a store that's been in business at least five years and is a short drive from your home or business. For more information and tips on choosing a local shop, go to [find.pcworld.com/29780](http://find.pcworld.com/29780).

**Follow the money.** You don't want to be the last person to buy a system from XYZ Computers before it shuts the doors and starts blaming the auditors. So it makes sense to check the financial news before you make a purchase. If a company appears to be on the ropes, consider buying a comparable PC from someone else.

Anyone who buys an operating system or office suite knows what it's like to have only one or two viable choices. Let's hope that the PC hardware market continues to foster healthy competition. ■

Anne Kandra is a contributing editor, Grace Aquino an associate editor, and Andrew Brandt a senior associate editor for PC World. Address e-mail to any of these three at [consumerwatch@pcworld.com](mailto:consumerwatch@pcworld.com).

## ON YOUR SIDE

## Web Glitch Causes Duplicate Charges

I PLACED AN ORDER for a cell phone on Sprint PCS's Web site. After I entered my credit card number, a JavaScript error popped up. I didn't proceed with the online transaction. Instead, I immediately called a Sprint PCS sales representative, who assured me I wouldn't be charged if I did not receive a confirmation number. I then placed the order over the phone. I received one cell phone, but my credit card bill showed two charges for it, presumably one for the Internet transaction and one for the phone transaction.

After failing to resolve the problem with Sprint, I disputed one of the charges for \$521 with my credit card company, which issued me a refund while investigating the problem. Weeks later, Sprint PCS again charged me \$521, and then disconnected

my phone service altogether. After multiple attempts to resolve the issue, hours on hold, and faxing my credit card statement half a dozen times, I've been unable to get my money back. Please help.

Adam Glick, Littleton, Colorado

**PC World responds:** I contacted Sprint PCS on Glick's behalf. According to a company spokesperson, Sprint PCS cannot comment on the situation because of its customer privacy policy. Glick said that a Sprint representative recently contacted him about his refund issue, asking him to refax his credit card statement. According to Glick, Sprint PCS then offered him a full refund for all the disputed charges, including the cost of the cell phone, and reactivated his wireless phone service.

—Grace Aquino

Presenting

## Product Finder:

Your #1 Choice for

## Shopping & Savings



Now you can get the best products and the best deals, all in one convenient place:

[www.pcworld.com/productfinder](http://www.pcworld.com/productfinder)

Whether you're starting to shop or you're ready to buy, PC World's **Product Finder** is the only resource you need on the Web. You'll find more than 200,000 different products—including PCs, digital cameras, DVD drives, CD-RWs, PDAs, software, and more—along with detailed specs, helpful buying information, and shopping tools you won't find anywhere else.

- PC World articles and ratings
- Lowest prices available
- Side-by-side feature and price comparisons
- User reviews from buyers like you
- Complete pricing info with tax & shipping charges
- Respected and reputable retailers
- Manufacturer rebates, discounts & promotions
- Much, much more!

PC World's **Product Finder** brings you the very best in products, prices, and customer satisfaction.

**PC WORLD**

Visit [www.pcworld.com/productfinder](http://www.pcworld.com/productfinder) today!



# BREAK OUT



Go beyond black and white. Get stunning color that's surprisingly affordable with the Xerox Phaser 8200 printer.  
**There's a new way to look at it.**

Now every idea you hatch can look brilliant. Starting at only \$1499,\* the Phaser® 8200 color printer delivers rich, vibrant color and crisp black and white prints up to 1200 dpi — all at a surprisingly low cost per page. Just as attractive as its low cost is its high speed. With an industry-leading first-page-out of only



9 seconds and 16 ppm full color, the Phaser 8200 is faster than 90% of today's office printers.† What's more, it's just one of a full line of office printers designed to help your business break out and sparkle. For more information, call 1-877-362-6567, ext.1887 or visit [xerox.com/officeprinting/egg1887](http://xerox.com/officeprinting/egg1887)

THE DOCUMENT COMPANY  
**XEROX.**

© 2002 XEROX CORPORATION. All rights reserved. Xerox, The Document Company, Phaser, and There's a new way to look at it are trademarks of XEROX CORPORATION. \*Estimated US retail price. Reseller price may vary. †Based on current market data by IDC. Imperial Eggs by Peter Carl Fabergé: Spring Flowers, Chanticleer, Coronation. The Forbes Collection, New York © All Rights Reserved.



# DigitAllvision



171MP



151MP



170MP



150MP

© 2002 Samsung Electronics America, Inc.

DigitAllawards



ConsumerGuide.com  
BEST BUY

Smart Business  
"A-LIST" AWARD  
April 2002





## Samsung's MP Series. Multimedia monitors to take you further.

Fast forward your success with one desktop decision. A multimedia monitor from Samsung's sleek MP Series. Their space-saving designs say professional from any angle. And picture-in-picture provides simultaneous PC plus TV or video viewing.

- 17" and 15" TFT LCDs
- PC, NTSC, S and composite video inputs and remote
- Multimedia: Built-in stereo speakers
- HDTV ready

The MP Series. Monitors that will take your workspace to new heights. Enjoy the view. To learn more about Samsung Monitors visit us at **[www.samsungusa.com/monitor](http://www.samsungusa.com/monitor)** or call **1-800-SAMSUNG**.

Not just digital...**Samsung DigitAll!**

**SAMSUNG DIGITall**  
everyone's invited™



BURN BOOKS AT [audible.com](http://audible.com). GET JOHN GRISHAM'S "THE BRETHREN" IN AUDIO FREE AT [www.roxio.com](http://www.roxio.com).

## room to burn



Get organized, and take your files with you wherever you go. Burn all your data, video, photography, MP3s, vinyl, cassettes and whatever else you've got to CD with Easy CD Creator® 5 Platinum, from Roxio. The best selling CD burning software in the world. You can even create your own personalized jewel cases for each disc. Hit [roxio.com](http://roxio.com) to find out how. Mac® users check out Roxio's Toast® 5.

*Now Windows® XP compatible.*

VINYL



DIGITAL VIDEO



DATA BACKUP



ORIGINAL MUSIC



DIGITAL PHOTO



MP3



roxio





## Give Your Browser Special Powers

Miniature JavaScripts can enhance Web surfing—if you're careful.

IT NEVER OCCURRED to me that the macro-style scripting I've used to speed up common word processing and spreadsheet tasks might be possible within Web browsers. Then I caught wind of something called a bookmarklet, a combination bookmark and JavaScript that you run from your Favorites menu or a Web page to help speed up surfing chores. Bookmarklets are great for power searching, navigating Web pages, and (for those who enjoy it) Web page design. Will they change the way you use the Web? Not radically, but they can be convenient.

A bookmarklet is essentially a Web link, but instead of a URL, the link contains a short piece of JavaScript. You can try one out simply by clicking it, or you can add the bookmarklet to your Favorites menu by right-clicking the link. Because most Web browsers support JavaScript, you can usually use them in any browser.

I've tried a number of cool and useful bookmarklets. One (available at [find.pcworld.com/29744](http://find.pcworld.com/29744)) lets me find out, with a single click, who owns the Web domain I'm visiting. The bookmarklet itself simply automates the job of search-

ing VeriSign's Whois database. Another bookmarklet ([find.pcworld.com/29745](http://find.pcworld.com/29745)) instantly displays the cookies stored by the Web page I'm currently viewing. And a third ([find.pcworld.com/29761](http://find.pcworld.com/29761)) lets me highlight words on a Web page and dump them into a variety of search engines automatically. None of this is sliced bread, but a few practical bookmarklets can really make Web surfing better.

To start using these tools, try [www.bookmarklets.com](http://www.bookmarklets.com), a site operated by Steve Kangas (who's widely regarded as the inventor of the term "bookmarklet"), or check out [find.pcworld.com/30065](http://find.pcworld.com/30065).

### PROCEED WITH CAUTION

BUT ARE BOOKMARKLETS safe? Good question, considering the potential security dangers of running JavaScript. When I try to add a bookmarklet to my Favorites menu, Internet Explorer 5.x warns me that it might be unsafe. One bookmarklet I came across reveals passwords that a Web page has remembered but blocked from view. That might be handy at a site where you've forgotten your password (it's safest to follow the site's instructions



for getting your password). Still, if a bookmarklet can uncover such information—for good or for bad—there seems to be a risk that another bookmarklet could transmit it to unsavory observers.

Kangas says the chance that a bookmarklet will wreak havoc is relatively slim (you can read his thoughts at [find.pcworld.com/30062](http://find.pcworld.com/30062)). For one thing, bookmarkable URLs have a maximum length (just a couple lines of code), which limits what a malicious programmer might do. In addition, you can always see a bookmarklet's underlying code—though that offers little help to people who can't read JavaScript. But longer bookmarklets could be coming, with increased chances they could do harm. In short, while there's little current danger in bookmarklets, you should still be careful when working with them. Learn what you can about the source of each bookmarklet before you bookmark it. ■

### GIMME FIVE

## Essential Download Sites

1. **WebAttack.com:** Bad name, excellent source of Internet utilities. Includes helpful tips and tricks, plus visual demonstrations of software. [www.webattack.com](http://www.webattack.com)
2. **VersionTracker.com:** Up-to-date shareware utilities, drivers, software upgrades, and more. It's easy to find things at this fairly fast site. [www.versiontracker.com](http://www.versiontracker.com)
3. **Tucows:** This site has become more cluttered lately, but it's still a must-visit

- for anyone looking for commercial and free downloads. [www.tucows.com](http://www.tucows.com)
4. **FindSounds.com:** Part search engine, part download tool, this site is ideal for locating and obtaining all sorts of sound files from the Web. [www.findsounds.com](http://www.findsounds.com)
  5. **PCWorld.com:** I don't make enough from this column to sway my recommendation. PCWorld.com has a great downloads library. [www.pcworld.com/downloads](http://www.pcworld.com/downloads)

Contact PC World Contributing Editor Brad Grimes at [websavvy@pcworld.com](mailto:websavvy@pcworld.com).



# Systemax™

Get a whole lot more!



## Venture PCs with Intel® Pentium® 4 processors— Give your business more headroom

(Don't worry, Systemax Guy doesn't take up any space.)

**\$50 Mail-in-Rebate**

when you buy any Systemax PC pre-loaded with MS Office XP and a qualifying HP printer between 7/1/02 and 8/31/02. Go to "Rebates" on [www.globalcomputer.com](http://www.globalcomputer.com) for details.

Not all companies can afford or need a large IT department, so we created a support system that's so good, it feels like the Systemax Guy is right in the office with you. Amazing 24/7 customer support comes standard with every Systemax™ Venture™ PC.

Systemax Venture PCs feature the Intel® Pentium® 4 processor to give your business the computing power it needs for today's and tomorrow's demanding applications. Invest today in a Venture PC and you're set with tomorrow's technology.



### Venture LP-SU17

Intel® Pentium® 4 Processor 1.70 GHz  
128MB PC2100 DDR SDRAM  
20GB Ultra ATA Hard Drive  
Integrated Business Audio  
Integrated AGP Graphics  
52x (max) CD-ROM Drive  
Integrated 10/100 Network Adapter  
Microsoft® Windows® XP Home Edition  
Microsoft® Office® XP Small Business¹  
Low Profile Chassis 3.9"(w) x 12.8"(h) x 16.9"(d)  
Standard 1-Year (Limited) Warranty  
1-Year On-Site Technical Support

\*699.....#980871.....Lease \$22.28/Mo.

**\$649** after mail-in-rebate

### Venture LP-SU20

Intel® Pentium® 4 Processor 2.0 GHz  
128MB PC2100 DDR SDRAM  
40GB Ultra ATA (7200 rpm) Hard Drive  
Integrated Business Audio  
Integrated AGP Graphics  
24x10x40 (max) CD-R/RW Drive  
Integrated 10/100 Network Adapter  
Microsoft® Windows® XP Professional Edition  
Microsoft® Office® XP Small Business¹  
Low Profile Chassis 3.9"(w) x 12.8"(h) x 16.9"(d)  
Standard 1-Year (Limited) Warranty  
1-Year On-Site Technical Support

\*699.....#980873.....Lease \$28.66/Mo.

**\$849** after mail-in-rebate

### Venture SU25

Intel® Pentium® 4 Processor 2.53 GHz  
256MB PC2100 DDR SDRAM  
120GB Ultra ATA (7200 rpm) Hard Drive  
Integrated Business Audio w/CA-3000  
Speakers w/Subwoofer  
Integrated Intel® AGP Graphics  
19" (.25dp) Monitor (18" viewable)  
24x10x40 (max) CD-R/RW Drive  
Integrated 10/100 Network Adapter  
Microsoft® Windows® XP Professional Edition  
Microsoft® Office® XP Small Business¹  
7-Bay Mid-Tower Case  
5/3-Year (Limited) Warranty  
1-Year On-Site Technical Support

\*1899.....#980899.....Lease \$60.54/Mo.

**\$1849** after mail-in-rebate

Systemax recommends Windows® XP Professional for business  
Call your Systemax Specialist at Global Computer today...

**1 - 888 - 932 - 7835**

Configure your own Systemax PC at [www.globalcomputer.com/pc](http://www.globalcomputer.com/pc)

Systemax Venture PCs come with a 3.5" Floppy Drive, a 104-Window Keyboard, a Netscroll Mouse, 1 Year Extendable Limited Warranty and 24/7 Tech Support.

¹Microsoft Office XP Small Business includes Microsoft Word 2002, Excel 2002, Outlook 2002, Publisher 2002 and Small Business Tools. \*On-site service is provided by a third party, unaffiliated with Systemax. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft, MS and Windows are registered trademarks of the Microsoft Corporation. All products are trademarks of their respective manufacturers. All registered and unregistered trademarks are the sole property of their respective companies. Advertised configurations are active 7/10/02-9/10/02. Prices do not include shipping or applicable sales tax. Copyright 2002. Systemax Inc. Prices and configurations are subject to change without notice.





STEVE BASS

## It Pays to Increase Your Word Power

These add-ons and add-ins give Microsoft's word processor new punch.



WANT TO KNOW what features will be added to the next version of Word? I've been to some non-Microsoft Web sites that showed me. There's a great document format revealer and a powerhouse tool for changing Word's interface, along with other functions that help me work lots more efficiently. Want your own prerelease copy? Read on.

If you're thinking that my inside track is a warez or pirate site, you're wrong. My insight comes from paying attention to the companies that make Word add-ons. I figure that Microsoft will find a way to "reinvent" the best features in these programs for Word's next release. (Yes, I'm bashing Microsoft, but based on past experience, it's a fact.)

### REVEALING CODES

I BET MANY of you remember WordPerfect's Reveal Codes, the super feature that lets you see every trace of formatting in a document. For WP users, it's an indispensable tool for finding the bizarre, picayune formatting problems that can turn parts of a document into gibberish. No, Microsoft's halfhearted try at the fea-

ture in Word XP doesn't even come close.

One look at the format revealer in Levit & James's \$75 CrossEyes add-in, and I was blown away. The program gives you a peek behind the curtain in Word. Click the CrossEyes icon on Word's toolbar to split the screen horizontally into two windows—the document above, and the corresponding text and formatting codes below. You can see tables, sections, field codes, and all character, paragraph, and style formats. The two windows work in harmony—if you move the cursor in either window, you'll go to the corresponding location in the other.

### A MORE OPTIONAL WORD

CROSSEYES LETS YOU do more than just view the formatting, however. You can excise misbehaving formats in the code-revealing window, or copy and paste to apply formatting from elsewhere in the document. Heck, you can even enter and edit text in the code window if you want. CrossEyes may be expensive, but it's vital for heavy Word users. It works with Word 97 through Word XP, and with all versions of Windows except 3.1 (which my brother-in-law won't stop using).

Another set of essential Word add-ons has been in my toolbox for going on a decade. They're part of the \$30 Woody's Office Power Pack (WOPR) by Woody Leonhard. I've watched as many of WOPR's features ended up in Word. "It's kind of a push-me, pull-you approach to improving Office," Leonhard says. "Microsoft 'borrows' the right-click

spell checking from WOPR 6, the Document Map from WOPR 95, and the Word Count toolbar from WOPR 2000, and we build in more tools and must-have features for the next version of WOPR."

One of my favorite utilities in the program is the WOPR Place Bar Customizer, which lets me customize File Open, Save, and other dialog boxes in Office 2000 and XP so they point to where I want to go today. For instance, I rarely use the Desktop and My Network Places shortcuts on the left side of the dialog boxes; the customizer lets me replace them with icons to folders I need to get at quickly. (This and other individual WOPR tools are available separately for \$15.)

For a great deal, pick up two books that come with the software CDs—I refer to both (Leonhard cowrote them with Ed Bott) regularly. The first is *Using Office XP*, which comes with WOPR XP. I've seen it discounted on Amazon for about \$27. *Using Office 2000* is an even bigger bargain—it has WOPR 2000 and runs about \$21. To find them online, enter **que books** and the title in Google's search box.

Want even more Word tools? For a rich source of tweaks and downloads, visit the Microsoft Word MVP site at [find.pcworld.com/29742](http://find.pcworld.com/29742). Now give me

your word you'll stop shilly-shallying and boost your productivity with a few of these add-ons. ■

#### CrossEyes

Levit & James

★★★★☆

\$75

[www.levitjames.com](http://www.levitjames.com)

#### Woody's Office Power Pack XP and 2000

WOPR

★★★★☆

\$30

[www.wopr.com](http://www.wopr.com)

*Contributing Editor Steve Bass is the president of the Pasadena IBM Users Group. Reach him at [home-office@pcworld.com](mailto:home-office@pcworld.com). Sign up for his online newsletter at [find.pcworld/25821](http://find.pcworld/25821).*



# What Are You Waiting For?

| QuickBooks Premier<br><small>QuickBooks® is a registered trademark of Intuit, Inc.</small> | ORACLE®<br>small businesssuite   |
|--|--|
| <input checked="" type="checkbox"/><br>Accounting & Payroll                                | <input checked="" type="checkbox"/><br>Accounting & Payroll              |
| <input type="checkbox"/><br>Sales Force Automation   | <input checked="" type="checkbox"/><br>Sales Force Automation            |
| <input type="checkbox"/><br>Integrated Web Store /Web Site                                 | <input checked="" type="checkbox"/><br>Integrated Web Store /Web Site    |
| <input type="checkbox"/><br>Customer Support Case Management                               | <input checked="" type="checkbox"/><br>Customer Support Case Management  |
| <input type="checkbox"/><br>Online Employee Expense Reporting                              | <input checked="" type="checkbox"/><br>Online Employee Expense Reporting |

Oracle Small Business Suite is the one, easy-to-use, totally complete system to run your entire company more efficiently. And you can import all your QuickBooks data with just a few clicks. Take Control of Your Business.



**5 Stars**  
**PC Magazine**

March 2002

Call 1-800-SmallBiz or  
visit [oraclesmallbusiness.com](http://oraclesmallbusiness.com)  
for a Free Trial.

**ORACLE®**  
**small businesssuite**





# BUGS & FIXES

STUART J. JOHNSTON

## How to Spot Virus Hoaxes a Mile Off

**Bogus warnings can hurt more than real viruses. Here's how to detect them.**

A TECH-SAVVY friend recently forwarded an e-mail message to me, warning of a PC virus that anti-virus software couldn't detect. The alert said that his PC had been infected and that the virus had already sent itself to everyone in his address book, including me. The virus would lie dormant for two weeks "before damaging the system."

Yow! My friend's message identified jdbgmgr.exe as the infected file and told me to delete it. Bad idea. The executable file in question is actually built into Windows. If you delete it, then some Web sites that rely on Java won't work properly. My friend had fallen for a recent virus hoax.

It's just one of many virus hoaxes making the rounds these days—and they're not going away. In fact, most new hoaxes are merely older ones that have been modified and put back into circulation. In



this way, virtually all hoaxes stick around for years. For details about the latest hoaxes, check out McAfee.com's alerts page at [find.pcworld.com/29957](http://find.pcworld.com/29957) or see Symantec's list at [find.pcworld.com/29960](http://find.pcworld.com/29960).

Meanwhile, have you been getting some unusual alerts lately? Here are some tips on how to identify virus hoaxes:

**1. Detect the undetectable.** Beware of warnings that claim a virus is undetectable. In gen-

eral, if you keep your anti-virus software up-to-date, your system will nab the latest viruses.

**2. Study the subject.**

If the e-mail message's subject line includes words such as "Urgent," "Warning," or even "Virus Alert," it's often a good indication that you're dealing with a hoax. Read the e-mail message with great skepticism, not great urgency.

**3. Beware of tech talk.** Look out for pseudo-technical discussions on the dangers of the virus. Some hoax messages include pure gobbledygook.

**4. Check the sources.** To create an aura of credibility, a hoax often quotes a well-known company or agency, such as Microsoft, the Federal Communications Commission, or an antivirus company. Check the Web sites of the sources quoted (or see your antivirus vendor's site). Remember also that Microsoft *never* posts virus alerts via e-mail.

**5. Scrutinize the instructions.** Beware of messages that insist you delete a file manually. True, at times you should do so, but in the context of the other tip-offs, this instruction should raise a red flag.

**6. Don't spread the word.** False alerts always urge you to tell everyone you know. Genuine alerts never do. Ignore the

instructions, delete the message, and don't alarm everyone on your mailing list.

Stuart J. Johnston is a contributing editor for PC World. ■

### IN BRIEF

#### Yahoo IM Flaw

OLDER versions of Yahoo Messenger have several security holes that could allow bad guys to take over your system. The company has posted a new version that takes care of the flaws. Go to [find.pcworld.com/29964](http://find.pcworld.com/29964) to download and install the update, version 5.0.0.1065.

#### Patch Gets Patched

MICROSOFT has released an updated version of its MSN Chat control—a part of MSN Messenger—to plug a security hole it didn't fix completely in an earlier update (go to [find.pcworld.com/29966](http://find.pcworld.com/29966) for details about the previous patch). So it's time to download a new fix—whether you grabbed the previous one or not. Sigh. Go to [find.pcworld.com/29965](http://find.pcworld.com/29965) to get the company's revised patch.

### BUGGED?

FOUND A hardware or software bug? Tell us about it via e-mail at [bugs@pcworld.com](mailto:bugs@pcworld.com).

### GOPHER HOLE IN INTERNET EXPLORER

FINNISH SECURITY FIRM Oy Online Solutions found another security hole in Internet Explorer, versions 5.01 through 6.0. This one affects an outdated feature called Gopher—a protocol that was used for accessing text pages over the Internet before the advent of the World Wide Web. Hardly anyone uses Gopher these days, but IE still includes the capability. Even if you don't use Gopher, a cracker could entice you to click a Web link or open an HTML e-mail that would allow the intruder to take over your PC. At press time there was no sign of a patch, but Microsoft did post a workaround. Visit [find.pcworld.com/29963](http://find.pcworld.com/29963) for details.



# TECHNOLOGY that keeps up with your CUSTOMERS

Consumers, thanks to the Internet, are now smarter than many of the small businesses trying to serve them.

Research firms report that consumers are increasingly accepting of digital commerce, despite slow Web sites and buggy transactions. But surprisingly few businesses have caught on to the benefits of building customer relationships online.

Terri Murphy, a Chicago, Ill.-based business author and speaker, says there is a growing gap between established small businesses and tech-savvy consumers. Murphy often works with real estate brokers, who tend to be in their late 40s and suffer from various degrees of technophobia.

"We are looking at a new, empowered consumer, someone who's had a GameBoy in his or her hand since childhood," Murphy points out.

Murphy teaches real estate brokers and business entrepreneurs to meet consumers where they are most comfortable, and that place is online. Her seminars and articles encourage business owners to use CRM databases, e-mail, and mail managers to build communities and one-on-one relationships with their clients.

"Most small businesses aren't using technology to nurture their client lists on a regular basis," Murphy explains.

## Printers and Productivity

Consider that the right inkjet printer can be a powerful tool in small office/home office (SOHO) environments. Today's top inkjets offer unparalleled color prints and can produce text that rivals the output from a laser printer. Also, the best inkjets now offer speeds fast enough for busy offices. And, aside from these considerations, innovative ease-of-use features can help bolster productivity.

The Lexmark Z65 Color Jetprinter ([www.lexmark.com](http://www.lexmark.com)) is a great choice for SOHO users. With industry-leading resolution in color as well as black and white, graphics-infused documents

look exceptional. This workhorse can crank out lengthy black-and-white reports at speeds of up to 21 pages per minute.

The Z65 has a host of features that make printing easier: dual paper trays allow for fast media transition; sensor technology detects the type of media in the front paper tray and automatically adjusts the printer to produce the best-looking output; and automatic cartridge alignment ensures optimal prints without manual adjustment. In addition, the Z65's patented Accu-Feed technology enables it to accommodate the widest array of media—from transparencies to

*Continued on page 3*



▲ **TERRI MURPHY**, a Chicago, Ill.-based business author and speaker, says, "The key to any service is that you're not selling a product so much as you're selling your wisdom and knowledge about that product."

## SPONSORED BY:

Lexmark International  
[www.lexmark.com](http://www.lexmark.com)  
HPshopping.com  
[www.hpshopping.com](http://www.hpshopping.com)



# THE ROAD NEVER TRAVELED.

INTRODUCING THE WORLD'S FIRST 4800 DPI/5.8 MEGAPIXEL PRINTER.  
THE Z65 PHOTO PRINTER FROM LEXMARK.



At twice the resolution of the nearest competitor, the Z65 photo printer doesn't just break the rules, it changes the game altogether. The Z65 offers 4800 dpi\* (5.8 megapixels) of resolution, dual paper trays, plus Lexmark's legendary speed – all this for less than \$200. Available from Best Buy, Circuit City, CompUSA, Dell, Office Depot and Staples. Visit us at [www.lexmark.com/road4/](http://www.lexmark.com/road4/) for more information about Lexmark products.

**LEXMARK**  
Passion for printing ideas.™

\*Up to 4800 x 1200 dpi on photo and coated papers and transparencies; 4800 x 600 on plain paper. Lexmark and Lexmark with diamond design are trademarks of Lexmark International, Inc., registered in the United States and/or other countries. Passion for printing ideas is a trademark of Lexmark International, Inc. All other trademarks are the property of their respective holders. \$199 is estimated street price; actual prices may vary.



Continued from page 1  
envelopes—without jamming.

At \$199, everyone in a small office can have a Z65 on his or her desk. For offices looking to share an inkjet between two or more users, the networkable Z65n comes with an integrated Ethernet network adapter and is priced around \$229.

### Tailor That Email!

Terri Murphy is helping one of her entrepreneurial clients, a high-end travel clothier in Chicago, to build a database that will deliver relevant and timely information to the store's customers.

"Right now," Murphy says, "we're drilling back to past customers to learn more about what they've purchased, and what they've asked for." Armed with that information, the clothier can use sophisticated auto-responders to send highly targeted email messages and opt-in newsletters to individual customers.

"If someone comes into your store and purchases a Kate Spade handbag, they might like to know when new Kate Spades come in," Murphy explains. But customers, she cautions, are quickly turned off by blanket marketing efforts. "It works only if you give them just what they want. That's why it's important to maintain the accuracy of your database, and to tailor your content based on that information."

Buyers want services that edit out the information they don't need. They are pressed for time, so businesses must be relevant and add value, but in a way that is fast and convenient for them.

Fortunately, says Murphy, this sophisticated online marketing technology, which is available off the shelf, is easy to maintain. "For the clothier, it has to be. She's a one-woman show. But by turning her Web site into a 24-hour workstation, her customers can help themselves to the information they need."

### A Bank at Your Fingertips

Today, understanding the financing options available to purchase information technology can be as important as knowing which products to buy. That's why consumers and business buyers will warmly greet the many finance choices available to them through HPshopping.com ([www.hpshopping.com](http://www.hpshopping.com)).

For example, buyers can purchase PCs, notebooks, printers, and many other products and qualify for eFinancing for any order over \$200. Once approved

▼ **THE LEXMARK Z65**  
**COLOR JETPRINTER:** speed,  
resolution, and ease of use.



for eFinancing, buyers can finance any purchase with no minimum and with highly secure account access provided by HPshopping.com's partner, Household Bank N.A. All customer account information handled by Household Bank is stored securely behind a fire-wall with no direct connection to the Internet, for maximum security of transactions.

What's more, savvy buyers are able to use HPshopping.com's eFinance to get credit lines of up to \$5,000 with no down payment and no application or

annual fees. There is a 25-day grace period from the billing date, with no finance charges assessed on outstanding balances if paid by the due date.

HPshopping.com has made the deal even sweeter with a special offer extending through September 8, 2002, whereby buyers are offered no-interest, no-payment options for a full 12 months on orders over \$300. It's the perfect way for cash-strapped buyers

to get the performance PC or HP LaserJet printer they've needed and wanted.

Murphy acknowledges that the Web contains virtually all of the information consumers could possibly ask for, and that they can typically find products on their own. That's why she insists small businesses must add value to every email or Web page, with relevant consumer tips and other information that demonstrates a firm grasp of their particular market.

A real estate broker, for example, can list tips for first-time homebuyers on his Web site. And the clothier can email travel information to her jet-setting clientele. "Remember," says Murphy, "the key to any service is that you're not selling a product so much as you're selling your wisdom and knowledge about that product."



▲ **HPshopping.com: a great way for cash-strapped buyers to pick up the HP PC or printer they're been looking for.**





## rock solid performance

Go anywhere, work anytime on a high-power **HP Pavilion ZT1290 notebook** with **Mobile Intel® Pentium® 4 Processor - M**. Build and edit spreadsheets, finish-up proposals, maybe even design web pages. It's mobile, it's rock-solid, it's an HP Pavilion notebook.

- Mobile Intel® Pentium® 4 Processor 1.8GHz - M
- 40GB hard drive
- 512 MB DDR RAM
- 15" XGA+ TFT display
- ATI Mobility Radeon 7500C Video Card
- DVD/CD-RW Combo drive
- IEEE 1394 "Firewire" & USB ports

only **\$2,399.99**  
(after \$100 mail-in rebate)



**hpshopping.com**  
visit us online or give us a call  
**1-888-345-5409**

**SAVE 10% off any desktop or notebook PC on hpshopping.com**

At Checkout, insert coupon code **SV7666**. Coupon expires **9/15/02**.

Valid for hpshopping.com purchases only. Each coupon code is limited to one usage per customer; one coupon per product. Offer void where prohibited, taxed or restricted by law. Non-transferable. Not valid on instant rebates or clearance sales. Not retroactive on previously purchased items. For complete coupon conditions, see "Coupon Information" in the "Help" section.



YOU DEMAND  
**110%**  
FROM YOURSELF.  
SO WHY ARE  
YOU ONLY ASKING  
**50%** FROM  
YOUR PRINTER?



environmentally  
**friendly**

THE PANASONIC  
KX-P7100 SERIES.  
GET MORE PRINTER  
AND USE LESS PAPER.

Is your current Printer giving  
you 100%? Probably not.

The Panasonic KX-P7100 Laser

**Built-in Automatic Duplex Printing**  
Printer is a  
powerhouse-  
designed to save  
you time and money.

With its integrated auto-duplexing  
capability, you're maximizing  
productivity, while saving a bundle  
on paper- all at a cost comparable  
to most single-sided Laser Printers.  
The KX-P7100 Series also features:

- 15 pages per minute printing
- Up to 1200 x 600 dpi
- Flexible paper handling
- PCL Printing (KX-P7105)
- Network Ready (KX-P7110)
- One-Year Exchange Warranty
- Lower-priced, easy to change consumables
- Wide selection of options

**For more information,  
visit our website or call  
1-800-742-8086.**

**Panasonic**  
[www.panasonic.com/printers](http://www.panasonic.com/printers)





the invasion has begun

"Stunning, jet-black system wowed us with its speed and sound quality..."

-PC World



### Award-Winning Systems

- 8x listed on PC World Top 15 Home PCs Lists
- 7 PC Gamer Editors' Choice Awards
- 5 Computer Gaming World Editors' Choice Awards
- 4 Maximum PC Kick Ass Product Awards
- 2 CNET Editors' Choice Awards
- 2 Computer Shopper/ZDNet Best Buy Awards



THE ULTIMATE MOBILE GAMING MACHINE

Laptops And Desktops Now Available In Many Custom Colors!



AREA-51™  
DESKTOP GAMING

Intel® Pentium® 4 Processor at 2.53GHz 533 FSB  
with 512KB Advanced Transfer Cache  
High-Performance Heatsink/Cooling System  
Intel® 850E Chipset Motherboard  
512MB RDRAM PC-1066  
Black Floppy Drive 1.44MB  
100GB 7200RPM Ultra ATA100 Hard Drive 8MB Cache  
**NEW ATI® RADEON™ 9700 128MB DDR**  
Koolmaxx™ Video Cooling System  
Sound Blaster® Audigy™ 5.1 with SB1394™  
16X/48X DVD-ROM Drive  
PlexWriter 40X/12X/40X CD-RW Drive  
Black Dragon Full-Tower ATX Case 340-Watt PS  
Black Microsoft® Internet Keyboard  
Black Microsoft® Intellimouse Explorer 3.0  
U.S. Robotics V.90 56K Modem  
Intel® PRO/100 S Network Adapter  
Microsoft® Windows® XP Home Edition  
1-Year Toll-Free 24/7 Technical Support  
with Alienware On-Site Home Service  
AlienAutopsy: Automated Technical Support  
Personalized Owner's Manual  
Optimized & Configured for High-Performance  
FREE Alienware® Custom Mouse Pad

**\$2,599.00**



AREA-51™  
MOBILE GAMING

Intel® Pentium® 4 Processor at 2.4GHz  
with 512KB Advanced Transfer Cache  
High-Performance Heatsink/Cooling with Arctic Silver III  
Intel® 845MP+ ICH3M Chipset Motherboard  
512MB DDR266 SDRAM  
40GB ATA100 5400RPM Hard Drive  
15.0" UltraXGA TFT Active Matrix LCD  
ATI® Mobility RADEON™ 7500 64MB DDR  
with Dual-View Display Monitor and TV-out  
Removable 3.5" Floppy Drive  
8X/8X/24X DVD-ROM/CD-RW Combo Drive  
Sound Blaster® Compatible with Wavetable  
5.1 3D Surround Sound with S/PDIF Digital Output  
Front Panel Audio DJ CD Player  
Allows CD Play While System is On or Off  
One Type II PCMCIA Slot  
Four USB Ports and One IEEE 1394 Port  
Infrared Wireless Fast IR Interface  
10/100Mb Ethernet LAN and 56k Modem  
Dimensions: (H) x (W) x (D) : 1.7" x 13" x 11.4"  
Weight: 7.6lbs. without battery  
Exclusive 120-Watt A/C Adapter  
Microsoft® Windows® XP Professional  
1-Year Toll-Free 24/7 Technical Support  
with Alienware On-Site Home Service  
AlienAutopsy: Automated Technical Support  
Personalized Owner's Manual  
Optimized & Configured for High-Performance  
FREE Alienware® Custom Mouse Pad

**\$2,799.00**

# ALIENWARE®

Custom Build your Dream Machine at [WWW.ALIENWARE.COM](http://WWW.ALIENWARE.COM)  
For More Information Call Toll Free: 800.494.3382

Intel, Intel Inside Logo, and Pentium are registered trademarks of Intel Corporation. Prices, configurations, and availability may change without notice.



# NEW PRODUCTS

EDITED BY ANNE B. McDONALD

## IE Alternatives: Three New Contenders

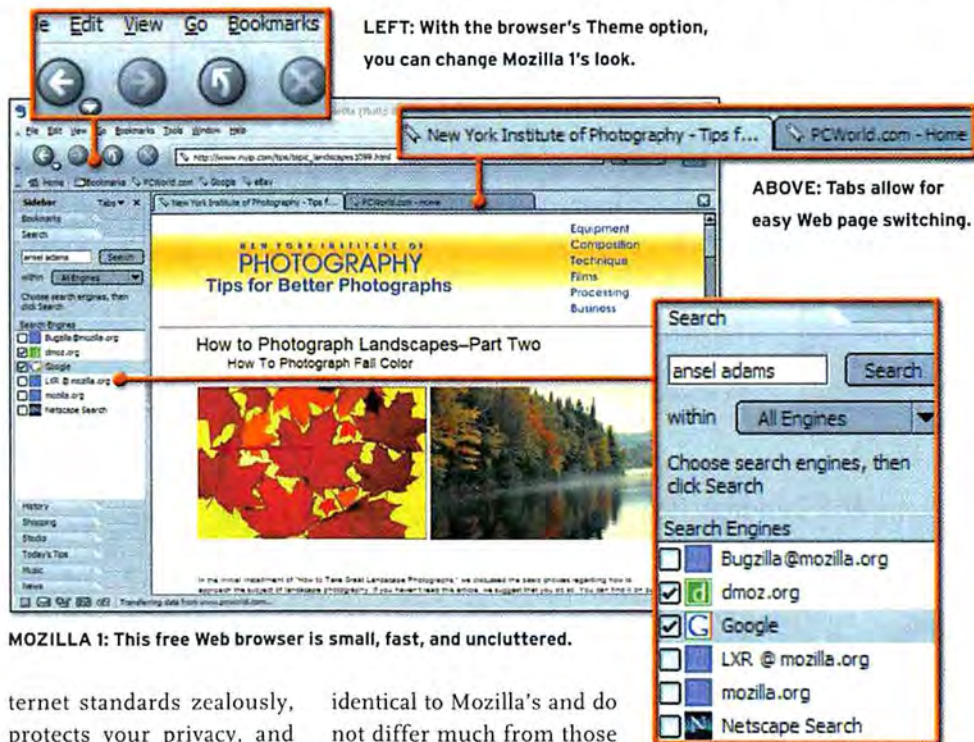
### WEB BROWSERS

WHO NEEDS another browser? Even Microsoft has run out of meaningful ways to improve Internet Explorer, which an overwhelming majority of Web surfers use. Then why should you consider switching? Well, you might want a non-Microsoft browser. Or you might be a chat fanatic and a streaming-media hound looking for one-stop surfing.

Either way, three new major alternatives are here: **Mozilla 1**, **Netscape 7**, and RapidMedia Networks' **RapidBrowser XP**. (A fourth alternative is Opera. For our assessment of Opera 6—the most recent significant upgrade of this inexpensive browser—see our review at [find.pcworld.com/30131](http://find.pcworld.com/30131).)

### FRATERNAL TWINS

MOZILLA 1 and Netscape 7, which are closely related, offer few features that IE doesn't—the only obvious one is the novice-friendly Composer Web-design module. But they have one thing Microsoft's browser will never have: the open-source cachet. Designers involved in the Mozilla project have labored for years to build, from the ground up, an Internet suite (browser, e-mail, and chat) that takes little room, loads pages fast, supports In-



LEFT: With the browser's Theme option, you can change Mozilla 1's look.

ABOVE: Tabs allow for easy Web page switching.

MOZILLA 1: This free Web browser is small, fast, and uncluttered.

ternet standards zealously, protects your privacy, and doesn't clutter your system with unwanted add-ons or come-ons. Although Mozilla has no frills and still contains some very minor bugs, it largely delivers on that promise. If you want a grassroots alternative to Microsoft's vision of what the Web should be, this browser is it.

Netscape 7 (I looked at Preview Release 1) is Mozilla plus extra chrome, tail fins, flashing lights, and a few noticeable interface bugs. Based on the Mozilla source code, most of Netscape 7's features are

identical to Mozilla's and do not differ much from those offered in Netscape 6.2.

Version 7 incorporates various small improvements, but the new features most Netscape 6.2 users will notice are the Opera-style tabbed browser interface (which lets you display and switch among multiple pages in a single open Netscape window), new search options, an Internet radio player with a cleaner interface than the included (and more powerful) Winamp player has, and the ability to save whole Web pages in a single step for offline viewing. And Compos-

ABOVE: Many search engine links can be shown at one time.

er's ability to upload files to servers finally works, too.

Netscape differentiates its browser by building in links to its services (the My Netscape portal, for example), replacing Mozilla's generic Internet Relay Chat client with Netscape Messenger (an AOL Internet Messenger clone), and bundling Net2Phone's Internet telephony client. You can customize the look of Mozilla or Netscape 7, and you can dis-



## 68 WEB BROWSERS

Mozilla 1, Netscape 7 Preview Release 1, RapidMedia Networks RapidBrowser XP

## 70 NETWORKING

U.S. Robotics 22Mbps Wireless Access Point, 22Mbps Wireless PC Card, 22Mbps Wireless PCI Adapter

## NETWORKING

Intel Pro/Wireless 5000 LAN Dual Access Point

## 72 IMAGE EDITOR

Adobe Systems Photoshop Elements 2

## PROJECT MANAGEMENT

Microsoft Project Standard 2002

## 74 NOTEBOOK

Alienware Area-51m

## DIGITAL CAMERA

Toshiba PDR-T10

## MP3 PLAYER

RCA Lyra Jukebox RD2800

## 79 UTILITIES

Aladdin Systems Stuffit Deluxe 7.5, PentaWare PentaZip 5.1

## INPUT DEVICE

A.T. Cross Matrix

## 80 DATABASE SOFTWARE

FileMaker 6

## 82 DATABASE SOFTWARE

AskSam 5



ABOVE: Streaming video is integrated into the main window.

RAPIDBROWSER XP: It costs \$30 but has many heavy-duty features.

play the tabbed MySidebar window (it's called Sidebar in Mozilla) on the left side of the browser screen to organize and display bookmarks, searches, AOL Instant Messenger buddy lists, news, and stock tickers.

## ANOTHER CONTENDER

A THIRD new browser, RapidBrowser XP from RapidMedia Networks, builds on Internet Explorer, transforming it into a multimedia portal geared to broadband users. The tabbed page interface allows you to move quickly among multiple Web pages, but at a cost: Each open page is a freestanding instance of IE, so opening more than six pages that contain

animation (as most banner ads do) can severely bog down your PC. If you get tired of closing windows, just turn the tabbed interface off and view all pages in a single window.

RapidBrowser XP's impressive bundle of tools includes notification about incoming e-mail; a universal chat and instant messaging client that supports the AIM, ICQ, MSN, and Yahoo systems; audio and streaming video players that integrate into RapidBrowser XP's main window; and extensive privacy settings that block

ABOVE: RapidBrowser supports a universal chat and IM client.

both pop-up and pop-under ad pages, encrypt cookies, and erase your browsing history, cache, and search text. It also handles videoconferencing and records video from a PC's TV-tuner card.

All this costs \$30, but RapidMedia Networks offers to pay you \$10 for each person you refer who also pays the \$30 fee—a marketing scheme that is sure to endear you to your friends and relatives. In addition, this browser requires you to log in to the company's portal server every time you want to use the software, which should set off your internal privacy alarm. RapidMedia says, however, that the company doesn't track individual user browsing habits. That sounds very much like a Web site's disclaimer, and Rapid-

Browser XP is basically the front-end software to RapidMedia Network's browsing, chat, and multimedia portal.

## RENDER THIS

ONE KEY browser feature is how well it renders such difficult Web content as complex tables and layouts. I compared the new offerings with Internet Explorer 6 by browsing through dozens of sites, and found that all four performed about the same. The Mozilla-based browsers omitted several Active Server Page elements (both graphics and drop-down menus) on Microsoft's home page, undoubtedly because those elements weren't written with a standard Web technology. (This could happen on any similarly written Web page as well.) And none of the three offers the flexibility of IE's drag-and-drop toolbar.

Fortunately, if you want to experiment, you don't have to choose one over another—I ran all four concurrently on my computer and didn't experience much trouble.

—Scott Spanbauer ▶

### Mozilla 1

Mozilla.org

★★★★★

This open-source browser omits bundled applications that other Internet tools foist on you.

Free

[find.pcworld.com/30047](http://find.pcworld.com/30047)

### Netscape 7 Preview Release 1

Netscape

★★★★★

Mozilla 1's nearly identical twin also sports an AIM-compatible instant messaging client.

Free

[find.pcworld.com/30041](http://find.pcworld.com/30041)

### RapidBrowser XP

RapidMedia Networks

★★★★★

You may be more comfortable assembling your own collection of free or low-cost Internet tools.

List: \$30

[find.pcworld.com/30044](http://find.pcworld.com/30044)



# Double Wi-Fi Network Speeds?

## NETWORKING

WOULD YOU race a Ferrari on a course tailored for a Chevy? That question came to mind as I tested U.S. Robotics' 22-megabits-per-second wireless networking products, based on a Texas Instruments chip that purportedly enables networks to run twice as fast as standard 802.11b (Wi-Fi) wireless devices. Since products that use the TI chip (which is also offered by D-Link and others) claim compatibility with Wi-Fi and future variants, such as 54-mbps 802.11g, they sounded like ideal gear for speed demons on a budget.

I set up a wireless network using a laptop connected to the **22Mbps Wireless Access Point** and a desktop PC connected to a wired four-port router. The access point and the **22Mbps Wireless PC Card** were easy to install, but the **22Mbps Wireless PCI Adapter** was not. The latter houses a removable PC Card, whose release button could barely fit through the opening in the desktop's back plate.

Once set up, the network revved up to over 6.4 mbps, handily beating—although not doubling—conventional Wi-Fi speeds (3.7 mbps to 4.5

mbps). Connecting a second device to the network, however, lowered my average speed to 3.6 mbps.

When I tested the PC Card and the PCI adapter with a conventional Wi-Fi gateway, I got acceptable speeds of about 2.6 mbps. But compatibility is the access point's potential weakness: If even one Wi-Fi client uses the access point, the network's speeds dip to Wi-Fi levels. And with Wi-Fi devices proliferating, someone with a Wi-Fi client inevitably will connect to your network and slow it down. You can secure your network with 256-bit encryption (much stronger than the 40-bit WEP encryption built into conventional Wi-Fi products), but that will also decrease throughput.

In general, Wi-Fi speeds more than suffice for performing everyday tasks such as file transfers and light gaming. So for most users, compatibility limitations and the slightly higher prices charged for USR's 22Mbps products simply don't justify switching from Wi-Fi. The 22Mbps Wireless Access Point costs \$170; most Wi-Fi access points are less than \$150. The 22Mbps Wireless PC Card retails for \$90, while regular Wi-Fi cards cost about \$80. The \$110 22Mbps Wireless PCI Adapter also is about \$10 more than the average Wi-Fi adapter; and since no router is included, you have to make an additional purchase before you can share Internet access. For significantly higher throughput, you might as well spend a little bit more and get 54-mbps 802.11a (Wi-Fi5) products.

### 22Mbps Wireless Access Point, 22Mbps Wireless PC Card, and 22Mbps Wireless PCI Adapter

U.S. Robotics

★★★☆☆

Skip the wireless limbo of 22 mbps and opt instead for 54-mbps 802.11a (Wi-Fi5) gear.

List: Access Point, \$170; PC Card, \$90; PCI Adapter Card, \$110  
[find.pcworld.com/30050](http://find.pcworld.com/30050)



U.S.

ROBOTICS'

22-mbps wireless networking gear.

Notwithstanding the compatibility of these products with current and future Wi-Fi standards, I don't recommend them—especially not the access point, which requires a

pure 22-mbps environment to get its top speeds all the time. After all, what good is a faster engine if you can drive the car only on a closed course?

—Roy Santos

## Two Wireless Nets, One Box

### NETWORKING

IF YOUR growing business wants to give employees fast 802.11a (Wi-Fi5) wireless access to an existing ethernet network while still supporting slower—but more-popular—802.11b (Wi-Fi) equipment, then Intel has a deal for you.

Intel's **Pro/Wireless 5000 LAN Dual Access Point** is the first to support both types of wireless networks, and at about \$550 it's only slightly more expensive than buying an access point for each standard.

In my tests with a shipping

unit, an 802.11a file transfer took slightly longer while an 802.11b file transfer was in progress. But in general, the speeds were about what you'd expect for each wireless variant—somewhat less than half the specified top speeds of 11 megabits per second for Wi-Fi and 54 mbps for Wi-Fi5.

If you've already invested heavily in Wi-Fi access points, you could save money simply by purchasing Wi-Fi5 access points and installing them next to the Wi-Fi boxes. On the other hand, if you're expanding your wireless network and need the superior speed and user capacity of 802.11a, but you don't want to abandon any 802.11b aficionados, the Dual Access Point's approach might justify the small price premium.

—Yardena Arar

### Intel Pro/Wireless 5000 LAN Dual Access Point

Intel

★★★★☆

Good access point if you support two types of wireless networks.  
 Street: \$550

[find.pcworld.com/30122](http://find.pcworld.com/30122)





# ULTIMATE SECURITY IN A VULNERABLE AGE

**McAfee.com SecurityCenter**  
combines a free set of must-have  
security services with simplified  
access to world-class managed  
security products.

**IT'S FREE!**  
DOWNLOAD  
IT NOW AT  
**MCAFEE.COM**



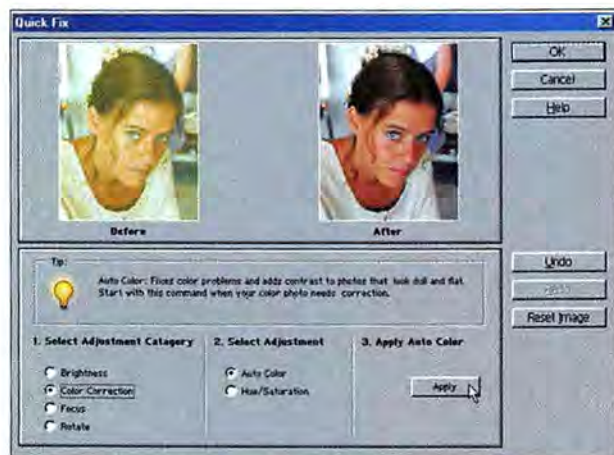


## Adobe Adds to Elements

### IMAGE EDITOR

MOST IMAGE editing applications fall into one of two categories: lousy and not worth the money, or Adobe Systems' \$600 Photoshop. But one,

Adobe's \$99 Photoshop Elements, does a very good job without breaking the bank. I looked at a beta version of **Photoshop Elements 2**, which is even better than the original.



**PRESTO, CHANGE-O:** A Quick Fix dialog box in Elements 2 shows a digital photo's Before and After status and some common repair tools.

A new Quick Fix dialog box in Elements 2 shows you before and after versions of an image, along with several often-used tools. You can find all of the tools elsewhere in the application, but Quick Fix explains what they do and how to use them—and it also gives you a Reset Image button that can take you back to the original image.

The program's File Browser now reads and reports meta-data—image size, resolution, and creation dates. The feature makes renaming and rotating multiple images easy; but as with the earlier version of Elements (and Photoshop 7), you can't move the Browser window outside the Elements application window, which means the interface can get cluttered. It does dock easily in the toolbar, however.

A help search field now perches in the toolbar—so you don't have to open a database to type in a question such as, "How do I correct color?" The application returns several answers; some of these may be Element's Recipes, which are included, or downloadable walk-through instruction sets.

These changes don't constitute a major upgrade to Elements, but the application still beats all other comers. This well-designed, well-thought-out application packs a lot of value for the money.

—Alan Stafford

### Photoshop Elements 2

Adobe Systems

★★★★★

The best image editor you can buy for less than \$600.

Estimated list: \$99

[find.pcworld.com/30038](http://find.pcworld.com/30038)

## Microsoft Project 2002: A Faster Start

### PROJECT MANAGEMENT

AS ANYONE who has used Microsoft Project 2000 knows, this project manager packs in its many tracking features and charting tools as if they were bread and batteries at hurricane time. But the new Microsoft Project 2002 addresses the issue of overload by adding wizards that guide you through every aspect of constructing a plan for a complex

project, monitoring its progress, and finally reporting it.

Once I got my shipping copy of **Microsoft Project Standard 2002** running (the install takes time), I appreciated how quickly I could set up a project plan and specify options. The program retains all of Project 2000's options and offers new Project Guide help tools.

The Project Guide wizards (which appear in a left-side window pane) are all business: Concise instructions usher you through defining a project, listing tasks, setting deadlines, specifying workers and associated costs, choosing calendar templates, and saving a baseline version of the project plan. You can import task lists from Microsoft Out-

look or save multiple baseline estimates for any project.

Project 2002 tracks the way changes to one aspect of a project affect another, slices and dices all the data, and draws

Gantt charts and other graphics for quick e-mail updates or formal presentations.

At \$599, this software is not for individuals tracking everyday work. Instead, corporate workgroups or well-heeled small businesses will benefit.

—Laurianne McLaughlin ▶

### Microsoft Project Standard 2002

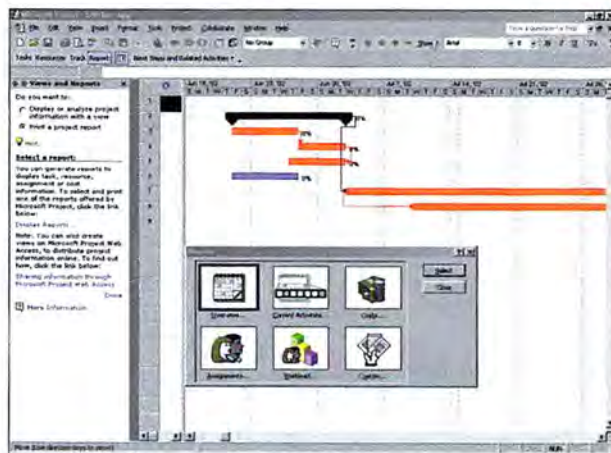
Microsoft

★★★★★

The granddaddy of project managers adds much-needed Project Guide wizards.

List: \$599

[find.pcworld.com/30029](http://find.pcworld.com/30029)



**EASIER:** A NEW Project Guide wizard (left pane) helps you quickly make decisions about when to use Project 2002's numerous features.



The job required that...  
 traffic to get the equipment to the site.  
 systems arrived, "the equipment was so big, it had  
 to be cut in half to get into the freight elevators  
 Then, it had to be put back together."  
 ...are installed, com...

Bob Bauer,  
 President of Liebert Corporation,  
 recalling an installation in Manhattan where the  
 streets had to be closed in order to deliver equipment.  
 (InformationWeek, May 27, 2002)

We can cut your power infrastructure OPEX by  
 up to 20%\* and buildout time by weeks.  
We won't cut your UPS in half.



PowerStruXure™

Had enough of planning and installation  
 headaches in your data center or server room?

Read why the experts say legacy UPS systems  
 just can't compare to new APC PowerStruXure™:

"PowerStruXure systems are pre-engineered, pre-tested, and mostly pre-assembled, dramatically shortening the build time needed for creating a data center to a few days."

Boardwatch (ISPworld.com)  
 June 2002

"Instead of going to different vendors for housings, power cabling, and cable troughs and ladders, you now build your entire power infrastructure from their PowerStruXure kit."

Communications Convergence  
 May 2002

**NEW APC PowerStruXure: Scalable data center  
 architecture for infrastructure on demand™.**

\*Representative savings based on projected power  
 infrastructure buildout costs and estimated service  
 cost per unit. Actual savings may vary.

**APC®**  
 Legendary Reliability™



**FREE!**

**White Paper: "Avoiding Costs from Oversizing Data Center Infrastructure",**  
 you'll also receive the FREE PowerStruXure™ CD: "Presenting PowerStruXure"!

Visit <http://promo.apc.com> Key Code f977y • Call 888-289-APCC x2385 • Fax 401-788-2797

©2002 American Power Conversion. All Trademarks are the property of their owners. PSX2B2EF-USA • PowerFax: (800) 347-FAXX • E-mail: [esupport@apcc.com](mailto:esupport@apcc.com) • 132 Fairgrounds Road, West Kingston, RI 02892 USA



# A (Mostly) Mobile Gaming Laptop

## NOTEBOOK

**TEST Center** WHO THINKS an 11-pound notebook is light? Somebody accustomed to lugging a desktop minitower and CRT monitor around, that's who. Alienware designed its new **Area-51m** notebook for LAN-gaming party attendees and performance junkies who seek even a modicum of portability. This laptop doesn't disappoint.

At a stiff \$2950, however, our shipping unit seemed a tad overpriced, despite packing such impressive features as a 2.4-GHz Intel Pentium 4 desktop chip, 512MB of DDR memory, an ATI Mobility Radeon graphics chip with 64MB of graphics memory, a 40GB hard drive, a combination 8X DVD-ROM and 8X/4X/24X CD-RW drive, a \$73 optional second battery, a 15-inch display, and Windows XP Professional. My informal tests of the Area-51m, using Activision's graphics-heavy *Soldier of Fortune 2*, proved the unit's gaming mettle—as well as the value of its high-resolution LCD. Despite some jaggies (an inherent problem in LCDs) the screen delivered stunning details. From the gently swaying grass fields my game char-

acter tramped through to vivid red pools of blood near vanquished opponents, the Area-51m captured it all without missing a beat of game play.

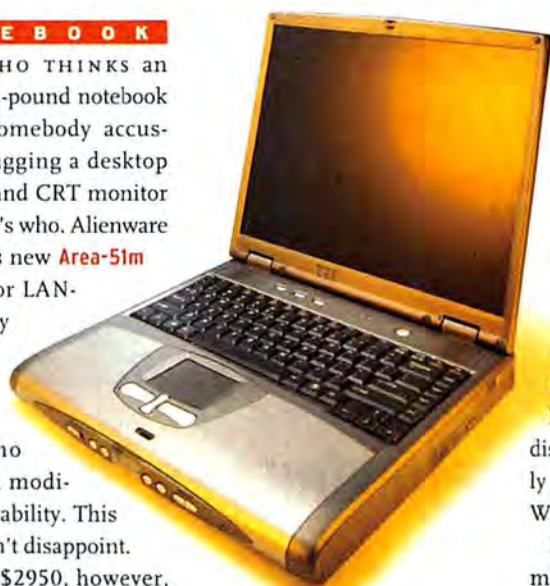
The Area-51m scored an impressive 102 on PC WorldBench 4, second in our Windows XP Pro notebook tests only to a much less expensive

**POWER AND portability:** Alienware's Area-51m.

(\$2199) Micro Express NP 5240 that scored 107. Remarkably similar in configuration and design to the Alienware notebook (except that the NP 5240 relies on SDRAM instead of DDR SDRAM), the Micro Express supports a lower display resolution (which likely helped boost its final PC WorldBench 4 score).

Note: The Alienware is a hot machine—literally. Despite carrying more fans than a sunbelt locker room, parts of this notebook became quite warm during normal usage.

The Area-51m isn't for frequent business travelers. Its generic-looking chassis is a mammoth 13 by 11.4 by 1.7 inches. And even with a second battery, the unit conked out after 3 hours, 4 minutes in



## QUICK TAKES

### Music for a Song

CAN'T AFFORD an Apple iPod? Give the RCA **Lyra Jukebox RD2800** a try. At \$250, the 10GB version of this MP3 player/portable hard drive combo is half as expensive as a comparable iPod. And the 20GB version (\$300), expected by the time you read this, costs from \$50 to \$100 less than competing models from Creative Labs and Sonicblue. The Lyra's controls are just a bit clumsy, but the resulting slight hassle may be worth the savings. The player comes with headphones, a carrying case, and a car kit. RCA, find. [pcworld.com/30020](http://pcworld.com/30020).

—Sean Captain

our tests. But if your idea of networking is to sit in a room and compete with 500 other gamers, you'll find plenty to like here—assuming you can get past the hefty price.

—Tom Mainelli

## Point, Shoot, and Pray

### DIGITAL CAMERA

COMPACT digital cameras save space but often sacrifice fundamental features. Consider Toshiba America's 2-megapixel **PDR-T10**. For under \$300, you get lots of fancy features, including white-balance controls and multiple flash modes. Unfortunately, such basic operations as focusing, framing, and snapping a shot can be problematic.

Still, it's hard not to like this Klondike bar-sized camera, which can tuck neatly into just about any pocket.



THE PDR-T10.

You run the PDR-T10 mainly by tapping icons arranged in logical, linear fashion on its tiny LCD screen—it's the first camera we've seen with this feature, which proved surprisingly easy to use. But you also

must use the LCD's 1-by-1.25-inch active area to frame shots because there's no viewfinder, which is not ideal. The PDR-T10 does store images on a Secure Digital memory card, however, at resolutions of 800 by 600 and 1600 by 1200, and it sports built-in flash plus the usual automatic focus and exposure modes you'd expect.

—Robert Luhn ▶

### PDR-T10

Toshiba America

★★★★☆

Tiny camera is innovative, but taking pictures is challenging.

List: \$299

find.[pcworld.com/30095](http://pcworld.com/30095)

### Area-51m

Alienware

★★★★☆

This gamer-oriented notebook has performance to burn, but it doesn't come cheap.

Street: \$2950

find.[pcworld.com/30035](http://pcworld.com/30035)



**Why settle for getting the most  
bang for your buck when you can get the  
biggest sonic boom for your buck?**







### Gateway® 700S

Loaded with power and style, and an Intel® Pentium® 4 processor that holds the title as the world's fastest, the new 700S is one of the most advanced computers we've ever built. Looking for the ultimate desktop? You've found it. Intel® Pentium® 4 Processor 2.26GHz • 15" LCD Flat-Panel Display • 256MB PC800 RDRAM • 80GB 7200RPM Hard Drive • 128MB NVIDIA® GeForce4 MX440™ AGP Graphics 40X CD-RW Drive and 16X DVD-ROM Drive • Boston Acoustics® BA745™ Speakers • Sound Blaster® Audigy™ Audio with IEEE-1394 • Microsoft® Works Suite 2002 • Microsoft® Windows® XP Home Edition • 1-Year America Online® Internet Access (creation of new account required)\* **\$1499** or as low as \$42/mo. (14.9% APR for 48 mos.)<sup>1</sup>



### Gateway® 500S

Listen to music. Burn CDs. Watch DVD movies. Or get down to business and run spreadsheet and database applications simultaneously. The new 500S with its Intel® Pentium® 4 processor does it all, in one ultrastylish, totally affordable package. Intel® Pentium® 4 Processor 2.00GHz • EV700 17" Monitor (15.9" viewable) 256MB DDR-SDRAM • 40GB 7200RPM Hard Drive • 24X CD-RW Drive • GCS300™ Speakers • Microsoft® Works Suite 2002 • Microsoft® Windows® XP Home Edition 1-Year America Online Internet Access (creation of new account required)<sup>1</sup> **Microsoft® Office XP Standard for Students and Teachers** available free with purchase **\$1099** or as low as \$31/mo. (14.9% APR for 48 mos.)<sup>1</sup>

### Gateway® 300S

Say goodbye to beige behemoths. Because the new 300S is here. With its sleek, spacesaving design, cutting-edge looks and Intel® Celeron® processor, the affordable 300S puts serious desktop style and serious desktop performance well within reach. Intel® Celeron® Processor 1.80GHz • EV700 17" Monitor (15.9" viewable) • 256MB DDR-SDRAM • 40GB Hard Drive • 24X CD-RW Drive • GCS300 Speakers Microsoft® Works Suite 2002 • Microsoft® Windows® XP Home Edition 1-Year America Online Internet Access (creation of new account required)<sup>1</sup> **Microsoft® Office XP Standard for Students and Teachers** available free with purchase **\$899** or as low as \$25/mo. (14.9% APR for 48 mos.)<sup>1</sup>



**Introducing the new Gateway desktops and notebooks.** "We give you the biggest bang for your buck." Now that's an overused marketing cliché. But honestly, why stop there? At Gateway, you'll always get a new desktop or laptop that's chock-full of the latest, most supersonic

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. Not responsible for typographical errors. TO AVOID BEING CHARGED A MONTHLY FEE, CANCEL BEFORE PROMOTIONAL PERIOD ENDS. Promotional period begins 30 days from receipt of system. You may incur surcharges even during promotional period for premium services, or long-distance charges on your phone bill, depending on location and calling plan. Communication surcharges may also apply with some access numbers and in AK. For details and access numbers call 1-800-846-2000. Check with your local phone company to determine whether the access number you select is a local call for your calling plan. New U.S. members



### Gateway® 1450SE

Affordable, yet more than capable, Gateway's 1450SE, powered by an Intel® Celeron® processor, is the smart choice for the busy student or the value-minded professional. 14.1" XGA TFT Active-Matrix Display • Mobile Intel® Celeron® Processor 1.20GHz • 128MB SDRAM • 20GB Ultra ATA Hard Drive • Integrated 8X DVD-ROM Drive • Internal V.92 56K Modem and 10/100 Ethernet • Internal IEEE-1394 FireWire® • 4X AGP 8MB Video Memory • Microsoft® Works Suite 2002 • Microsoft® Windows® XP Home Edition • 1-Year Limited Warranty. **Microsoft® Office XP Standard for Students and Teachers** available free with purchase.

**\$999** (after \$100 mail-in rebate\*) or as low as \$28/mo. (14.9% APR for 48 mos.)†



### Gateway® 400L

Stylish. Affordable. And beneath its cutting-edge exterior lies the world's most cutting-edge processor: the Intel® Pentium® 4 processor. Finally, a laptop that's both heavy on the handsome and light on the wallet. 14.1" XGA TFT Active-Matrix Display • Intel® Pentium® 4 Processor 2.00GHz 7.2 lbs. and 1.58" thin • 256MB DDR Memory • 20GB Ultra ATA Hard Drive • Integrated DVD/CD-RW Combo Drive • Internal V.92 56K Modem and 10/100 Ethernet • Internal IEEE-1394 FireWire • ATI® Mobility™ Radeon™ Graphics with 16MB DDR Video Memory • Microsoft® Works Suite 2002 • Microsoft® Windows® XP Home Edition • 1-Year Limited Warranty. **Microsoft® Office XP Standard for Students and Teachers** available free with purchase.

**\$1599** (after \$100 mail-in rebate\*) or as low as \$45/mo. (14.9% APR for 48 mos.)†



### Gateway® 200

On its docking station, it's a heavy hitter that rivals the most advanced desktops. Need to hit the road? Pull a lever and -voilà!- the 200 turns into the lightest, slickest laptop we've ever made.

12.1" XGA TFT Active-Matrix Display • Mobile Intel® Pentium® III Processor 933MHz - M • 3.00 lbs. and 0.94" thin • 256MB SDRAM • 20GB Ultra ATA Hard Drive • Modular 3.5" Disk Drive and 16X CD-RW Drive in Base • 8MB 2X AGP 3D Video with Intel Dynamic Video Memory Technology Internal V.92 56K Modem and 10/100 Ethernet Internal 802.11b Wireless Connectivity • Microsoft® Works Suite 2002 • Microsoft® Windows® XP Home Edition • 1-Year Limited Warranty.

**\$1999** (after \$100 mail-in rebate\*) or as low as \$56/mo. (14.9% APR for 48 mos.)†

technology, at an equally earthshattering price. If that doesn't send shock waves through your system, what will? To find out more, visit your local Gateway® store or call 1-800-555-2099.



**Gateway®**

gateway.com AOL Keyword: Gateway

18 and older only. Major credit card or checking account required. Use may be limited, especially during peak usage. \*Monthly payment estimated, based on standard system price (excluding shipping/handling/taxes) 48-month term, and 14.9% APR. The APR is not guaranteed and may change. Actual payment amount and repayment term may vary. †Only available to full- or part-time students, faculty and staff. Offer ends 9/31/02. ‡Maximum data transfer rate dependent upon multiple variables. Limited warranties and service agreements apply, visit gateway.com or call 1-800-846-2000 for a free copy. \*For more information about rebate offer, log on to www.gateway.com/rebate or call 1-800-846-4768. ‡Weight varies with options.



# Every sonic boom has an aftershock.



## Microsoft® Office XP Standard for Students and Teachers<sup>9</sup>

Free with purchase of select systems (a \$149 value). Special offer for students and teachers only.

Includes four Microsoft® Office XP programs:

- Microsoft® Word
- Microsoft® Excel
- Microsoft® Outlook®
- Microsoft® PowerPoint®



## Broadband

Buy any Gateway PC powered by the Intel® Pentium® 4 processor, get a cable modem and save up to \$240.\*

## Wireless

Purchase a Gateway Mobile Intel® Pentium® 4 Processor-M-based notebook or broadband Internet service<sup>5</sup> and get a complete Wireless Home Network Solution for \$299 with installation.



## Accessories for Portables

### Accidental-Damage Protection<sup>10</sup>

Safeguard your mobile technology investment against costly repairs due to unintentional damage, such as drops, spills, power surges and natural disasters. One year — \$119.

### Targus Backpack — \$79

Made of heavy-duty nylon, this backpack is built for strength, comfort and superior protection.

## Office Productivity online learning subscription<sup>8</sup> — \$99

A powerful collection of courses that will enhance productivity within your office. This learning tool helps you master common applications, Microsoft® Office, Corel® Office and the fundamentals of operating systems.

**1-800-555-2099**

Gateway® PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)



**Gateway**

gateway.com AOL Keyword: Gateway

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. Not responsible for typographical errors. Savings based on total cost of cable modem, installation and promotional period of broadband service, which are all included with offer. These costs vary by market and customers. Actual savings will depend on the provider offerings available in their area. Offer available to new broadband cable residential customers located in broadband cable-served and serviceable areas only. Call 1-800-555-2099 for details. Monthly service charges may apply. Cable Internet Service sometimes varies per market and may not be available to some TV customers. See [www.gateway.com/home/programs/broadband](http://www.gateway.com/home/programs/broadband) or call 1-800-555-2099 for complete offers in your local market. Transfer fees and taxes are not included. This offer not available in all markets. Excludes open. Visit [gateway.com](http://gateway.com) or call 1-800-555-2099 for a free copy of applicable terms and conditions. Not available in all states. Prices and services subject to change without notice. Instructional courses subject to availability. Students may be required to purchase course materials, and will need internet access. Gateway is not responsible for any connection charges. Gateway training is not offered as vocational or job training. ©2007 Gateway, Inc. All rights reserved. Gateway, the Gateway logo and the Black and White Spot Design are trademarks or registered trademarks of Gateway, Inc. in the U.S. and other countries. The Intel Inside Logo, Intel, Pentium and Celeron are registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. America Online and AOL are registered trademarks of America Online, Inc. All other brands and product names are trademarks or registered trademarks of their respective companies. Ad Code: 009226



# New Compression Software: Zip It Good



ALADDIN SYSTEMS' StuffIt Deluxe 7.5 offers 128-bit encryption and also permits you to exchange compressed files with Macs easily.

## UTILITIES

HEAVY USERS of compressed documents and any users who would like to preview zipped files before opening them will be interested in the new versions of PentaWare's PentaZip and Aladdin Systems' StuffIt Deluxe. Both packages let you automate and schedule file compression chores, so you can archive the contents of a particular folder with a single click—or at a set time

### PentaZip 5.1

PentaWare

★★★★☆

Some nice features, but annoying quirks and a high price make this a less-than-ideal compression-management package.

List: \$60 retail, \$50 download  
[find.pcworld.com/30017](http://find.pcworld.com/30017)

### StuffIt Deluxe 7.5

Aladdin Systems

★★★★☆

Decent compression tool adds strong encryption and Macintosh file system support.

List: \$40; Standard version \$25  
[find.pcworld.com/30018](http://find.pcworld.com/30018)

every day. I looked at shipping versions of both, which also handle compression basics, allowing you to create and restore archive files in .zip and other formats, either within the programs themselves or via Windows Explorer's right-click menu. Unfortunately, flaws make each application less than perfect.

## NEW VIEWER

AT \$60 (\$50 for a download version), **PentaZip 5.1** is overpriced, but it carries an excellent file viewer—a useful feature I haven't seen before in a compression program. You can view all sorts of files, copy the contents to the Windows Clipboard, change graphics file formats, and even alter and save a file (though not always in the original format).

But PentaZip behaves in some annoyingly odd ways. For instance, it—like most compression programs (including StuffIt)—lets you zip and mail one or more files from within Windows Explorer, but you can't always opt to

have an archive automatically deleted once your mail is sent.

In addition to handling .zip and other common PC files, **StuffIt Deluxe 7.5** supports several proprietary compression formats. One of these, .sit, was developed for the Apple Macintosh and manages file name, attribute, and datafork issues as you exchange files between the two platforms. The other format, .pf, offers 128-bit encryption, a decided security improvement over the easily hacked password protection in .zip files.

The \$40 StuffIt Deluxe also includes a Microsoft Office add-in that provides easy compression from inside Office 2000 and Office XP applications.

## AUTOMATED ARCHIVES

BOTH PENTAZIP and StuffIt offer scripting and scheduling—rare features in archiving tools. By permitting you to define in advance what you want compressed and when it should happen, both packages seem to have potential as reasonably useful backup tools.

Unfortunately, neither program can do a proper incremental backup of files created or changed since the last backup. Both programs can perform date-based incremental backups—replicating files that were created or changed within the last *x* days—but such backups can be unreliable.

For the record, PentaZip's automation is easier to set up, but StuffIt's is more powerful. Each program comes with a terrific self-extraction utility for turning an archive into an .exe file. Both, for instance,

## QUICK TAKES

### Stylish Stylus/Pen

TIRED OF PECKING at your PDA with a little plastic stick? Find it hard to juggle a stylus and a pen at the same time? A.T. Cross is now shipping the ultimate handheld multitasking tool. The clever **Cross Matrix** pen's sleek anodized aluminum sheath acts as a holster for a matte-black, easy-to-grip stylus tip that you can pull out, turn around, and reholster to reveal a high-quality fountain or rollerball point (you get to choose). Give the \$80 Matrix's top tip a twist to the right or left, and a ballpoint with either red or blue ink



appears—so you can still scribble when the stylus point is in use. A.T. Cross, [find.pcworld.com/30039](http://find.pcworld.com/30039).

—Anne B. McDonald

allow you to specify what folder the files will expand into—they also let you turn that control over to the recipient.

If you don't need a powerful self-extractor, however, you can spend less. Despite lacking automation and self-extraction features, StuffIt Standard, \$25, is worth considering if you exchange files with Mac users or need very secure encrypted compression.

But otherwise, WinZip is the best all-around compression tool. Though it doesn't offer automation or scheduling, a free add-on called WinZip Command Line does—provided you have the time to learn how to use it.

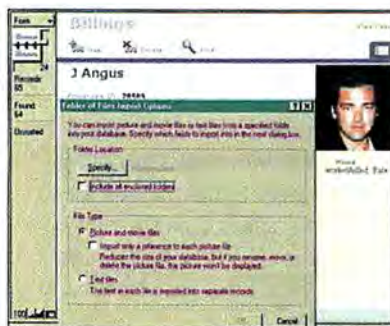
—Lincoln Spector ►



# FileMaker 6 Gets Graphic

## DATABASE

MORE THAN ANY competing database product, FileMaker's FileMaker is suitable for end users who need simple data storage and retrieval, as well as for people who have the scripting skills needed to automate more-complex processes.



IMPORT sets of images with FileMaker 6.

I looked at a beta version of the new **FileMaker 6**, which incorporates its predecessor's outstanding usability, multi-platform capabilities, and superior graphics handling.

Version 6 lets you effectively manage graphics; for example, it permits you to import an entire set of images at once from digital cameras or folders. It also has Windows XP compatibility and can write and read XML streams, so users can integrate the product with other enterprise databases. That feature alone makes buying or upgrading to this ver-

sion worthwhile for businesses that are adopting a data-interchange model. An organization's support staff could set up the beginning users—who analyze or interact with database-stored information—and give them a FileMaker window into Microsoft Access, an enterprise resource-planning data source, or SQL.

This version does fail to correct two shortcomings of its predecessor. The program still lacks data-entry masks; and because it doesn't apply data validation (which it uses in data-entry screens) to batch imports, you must clean up or filter newly imported data.

Other features new to version 6 are tactical improvements, such as a search-and-replace function and a format

"painter" that Microsoft Office users will recognize. The new model for complex searching, which allows you to use compound criteria, seems faster to me than the old model. And designers have contributed 21 customizable templates for basic business, education, and home data applications (covering such areas as time billing, purchase orders, and an image catalog), so you can quickly set up the database you want.

—Jeff Angus ▶

## FileMaker 6

FileMaker

★★★★☆

Not a must-have upgrade of the popular database program, but it has many usable new features.

List: \$149, upgrade \$89

[find.pcworld.com/30026](http://find.pcworld.com/30026)

# To Serve and to Protect



for secure email communication

- Server based virus scan control, available with integrated anti-virus powered by McAfee Security
- Encrypted mail delivery
- Attachment and subject filtering
- Remote Access of Email via IMAP, WAP and WebMail
- Anti-spam protection
- Windows, Linux RedHat

 **KERIO**

 **McAfee**  
SECURITY

Download the 30-day trial

[www.kerio.com](http://www.kerio.com)



# Recordable DVD from the leader in digital media.

Perfect for those who need their space.

When it comes to data-intensive storage, two things come to mind: Memorex and DVD. Why Memorex DVD? Over the past two years, more people have trusted and purchased Memorex optical media than any other brand in the world. And with a complete line of DVD formats, each offering 4.7 GB of space, we can help you transfer or store anything off your hard drive—even full-length videos. So if mammoth capacity, quick access rates and bulletproof reliability sound like the solution to your storage problems, we suggest you log onto [www.memorex.com](http://www.memorex.com). Because Memorex DVD is—you guessed it—BIG.



**Memorex®**  
Is it live or is it Memorex?™



# Get Attached to AskSam 5

## DATABASE

DATA, LIKE LIFE, comes in structured and unstructured incarnations. Logically, data storage should, too, and AskSam is the rare database that handles both gracefully. I examined a preproduction copy of the new **AskSam 5**.

AskSam allows you to store complete documents in their original form rather than requiring you to chop them up and distribute their contents into individual fields. Though you can edit individual records just as if you were using a word processor, you get the added benefit of powerful search-and-retrieval tools, as well as the ability to connect

information in different documents by creating hyperlinks.

With AskSam 5 you can relate information by attaching a document to a record, just as you would to an e-mail message. You also get more import abilities with this version: You now can import PDF files and messages (with or without attachments) from e-mail clients such as Microsoft Outlook and Outlook Express, as

### AskSam 5

AskSam Systems

★★★★☆

Allows you to attach complete documents to database records.

List: \$90

[find.pcworld.com/30023](http://find.pcworld.com/30023)

well as Qualcomm's Eudora. Each imported message, which you can bring into the database using the File menu's Import Email command, becomes one database record.

Organizations that need to store knowledge data (sales, design, competitive intelligence, and research groups) will find that AskSam 5's new hyperlinks to external files are extremely valuable for managing database size and for sharing ever-changing files over a network. Such groups will also appreciate the software's ability to save and share search-process descriptions, which improves the speed and the accuracy of



ASKSAM searches its information intuitively.

recurrent searches that use the same criteria—say, for sales-figure updates.

In short, AskSam 5 database software enables users and workgroups that need to share unstructured information (as well as forms) to think and produce in new ways.

—Jeff Angus ■



**Networking Kit**  
w/1,000' CAT5 Cable, RJ45 Ends,  
Crimper, & Cable Tester



**760.726.7700**

9am - 4:30pm Pacific Time M-F  
24/7 Online Ordering  
Online Package Tracking  
Online Order History  
Fast, Safe, Secure  
APO/FPD O.K.I

# www.computergeeks.com

Personal Digital  
Multimedia Player



**\$199.00**

Kyro-II 64MB 4X AGP  
Video Card with TV-Out



**\$28.95**

Intel Play QX3+ USB  
Microscope w/Software



**\$28.50**

DVD-R Media in  
Jewel Case



**\$1.75**

Powmax 650VA/440W  
110V UPS



**\$42.00**

800x600 Digital Camera w/Flash  
(choose blue or silver)



**\$23.50**

350 Watt P4/Athlon ATX  
Mid-Tower Case



**\$24.95**

56X UDMA/33 IDE/ATAPI  
CD-ROM Drive



**\$21.00**

Western Digital 15GB  
ATA/100 Hard Drive  
(refurbished)



**\$39.00**

56K V.90 USB  
Data/Fax/Voice Modem



**\$14.50**

Use this coupon code during checkout to receive the pricing indicated in this ad

## SECRET SAVINGS CODE: GEEKWORLD

This is sample of our large inventory and blow-out pricing. We do not mark up shipping rates above publicly available UPS and FedEx rates. ComputerGeeks.com is a leading direct to consumer e-tailer specializing in providing excess inventory, manufacturer closeouts, unique and high-demand computer-related components and peripherals at deeply-discounted prices to tech-savvy, "geeky" consumers - you know who you are! We are in our sixth year of operation and ship thousands of orders each business day. All products on our site are in stock in our warehouse, ready to ship and include a warranty. ComputerGeeks.com is committed to bringing you the hottest deals, the best service and the best e-shopping "Geekexperience" on the Net!

Please visit our website for a complete list of products and pricing. Our real-time inventory system ensures that everything on our site is in stock, and calculates shipping charges dynamically based on products, shipping method, and destination. Visit our site regularly for Daily Specials, and sign up for our GeekMail e-newsletter for subscriber-exclusive offers and discounts! Don't be a dork... Shop @ The Geeks!



**America Online Keyword: computergeeks**







## cutting-edge performance

HP offers cutting-edge performance with customized Pavilion PCs. Start by choosing a powerful AMD Athlon™ XP processor, then select RAM, hard drive, video card and CD/DVD-writer options. Navigate through your daily work projects or play "on the edge" games with ease. Check out the sample system below, then go build your own!

- 1.80 GHz AMD Athlon™ XP 2200
- 80GB Ultra DMA hard drive
- 512 MB DDR RAM
- 64MB NVIDIA GeForce MX420 Video Card
- DVD-writer + CDRW drives

only \$**1,299.99\*\***

(as low as \$38.97/mo)

buy now - pay \$0 until 2003\*



**hpshopping.com**

visit us online or give us a call  
**1-888-345-5409**

**SAVE 10% off any desktop or notebook PC on hpshopping.com**

At Checkout, insert coupon code **SV7666**. Coupon expires **9/15/02**.

Valid for hpshopping.com purchases only. Each coupon code is limited to one usage per customer; one coupon per product. Offer void where prohibited, taxed or restricted by law. Non-transferable. Not valid on instant rebates or clearance sales. Not retroactive on previously purchased items. For complete coupon conditions, see "Coupon Information" in the "Help" section.

\* Limited time offer. Subject to credit approval. See hpshopping.com for details.

\*\* Price, product availability and promotions subject to change without notice. See hpshopping.com for details.



# INSTANT GRATIFICATION

**F**ashion photographer and art director Patricia Martine knows the value of immediate results.

Martine, whose clients include Talbots, Macy's, and Nine West, works with models who earn as much as \$2,500 per day. "For each pose, I'll take between 20 and 30 photos. And I want to know immediately if I have images that I can use, or if I have to re-shoot them," she says.

Instant feedback is why Martine, like most other professional and casual photographers, "does digital." But that's just one of many reasons to acquire a digital camera. The ease of posting an image of something you're selling on eBay, e-mailing your mother a family picture, posting a product photo on your Web site, and eliminating the hassle and cost of developing film are some of the many others.

If you're planning to buy or upgrade to a feature-rich digital camera, what are the most important things to consider? Price? Convenience? Image quality? The "coolness factor"? Why not get them all? Olympus's new C-4000 Zoom, a compact four-megapixel

digital camera, sets a new standard for delivering rich, vivid images and deep, saturated colors with razor-sharp clarity. And it's loaded with features, such as an all-glass 6.5mm-19.5mm, f2.8-f11 3X optical zoom lens, coupled with a 3.3X digital zoom that delivers a 10X total zoom capability. Capable of producing sharp prints in sizes up to 11" x 14", the C-4000 provides an outstanding combination of



▲ Loaded with features, the new Olympus C-4000 Zoom digital camera is compact and a great value.

features at a price point that will set a new standard for value—less than \$500.

## When Less is More

Today's cameras offer more of everything, except bulk. When size and weight matter, Olympus has plenty of experience delivering heavyweight features in a lightweight shell. Consider, for example, another of their advanced cameras, the 11-ounce, three-megapixel C-720 Ultra Zoom. Designed for the photographer who is ready to move up to a more powerful camera, the C-720 features a high-quality 8X



▲ The 11-ounce, three-megapixel C-720 Ultra Zoom, for the more serious photographer.

optical ultra-zoom lens (24X total seamless zoom) plus a 1/1000th-of-a-second shutter speed, making it ideal for recording sports, action, and nature scenes. Like the C-4000, the C-720 uses removable SmartMedia cards to hold hundreds of high-resolution images, enabling you to take multiple shots of each scene without any worry of running out of storage.

## A Pro's Suggestions

"Some of the best techniques can add drama and visual interest to images with very little effort. Everyone should try experimenting with them," says professional photographer and art director Patricia Martine. Her recommendations include:

- Keep your subject off-center. Consistently centering subjects can indicate a lack of creativity.
- Compensate for the off-center subject with focus. For example, keep the subject sharp and blur the background.
- Get close to the subject. Too much background tends to distract and confuse the eye.
- Instead of straight-on shots, try left and right quarter angles to provide highlights.
- Outdoors, place a reflector under the subject's chin to eliminate eye shadows caused by the sun.





**Is your digital camera giving you the most realistic images?**

With up to 10x optical zoom, the Olympus CAMEDIA C-700 and C-720 Ultra Zoom cameras create picture quality so real, your images come to life. Faraway subjects are brought in close for detailed pictures, even in 8x10 prints. Combine this with up to 3 megapixels and an advanced Color Management System for accurate colors, plus a lens designed specifically for digital photography, and the result is crisper, more realistic images.



[olympusamerica.com/digital](http://olympusamerica.com/digital)

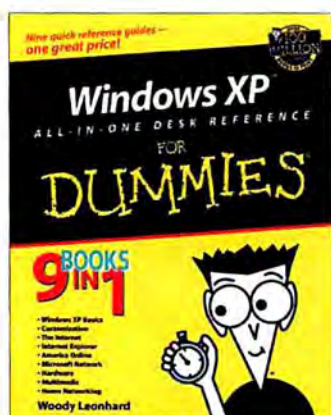
*The C-720,  
with 3  
megapixels  
and 8x  
optical zoom.*

The C-700 and C-720 feature a powerful optical zoom lens and ultra-compact body. And Auto Connect USB to easily download and share the most realistic digital images yet. **Nothing's impossible.**

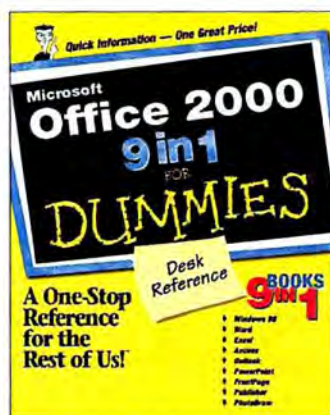


# FOR DUMMIES

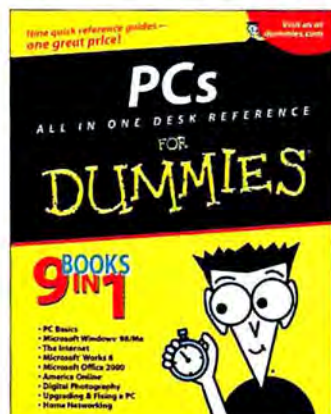
**All-in-One  
Desk Reference—  
all you  
need to tackle  
technology!**



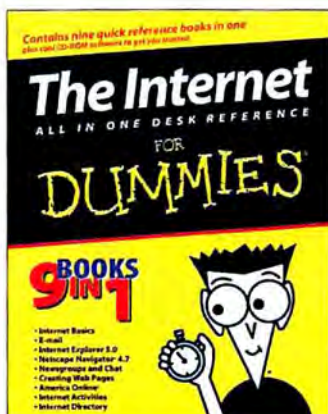
0-7645-1548-9 • \$29.99 • 768 pp.



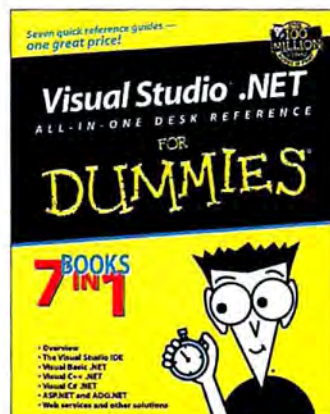
0-7645-0333-2 • \$29.99 • 824 pp.



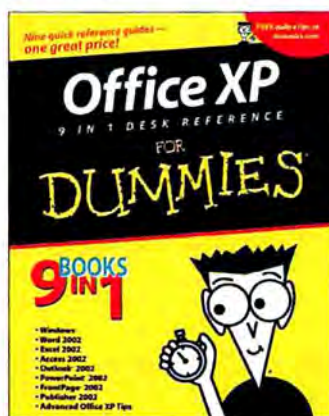
0-7645-0791-5 • \$29.99 • 730 pp.



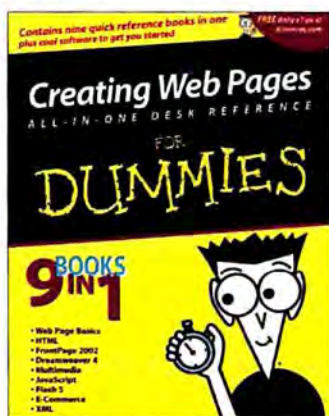
0-7645-1659-0 • \$29.99 • 730 pp.



0-7645-1626-4 • \$39.99 • 960 pp.



0-7645-0819-9 • \$29.99 • 824 pp.



0-7645-1542-X • \$34.99 • 836 pp.

## COMING SOON

**CCNP All-in-One Desk Reference For Dummies**  
0-7645-1648-5 • \$49.99 • 1,104 pp.

**XML All-in-One Desk Reference For Dummies**  
0-7645-1653-1 • \$34.99 • 850 pp.

**Photoshop 7 All-in-One Desk Reference For Dummies**  
0-7645-1667-1 • \$34.99 • 900 pp.

**MCSA All-in-One Desk Reference For Dummies**  
0-7645-1671-X • \$49.99 • 816 pp.

Visit us at [www.dummies.com](http://www.dummies.com)

**WILEY**



FREE Seminar!

# You've Got More Power Than You Think!

## Networking for Small and Midsize Businesses: Designing and Managing an Enterprise-Class Network

### In just one day, discover:

- ▶ How to make the most of VPN products and services to connect with remote workers, suppliers and partners
- ▶ Strategies for protecting small and midsize networks
- ▶ The pros and cons of rolling out voice over IP in smaller networks
- ▶ What you need to know to choose the appropriate server and operating system for your business' needs
- ▶ How to avoid wire-line hassles with wireless LANs
- ▶ How to implement managed services without giving up network control
- ▶ The ins and outs of ROI analysis

### Learn From the Experts!

**Jim Metzler**, president of Ashton, Metzler and Associates, joins PCWorld's editors and leading networking vendors to show you what technologies, products and services will give your company a competitive edge.

Register today at  
[www.networkworld.com/events/smb/register.jsp](http://www.networkworld.com/events/smb/register.jsp)  
or call 1-800-643-4668

### Join Us in One of These Convenient Seminar Locations:

September 4  
New York, NY

September 18  
Dallas, TX

September 5  
Westboro, MA

September 19  
San Jose, CA

This event is limited to qualified IT professionals currently involved in the evaluation and purchase of network products and services. Network World reserves the right to determine the total audience profile.

### BONUS - You Could Win \$200!

Register for a chance to win a \$200 American Express Gift Cheque. You must be present at the 3 pm drawing to win!

Produced by:

**NetworkWorld**  
**SEMINARS&EVENTS**

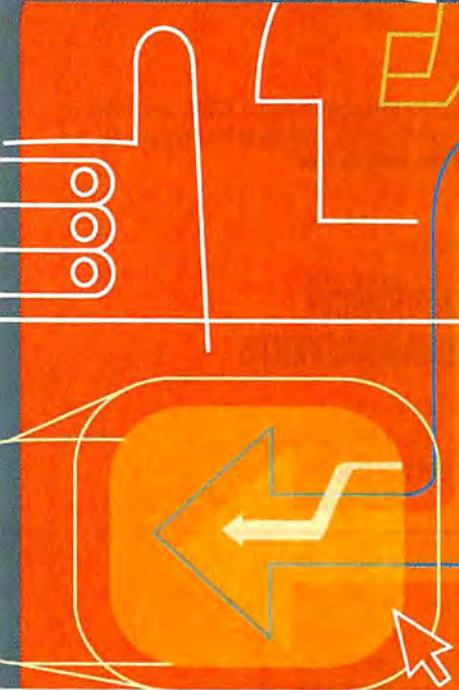
**PC WORLD**  
**CONFERENCES**

### Platinum Presenting Sponsors





# 2002 BUYERS'





# GUIDE

The complete guide to what to buy and where to buy it.

EDITED BY ALAN STAFFORD  
AND THE STAFF OF PC WORLD

"WHAT SHOULD I BUY?" *PC World* editors and lab technicians get that question frequently. But even we can't keep up with every computer product, so our monitors expert will ask our printers expert which new ink jet works best for photos, and the printers expert will ask the PDA expert, "Palm or Pocket PC?"

You probably ask the same questions we do. Our first-ever Buyers' Guide issue has answers for 17 of the most important types of computer products. These guides evaluate the latest models, explain their specs, and tell you what to look for when you shop.

For example, investigate whether the new notebook you're considering uses a mobile CPU or one designed for a desktop system (and whether it has the wind tunnel needed to cool it). How long does that rewritable DVD drive take to format a disc? How many shots will that digital camera take before its battery gives out? And how do these models compare to others?

Our guides rank more than 85 products (for even-more-comprehensive charts and reviews, visit [find.pcworld.com/30161](http://find.pcworld.com/30161)). And check out "Such a Deal? The Best and Worst Places to Buy on the Web" on page 140 before you're drawn to the checkout line. ►

## The Box



- 90 Office & Home PCs
- 94 Notebook PCs

## Inside the Box



- 98 CD-RW Drives
- 100 Rewritable DVD Drives
- 102 Hard Drives
- 104 Graphics Boards
- 106 Motherboards

## Outside the Box



- 112 Home Networking Gear
- 116 Broadband
- 118 Printers
- 120 Monitors
- 122 Scanners

## Beyond the Box



- 128 Digital Cameras
- 130 DV Camcorders
- 132 PDAs
- 134 Wireless Phones
- 136 MP3 Players

## Best Online Stores



- 143 Selection
- 144 Usability
- 144 Price
- 145 Service
- 146 Delivery
- 148 Refunds

PHOTOGRAPHS BY MARC SIMON  
ILLUSTRATIONS BY CELIA JOHNSTON





## The Box

Buying a desktop or a notebook computer, whether for business or for home, depends on far more than just the processor. Carefully look at each component to make sure it suits your needs.

## Office & Home PCs

**WHAT MATTERS:** Even inexpensive PCs are very capable and now boast many features that were once exclusive to high-end systems.

TODAY, ALMOST ANY PC on the market can more than adequately handle such standard office chores as word processing and spreadsheets, as well as basic Internet functions like e-mail and general browsing. So for \$1000 or less you can get a PC that will suit most people's needs.

If you're a more demanding user who wants to edit digital video or manage a large database, however, you may need more than the basics. Typically, you won't have to spend more than \$1500 or \$2000 for a system that will suit you today and serve you well for the next few years. The

best way to pay only for what you need is to carefully consider what you want to do with your system now, and try to anticipate what might interest you next year. Specific applications call for certain types of hardware—whether at home or in the office. See "Features Follow Function: How to Tailor Your PC" on page 93 for some examples, and check out our recommendations below for more details.

### Key Features

► **PROCESSOR:** Whether you're looking for a home computer or an office system,



Gateway 700XL

if you plan to use your PC for standard productivity and basic Internet tasks, most any CPU will do. AMD is phasing out its value-oriented line of Duron chips, so toward the end of the year you may find good prices on PCs with this CPU. Also look for budget systems using older Intel Celerons, which run at up to 1.4 GHz. Not only will they be \$50 to \$100 cheaper than PCs with top-of-the-line 1.8-GHz Celerons, but tests by the PC World Test Center show that PCs with the older versions run a bit faster than systems with the new chips: Three PCs with 1.2- or 1.3-GHz Celerons earned an average score of 90 on PC WorldBench 4, while a new 1.7-GHz Celeron unit earned an 83. That's because the new Celeron has half the Level 2 cache that older models do.

If you want more power, Intel Pentium 4 or AMD Athlon XP systems are your best bet. The latest P4 chip runs at 2.53 GHz while AMD's newest Athlon XP 2200+ runs at 1.8 GHz. To save a couple hundred dollars, buy one or two levels below the top—our tests show that for most tasks, you're unlikely to lose more than 5 percent per tier in performance.

Either the P4 or the Athlon XP can support even your most demanding work, such as video editing or high-resolution game play, with ease. PC World tests show that P4 PCs tend to do a bit better than Athlon XP-based systems on multimedia

### FEATURES COMPARISON

| TOP OFFICE PCs |   |   | TEST Center   |
|----------------|---|---|---|
|                | POWER SYSTEM  | Specs   | Comments  |
| 1              | Dell Dimension 8200<br><b>Best BUY</b> ★★★★★<br>find.pcworld.com/29930  | <ul style="list-style-type: none"> <li>• \$2947</li> <li>• 2.4-GHz Pentium 4 CPU</li> <li>• 120GB hard drive, 512MB RDRAM</li> <li>• 17-inch Dell 1720FP LCD monitor</li> </ul>                     | This expensive system offers plenty of processing power, loads of disk space, two FireWire ports, and a DVD+RW drive.                               |
| 2              | Gateway 700X<br>★★★★★ July 02<br>find.pcworld.com/26921                 | <ul style="list-style-type: none"> <li>• \$3098</li> <li>• 2.4-GHz Pentium 4 CPU</li> <li>• 120GB hard drive, 1GB RDRAM</li> <li>• 18-inch Gateway FPD 1810 LCD monitor</li> </ul>                  | Pricy system packs a powerful punch and includes a crisp 18-inch LCD monitor, plus a 40X/12X/48X CD-RW drive and a DVD-RAM/R drive.                 |
| 3              | Micro Express MicroFlex 2100A<br>★★★★★ Aug 02<br>find.pcworld.com/27061 | <ul style="list-style-type: none"> <li>• \$1499</li> <li>• 1.73-GHz Athlon XP 2100+ CPU</li> <li>• 100GB hard drive, 512MB DDR SDRAM</li> <li>• 17-inch Samsung SyncMaster 700NF monitor</li> </ul> | Bargain PC provides high performance using a motherboard with an overlocked CPU. Has a DVD-RAM/R drive and a good 17-inch monitor.                  |
| 4              | ABS Conquest G4<br>★★★★★ July 02<br>find.pcworld.com/27041              | <ul style="list-style-type: none"> <li>• \$1921</li> <li>• 1.73-GHz Athlon XP 2100+ CPU</li> <li>• 100GB hard drive, 512MB DDR SDRAM</li> <li>• 19-inch Hitachi CM715 monitor</li> </ul>            | Powerful PC has four USB 1.1 and four FireWire ports on the front for easy access. The 19-inch monitor rendered good graphics and fairly good text. |
| 5              | Polywell Poly 883VR-2200<br>★★★★★<br>find.pcworld.com/29939             | <ul style="list-style-type: none"> <li>• \$2495</li> <li>• 1.8-GHz Athlon XP 2200+ CPU</li> <li>• 80GB hard drive, 512MB DDR SDRAM</li> <li>• 18-inch Nfren NF-1800MA LCD monitor</li> </ul>        | An excellent performer that's well equipped. It comes with two RAID-connected 40GB hard drives, as well as a wireless keyboard and mouse.           |

Street prices are reported as of 6/14/02. Visit [find.pcworld.com/29951](http://find.pcworld.com/29951) for more rankings and reviews.



tasks such as video and audio encoding, completing these jobs between 10 and 15 percent faster. On the other hand, Athlon XP machines outperform the P4 competition on computationally intensive applications like AutoCAD and Adobe Photoshop by about 15 percent.

You can find low-priced systems with either of these chips, even at top speeds. To pay a lower price, you'll have to sacrifice graphics performance and hard drive size (among other things). Such trade-offs may make sense if you plan to upgrade the other components later or if you need more performance now.

Look for a system with one of Intel's newer 850 and 845 motherboard chip sets for its P4s and Celerons. These boards have a higher-speed frontside bus (533 MHz for the P4, and 400 MHz for the Celeron), so data moves more quickly between the CPU and system memory.

Systems with faster Intel P4s—possibly hitting 3 GHz—should arrive by year's end or early next year. AMD will also release new chips later this year. The new Athlon XPs will have double the Level 2

cache of current models, which should boost performance; and next-generation chips, code-named ClawHammer, will have a faster, more direct pipeline into main memory, again increasing performance. (Go to [find.pcworld.com/30086](http://find.pcworld.com/30086) for more details on Hammer chips.)

► **MEMORY:** To give Windows XP and software like it sufficient room to work, get a minimum of 256MB of RAM. Memory is still fairly cheap, so if you can afford to get more, do it. High-end PCs should

1 GHz). Remember that your motherboard determines what kind of memory you can use—you can't substitute DDR SDRAM for PC133 SDRAM or RDRAM.

PC133 SDRAM, your cheapest option, appears in low-end home and office PCs. It is ubiquitous as well as inexpensive: PCs you already own likely use it, so you may be able to repurpose it in a new PC.

The price difference between PC133 and DDR SDRAM is just a few dollars (and occasionally disappears), however.



Our tests show that DDR memory boosts performance by 5 to 10 percent over PC133 SDRAM.

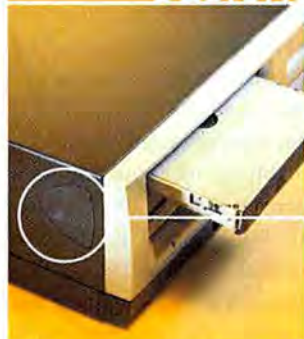
have at least 512MB—that amount lets you keep more apps open and can comfortably handle even memory-intensive programs like Photoshop.

Three main types of memory are on the market today: PC133 SDRAM, faster DDR SDRAM (in 200-, 266-, and 333-MHz speeds), and RDRAM (also known as Rambus, in speeds from 600 MHz to

And our tests show that DDR memory boosts performance—from about 5 to 10 percent—over PC133, so DDR offers the best price-to-performance ratio. For now and into early next year, most motherboards won't be able to take full advantage of DDR333 memory, so you're just as well off buying a system with DDR266. In the next 12 months, Intel should issue a ►

## CLOSE-UP

### DESIGNS THAT SIMPLIFY SERVICING AND UPGRADES



This Compaq Evo 500 has a laptop-like bay to let you swap drives easily.

Side releases give you tool-free access to the interior.



Gateway's E-series systems offer drives that are easy to slide out, which makes upgrades or replacements a snap.

Dell's OptiPlex opens like a clamshell, allowing tool-free access to components. Color-coded cables help minimize service time.





motherboard that supports DDR333; the motherboards for AMD's ClawHammer chips should also support this memory.

RDRAM offers a slight boost in certain apps such as video or music streaming, but it tends to be two to three times more expensive than the other memory types.

➤ **STORAGE:** You'll get at least a 20GB hard drive even in a basic, sub-\$1000 PC. If you're willing to pay just \$20 or so more, you'll likely be able to get a 40GB drive. That's fine for most office tasks or for a second or third home PC. If you plan to work with graphics files, video, or

lower-level GeForce4 MX card with 64MB of RAM, but read the fine print—not all of them will fully support next-generation DirectX 8 games. To record video from your TV, you'll need a card with a built-in TV tuner. (See our graphics card buyers' guide on page 104 for more.)

In the office, unless you're doing high-end graphics work, or Web or multimedia development, integrated graphics should satisfy your needs and save money. Some motherboards with integrated graphics, such as models from Intel or NVidia, provide an upgrade option via an unoccupied

guide on page 120 for more specifics.)

➤ **REMOVABLE STORAGE:** Your most cost-effective and flexible removable-storage option is a CD-RW drive. Even many budget PCs come with CD-RW drives, because they're quite inexpensive. Top-of-the-line drives, which offer up to 48X CD-R speeds and will soon offer 24X CD-RW speeds, cost about \$50 to \$100 more.

Home users may want to substitute a rewritable DVD drive for a CD-RW drive. You still get CD-R/RW functionality—though rewritable DVD drives are much slower than stand-alone CD-RW drives (typically 4X to 10X on CD-R, and 8X to 12X on CD-RW)—and they store at least 4.7GB of data, versus 650MB for most CDs. They also let you create your own video DVDs to play in your living-room DVD player. Some caveats: These drives cost about \$300 to \$400 more than CD-RW drives, and you might not be able to play your newly created discs in older DVD-ROM drives and DVD players. Moreover, there are three competing, incompatible standards. (For details see the DVD drive buyers' guide, page 100.)

➤ **COMMUNICATIONS:** A modem is a must at home, and nearly all PCs come with one. If you have broadband Internet access, you'll need an ethernet connection as well (keep the modem as a backup unless you are desperate to save money). To share your broadband connection or to network your PCs, get a gateway/router. You'll probably spend about \$80 for a wired version, or about \$150 for a wireless 802.11b (Wi-Fi) model; if you do go wireless, you'll also need a card or an external adapter for each PC, and these run about \$75 apiece. (See our home networking buyers' guide on page 112 for additional information.)

For your business PC, an ethernet card is key. Unless your company has standardized on specific hardware, the vendor's integrated or default card option should work well and save you money.

➤ **SOUND:** In the office, integrated audio and default speakers are fine. At home, you'll probably want surround sound. For about \$200, you can get a

## FEATURES COMPARISON

| TOP HOME PCs |  |  | TEST Center  |
|--------------|--|--|--|
|              | POWER SYSTEM   | Specs  | Comments   |
| 1            | Dell Dimension 8200<br>★★★★★: Aug 02<br>find.pcworld.com/28921               | <ul style="list-style-type: none"> <li>• \$3158</li> <li>• 2.53-GHz Pentium 4 CPU</li> <li>• 120GB hard drive, 1GB RDRAM</li> <li>• 17-inch Dell 1702FP LCD monitor</li> </ul>                 | Deluxe system delivers top-tier performance and entertainment features. It boasts a six-speaker sound system and a large, beautiful LCD.       |
| 2            | Gateway 700XL<br>★★★★★: NEW<br>find.pcworld.com/29921                        | <ul style="list-style-type: none"> <li>• \$3359</li> <li>• 2.53-GHz Pentium 4 CPU</li> <li>• 120GB hard drive, 1GB RDRAM</li> <li>• 18-inch Gateway FPD 1810 LCD monitor</li> </ul>            | This multimedia powerhouse, with its giant LCD monitor and six-speaker audio system, is fully equipped for games, music, and video.            |
| 3            | MicronPC<br>Millennia XP+ Xtreme<br>★★★★★: June 02<br>find.pcworld.com/25103 | <ul style="list-style-type: none"> <li>• \$2369</li> <li>• 1.67-GHz Athlon XP 2000+ CPU</li> <li>• 120GB hard drive, 512MB DDR SDRAM</li> <li>• 19-inch NEC AccuSync 90 CRT monitor</li> </ul> | Fast PC handles games with aplomb. It comes with a top-notch monitor that rendered beautiful colors, as well as a good five-piece speaker set. |
| 4            | HP Presario<br>8000Z<br>★★★★★: NEW<br>find.pcworld.com/29916                 | <ul style="list-style-type: none"> <li>• \$3175</li> <li>• 1.8-GHz Athlon XP 2200+ CPU</li> <li>• 120GB hard drive, 512MB DDR SDRAM</li> <li>• 17-inch Compaq 7020D LCD monitor</li> </ul>     | Loaded, powerful entertainment PC includes a DVD-RW drive and excellent sound. The LCD showed sharp text and beautiful colors.                 |
| 5            | ABS Awesome 3300<br>★★★★★: Aug 02<br>find.pcworld.com/28901                  | <ul style="list-style-type: none"> <li>• \$2099</li> <li>• 1.8-GHz Athlon XP 2200+ CPU</li> <li>• 120GB hard drive, 512MB DDR SDRAM</li> <li>• 15-inch Samsung SyncMaster 1515 LCD</li> </ul>  | This zippy PC packs AMD's latest CPU and a powerful six-speaker sound system. The LCD produced darkish, blotchy colors but acceptable text.    |

Street prices are reported as of 6/17/02. Visit [find.pcworld.com/30089](http://find.pcworld.com/30089) for more rankings and reviews.

music, however, bump the size to at least 60GB. You'll need it because 30 minutes of uncompressed digital video takes up nearly 6.5GB, while 250 4-minute MP3s at 128 kbps use over 1GB. Today's largest drives reach 160GB, and 240GB drives are just down the road, but unless you're planning to use your PC as a mini server, a smaller drive is more cost-effective.

➤ **GRAPHICS:** Only dedicated gamers or people working with 3D models need the best graphics cards, like those with 128MB of RAM and NVidia's GeForce4 Ti or ATI's Radeon 8500 graphics chip.

If you want to do some gaming, get a

AGP slot. Specify this kind of motherboard if you want that upgrade option.

A 17-inch monitor is often the default choice. For about \$100 more, you can get a 19-inch monitor, which provides over 20 percent more screen area than a 17-inch model. Also look to upgrade to a better-quality monitor when you buy it with a PC—vendors may offer Trinitron or other flat-faced CRTs for \$80 to \$100 more than same-size base models. If you're willing to spend \$200 to \$300 more, consider a 15-inch LCD. It affords the same viewable area as a 17-inch CRT and takes up far less space. (See our monitors buyers' guide on page 120 for more specifics.)



## DECISION STEPS

# FEATURES FOLLOW FUNCTION: HOW TO TAILOR YOUR PC

IF YOU WANT TO:

YOU'LL NEED:

BECAUSE:

Play the latest games

2.4-GHz P4 or Athlon XP 2100+ or better; graphics card running on Nvidia's GeForce4 Ti 4600 or ATI's Radeon 8500 chip, with 128MB of RAM; audio card with 5.1 Dolby; 19-inch CRT monitor; good speakers with subwoofer; game pad

A high-end graphics card and fast CPU render images more quickly and give you smoother game play. The large monitor makes it easier to see the action. Good audio backs these up, letting you immerse yourself in the play.

Rip music

2.4-GHz P4 or Athlon XP 2100+ or better; 40+GB hard drive; good audio card, such as one from Creative Labs' Audigy series; speakers with subwoofer; separate CD-ROM and CD-R/RW drives

A fast CPU helps you rip your music quickly. A good audio card and speakers let you enjoy rich playback, and separate CD-ROM and CD-RW drives let you rip and burn CDs without copying them to your hard drive first. You can fit about 10,000 4-minute songs on a 40GB drive.

Edit digital video

2.53-GHz P4 or Athlon XP 2200+; 512MB of RAM; 80+GB hard drive; 19-inch monitor or better; FireWire port; 64MB graphics card

Encoding, decoding, and editing video require a fast CPU (P4s are especially adept at this) and plenty of memory for the program to work with. Digital video files are huge (an hour of uncompressed video takes up about 13GB), so you'll need a lot of storage space. A midrange graphics card is fine because you won't be working with complex 3D forms. A large monitor makes the whole thing easy on the eyes. Most digital camcorders use a FireWire port for fast transfer.

Record personal video

2.2-GHz P4 or Athlon XP 2000+ or better; graphics card with TV-tuner capability and recording software; 120GB hard drive; rewritable DVD drive

A faster processor encodes and decodes video more quickly; but if you're taping TV, it won't record any faster. A TV tuner is a must to get the video to your PC. With MPEG-2 video, you get about 10 hours for every 10GB, so you'll need lots of drive space. Burn your video onto a DVD so you can watch your recordings back in your living room.

sound card with Dolby 5.1 support, plus decent speakers with a subwoofer.

► **DESIGN:** A good case can greatly simplify the task of upgrading or servicing components—an especially valuable perk in offices with multiple systems to maintain. A well-designed case will offer tool-less access to the interior, hard drives mounted on easy slide-out trays, and color-coded cables for internal and external parts (see "Designs that Simplify Servicing and Upgrades" on page 91).

At home, look for at least two USB ports in front so you can easily hook up peripherals like digital cameras. Systems with the newest Intel 845 chip sets (which use DDR SDRAM, not RDRAM) also have integrated USB 2.0. Get it if you can—it works with older USB devices (no speed boost, though), and it offers 8 to 12 times faster performance with USB 2.0 peripherals such as external CD-RW drives. If you have a digital camcorder, get a PC with a FireWire (IEEE 1394) port (you can also add FireWire via an expansion card for less than \$100). A keyboard with well-designed shortcuts to favorite apps and Web sites, to e-mail, and even to documents is a nice, inexpensive plus.

If you plan to keep the system for a

while, make sure you have some expansion room. You'll want at least a couple of open drive bays and a free PCI slot.

► **SOFTWARE:** Most home and office PC users should find Windows XP Home a perfectly acceptable operating system. Spend the extra \$100 for Windows XP Pro only if you need management features such as Remote Desktop, which gives you remote control over another PC.

Consider upgrading the software when you buy a new PC. For about \$100, you can often upgrade to a full office suite like Microsoft Office XP Small Business Edition (sold only with new systems; lacks PowerPoint) from Microsoft Works Suite or a similar package—a great value since Office XP runs over \$400 off the shelf.

► **WARRANTY AND SUPPORT:** Many PC problems tend to crop up in the first year, so a one-year warranty should cover most repairs. A two- or three-year warranty will add about \$150 to \$200 to your cost. Some vendors offer additional support options, such as Dell's \$39 (one year) priority call routing to tech support.

If you're concerned about reliability and service, you're probably better off buying from major vendors. While no vendor earned the highest rating in our last read-

er survey on vendor reliability and service, Dell, HP, and IBM scored well with their work PCs. Dell retained its position for home PCs as well, while Gateway, HP, IBM, and MicronPC earned an overall grade of Fair from readers. (Go to [find.pcworld.com/30005](http://find.pcworld.com/30005) for more details.)

## Recommendations

ALMOST ANY PC VENDOR can build you a system that will meet your computing needs. You may prefer to check out systems from Dell, Gateway, IBM, or MicronPC, because these brands typically offer better service and support. If you're looking for easy-to-set-up systems for the home with extras like tutorials, conveniently placed ports, and keyboards with shortcut keys, see models in the Pavilion or Compaq Presario lines from HP, the 500 and 700 series by Gateway, or the Dimension line from Dell.

Larger offices should consider corporate-specific PCs, such as Dell OptiPlexes or Compaq Evos from HP. These units incorporate the vendors' easy-to-service cases and a host of manageability options, including component tracking, Wake-on-LAN, and remote management.

—Anush Yeghazarian ►





## Notebook PCs

**WHAT MATTERS:** Power makes a difference if you're replacing a desktop, but portability means more to travelers.

IF YOU'VE EVER SHOPPED for a notebook PC, you know that the factors you should consider go far beyond performance and connections. Notebook buyers also have to mull such variables as size, weight, screen dimensions, battery life, and keyboard quality—not to mention options such as built-in wireless.

Many top-of-the-line and some mid-range portables—including four of the five power notebooks listed in the chart below—are now available with an Intel Pentium 4 Processor-M, which comes in versions with clock speeds of 1.7 GHz, 1.8 GHz, 1.9 GHz, and 2 GHz.

This year, just when we thought notebook screens couldn't get any bigger, Sony introduced its VAIO PCG-GRX570, with the first-ever 16.1-inch display. With 14- and 15-inch screens already appear-

ing on \$1100 portables, you can expect the newest giant screen to trickle down eventually to some budget notebook PCs.

### Key Features

► **PROCESSOR:** The old rule about waiting for new technology to drop in price before you buy applies more than ever to notebooks with the latest CPUs. In our PC WorldBench 4 tests, laptops carrying the first iterations of Intel's Pentium 4 ran no faster—and in some cases ran slower—than the same notebooks equipped with 1.2-GHz Pentium III-M chips. A few portables use P4 desktop processors, which can give them a performance advantage if they're built to withstand the extra heat.

Right now, people who have modest computing needs can save a lot of money by sticking with a PIII-M notebook.

► **SYSTEM MEMORY:** Don't settle for anything less than 256MB of system memory if you want to do more than word processing and e-mail, because Windows XP and newer applications quickly chew up memory and threaten to slow down your work. Memory slots are usually fairly easy to reach on notebooks, if you wish to upgrade.

► **GRAPHICS MEMORY:** You'll want 32MB or 64MB of video RAM if you plan on using your laptop to drive external monitors for presentations. Make sure that the memory is dedicated rather than pulled from main memory; this is sometimes referred to as a universal (UMA) or shared (SMA) memory architecture.

► **SCREEN:** Some portables with 14.1-inch and 15.1-inch screens now cost as little as \$1200. But business-class fliers who prefer a more compact notebook screen size of 12.1 or 13.3 inches may soon have only ultraportables to choose from.

► **BATTERY:** In battery tests conducted by the PC World Test Center, battery life in units equipped with the new P4-M chip averaged roughly 2.5 hours. While Intel and notebook manufacturers try to iron out the P4-M's power consumption kinks, consider buying a notebook that uses the older Pentium III-M chip; these portables posted battery lives of between 3 and 3.5 hours in most cases. Most notebooks come with a lithium ion rechargeable battery, which lasts longer than the less common nickel metal hydride rechargeable and doesn't need to be replaced as often.

If you want more time away from an outlet, buy a notebook that has a modular bay capable of holding a supplementary power pack. Secondary batteries usually cost between \$100 and \$200.



IBM ThinkPad T30

### FEATURES COMPARISON

| TOP NOTEBOOK PCs |   |  |   | TEST Center |
|------------------|---|--|---|-------------|
|                  | POWER NOTEBOOK PCs  | Specs <sup>1</sup>   | Comments  |             |
| 1                | <b>Dell Inspiron 8200</b><br>★★★★★ Aug 02<br><a href="http://find.pcworld.com/28021">find.pcworld.com/28021</a> | • \$2279<br>• 1.7-GHz Pentium 4-M<br>• 256MB of RAM, 40GB hard drive<br>• 15.1-inch screen, 9.4 lb   | The Inspiron 8200 is the SUV of the notebook world: It's big and heavy, has lots of features, and guzzles power—its battery lasted just under 2.5 hours.                                |             |
| 2                | <b>MicronPC TransPort GX3</b><br>★★★★★<br><a href="http://find.pcworld.com/29897">find.pcworld.com/29897</a>    | • \$2499<br>• 1.8-GHz Pentium 4-M<br>• 256MB of RAM, 40GB hard drive<br>• 15-inch screen, 8.0 lb     | A fingerprint reader and a keyboard with loud but impressively deep-traveling keys highlight this stylish blue-and-silver laptop. Like the Inspiron 8200, its battery lasted 2.5 hours. |             |
| 3                | <b>IBM ThinkPad T30</b><br>★★★★★<br><a href="http://find.pcworld.com/29898">find.pcworld.com/29898</a>          | • \$3249<br>• 1.8-GHz Pentium 4-M<br>• 256MB of RAM, 40GB hard drive<br>• 14.1-inch screen, 6.7 lb   | This lightweight two-spindle machine is IBM's first with dual pointing devices. It also has a complete set of connections, and both Bluetooth and 802.11b wireless built in.            |             |
| 4                | <b>IBM ThinkPad A31</b><br>★★★★★ July 02<br><a href="http://find.pcworld.com/27181">find.pcworld.com/27181</a>  | • \$2674<br>• 1.6-GHz Pentium 4-M<br>• 256MB of RAM, 40GB hard drive<br>• 15-inch screen, 8.2 lb     | The A31 provides plenty of features for the price—including dual modular bays—but its performance was not strong and its battery life (2.5 hours) was disappointing.                    |             |
| 5                | <b>Compaq Evo N600c</b><br>★★★★★ June 02<br><a href="http://find.pcworld.com/25401">find.pcworld.com/25401</a>  | • \$2818<br>• 1.2-GHz Pentium III-M<br>• 256MB of RAM, 30GB hard drive<br>• 14.1-inch screen, 6.7 lb | Dual pointing devices and an optional silver wireless module highlight this square black laptop. It comes well equipped; features include a composite video-out port and decent sound.  |             |

Visit [find.pcworld.com/29901](http://find.pcworld.com/29901) for more rankings and product reviews.

<sup>1</sup>Street prices are reported as of 6/14/02. Weight includes computer, AC adapter, power cord, floppy drive, and optical drive.





NOW SHE CAN EMAIL,  
DOWNLOAD PHOTOS  
AND TRANSFER FUNDS  
FASTER THAN EVER.

ONLY PROBLEM,  
THEY'RE NOT HERS.

As Internet connections become faster, hackers and virus writers are finding more fertile ground for their antics—and crimes. If you're connected, you need McAfee VirusScan. More than just the #1 anti-virus program for detection and removal, it includes a built-in firewall to keep mischief-minded code-crackers out of your computer. And your life.



Visit your local retailer  
or [mcafee-at-home.com](http://mcafee-at-home.com).

**COMPUSA**  
WHERE AMERICA BUYS TECHNOLOGY

**STAPLES**

**BEST BUY**

**OfficeMax**

**Office DEPOT**  
What you need. What you need to know.



**McAfee**  
SECURITY



### ► KEYBOARD AND POINTING DEVICE:

A thin-and-light notebook usually has smaller-than-average keys spaced more closely than the ones found on a desktop-replacement model. Even notebooks with the same standard 3mm travel (the distance a key depresses) and 19mm spacing (from the center of one key top to the next) can feel different, however, and their layouts may differ significantly.

For people who can't choose between a touchpad and an eraserhead pointing device, some notebooks include both. If you buy one of these dually equipped portables, make sure that it provides two sets of mouse buttons—one for the touchpad and the other for the eraserhead—so you don't have to stretch to reach.

► **OPTICAL AND OTHER DRIVES:** Built-in rewritable-DVD drives aren't likely to arrive in notebook PCs anytime soon, but if you can afford it, the next best thing is a combination DVD-ROM/CD-RW drive. Midrange machines usually feature a DVD-ROM drive or a CD-RW drive, and only the least-expensive notebooks come standard with just a CD-ROM drive.

The floppy drive has outlasted its Super-Drive and Zip drive challengers and continues to appear in many notebooks. Some "legacy light" portables have phased it out, but you can buy a USB add-on floppy drive for less than \$100.

► **HARD DRIVE:** Notebook hard drives will continue to get larger, from 60GB to 80GB and beyond. You can save money by opting for a 20GB or 30GB model, however. Most hard drives are easy to remove if you wish to keep your data safe.

► **WEIGHT AND BAY DESIGN:** Notebooks range from massive 9-pound all-in-one models, which have both the floppy drive and the optical drive built in, to 3-pound ultraportables that must use external drives. The once-rare one-bay notebook has become increasingly prevalent because of its appealing balance of features and weight. For instance, members of IBM's ThinkPad T series include a 14.1-inch screen and a full set of connections yet weigh less than 6 pounds—at least a pound less than most full-size

notebooks. The trade-off: ThinkPad T models don't have a built-in floppy drive.

Many full-size models offer the floppy drive as a modular device, so you can swap it out for a second optical drive, a second hard drive, or a Zip drive.

You should consider the weight not

built-in 802.11b wireless components to become standard. A few vendors offer notebooks with Bluetooth built in, but you should only consider choosing this option if you already have Bluetooth-enabled devices that you wish to sync.

A smattering of notebooks now come

## CLOSE-UP

### WHAT ARE THE TRADE-OFFS?

#### ULTRAPORTABLE

- High price per pound
- Typically 3.5 lb, 1 inch thick
- Low-voltage PIII-M CPU
- 10.4- to 12.1-inch screen
- Reduced-size keyboard
- No built-in drives
- No modular bays (external, extra-cost drives only)
- Often omits legacy ports



#### DESKTOP REPLACEMENT

- Low price per pound
- Typically 8 lb, 1.5 inches thick
- Pentium 4-M CPU
- 14.1- to 16.1-inch screen
- Full-size keyboard
- Built-in optical drive
- Up to two modular bays accommodate additional drives or batteries
- If there's a port to be had, it's here



The Toshiba Portégé 2000 (left) and the Dell Inspiron 8200.

only of the notebook, but also of the AC adapter, any external modules, and their cables. Ultraportables have lightweight adapters but can weigh almost as much as a full-size notebook if you take along their external optical and floppy drives.

When you return to your desk, you can snap most notebooks onto an extra-cost docking station or port replicator (prices range from \$99 to \$499). This saves you from repeatedly having to plug in and unplug desktop peripherals.

► **COMMUNICATIONS:** Fewer portables these days come with a full set of legacy ports. Serial ports are rare, and the combination mouse/keyboard PS/2 port and the infrared port soon will be. Most notebooks still have a parallel port and one PC Card slot, though; and most also have at least two USB ports. A growing number now include a FireWire (IEEE 1394) port. Built-in ethernet comes standard on almost all portables. You can also expect

with new types of card slots, including CompactFlash, Secure Digital, Memory Stick, and Smart Media. A notebook with a CompactFlash card or Secure Digital slot is your best bet.

## Recommendations

PEOPLE LOOKING for the latest features, such as built-in wireless, generally have one option: one of the new Pentium 4-M notebooks. Unfortunately, most P4-M-based notebooks are pricey and can be slower than those with the PIII-M. If you don't need a P4-M notebook's high-end features, opt for a PIII-M notebook priced at \$1500 or less. Many 3- and 4-pound ultraportables (for which a low-voltage version of the P4-M has not yet been developed) still carry the PIII-M processor, too. Most ultraportables cost \$2000 or so, but they're a good alternative, especially if you need a lightweight laptop.

—Carla Thornton ►



**JUNG**SOFT™

documents

photos

mp3s

transfer

# The **Nex**Generation PORTABLE STORAGE DEVICE



(actual size)

Available in  
32MB, 64MB, 128MB, 256MB  
512MB, 1GB, 2x64MB Twin Pack.

NexDisk™, the powerful data storage tool for the NexGeneration.

With easy to use Plug&Play operation (compatible with Windows, Mac & Linux operating systems) insert the NexDisk into any USB port and get immediate access to your favorite Files, MP3s, and Digital Images. Your files are at your fingertips.

**NEXDISK**  
www.nexdisk.com



**Versatile**  
Just Plug & Play



**Portable**  
Lightweight & easy to carry



**Storage**  
Files, mp3s, pictures, video, and more ...



HDD Sheriff, Data Sheriff Standard, Data Sheriff Deluxe, and NexDisk: Innovative Data Backup, Protection, and Portable Storage products by JungSoft

INGRAM  
MICRO

buy.com

MICRO CENTER

www.jsoftusa.com  
1-877-jungsoft

**JUNG**SOFT™





When you stop coming up with  
new challenges, we'll stop coming  
up with new monitors.





# NEC



More real-world solutions from the best-selling brand of flat panel monitors. Today's specialized applications demand the right tools. So the NEC MultiSync® product line is always growing, always offering better ways to work. You'll find high resolution, flicker-free viewing; a choice of colors; touchscreen and protective glass technologies; flexible integration options; and models that afford both landscape and portrait viewing. Even the industry's first full line of thin-frame monitors for increased versatility in multi-monitor applications. And, unlike conventional CRT monitors, flat panel technology offers space-saving design and 60% less energy consumption for long-term efficiency.

Innovation continues to run in the family: from Ambix™ digital/analog dual input technology that ensures long-term compatibility to XtraView+™ for wide angle viewing to OmniColor™ technology for precise color values. All the display solutions you need—all from the world's largest line of flat panel monitors.



*Our innovative line of thin-frame flat panel monitors allows you to see more image, less frame.*

**SEE MORE.™**

Learn more at [www.necmitsubishi.com](http://www.necmitsubishi.com) or call 888-NEC-MITS.

NEC ranked as the #1 flat panel monitor branded vendor in the Stanford Resource - iSupply Flat Panel Monitor Quarterly Report, Q2 '01. MultiSync is a registered trademark, and Ambix, XtraView+, and OmniColor are trademarks of NEC-Mitsubishi Electronics Display of America, Inc.

©2002 NEC-Mitsubishi Electronics Display of America, Inc.  
All rights reserved. Simulated images in monitors.

**NEC / MITSUBISHI**  
NEC-MITSUBISHI ELECTRONICS DISPLAY





## Inside the Box

Whether you're upgrading your PC or building one from scratch, stock your system with the best interior components—CD-RW drives, rewritable DVD drives, hard drives, graphics boards, and motherboards.

## CD-RW Drives

**WHAT MATTERS:** Prices don't vary much, so look for fast models that have features such as Mt. Rainier support.

**SPEED ISN'T EVERYTHING:** In the past year, CD-RW drive technology has vaulted over one speed hurdle after another—reducing the time required to write a CD by almost half. The CD-RW drive market is nearing maturity, however, and speed achievements mean less than they once did—consider that the difference in times posted by a 24X drive and a 48X drive when writing a full CD is less than 2 minutes. Factors such as the price, the drive interface, and the software bundle assume

greater import—especially since the same internal mechanism often shows up in drives from several different vendors.

### Key Features

► **CD-R WRITE SPEED:** CD-RW drives use X-ratings to indicate writing and reading speeds, where 1X equals 150 KBps; the ratings listed on the box indicate the drive's maximum speed for reading from or writing to a disc, not its average speed (which may be about 4X to 6X less than



TDK VeloCD 40/12/48

the X-rating). Though drives that burn to write-once CD-Rs at up to 48X now reign supreme, models capable of 52X will go on sale later this year. Thereafter, industry experts say, the escalation in CD-RW write speeds will slow dramatically—and may stop altogether—due to technological limitations (remember how CD-ROM drives topped out at 56X?) and diminishing returns. After all, burning a full disc now at up to 48X requires about two and a half minutes; ratcheting the write speed up to 52X will shave mere seconds—not minutes—off that time.

Buying the fastest drive available today won't break your wallet, and it will make the burn process fly by. We found the first 48X-rated drive we tested, Pacific Digital's Mach 48 CD-RW, being sold for the same price as older, slower 40X drives—which take, on average, 22 percent longer to burn a full disc. (See "CD-R Write Speeds Inch Upward," page 99, for more detail.)

► **CD-RW WRITE SPEED:** For the past 18 months, the speed at which drives write to rewritable CD-RW media has held fairly steady, making only a modest jump from 10X to 12X at the start of the year. In real-world terms, the bump up to 12X means that you can use packet writing to burn 100MB of data to a CD-RW 14 percent faster, on average, than you could with a 10X drive. Expect more punch out of the next increase in rewritable speeds: Drives with 16X and 24X rewrite speeds should be out by the time you read this

### FEATURES COMPARISON

| TOP CD-RW DRIVES |  |  |   | TEST Center |
|------------------|--|--|---|-------------|
|                  | CD-RW DRIVE  | Specs <sup>1</sup>   | Comments  |             |
| 1                | <b>Pacific Digital Mach 48 CD-RW</b><br>★★★★★<br>find.pcworld.com/29906            | • \$110<br>• 48X/12X/48X<br>• Ahead Nero Burning ROM 5.5 and InCD 3.27, 2MB buffer   | This model sped through our CD-R tests 48 seconds faster than the average 40X drive we've tested. CD-ROM read performance was sluggish, however.              | NEW         |
| 2                | <b>LG Electronics GCE-8400B</b><br>★★★★★<br>find.pcworld.com/29907                 | • \$110<br>• 40X/12X/40X<br>• Roxio Easy CD Creator 5.1 and DirectCD 5.1, 2MB buffer | A good CD-R writer, the GCE-8400B is priced the same as the Pacific Digital 40/12/48 drive. But it's ranked next to last on both of our CD-ROM read tests.    | NEW         |
| 3                | <b>CenDyne Lightning III LTR-40125S</b><br>★★★★★ July 02<br>find.pcworld.com/28283 | • \$95<br>• 40X/12X/48X<br>• Ahead Nero Burning ROM 5.5 and InCD 3.2, 2MB buffer     | This inexpensive drive's CD-R performance ranks in the upper third of all the drives we've tested; it nearly ties for first place in packet writing to CD-RW. |             |
| 4                | <b>TDK VeloCD 40/12/48</b><br>★★★★★ July 02<br>find.pcworld.com/28284              | • \$135<br>• 40X/12X/48X<br>• Ahead Nero Burning ROM 5.5 and InCD 3.24, 2MB buffer   | An average-price drive, TDK's VeloCD 40/12/48 has the second best CD-R performance we've seen—and ranks fifth on our CD-ROM read tests.                       |             |
| 5                | <b>Teac 40x12x48 CD-RW</b><br>★★★★★ Aug 02<br>find.pcworld.com/29521               | • \$100<br>• 40X/12X/48X<br>• Roxio Easy CD Creator 5.2 and DirectCD 5.2, 8MB buffer | This model delivers fast CD-R write performance, but it lags just a bit behind the norm for CD-RW performance (by about 9 percent, or 10 seconds).            |             |

Visit [find.pcworld.com/30197](http://find.pcworld.com/30197) for more rankings and product reviews.

<sup>1</sup>Street prices are reported as of 6/18/02. Speeds for CD media are listed as follows: CD-R write/CD-RW write/CD-ROM read; in all cases, 1X = 150 KBps.



(although compatible media may be hard to find at first). CD-RW media costs more than plain CD-R media (about \$1 apiece versus \$0.50 or less for CD-Rs, depending on brand, speed, and quantity), but it's handy for short-term backups, and CD-RW discs are reusable—they're rated for up to 1000 full rewrites.

► **CD-ROM READ SPEED:** The fastest drives can read CD-ROMs at up to 48X. However, tests by the PC World Test Center show a far greater variance in the performance of drives rated as 48X readers than we typically see in either CD-R or CD-RW write performance. For example, in our application installation and digital audio extraction tests, drives rated to read CD-ROMs at 48X ranked as high as first and as low as fifteenth overall—behind several drives rated at 40X.

► **BUFFER SIZE:** CD-RW drives typically come with at least a 2MB buffer. The buffer ensures that data flows to the disc smoothly and without interruption. Before buffer underrun protection schemes such as Burn-Proof and Smart-Burn became prevalent, drives needed to have larger buffers to prevent buffer underruns (and ruined discs) from occurring. Some drives still provide a 4MB or 8MB buffer, but now the role of a large buffer is to minimize how often buffer underrun protection is invoked, and thereby to speed the burn process.

► **INTERFACE:** Internal IDE drives are the least-expensive CD-RW drives you can buy, and they're easy to install if you don't

mind opening your system. FireWire (IEEE 1394) and USB 2.0 drives both perform similarly to internal IDE models, but FireWire drives tend to cost about \$20 to \$40 more than USB 2.0 drives, due to the costs of integrating the FireWire controller into the drive. When you use a USB 2.0 drive via a USB 1.1 port, the interface will limit the drive's throughput when writing to CD-R and CD-RW to about 4X, regardless of the drive's internal maximum write speed.

A few external drives offer multiple interfaces—some combination of Fire-

wire (like TDK's Audio MixMaster) for ripping and organizing your MP3s. Yamaha is the only internal-drive vendor that bundles backup software—a boon considering the cost of buying the backup application separately.

► **MT. RAINIER:** Drives with Mt. Rainier technology integrate support for writing directly to CD-RW media via the operating system, bypassing the need for third-party packet-writing software such as Roxio DirectCD. For now, only versions of Linux based on the latest Linux kernel support Mt. Rainier. Microsoft says that it



## Forward-looking drives integrate Mt. Rainier, a spec for writing to CD-RW media via your OS.

Wire, USB 2.0, PC Card, and even parallel port—but you'll pay more for one of these than for a standard external drive (for example, LaCie's USB 2.0 and FireWire drive, the 40x12x48x U&I CD-RW, sells for \$220; TDK's USB 2.0-based VeloCD 40/12/48 sells for about \$185).

► **SOFTWARE:** All drives include CD mastering and packet-writing applications to enable data copying and music CD creation. But some, like Ahead's Nero Burning ROM 5.5, are more powerful than others; and some, like Oak Technology's SimpliCD and Roxio's Easy CD Creator, are easier to use. A handful of vendors include additional software, such as rudimentary image editors or audio juke-

will implement the spec in the next version of Windows, code-named Longhorn, due sometime next year.

Other advantages to Mt. Rainier include the format's support for disc formatting on the fly and its improved defect management to help overcome errors on a disc. Unfortunately, discs written using Mt. Rainier won't be backward-compatible with older operating systems such as Windows 98 or Windows XP, so you'll still need third-party software like DirectCD 5.2 to read (or write to) the discs.

Some drives already claim to support Mt. Rainier, but in many cases you'll need to upgrade the firmware or packet-writing software (or both) to get full support.

### CLOSE-UP

## CD-R WRITE SPEEDS INCH UPWARD

HAVE AN OLDER DRIVE that writes to CD-R at 12X or 16X, and want to know how much time you'll save by upgrading to a faster drive? We've compiled the results of our on-the-fly CD-R write test for a range of drive speeds so you can see how much time you might save by using a faster drive to burn a full 650MB CD-R. Times represent average performance across the field of drives that the PC World Test Center evaluated in each speed class.

| CD-R X-rating | Speed to write 650MB to CD-R on the fly (minutes:seconds) |
|---------------|---|
| 48X           | 2:37  |
| 40X           | 3:21  |
| 32X           | 3:39  |
| 24X           | 4:15  |
| 16X           | 5:40  |
| 12X           | 7:10  |

### Recommendations

AS CD-RW DRIVE hardware becomes more and more commodified, you can't go wrong by buying the fastest drive for the money. If you plan to rip audio CDs to MP3s, though, get a drive that includes audio-specific software, such as the TDK VeloCD 40/12/48. And check for Mt. Rainier support if you use Linux or plan to upgrade to the next version of Windows. Several models, including our number one drive, Pacific Digital's Mach 48 CD-RW, are Mt. Rainier-ready.


—Melissa J. Perenson ►





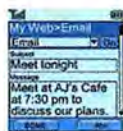




**Introducing PCS Vision.<sup>SM</sup>** Now there's clarity you can see *and* hear with our new PCS Full-Color Screens<sup>SM</sup> and enhanced nationwide network. Take digital pictures and send them to computers or select PCS Phones. Send and receive emails in a format that will remind you of your computer screen. Play exciting games, get full-color news, weather, sports and financial information from the Web and much more. All this and of course clear calls because only Sprint built the largest all-digital, all-PCS nationwide network with advanced multimedia services reaching more than 230 million people. It's clearly a whole new way to look at wireless. Get the whole story at [www.sprintpcs.com](http://www.sprintpcs.com) or 1 800 480 4PCS. 



Pictures



Messaging



Games



Screen Savers



PCS Business Connection<sup>SM</sup>



Ringers



Web



Services require purchase of a Vision-enabled PCS Phone (capabilities will vary by model) and service plan. PCS Vision Camera is required for digital photography. All screen shots are simulated. Copyright ©2002 Sprint Spectrum L.P. All rights reserved. Sprint, the diamond logo and PCS Vision are trademarks of Sprint Communications Company L.P. All other trademarks are the property of their respective owners.





## Rewritable DVD Drives

**WHAT MATTERS:** Of the competing drive types, DVD+RW copies data and formats discs fastest, but DVD-RW is more compatible.

INTEREST IN DVD WRITERS is soaring—and no wonder: The average price of a drive has dropped by more than half in the past 18 months, and prices are destined to go even lower. Rewritable DVD has a ways to go before it approaches the popularity of CD-RW (competing, incompatible formats remain a serious issue), but its ability to put 4.7GB—nearly seven times as much data—on a CD-size disc is sure to cut into CD-RW's turf.

### Key Features

► **WRITE-ONCE DVD:** The two write-once flavors for you to consider are DVD-R and the slightly faster DVD+R. Because both of these formats use media that has a highly reflective backing, they offer the greatest compatibility with set-top DVD players (and with DVD-ROM drives).

Accordingly, write-once media is usually the best choice for burning video DVDs you want to view on your living-room player or share with family and friends.

If you're buying media in small quantities, the prices for DVD-R and DVD+R media are about the same: \$6 apiece. DVD-R is available in bulk, however, which can cut the price per disc in half.

► **REWITABLE DVD:** Rewritable formats include DVD-RW, DVD+RW, and DVD-RAM. Though the third format is the least compatible of the three (discs can be read only in DVD-RAM drives and some DVD-ROM drives), it's good for data backup, since it's available in both 4.7GB bare discs and high-capacity, 9.4GB cartridges (protected discs that are usable only in other DVD-RAM drives).

The real battle is between DVD-RW and



HP Dvd200e (top) and Dvd200i

DVD+RW. Both formats burn data and video DVDs that can be read by many (but not all) DVD-ROM drives and set-top DVD players. And both use media that costs about \$10 apiece.

Based on their specs, DVD+RW drives are more than twice as fast as DVD-RW drives. DVD+RW drives also take far less time to format rewritable media: A DVD-RW drive requires more than an hour, depending on the software you use. By contrast, a DVD+RW drive formats discs on the fly, so you can start writing to the disc in just a few minutes. You can get software that allows speedier DVD-RW formatting, but neither the Pioneer nor the Benq model listed here includes it.

► **INTERFACE:** Internal DVD burners are less expensive than external models, by as much as \$100. External drives typically use either the FireWire or USB 2.0 interface; HP is one of the first to offer an external drive, the Dvd200e, with both FireWire and USB 2.0 connectors.

► **SOFTWARE:** All drives include video DVD authoring applications, such as Sonic's MyDVD 3.0, to create menus and encode analog video to MPEG-2. All have software for making data DVDs as well. Some vendors, such as HP and Sony, include backup or video editing apps.

### Recommendations

BEFORE CHOOSING a format, check the Web site of your DVD player's (or DVD-ROM drive's) manufacturer for media compatibility. DVD+RW's faster format and write speeds give it an edge over DVD-RW. Also consider the strength of the software: For example, HP's Dvd200i includes lots of helpful, easy-to-use apps.

—Melissa J. Perenson ►

### FEATURES COMPARISON

#### REWITABLE DVD DRIVE PICKS

|   | DRIVE   | Specs  | Comments   |
|---|---|--|--|
| 1 | HP DVD Writer Dvd200i<br>★★★★☆ July 02<br><a href="http://find.pcworld.com/29644">find.pcworld.com/29644</a>              | <ul style="list-style-type: none"> <li>• \$450</li> <li>• 2.4X DVD+R, 2.4X DVD+RW; 12X CD-R, and 10X CD-RW recording speeds</li> <li>• RecordNow and DLA, MyDVD 3.0</li> </ul>       | Formats +RW media quickly; terrific software bundle includes backup and video-editing utilities. Good for both video and data DVDs.          |
| 2 | Pioneer DVR-A04<br>★★★★☆ June 02<br><a href="http://find.pcworld.com/29645">find.pcworld.com/29645</a>                    | <ul style="list-style-type: none"> <li>• \$340</li> <li>• 2X DVD-R, 1X DVD-RW, 8X CD-R, and 4X CD-RW recording speeds</li> <li>• RecordNow DX and DLA, MyDVD 3.5</li> </ul>          | Least expensive drive here, but its performance with -RW media is typically slow, and it has lengthy formatting times. Good for video discs. |
| 3 | Sony DRU-120A<br>★★★★☆ July 02<br><a href="http://find.pcworld.com/28322">find.pcworld.com/28322</a>                      | <ul style="list-style-type: none"> <li>• \$450</li> <li>• 2.4X DVD+R, 2.4X DVD+RW, 12X CD-R, and 10X CD-RW recording speeds</li> <li>• Recorder Gold and Clip, NeoDVD 3.0</li> </ul> | This drive has core hardware similar to the HP Dvd200i. Good software bundle includes backup utility; documentation is thin, though.         |
| 4 | QPS DVDBurner<br>★★★★☆ Aug 02<br><a href="http://find.pcworld.com/29646">find.pcworld.com/29646</a>                       | <ul style="list-style-type: none"> <li>• \$370</li> <li>• 1X DVD-RAM, 1X DVD-R recording speeds</li> <li>• Instant CD/DVD, NeoDVD 3.0</li> </ul>                                     | A good choice for backing up data to 9.4GB high-capacity cartridge media. Lacks CD-R and -RW write support, but can read CD-ROMs.            |
| 5 | Benq 2108VR-002 DVD-R/RW Writer<br>★★★★☆<br><a href="http://find.pcworld.com/29996">find.pcworld.com/29996</a> <b>NEW</b> | <ul style="list-style-type: none"> <li>• \$350</li> <li>• 2X DVD-R, 1X DVD-RW, 8X CD-R, and 4X CD-RW recording speeds</li> <li>• PrimoDVD 2.0, MyDVD 3.0</li> </ul>                  | Documentation is slim, and its software bundle is weak: You'll need to order a free software upgrade from Benq to use rewritable discs.      |

Visit [find.pcworld.com/30173](http://find.pcworld.com/30173) for more product reviews.

\* Street prices are reported as of 6/18/02. Speeds for DVD media: 1X = 1.38 MBps; for CD media, CD-R write/CD-RW write, 1X = 150KBps.



# A Pocket PC that actually fits in your pocket.

Get yours for a 0% lease with \$0 down and no payments for 30 days\*



**Toshiba Pocket PC e310 | \$399**

PA3160K-1P05

**0% Business Lease \$13/mo.†**  
with 0% down, 0 payments for 30 days

At 4.9 oz., the ultra lightweight e310 handheld is also one of the thinnest around. Complete with 32MB of RAM, Microsoft® Pocket PC 2002 software, a 3.5" diagonal TFT color reflective display, built-in voice recorder and USB cradle. Also includes an SD\* expansion slot for additional MP3 and video storage.



**Toshiba Pocket PC e740 | \$599**

PA3170U-3P05

**0% Business Lease \$20/mo.†**  
with 0% down, 0 payments for 30 days

Take your office virtually anywhere with our latest mobile innovation. With integrated wireless and expansion capabilities you will have the flexibility to be productive anywhere.† Includes 64MB of RAM, integrated Wi-Fi, integrated SD\* and Compact Flash II expansion slots in addition to all the e310 features. Runs for hours on a lithium ion battery.

## Accessories



**USB Sync Cable | \$19.99**

This portable connection cable lets you sync your handheld with your notebook easily whether you're in the office or on the road.  
PA3165U-1ETC



**e740 High-Capacity Battery | \$129.00**

Extend the power capabilities of your Pocket PC (e740 only) with a high-capacity lithium ion battery.  
PA3197U-1BRL



**Expansion Pack | \$99.00**

Easily project slides and run a presentation from your e740.  
PA3188U-1PRP

# TOSHIBA

The world's best selling notebooks.

**1-888-488-2835 | shoptoshiba.com**

Buy direct from Toshiba or from your local reseller. Code 23B2.

30-month lease offer with fair market value end-of-term purchase option available through Toshiba America Information Systems, Inc. to qualified commercial business customers only. Each lease subject to credit approval, acceptable documentation, 10% soft cost limit & order of Toshiba computer products of \$1,500 up to \$100,000 (exclusive of taxes, fees & shipping). Rates quoted do not include taxes or shipping. Offer available in the United States only, valid only until 9/30/02 and may be withdrawn or changed at any time without notice or obligation. Other terms and conditions apply. For full description of terms and conditions call 1-800-207-8362 or go to [www.zerolease.toshiba.com](http://www.zerolease.toshiba.com). \*Access requires remote Internet access and may require additional software, hardware and/or services. Additional phone, connection or airtime charges may be required to achieve the functionality as advertised. © 2002, Toshiba America Information Systems, Inc. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries. All other products and names mentioned are the property of their respective owners. All pricing, offers, software and specifications subject to change. Reseller prices may vary. All rights reserved.





## Hard Drives

**WHAT MATTERS:** If you work mostly in standard office programs, nearly any drive will do. But speed counts for multimedia authoring.

THE STUNNING CAPACITY of today's hard drives—which doubles every 12 to 18 months—has made it possible, even economical, to turn a PC into a multimedia machine holding gobs of audio and video files. And drives of 200GB or more should be out by the time you read this.

Internal hard drives with Serial ATA connections have thin cables that make more-compact computer designs possible. The technology won't become common for at least another year, however. (See "Your Next Hard Drive" on page 36 for more information.)

Though our tests show that today's hard drives all perform about the same when running regular business applications, people who work with large images and digital video greatly benefit from speedy drives. In our tests with Adobe Photoshop, for example, a system fitted with the fastest drive completed a complex task

(applying filters and rotating an image multiple times) almost 30 percent quicker than did the same system with the slowest drive installed. Go to [find.pcworld.com/30125](http://find.pcworld.com/30125) for our complete test results.

### Key Features

► **CAPACITY:** Today's PC hard drives have at least 20GB of space—about four times the amount you'll need for an operating system, applications, and several years' worth of e-mail messages and documents. The remaining 15GB can hold about 12,000 good-quality, 3-megapixel digital photos or 3750 4-minute MP3 songs encoded at 128 kbps. Capacity really matters for graphic designers and people who edit (or simply archive) video. For example, the contents of a 1-hour MiniDV camcorder tape consume 13GB.

If you want high capacity, remember that PCs usually have room for two hard



Multiplatter hard drive

drives. You may save money by purchasing, say, two 80GB drives instead of a single 160GB unit that sells for a premium.

► **ROTATIONAL SPEED:** Current ATA hard drives spin their disks at either 5400 or 7200 revolutions per minute. Usually, but not always, the 7200-rpm drives retrieve data faster. For example, in our tests, the 80GB, 5400-rpm Maxtor DiamondMax D540X copied a 1.2GB file 33 percent faster than the 80GB, 7200-rpm Seagate Barracuda ATA IV. Sometimes other factors, such as the algorithms drives use to retrieve data, can affect performance.

► **INTERFACE:** Nearly all desktop PC drives use the parallel ATA interface, supporting maximum transfer rates of either 100 or 133 megabytes per second. But hard drives can't sustain transfer rates fast enough to utilize the extra bandwidth (though they can push out short bursts of data at 100 MBps or greater). And most motherboards don't support ATA/133, so you'll need an add-in card to use it. Fortunately, ATA/133 drives also work with ATA/100 and earlier interfaces.

► **BUFFER:** When a system requests data, a hard drive doesn't simply fetch what is requested; it also loads its buffer memory with additional information that the processor is likely to ask for next. We've found that drives with an 8MB buffer tend to perform better on our disk-intensive Photoshop and file-search tests.

### Recommendations

CONSIDER A BIG DRIVE (over 40GB) or two smaller drives if you store a lot of digital images and audio, or any quantity of video. If you also edit your images and video, go for high-performance drives—generally 7200-rpm models.

—Seán Captain ►

### FEATURES COMPARISON

#### TOP HARD DRIVES

TEST  
Center

|   | HARD DRIVE (80GB OR OVER)  | Specs   | Comments  |
|---|--|---|---|
| 1 | Western Digital WD800JB<br>★★★★★<br><a href="http://find.pcworld.com/29796">find.pcworld.com/29796</a>         | • \$160<br>• 80GB<br>• 7200 rpm, 8MB buffer<br>• ATA/100 interface    | Thanks to its extralarge buffer, this drive posted high scores in most tasks and was the fastest in our Photoshop test. It's a good choice for users who want top performance but can do without top capacity.        |
| 2 | Maxtor DiamondMax D540X<br>★★★★★ Mar 02<br><a href="http://find.pcworld.com/19521">find.pcworld.com/19521</a>  | • \$190<br>• 120GB<br>• 5400 rpm, 2MB buffer<br>• ATA/133 interface   | Though it's a bit slower than the other drives, the D540X compensates by offering plentiful capacity at a good price. Its cost per gigabyte (\$1.58) is the second lowest of all the drives we tested.                |
| 3 | Western Digital WD1200JB<br>★★★★★<br><a href="http://find.pcworld.com/29795">find.pcworld.com/29795</a>        | • \$280<br>• 120GB<br>• 7200 rpm, 8MB buffer<br>• ATA/100 interface   | The bigger sibling of our number one Best Buy, this Western Digital was the top overall performer in our tests. With speed and high capacity, this drive is for people who want it all and are willing to pay for it. |
| 4 | Western Digital WD1200BB<br>★★★★★ Mar 02<br><a href="http://find.pcworld.com/19561">find.pcworld.com/19561</a> | • \$260<br>• 120GB<br>• 7200 rpm, 2MB buffer<br>• ATA/100 interface   | The WD1200BB is just a bit slower (and cheaper) than its 8MB-buffer-equipped cousin, the WD1200JB. Like the other Western Digital drives on this chart, it includes helpful installation software.                    |
| 5 | IBM Deskstar 120GXP<br>★★★★★ Mar 02<br><a href="http://find.pcworld.com/19564">find.pcworld.com/19564</a>      | • \$225<br>• 123.5GB<br>• 7200 rpm, 2MB buffer<br>• ATA/100 interface | IBM's biggest drive landed in the middle of our test pack overall and took top honors in copying a 1.3GB collection of files. The installation software is confusing and somewhat intimidating for novices.           |

Street prices are reported as of 6/20/02. Visit [find.pcworld.com/30125](http://find.pcworld.com/30125) for more rankings and reviews.



# Mobilize Your Business.

Get a 0% lease, \$0 down and  
no payments for 30 days on all notebooks.<sup>1</sup>

## Satellite®



Top-level performance.  
Low-level price.

### Satellite® 2400-S251 | \$1,699

PS6100-025AH1

#### 0% Business Lease \$57/mo.<sup>2</sup>

- Mobile Intel® Pentium® 4 Processor 1.70GHz - M
- 256MB of RAM
- 30GB hard disk drive
- DVD-ROM/CD-RW multifunction drive
- 15" TFT active matrix display
- Integrated Ethernet and modem
- Microsoft® Windows® XP Professional

### Satellite® 2400-S201 | \$1,579

PS6100-020AH1

#### 0% Business Lease \$53/mo.<sup>2</sup>

- Intel® Pentium® 4 Processor 1.60GHz
- 256MB of RAM
- 30GB hard disk drive
- DVD-ROM/CD-RW multifunction drive
- 14.1" TFT active matrix display
- Integrated Ethernet and modem
- Microsoft® Windows® XP Professional

### Satellite® 1100-S101 | \$1,249

PS1100-010AH1

#### 0% Business Lease \$42/mo.<sup>2</sup>

- Intel® Celeron® processor 1.30GHz
- 256MB of RAM
- 20GB hard disk drive
- DVD-ROM
- 14.1" TFT active matrix display
- Integrated Ethernet and modem
- Microsoft® Windows® XP Professional

Also available: the Toshiba Small Business Series with Microsoft® Office XP

## Satellite Pro®



Lose the desktop.

### Satellite Pro® 6100 | \$2,699

PS6100-021AH1

#### 0% Business Lease \$90/mo.<sup>2</sup>

- Mobile Intel® Pentium® 4 Processor 1.80GHz - M
- 512MB of RAM
- 80GB hard disk drive
- DVD-ROM/CD-RW multifunction drive
- 15.0" XGA active matrix display
- Integrated Ethernet, modem and Wi-Fi
- NVIDIA® GeForce4™ 420 Go graphics controller
- Microsoft® Windows® XP Professional or Windows® 2000 dual boot

### Satellite Pro® 6100 | \$2,399

PS6100-010AH1

#### 0% Business Lease \$80/mo.<sup>2</sup>

- Mobile Intel® Pentium® 4 Processor 1.80GHz - M
- 256MB of RAM
- 80GB hard disk drive
- DVD-ROM/CD-RW multifunction drive
- 15.0" XGA active matrix display
- Integrated Ethernet, modem and Wi-Fi
- NVIDIA® GeForce4™ 420 Go graphics controller
- Microsoft® Windows® XP Professional or Windows® 2000 dual boot

### Satellite Pro® 6100 | \$1,999

PS6100-020AH1

#### 0% Business Lease \$47/mo.<sup>2</sup>

- Mobile Intel® Pentium® 4 Processor 1.70GHz - M
- 256MB of RAM
- 80GB hard disk drive
- DVD-ROM/CD-RW multifunction drive
- 14.1" XGA active matrix display
- Integrated Ethernet and modem
- NVIDIA® GeForce4™ 420 Go graphics controller
- Microsoft® Windows® XP Professional or Windows® 2000 dual boot
- Easy upgrade to wireless network

Also available: the Toshiba Small Business Series with Microsoft® Office XP

## Portégé®



Fits almost anywhere.  
Does almost anything.

### Portégé® 4010 | \$2,149

PP4010-010AH1

#### 0% Business Lease \$72/mo.<sup>2</sup>

- Mobile Intel® Pentium® M Processor 800MHz - M
- 128MB of RAM
- 20GB hard disk drive
- DVD-ROM/CD-RW multifunction drive
- 12.1" widescreen TFT active matrix display
- Integrated Ethernet, modem and optional Wi-Fi capability
- Microsoft® Windows® XP Professional

### Portégé® 2000 | \$2,199

PP2000-010AH1

#### 0% Business Lease \$73/mo.<sup>2</sup>

- Mobile Intel® Pentium® M Processor 720MHz - M
- 256MB of RAM
- 20GB hard disk drive
- 12.1" widescreen TFT active matrix display
- Integrated Ethernet, modem and Wi-Fi capability
- Microsoft® Windows® XP Professional

Intelligent. Thin.  
And loves to travel.

1-888-488-2835 | [shoptoshiba.com](http://shoptoshiba.com)

Buy direct from Toshiba or from your local reseller. Code 23E1.



# TOSHIBA

The world's best selling notebooks.

Three months of AOL membership included with the purchase of a Toshiba Satellite® or Satellite Pro®.<sup>3</sup>

Toshiba Recommends Microsoft® Windows® XP Professional for Mobile Computing.

<sup>1</sup>30-month lease offer with fair market value end-of-term purchase option available through Toshiba America Information Systems, Inc. to qualified commercial business customers only. Each lease subject to credit approval, acceptable documentation, 10% soft cost limit & order of Toshiba computer products of \$1,500 up to \$100,000 (exclusive of taxes, fees & shipping). Rates quoted do not include taxes or shipping. Offer available in the United States only, valid only until 9/30/02 and may be withdrawn or changed at any time without notice or obligation. Other terms and conditions apply. For full description of terms and conditions call 1-800-207-8362 or go to [www.zerolease.toshiba.com](http://www.zerolease.toshiba.com). <sup>2</sup>GB means one billion bytes. <sup>3</sup>AOL OFFER DETAILS: Availability may be limited, especially during peak times. TO AVOID BEING CHARGED A MONTHLY MEMBERSHIP FEE, SIMPLY CANCEL BEFORE THREE-MONTH PROMOTIONAL PERIOD ENDS. Premium services carry surcharges, and communication surcharges may apply, including in AK, even during promotional period. Members may incur telephone charges on their phone bill, depending on their location and calling plan, even during promotional period. Available to new AOL members in the United States, age 18 or older; a major credit card or checking account is required. © 2002 Toshiba America Information Systems, Inc. Satellite, Satellite Pro and Portégé are registered trademarks of Toshiba America Information Systems, Inc. Intel, the Intel Inside logo, Celeron and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and/or other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries. All other products and names mentioned are the property of their respective owners. All pricing, offers, software and specifications subject to change. Reseller prices may vary. All rights reserved.





## Graphics Boards

**WHAT MATTERS:** Budget cards let you play most games at moderate resolutions, but die-hard gamers should opt for more power.

GRAPHICS CHIP AND board makers update their hardware every six months, mainly as a response to consumer demand for more-complex, more-realistic PC games. Titles based on Microsoft's DirectX 8 application programming interface are the most recent spur to upgrade; such games are just appearing now, after almost a year and a half of anticipation. But games aren't the only reason to get a new graphics board. A new card from Matrox, the Parhelia, offers support for up to three displays, and ATI's All-in-Wonder Radeon 8500DV provides Fire-Wire (IEEE 1394) ports, a wireless remote control, and S-Video connections.

### Key Features

► **GRAPHICS PROCESSOR:** Over the years, graphics processors have taken on more and more of the graphics load from

a system's CPU. The graphics processors on today's boards can efficiently handle impressively sophisticated full-motion 3D video that would stump even the most powerful unaided CPU.

Integrated graphics chips typically run at clock speeds of about 166 MHz. Mid-range chips, such as those in ATI's Radeon 7500 or NVidia's GeForce4 MX series, run at about 200 to 250 MHz; top-of-the-line cards have chips that run from 270 to 300 MHz. For our October issue, we're testing boards with even faster clock speeds. But don't base your buying decision solely on clock speed: It's only one of many factors that affect performance.

Budget graphics cards, like those based on NVidia's GeForce4 MX chip, do an excellent job with older games at lower resolutions but fall off at higher resolutions (1600 by 1200 at 32-bit color). Most

people can't discern differences in frame rates higher than 60 fps; however, boards that can produce faster frame rates at a midrange resolution will typically sustain playable frame rates at higher resolutions, and usually can handle more-complicated games. To play DirectX 8 games, you'll get the best performance from a chip that supports DirectX 8 hardware acceleration; NVidia's GeForce4 Titanium (Ti) and ATI's Radeon 8500 chips are solid choices. Other manufacturers, such as SIS and Matrox, are getting into the game with their own DirectX 8 cards as well.

► **MEMORY:** When you perform such graphics-intensive activities as playing games and editing video, the information necessary to display images is buffered in RAM on the card (unless you're using integrated graphics, in which case images are stored in main memory).

Integrated graphics chips reduce the amount of RAM available to the rest of the system. Less-expensive computers with lower-powered CPUs, such as Intel's Celeron, often have integrated graphics subsystems. Though PCs that use integrated chips do an acceptable job with typical business applications, most lack the extra memory necessary for 3D gaming, so they aren't suitable for playing any but 2D games. And they often omit an AGP (Accelerated Graphics Port) slot for holding an upgrade card; if a system does have an AGP slot—designed to provide a fast graphics interface to move 3D data between your graphics processor and main system memory—you can generally disable the integrated graphics and insert a more-powerful graphics add-in card.

Integrated graphics are evolving, though: NVidia's NForce system chip set integrates a GeForce2 MX graphics chip and,



Gainward  
GeForce4 Ultra/  
650XP

### CLOSE-UP

## WHAT DOES ANTIALIASING DO?

FULL-SCENE ANTIALIASING (FSAA) softens the jagged edges that can appear at lower resolutions—where individual pixels are large—by blending pixels together to give the appearance of a smooth, high-resolution image. The two scenes below are both screen shots from NovaLogic's Comanche 4 game running at 1024 by 768 using 32-bit color; one image shows the game running with FSAA turned off, the other with it turned on.

Without full-scene antialiasing



At this resolution, large pixels cause jagged edges on the hill. The five boards we tested with FSAA took a performance hit (albeit a minor one) in our tests.

With full-scene antialiasing



FSAA smooths out large pixels and eliminates "jaggies." Notice that the rough edges of the once-jagged hillside are now softened with FSAA enabled.



in many cases, 32MB of dedicated memory. As a result, Athlon-based computers that employ the NForce chip are capable of handling multimedia tasks better than PCs using many other integrated graphics chips. (Visit [find.pcworld.com/30170](http://find.pcworld.com/30170) for a list of vendors that offer systems with NVidia's NForce chip.)

The more complicated the game or image you're viewing, the more video memory you'll need. Budget graphics cards typically come with 32MB to 64MB of DDR SDRAM, while more-expensive models offer 64MB to 128MB. For older games like Quake III, 32MB is sufficient. That amount isn't likely to deliver good image quality and high frame rates with new, advanced games or at resolutions above 1600 by 1200, however. For higher resolutions and more-complex games such as Comanche 4 or Unreal Tournament 2003, get a card with at least 64MB of video memory. And though most of today's games don't require more than that, you may want to opt for 128MB rather than face upgrading again when even more memory-intensive games arrive.

Some cards include extra features, as well as bundled hardware and software.

The following are some of the more common options that board vendors offer.

► **DUAL DISPLAY OR DUAL HEAD:** To connect your computer to a second digital or analog monitor or to a TV, you'll need a graphics card with extra ports and additional RAMDACs (chips that convert digital information to analog signals) to drive two—or even three—separate displays. If any of your monitors is digital, to

provide S-Video ports also include an S-Video-to-composite adapter cable.

► **OVERCLOCKING:** Running a graphics processor faster than the manufacturer's specified speed is popular among PC tweekers and dedicated gamers. While this can squeeze a bit more performance out of a card, it carries risks such as overheating. Some vendors—Gainward is one—sell cards that have already been

The more complicated the game or image you're viewing, the more video memory you'll need.

connect it you'll need either a DVI-out port on the card or a DVI adapter.

► **S-VIDEO-OUT/-IN:** The S-Video-out port allows you to send video signals to a TV, a VCR, or another entertainment device. The S-Video-in port lets you bring video into your PC from a camcorder, a VCR, or the like.

► **COMPOSITE-OUT/-IN:** Composite ports fulfill the same function as S-Video ports, and they are particularly handy for use with older devices that may lack S-Video ports. Many graphics boards that

overclocked; some bundle overclocking software with cards. Be sure to read the manufacturer's recommendations and instructions before overclocking.

► **ANTIALIASING:** Many cards offer full-scene antialiasing (FSAA), which smooths and softens the jagged edges of images. This feature is especially helpful when the board is running at lower resolutions. Enabling it can lower frame rates, though, so gamers must choose between smoother images and faster performance.

## Recommendations

DEDICATED GAMERS who want to play new games at the highest resolutions and color depths will get the best performance from a board with the latest graphics chip set—one that offers hardware acceleration support for Microsoft's DirectX 8 API and comes with at least 64MB of DDR SDRAM. A graphics card based on NVidia's GeForce4 Ti 4600 or ATI's Radeon 8500 chip is a good bet. If you're a casual gamer who doesn't play the most recent titles, consider purchasing a budget card that uses NVidia's GeForce4 MX chip, such as VisionTek's Xtasy GeForce4 MX 440, or one from ATI's Radeon 7500 line. Faster graphics cards with new features, new chip sets, and more memory are on the way and might be on store shelves by the time you read this. Visit [find.pcworld.com/30107](http://find.pcworld.com/30107) for additional information on buying graphics boards.

—Alexandra Krasne ►

## FEATURES COMPARISON

| TOP GRAPHICS BOARDS |   |  |  | TEST Center |
|---------------------|---|--|--|-------------|
|                     | POWER GRAPHICS BOARD  | Specs  | Comments   |             |
| 1                   | Gainward GeForce4 Ultra/650XP<br>★★★★★<br><a href="http://find.pcworld.com/30143">find.pcworld.com/30143</a>            | • \$199<br>• NVidia GeForce4 Ti 4200 chip<br>• 128MB of DDR SDRAM, DVI-out, S-Video-in and -out, composite-in and -out | Inexpensive card offers stellar image quality, but speed scores were slightly slower than those from more-expensive NVidia 4400- and 4600-based cards.           | NEW         |
| 2                   | VisionTek Xtasy GeForce4 Ti 4400<br>★★★★★ July 02<br><a href="http://find.pcworld.com/28361">find.pcworld.com/28361</a> | • \$250<br>• NVidia GeForce4 Ti 4400 chip<br>• 128MB of DDR SDRAM, DVI-out, S-Video-out                                | Board was almost as fast as GeForce4 Ti 4600-based cards (which fared slightly better in our speed and image-quality tests), but it's priced considerably lower. |             |
| 3                   | PNY Verto GeForce4 Ti 4600<br>★★★★★ July 02<br><a href="http://find.pcworld.com/28362">find.pcworld.com/28362</a>       | • \$370<br>• NVidia GeForce4 Ti 4600 chip<br>• 128MB of DDR SDRAM, DVI-out, S-Video-out                                | The fastest card here beat EVGA's card by a hair in our speed tests. PNY offers a lifetime replacement warranty and toll-free support for 10 hours on weekdays.  |             |
| 4                   | EVGA E-GeForce4 Ti 4600<br>★★★★★<br><a href="http://find.pcworld.com/30146">find.pcworld.com/30146</a>                  | • \$380<br>• NVidia GeForce4 Ti 4600 chip<br>• 128MB of DDR SDRAM, DVI-out, S-Video-out, composite-out                 | A composite-out port lets you hook your system up to a TV. The board delivers fast performance and great image quality, but it's difficult to install.           | NEW         |
| 5                   | Hercules 3D Prophet FDX 8500 LE<br>★★★★★ July 02<br><a href="http://find.pcworld.com/28381">find.pcworld.com/28381</a>  | • \$169<br>• ATI Radeon 8500LE chip<br>• 64MB of DDR SDRAM, DVI-out, S-Video-out, composite-out                        | The least-expensive card here offers fast frame rates and a generous selection of ports. However, games looked dark, and a couple of them lacked contrast.       |             |

Street prices are reported as of 7/2/02. Visit [find.pcworld.com/30113](http://find.pcworld.com/30113) for more rankings and reviews.





## Motherboards

**WHAT MATTERS:** Spending extra for a motherboard with features like USB 2.0 ports and IDE RAID can save you money in the long run.

WHETHER YOU'RE BUILDING a new PC or overhauling an old one, a new motherboard is the place to start. And with boards packing extras like FireWire (IEEE 1394) and USB 2.0 ports, six-channel sound chips, and RAID controllers, you might not need to add much else.

The choice of motherboard you make determines the RAM and CPU types you can use, so you must look at those three critical components together. You can spend as little as \$180 total on the trio and get by, but for that amount you're practically buying obsolescence. Plan on spending between \$400 and \$700 for a capable midrange setup. From there you can narrow the available choices according to your preference for AMD or Intel processors (if you have one), or you can just look for the best value in your price range.

And though you may not need a RAID controller or a LAN connection now, getting those extras on a full-featured board like Soyo's KT333 Dragon Ultra will save you money if you need them later.

### Key Features

► **CHIP SET:** A motherboard's chip set performs such vital functions as routing data from hard drive to memory to CPU, and ensuring that your peripherals and expansion cards can communicate. The chip set limits the CPU types and speeds the board can take, the type of RAM you can install, and (to a degree) whether extras like integrated graphics, sound, and USB 2.0 ports can be included with the board.

Manufacturers base their motherboards around the chip sets they use, adding features like RAID controllers and FireWire

ports to differentiate their boards. That's why knowing the vital stats (CPU and memory support, IDE controller speed, and whether sound and graphics are integrated) of the chip sets you're considering can help you pinpoint differences between otherwise very similar motherboards.

Popular Intel Pentium 4 chip sets include Intel's 850E, 845E, and 845G; Via's P4X333; and SIS's 650 and 645DX. (Head to [find.pcworld.com/29975](http://find.pcworld.com/29975) for more on what each chip set supports). The latest AMD Athlon XP+ chip sets include Via's KT333A, SIS's 745, NVIDIA's NForce, and ATI's Radeon IGP. (See [find.pcworld.com/29978](http://find.pcworld.com/29978) for more details.)

► **CPU:** Pentium 4 and Athlon XP are your main choices. We tested several motherboards based on different chip



MSI KT3 Ultra-ARU

### FEATURES COMPARISON

## MOTHERBOARD PICKS

|   | MOTHERBOARD  | Specs  | Tested CPU      | PC WorldBench 4 score | Board price/combo price | Comments  |
|---|--|--|-----------------|-----------------------|-------------------------|---|
| 1 | VPSD P4PB<br>★★★★★<br><a href="http://find.pcworld.com/30176">find.pcworld.com/30176</a>               | Via Apollo P4333 chip set, DDR333 RAM, ATA/133 and RAID, USB 2.0 | 2-GHz P4        | 115                   | \$105/\$398             | This speedy, full-featured board from Via subsidiary VPSD proved easy to set up. Its low price makes it an outstanding value among Pentium 4 motherboards.                        |
|   |  |  | 2.53-GHz P4     | 123                   | \$105/\$854             |   |
| 2 | MSI 845E MAX2<br>★★★★☆<br><a href="http://find.pcworld.com/30177">find.pcworld.com/30177</a>           | Intel 845E chip set, DDR266 RAM, ATA/100 and RAID, USB 2.0, LAN  | 2-GHz P4        | 112                   | \$124/\$417             | MSI packs useful features onto this affordable 845E motherboard. It includes optional brackets that hold digital sound connections, status indicator lights, and extra USB ports. |
|   |  |  | 2.53-GHz P4     | 119                   | \$124/\$873             |   |
| 3 | Intel D850EMV2<br>★★★★☆<br><a href="http://find.pcworld.com/30178">find.pcworld.com/30178</a>          | Intel 850E chip set, PC1066 RDRAM, ATA/100, USB 1.1              | 2-GHz P4        | 112                   | \$154/\$525             | This bare-bones model pairs the fastest P4 chips with RDRAM. Look for full-featured 850E boards from vendors such as Abit, A-Open, Asus, Epox, Gigabyte, and MSI.                 |
|   |  |  | 2.53-GHz P4     | 116                   | \$154/\$981             |   |
| 1 | Soyo KT333 Dragon Ultra<br>★★★★★<br><a href="http://find.pcworld.com/30179">find.pcworld.com/30179</a> | Via KT333 chip set, DDR333 RAM, ATA/133 and RAID, USB 2.0, LAN   | Athlon XP 1700+ | 117                   | \$155/\$347             | Soyo's motherboard offers great performance plus extras like digital audio connectors and a 3.5-inch drive-style enclosure holding front USB ports and a LAN indicator light.     |
|   |  |  | Athlon XP 2100+ | 121                   | \$155/\$448             |   |
| 2 | Asus A7N 266-E<br>★★★★☆<br><a href="http://find.pcworld.com/30180">find.pcworld.com/30180</a>          | NVIDIA NForce 420D chip set, DDR266 RAM, ATA/100, USB 1.1, LAN   | Athlon XP 1700+ | 115                   | \$150/\$322             | Integrated GeForce2 graphics and a sound processor with a Dolby Digital encoder are nice, but they make NForce 420 boards costly if you plan to add sound and graphics cards.     |
|   |  |  | Athlon XP 2100+ | 119                   | \$150/\$423             |   |

Visit [find.pcworld.com/30181](http://find.pcworld.com/30181) for more information.

All motherboards were tested under Windows XP Home on systems with 256MB of RAM, a VisionTek GeForce4 Ti 4600 graphics board, a Lite-On 40X/12X/48X CD-RW drive, and an IBM Deskstar 120GXP hard drive. \* Street prices are reported as of 7/15/02. Combo price includes the motherboard, tested CPU, and 256MB of the appropriate RAM type.



sets with both a high-end and a low-end CPU. In most business applications, we found little difference between systems using the fastest Athlon and P4 chips, though we did see a big price difference. At press time the fastest P4 chip, clocked at 2.53 GHz and running on a 533-MHz bus, sold for around \$650, while the

DDR266 (PC2100), DDR333 (PC2700), and the upcoming DDR400 (PC3200).

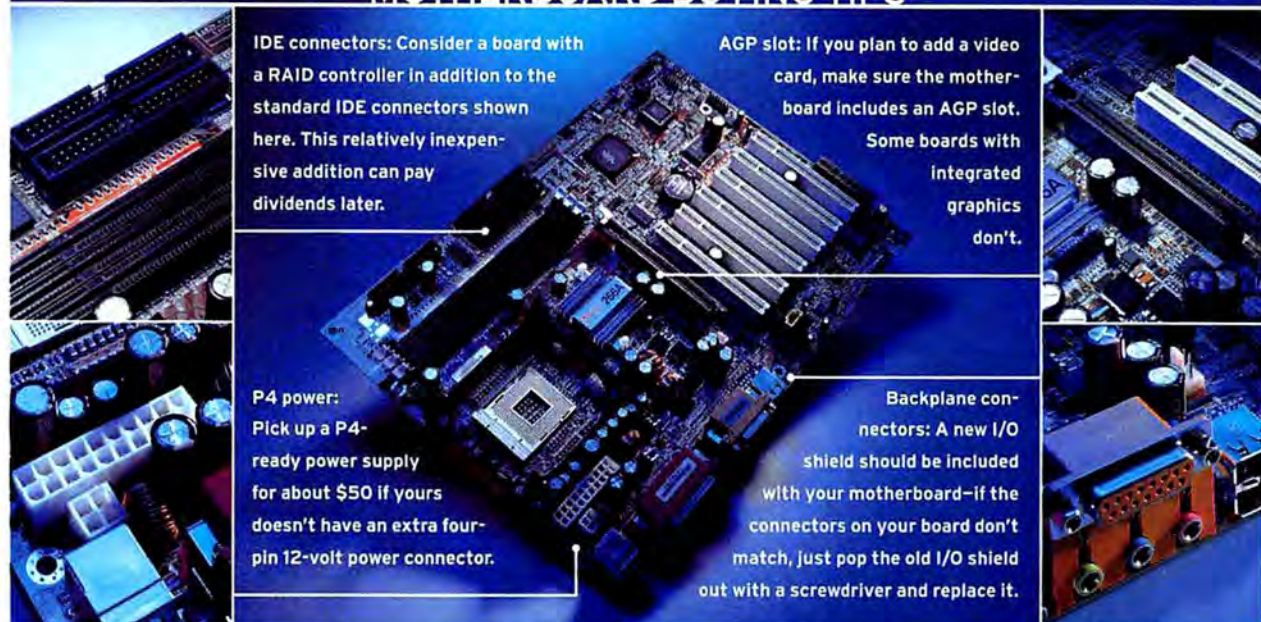
RDRAM is available only on boards equipped with Intel's 850 or 850E chip sets, and it must be installed in pairs. Free memory slots must be filled with continuity modules (CRIMMs). RDRAM costs about twice as much as DDR memory,

make sure your motherboard includes an AGP slot so you can add a graphics card.

► **STORAGE:** Most motherboards ship with an IDE controller that supports ATA/100 or ATA/133 drives. The performance difference between these two standards is negligible, however, so the decision you make here isn't a huge issue.

## CLOSE-UP

### MOTHERBOARD BUYING TIPS



speediest Athlon XP chip cost \$200. That may change later this year as P4 chips widen their MHz lead over Athlons and the new, faster chips push today's speed champs down to more affordable prices.

Celeron CPUs are available as low-price alternatives to P4s, and some Durons can still be found as Athlon XP substitutes, but large performance drops usually accompany the small cost savings (see [find.pcworld.com/29972](http://find.pcworld.com/29972) for details).

► **RAM:** Most boards use DDR SDRAM, though a few P4 chip sets require Rambus memory (RDRAM). DDR memory is available in a variety of speeds; you should generally buy the fastest your board allows. Motherboard manufacturers list DDR memory types according to their clock speed or bandwidth, along with other notations. From slowest to fastest, the types are: DDR200 (aka PC1600),

but it can be useful in high-bandwidth applications. RDRAM is currently available in two speeds: PC800 and PC1066. Spring for the swifter PC1066 (and a motherboard with a chip set supporting it) if you're purchasing a Pentium 4 that runs on the 533-MHz bus.

► **SOUND AND GRAPHICS:** Motherboards with integrated sound have become so common that it's hard to find one without it. The latest models sport six-channel digital sound chips that are more than adequate for casual gaming and MP3 playback. If you're adding a sound card, disable the integrated sound with a jumper or a BIOS setting.

NVIDIA's NForce, ATI's Radeon IGP, and Intel's 845G chip sets integrate adequate graphics processing. If you plan to run the latest 3D games, though, you should either avoid integrated chip sets or

Boards with IDE RAID support present a more interesting choice. A RAID system uses a pair of identical hard disks to increase performance or provide redundancy in case a drive fails. These days, RAID-equipped boards cost as little as \$8 more than their RAID-free counterparts.

► **CONNECTIONS:** Many motherboards offer ethernet, USB 2.0, and FireWire ports. So-called legacy-free boards ship without PS/2, serial, and parallel ports.

### Recommendations

IF YOU WANT the best value, an inexpensive board with a midrange Athlon CPU is probably the right choice. Look to P4 boards such as the VPSD P4PB we tested if you intend to tackle tasks like video editing, but be prepared to shell out some serious cash for the fastest P4 CPUs.

—Eric Dahl ►



*Save lots of cash. Or, gigs of cash.  
However you say it.*



*DVD/CD Burners*

*Laptops*



Desktops



Monitors



Networking



Printers



PDA's



*For great deals on more technology than  
you can possibly imagine, check out eBay.com.  
AOL Keyword: eBay*

**eBay**<sup>®</sup>  
happy hunting<sup>™</sup>



Presenting network computers that work so hard,  
they're even dressed up on casual Friday.

#### Gateway® E-4000 Special

All-Around Performance

Packed with plenty of power, the E-4000 makes multitasking and running today's demanding business software easy. Intel® Pentium® 4 Processor 1.80GHz • 128MB DDR-SDRAM • 20GB Hard Drive • 48X CD-ROM • Integrated 10/100 Ethernet • Microsoft® Windows® XP Professional. Shown with 6-bay midtower case upgrade option. Add a 15" Flat-Panel Display for \$490 (pictured). **\$799** (Shown without monitor, offer available for a limited time only.)



Twenty-four hours a day. Seven days a week. Gateway's new E-Series computers are wearing a power suit. Because not only do they look sharp, they also exhibit the performance and versatility your business needs in a network-managed PC. With their stable platforms and

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. Not responsible for typographical errors. ©2002 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 Gateway Stylized Logo and the Black-and-White Spot Design are trademarks or



### Gateway® E-2000

#### Economical Performance

Ideal for running a variety of standard networked applications, the E-2000 offers tremendous power and value for your money. Intel® Celeron® Processor 1.70GHz • 15" Color Monitor (13.8" viewable) • 128MB DDR-SDRAM • 20GB Hard Drive • 48X CD-ROM Integrated 10/100 Ethernet • Microsoft® Windows® XP Professional Upgrade to a 15" Flat-Panel Display for \$310 (pictured).  
**\$849**



### Gateway® E-6000

#### High-Powered Performance

The E-6000 speeds through e-business applications, desktop publishing, multimedia and more, with top-of-the-line performance. Intel® Pentium® 4 Processor 2.00GHz • 17" Color Monitor (15.9" viewable) • 256MB RDRAM • 40GB Hard Drive • 32MB NVIDIA® GeForce2 MX200™ AGP Graphics • 48X CD-ROM • Integrated 10/100 Ethernet • Microsoft® Windows® XP Professional Upgrade to a 17" Flat-Panel Display for \$450 (pictured).  
**\$1399**



Gateway® PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)

Intel® processors, the new E-Series computers are easy to maintain, easy to upgrade and even easy on the budget. To recruit one for your business, just call us at **1-800-846-2788**.



# Gateway

gateway.com AOL Keyword: Gateway

registered trademarks of Gateway, Inc. in the U.S. and other countries. The Intel Inside Logo, Intel, Pentium and Celeron are 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: 009225





## Outside the Box

Get the most out of your system by installing home networking gear, picking a broadband provider, or purchasing the right printer, monitor, or scanner.

## Home Networking Gear



Agere Orinoco Wi-Fi line

**WHAT MATTERS:** Wired and wireless choices abound, and prices are falling. Selecting the right type of network (or a hybrid) is key.

IN GENERAL, a wireless home network offers more convenience than wired ones: You don't need to install cables, and notebook users can roam untethered. But wired networks are more secure and reliable, and using existing home wiring—either phone lines (HomePNA) or electrical wiring (HomePlug)—eliminates the expense and hassle of installing new cables. Combining elements of both types of networks is easy if you plan ahead.

Prices for networking gear based on the popular 11-megabits-per-second 802.11b (or Wi-Fi) wireless standard have plum-

meted in the past year, and Wi-Fi's 54-mbps sibling, 802.11a (Wi-Fi5), has arrived. On the wired side, the long-awaited HomePlug standard—which transfers data over existing electrical lines—has debuted, and 1-gigabit-per-second (1000-mbps) ethernet is starting to appear on desktops. As is usual with new technologies, initial prices for Wi-Fi5, HomePlug, and (especially) gigabit-ethernet products have been high. Expect price reductions as more vendors offer these products.

Also new: wireless access points (bridges that connect wireless networks to wired

ones) that can communicate with both Wi-Fi5 and Wi-Fi adapters. Such products will appeal primarily to businesses that want to migrate to Wi-Fi5 without either stranding legacy 802.11b users or having to install two access points to serve the two camps. Even more recently, D-Link, U.S. Robotics, and other vendors have introduced so-called 802.11b-plus products based on a new Texas Instruments chip designed to improve network performance while maintaining compatibility with conventional Wi-Fi equipment. Our informal tests show that these products can boost speeds by up to 50 percent—but the increase is largely lost if even one conventional Wi-Fi adapter is on the network. (For our look at both technological advances, see *New Products*, page 70.)

### FEATURES COMPARISON

#### WI-FI ROUTER PICKS

|   | WIRELESS GATEWAY   | Specs   | Comments  |
|---|--|---|---|
| 1 | Agere Orinoco BG-2000<br>★★★★★<br><a href="http://find.pcworld.com/29999">find.pcworld.com/29999</a> <b>NEW</b>  | • \$160<br>• One LAN ethernet port<br>• Extended range<br>• One-year warranty       | Orinoco's new gateway boasts idiot-proof installation and top performance in every room of our test house.  |
| 2 | D-Link AirPlus DI-614+ Wireless Router<br>★★★★★<br><a href="http://find.pcworld.com/30003">find.pcworld.com/30003</a> <b>NEW</b>                                 | • \$125<br>• Four LAN ethernet ports<br>• 22-mbps mode<br>• Three-year warranty     | The D-Link AirPlus offers a 22-mbps mode, 256-bit encryption, and extensive firewall configuration options. Installation can be tricky, however.              |
| 3 | NetGear Cable/DSL Wireless Router (MR314)<br>★★★★★<br><a href="http://find.pcworld.com/30000">find.pcworld.com/30000</a> <b>NEW</b>                              | • \$120<br>• Four LAN ethernet ports<br>• Parental controls<br>• Five-year warranty | The NetGear provides a great combination of deep firewall features and very good performance. It also comes with a generous five-year warranty.               |
| 4 | Linksys EtherFast Wireless Access Point + Cable/DSL Router w/4-Port Switch<br>★★★★★ May 02<br><a href="http://find.pcworld.com/30001">find.pcworld.com/30001</a> | • \$145<br>• Four LAN ethernet ports<br>• Uplink port<br>• One-year warranty        | A reliable workhorse, the Linksys sets up in no time, yet has extensive firewall configuration capabilities.  |
| 5 | SMC Barricade Wireless Broadband Router (SMC7004AWBR)<br>★★★★★<br><a href="http://find.pcworld.com/30004">find.pcworld.com/30004</a> <b>NEW</b>                  | • \$145<br>• Three LAN ethernet ports<br>• Print server<br>• 90-day warranty        | The SMC Barricade delivers excellent performance and offers a useful print server, but it was difficult to install and often lost connection to our DSL line. |

Street prices are reported as of 7/8/02. Visit [find.pcworld.com/30155](http://find.pcworld.com/30155) for product reviews.

### Key Features

► **NETWORK TYPE:** The flexibility of a wireless network is especially tempting, and if you go with a network based on the popular 802.11b standard, you can use your portable in a growing number of public spaces that offer Wi-Fi Internet access. But the security algorithm built into both Wi-Fi and Wi-Fi5 is vulnerable to attack, and range limitations can make using a pure wireless network impractical in spaces that are larger, occupy several floors, or contain lots of doors and walls.

Ethernet remains the fastest, cheapest,



and most secure wired technology available; but installing the required Category 5 cabling can be costly and messy. Consequently, most home users are better off with HomePNA or HomePlug networks. HomePlug has greater appeal because homes and offices tend to have more power outlets than phone jacks. On the other hand, however, at this writing HomePlug adapters cost two to three times as much as HomePNA adapters.

► **SPEED AND RANGE:** If you plan to use your network primarily for sharing broadband Internet access, the speed limitations of your networking technology won't matter much: All of the popular standards significantly exceed the top speed (1 to 1.5 mbps) of residential DSL or cable service. If you plan on frequently moving large files between computers, though, you'll appreciate the difference

between a fast network and a slow one.

Today's 10/100-mbps ethernet networks are the fastest in widespread use. The fastest wireless standard is Wi-Fi5, rated at 54 mbps, but components can cost up to twice as much as their Wi-Fi counterparts. Lagging considerably behind Wi-Fi5 are HomePlug (14 mbps), Wi-Fi (11 mbps) and HomePNA 2.0 (10 mbps). For any of these products, however, you should expect real-world throughput to be less than half the theoretical speeds. In addition, with wireless protocols, speed deteriorates rapidly as distance from the access point increases or as obstacles such as doors, walls, and ceilings intervene. Though many Wi-Fi and Wi-Fi5 vendors claim a range of up to 300 feet, don't count on achieving a range of more than about 100 to 125 feet in a typical office, and somewhat less in a home.

► **SECURITY:** Because intruders don't have to plug in to a physical port for direct access, as they do with a wired network, wireless networks are especially vulnerable to attack. Designers intended the encryption algorithm built into the 802.11x spec, called Wired Equivalent Privacy (WEP), to function as effectively as the physical barrier in a wired network. But encryption experts have shown WEP to be weak on security (though improvements are coming in the form of the IEEE's 802.11i spec). You can improve your odds with network adapters that support 128-bit encryption (versus the 40-bit encryption of basic wireless cards). But if security is vital to you, we recommend using a virtual private network and/or firewall, whether your network is wired or not.

► **HARDWARE SUPPORT:** Not all types of network components are available ►

## CLOSE-UP

### NO- NEW-WIRES NETWORKS AT A GLANCE

| PROVIDER                             |                               | Wi-Fi5 (802.11a)   | Wi-Fi (802.11b)  | HomePlug  | HomePNA   |
|--------------------------------------|-------------------------------|--|--|---|---|
| Type                                 |                               | Wireless (5-GHz band)  | Wireless (2.4-GHz band)  | AC electrical wires   | Phone wires   |
| Rated speed (mbps)                   |                               | 54   | 11   | 14  | 10  |
| Real-world speed <sup>1</sup> (mbps) |                               | 13.1   | 4.1  | 5.2   | 4   |
| Street price                         | PC Card                       | \$110-\$150  | \$70-\$110   | n/a   | \$50-\$60   |
|                                      | USB 1.1 adapter               | n/a <sup>2</sup>   | \$70-\$145   | \$150-\$180   | \$55-\$60   |
|                                      | Router/access point or bridge | \$225-\$300 <sup>3</sup>   | \$135-\$150  | \$80-\$130 <sup>4</sup>   | \$150-\$180 <sup>4</sup>  |
| Pros                                 |                               | Fastest wireless technology  | Affordable wireless networking that's fast enough for sharing broadband Internet access.   | Reliable access that's slightly faster than Wi-Fi wireless and not subject to interference from walls and from other wireless technologies.   | Most inexpensive home networking technology, if you don't have to buy a bridge and router.  |
| Cons                                 |                               | Pricy (especially if you have to buy a router). No USB desktop adapter or router/gateway combo yet available. Weak security. | Slow for large file transfers between networked computers. Slows down or disappears in obstructed spaces. Can be subject to interference from other devices (cordless phones, microwave ovens) that use the 2.4-GHz band. Weak security. | Slow for large file transfers between networked computers. Pricier than Wi-Fi (especially if you have to buy a router). No PC Card adapters are available, and bulky USB and ethernet adapters are cumbersome for notebook users. | Works with standard RJ-11 phone jacks, which may be in short supply in your home or office. Might not work with older wiring. Slower than Wi-Fi or HomePlug. Costs mount if you have to buy a router. |
| Bottom line                          |                               | Best for corporate settings where multiple notebook users require high-speed access to existing networks.                    | Solid mainstream technology for Internet sharing and light file transfers in smaller, unobstructed spaces where security is not of vital concern.  | A good candidate for wired desktops on a hybrid wired/wireless network.   | A viable choice only if every penny counts. Many observers expect HomePNA to fade as other technologies become cheaper.   |

n/a = Not applicable.

<sup>1</sup> Based on informal tests conducted with PCs in adjacent rooms, about 40 feet apart. For wireless technologies, speed deteriorates severely at outer limit of range.

<sup>2</sup> 802.11a PCI card adapter available for \$150-\$210.

<sup>3</sup> Access point only; router required to share Internet access with multiple PCs.

<sup>4</sup> Ethernet bridge only; router required to share Internet access with multiple PCs.



for each network technology. For example, while several Wi-Fi residential gateways combine the access point and router required to share a single broadband Internet account, no comparable product has yet shipped for Wi-Fi5. You have to plug a Wi-Fi5 access point into a conventional ethernet router to gain Internet access. And because the first wave of Wi-Fi5

work to the Internet, it will likely include a built-in firewall to ward off intruders. But the configurability of these firewalls varies widely. Some make connecting directly to a designated PC on your network easy for authorized applications—useful for certain videoconferencing and message applications, not to mention online games. If you have a static IP address,

ethernet ports, which will enable you to create a hybrid wired-and-wireless network. If you'd like to use a printer over your network without hooking it up to an always-on PC, get a gateway with a built-in print server (you connect the printer to a port on the gateway). Want wireless access for employees in a growing office? Consider Wi-Fi5, which supports many more simultaneous users than Wi-Fi.

## Most home users will be best off with either a Wi-Fi network or a Wi-Fi/HomePlug hybrid.

products are aimed primarily at companies that want to afford notebook users access to a wired network, the first Wi-Fi5 desktop adapters appeared only recently.

Similarly, at this writing, no vendor offers a HomePlug gateway or PC Card. And because the available adapters are bulky bricklike units that plug into an ethernet or USB port, the standard is poorly suited for use with notebooks.

► **FIREWALL FEATURES:** If you use a router or gateway to connect your net-

some gateways will even help you set up a Web server. Others offer parental controls, allowing you to block access to sites by URL or even by specific keywords.

► **ROOM TO GROW:** Your networking needs may well increase as new applications (connecting to home entertainment devices, for example) arrive. Look for gear that allows you to add devices or network types. If you decide to buy a wireless residential gateway, for example, choose one with multiple local-area network (LAN)

## Recommendations

KEY FACTORS IN choosing a home network include the types and physical locations of your computers, your security needs, and the cost you can afford. Unless large file transfers are involved, most home users are best off with a Wi-Fi network or—if a pure wireless network is impractical—a Wi-Fi/HomePlug hybrid.

Because Wi-Fi shoppers have the most options, our chart of top router picks is devoted to Wi-Fi. If you're willing to spend a few extra dollars for top range and speed, consider a solid and consistent performer such as Agere's Orinoco line.

—Yardena Arar ►

## DECISION STEPS

### WHICH HOME NETWORK WORKS FOR YOU?

#### IF THIS IS YOUR SITUATION:

#### AND:

#### THEN BUY:

You don't mind installing Category 5 wiring to connect the PCs and other devices on your network (all other options don't entail new wiring).

Security, speed, and hardware costs are of vital concern.

Ethernet cabling and ethernet PCI, USB, or PC Card adapters for each desktop and notebook—this option is the cheapest, fastest, and most secure.

You can install a wireless access point/gateway that lies no farther than 100 to 125 feet from any of your PCs (less if walls, ceilings, or doors intervene).

Security and speed aren't of vital concern, and you don't expect more than a handful of users at any given time.

An 802.11b gateway (preferably equipped with several additional ethernet ports), an 802.11b PC Card for each notebook, and an 802.11b PCI or USB adapter for each desktop.

You already have a wired network, but you want notebook users to be able to roam around and still connect to the network as needed.

Security and cost aren't of vital concern, but network speed and support for multiple users are important.

One or more Wi-Fi5 (802.11a) access points (depending on the size of the space to be covered) and a Wi-Fi5 PC Card for each notebook.

Your PCs are more than 100 to 200 feet apart, or they're separated by walls, doors, and/or ceilings.

Cost isn't of vital concern, and you aren't networking a notebook.

An ethernet router, a HomePlug ethernet bridge for the router, and a HomePlug ethernet bridge (requires ethernet adapter) or a USB adapter for each desktop.

Your PCs are far apart or are separated by walls, doors, and/or ceilings.

Cost is of vital concern, and your PCs are located reasonably close to available phone jacks.

An ethernet router, a HomePNA ethernet bridge for the router, a HomePNA PC Card for each notebook, and a HomePNA PCI or USB adapter for each desktop.

Your space is too large or obstructed to support a pure wireless network.

You'd like to be able to roam with a notebook.

A wireless/wired hybrid. For example, a Wi-Fi router with additional ethernet ports, a HomePlug ethernet bridge for the router, a HomePlug ethernet bridge (requires ethernet adapter) or USB adapter for each desktop, and a Wi-Fi PC Card for the notebook.



**SONY**

making business pleasure

# the ONE PROJECTOR TO OWN.

Introducing the newly designed Sony SuperLite™ LCD Projector Series VPL-CS5 (and its SuperLite Series partner, the VPL-CX5). It's so light, compact and powerful, you can take it to a sales call or to the boardroom at the drop of a hat. In fact, it may be the only projector you need.

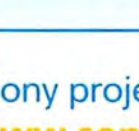
Either model is so intuitive, it adjusts the picture, corrects keystone, adjusts its legs, and retracts its lens cover... all automatically! The VPL-CX5 even has a Memory Stick® slot for PC-less presentations, so you can leave your laptop at home.

These new SuperLite™ models both employ Sony LCD technology delivering SVGA resolution (1800 ANSI lumens\*) in the VPL-CS5, and true XGA resolution (2000 ANSI lumens) in the VPL-CX5. Best of all, they're amazingly affordable.

The VPL-CS5/CX5. If you're going to have only one projector, you'll be glad you chose a Sony.

**SuperLite**

**Flexible enough to travel,  
set up and mount with ease.**

**AUTO****Picture  
adjustment****AUTO****Keystone  
adjustment****AUTO****Leg  
adjustment****AUTO****Lens cover  
retraction****AUTO****Auto input  
search**

Call **1-800-472-SONY ext.CS5** today to get the Sony projector you've always wanted at a price you never imagined. Or visit **[www.sony.com/projectors](http://www.sony.com/projectors)**

©2002 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Features and specifications subject to change without notice. Sony, SuperLite and Memory Stick are trademarks of Sony.  
\*ANSI lumen is a measuring method of the American National Standards Institute IT7.228





## Broadband

**WHAT MATTERS:** Cable Internet costs the least, but you should choose DSL if you plan to share access among multiple PCs.

ONCE YOU'VE SWITCHED to a high-speed Internet connection, it's hard to go back to dial-up. Instant connections and file downloads in seconds instead of minutes can change computing life as you know it. Here's a look at how much a high-speed setup will cost, what kind of performance you can expect to get, and what services each type of broadband provides.

### Key Features

► **PRICE:** DSL service fees range from \$40 to \$600 per month (the higher-price options include services for small businesses and faster upload and download speeds); residential services cost about \$45 a month. DSL vendors usually provide the DSL modem. Installation costs from \$50 to \$400, though providers may waive or discount installation fees if you accept a one- or two-year service contract.

Cable data services cost from \$25 to \$95 per month; residential rates sit at the low end of the scale, and the higher fees are for faster upload and download speeds. You can buy your own cable modem for about \$100 or rent one from your vendor for between \$3 and \$7 a month. Installation costs from \$50 to \$150; but like DSL services, cable companies may waive or discount these fees during promotions,

which often involve an extended contract.

For satellite service you'll pay about \$60 to \$70 a month. The equipment and installation cost about \$600.

► **DOWNLOAD/UPLOAD SPEED:** Though a DSL connection can theoretically run at speeds as high as 10 mbps, most services offered to homes and small businesses provide download and upload speeds of 128 kbps to 1.5 mbps (roughly 2 to 25 times faster than a 56-kbps modem).

Download rates for cable start at about 1.5 mbps, whereas download speeds for entry-level DSL tend to fall well below 1 mbps. Upload speeds for cable range between 128 kbps and 384 kbps.

Satellite download speeds range from 400 kbps to 3 mbps, and upload speeds run about 128 kbps. But there's one big caveat: Satellite broadband incurs high latency—the time it takes for the signal to travel to and from the orbiting satellite—making it a bad choice for online gaming.

► **CHOICE OF SERVICES:** As with dial-up, you need an account with an ISP to complete your broadband connection. Many ISPs partner with DSL providers to offer various speed and service packages. Cable companies, on the other hand, can dictate most terms of service because they are usually the only providers in a given



Cable and DSL connections

area. For example, AT&T Broadband's standard service agreements prohibit customers from running servers, and sharing connections among a home network of multiple PCs is another no-no, unless you pay extra. The company reserves the right to probe your system to make sure you're following its rules. DSL typically carries far fewer use restrictions, so it's a better choice if you do anything more than connect a single PC to the Internet for browsing, e-mail, and downloading.

### Recommendations

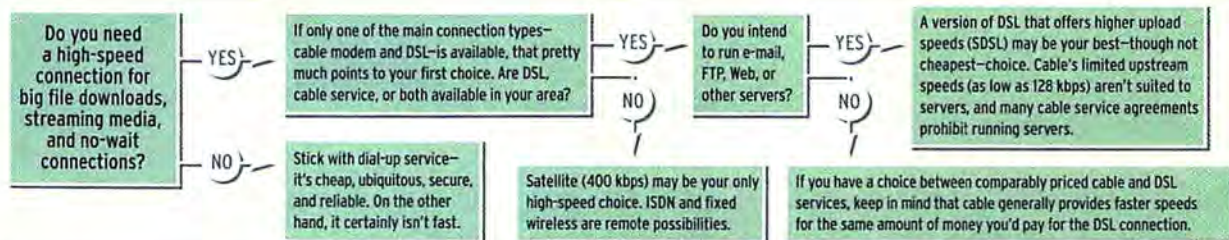
IF YOUR INTERNET activity is limited to e-mail and occasional Web browsing, broadband may not be worth the extra cost. But if you're ready to move to broadband, and you like your dial-up ISP, check with it first—you might keep your e-mail address. If you simply want a faster connection, cable usually offers more speed for the money. A DSL line typically has more business-friendly features. Stuck in the wilderness? Then you're probably stuck with satellite, but keep checking for the availability of the other services.

—Scott Spanbauer ►

### DECISION STEPS

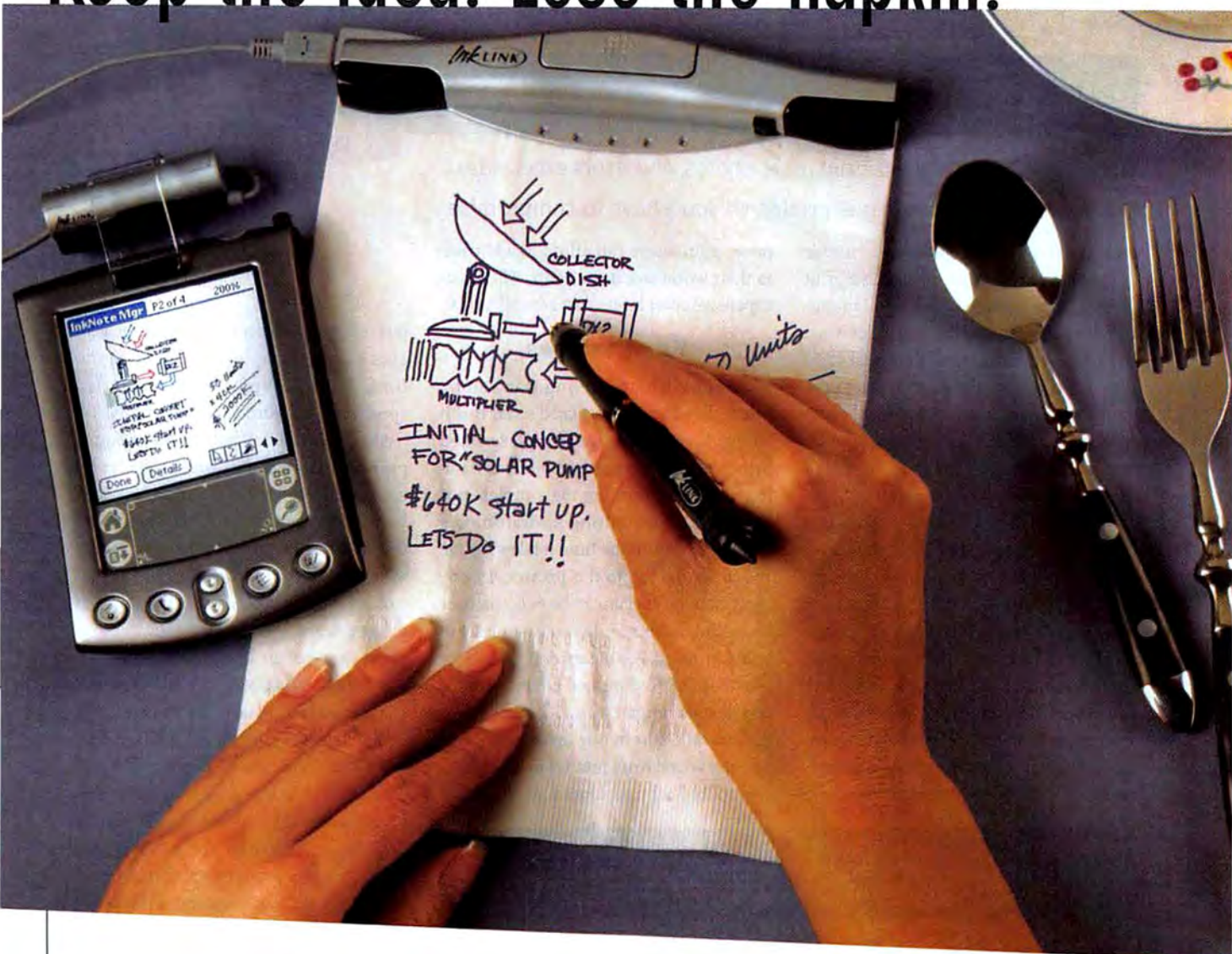
## WHICH BROADBAND OPTION IS RIGHT FOR YOU?

START HERE:





# Keep the idea. Lose the napkin.



Whenever inspiration strikes, capture your handwritten notes with InkLink™

With Seiko Instruments' new InkLink™ Handwriting System, you can instantly capture, organize, edit and send your handwritten notes and drawings into your handheld, laptop or Windows® PC. Just place the InkLink Data Clip on any size paper up to legal size tablets, plug it in and start writing. Cut, copy, paste, zoom—you're in control. InkLink synchronizes your notes with HotSync™ or ActiveSync™.



And with its convenient pocket-size carrying case, InkLink goes where you go. Check it out at [seikosmart.com](http://seikosmart.com), or call (800) 688-0817.

And leave those cocktail napkins behind.

©2002 Seiko Instruments USA Inc. All rights reserved. Specifications subject to change without notice. SII is a registered trademark of Seiko Instruments Inc. InkLink, InkNote Manager and SmartTools are trademarks of Seiko Instruments USA Inc. Corporate names and trademarks stated herein are the property of their respective companies.

**SII**  Seiko Instruments Inc.  
SmartTools: Technology for Business and Home/Office™

**BEST BUY**  
Turn On the Fun™

**COMPUSA**  
WHERE AMERICA BUYS TECHNOLOGY

**Ink LINK**  
HANDWRITING SYSTEM™





## Printers

**WHAT MATTERS:** Ink jets print great photos, and lasers excel at text. But you can't get both in one printer, so you'll have to compromise.

FOR MOST PEOPLE, choosing a printer entails balancing price, speed, and print quality. But as models improve, manufacturers differentiate them in other ways. Ink jet printers, along with digital cameras, are changing the way we print photographs. When loaded with special photo inks and paper, ink jet printers become one of the best options for transforming a digital image into a photograph.

For monochrome lasers—whose text quality is so good and uniform that models' output samples are almost indistinguishable from each other—breadth of features is a major selling point. This is good news for busy offices; for example, thanks to extra paper trays and more memory, lasers can print more efficiently, and they come with more-capable drivers that permit easier remote management. As color lasers continue to drop in

price, more users can afford to add color to their workplace documents. The least-expensive color lasers cost around \$1000.

### Key Features

► **SPEED:** The marketing war among printer vendors has escalated so far that it has yielded utterly meaningless rated print speeds. Vendors frequently cite ratings based on printing the simplest text documents, or printing in draft mode; some don't count the time it takes for the PC to send a job to the printer. In any case, claimed speeds can be two, three, or more times the speeds you'll see in real-world printing. For the models ranked for our "Top Ink Jet Printers" chart, the rated text speeds ranged from 5.2 to 21 pages per minute. But in our tests, actual text speeds ranged from just 1.9 to 7.2 ppm—we clocked a printer rated at 21 ppm at



Canon S750 Color  
Bubble Jet Printer

just 6.6 ppm, for example. Similarly, vendors claimed graphics speeds ranging from 2.2 to 15 ppm, while our tested speeds ranged from 0.5 to 1.5 ppm.

Although you will get the same empty promises from monochrome and color laser vendors, lasers do outrace ink jets. In our tests, monochrome lasers printed text at 10 to 18 ppm, while color lasers were about a third slower, at 7 to 12 ppm. Color lasers' graphics printing speeds ranged from 1 to 3 ppm—up to eight times slower than advertised.

► **PRINT QUALITY:** Almost all monochrome and color lasers print razor-sharp text. Color lasers print color charts and other two-dimensional graphics well, but don't match ink jets in handling photographs. While ink jet photos can be beautiful, especially on glossy paper, most ink jet printers produce somewhat fuzzy, jagged text and can't reproduce fine detail in line art or graphics well.

► **RESOLUTION:** Most ink jet printers have a maximum color resolution of 2400 by 1200 dots per inch (dpi); newer models boast resolutions of up to 4800 by 1200 dpi. But a higher resolution doesn't always translate into a better-looking image; such factors as dot size also play a part. Many printers use software to interpolate an image—smoothing areas of color, filling in gaps, and sharpening more-detailed sections. These enhancements can affect print quality as much as resolution. The best way to determine print quality is not to look at the resolution, but to print out a sample and judge for yourself.

Monochrome lasers usually have a maximum resolution of either 600 by 600 dpi or 1200 by 1200 dpi, and color lasers usually offer a maximum color resolution of

### CLOSE-UP

## LASER VS. INK JET VS. PHOTO PRINTER

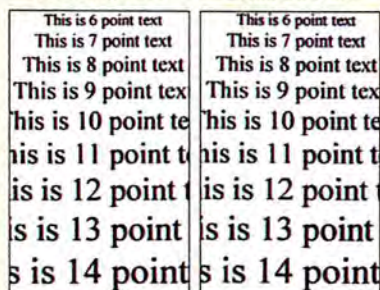
PERSONAL MONOCHROME LASERS are beginning to rival ink jets in price, and they produce consistently better text. Photo printers are supposed to print photos better than general-purpose ink jets, but you may not be able to tell the difference.

Samsung 1210

Lexmark Z65

Canon S820

Canon S520



TEXT FROM a \$299 monochrome laser (left) is significantly sharper and less jagged than text from a \$199 ink jet.



ON GLOSSY PAPER, photos from a \$249 photo-quality ink jet printer (left) and a \$129 ink jet both look vivid and detailed.



either 1200 by 1200 dpi or 2400 by 1200 dpi. Even the lower resolutions suffice for printing sharp text and simple graphics.

► **COST PER PAGE:** For ink jets, ink expenses play the biggest part in the overall cost of the printer over time. Vendors typically charge \$21 to \$38 for a three-color cartridge and \$12 to \$34 for a separate black cartridge. Usually, the cheaper a cartridge is, the less ink it holds; yields range from about 300 to 800 pages per cartridge. So a page of black text can cost from 1 to 7 cents, and a page of color, 6 to 18 cents.

Many vendors offer higher-capacity cartridges; though more expensive, they contain more ink, so they cost less per page. Several models come with individual cartridges for each color instead of one cartridge for all three colors. You'll save some ink by replacing cartridges one at a time, but they cost a few dollars more, so per page, individual cartridges cost about the same. If you expect to use one color more than the others—many of your documents have a red logo, say—consider a printer that uses individual cartridges.

Monochrome and color laser cartridges cost about 2 to 4 cents per page of black text, but color lasers have separate toner cartridges for each color, which can cost as much as \$250 each (less for black). Even with the high overall cost, the cost per page of a color laser's cartridges is still less than for color from an ink jet, because the yields are so much higher—ranging from 6000 to 12,000 pages.

► **FEATURES:** Almost all ink jets offer the same set of features: one paper tray that holds either 100 or 150 sheets and 10 envelopes; minimal buffer memory; and no networking option. But a few more-expensive business-oriented ink jets have higher paper capacities, optional paper trays, ethernet or 802.11b wireless networking, and more memory.

Lasers generally have more features and options than ink jets. Monochrome lasers hold from 150 to 700 sheets, and corporate models frequently hold 600 sheets standard; color lasers hold from 200 to 1200 sheets. You can add trays that hold up to 5000 sheets. Most corporate lasers in-

clude at least 8MB of RAM, and expansion options let you add many times that amount for queuing multiple print jobs at once (for a busy office, equip your laser with at least 32MB); some models offer optional hard drives where you can save complex forms and other preprocessed images or store passwords for confidential print jobs, and they all have standard or optional ethernet adapters.

► **PHOTO PRINTING:** Various photo-quality ink jets include extra features such as a dedicated USB port for connecting your digital camera directly to the printer, built-in media card slots that let you plug in a storage card and hit a button for instant prints, or an LCD menu for selecting prints. Each of these options means you don't have to go through a PC. These printers can produce beautiful color photos. But don't rule out general-purpose ink jets, which can serve very well as photo printers, too. If you change the settings in the driver to "Best" or "Photo" mode and use premium photo paper, many inexpensive, sub-\$100 printers can create high-quality photo prints.

## Recommendations

INK JETS HAVE LOW sticker prices and produce great-looking images, especially photos. The \$169 Canon S750 Color Bubble Jet Printer is a moderately priced ink jet we like. You lose a lot to get color, however: Ink jets are slower than lasers, printed text looks worse, and they cost more in the long run. So, if you expect to print text most of the time, buy a midrange monochrome laser—they can cost less than a high-end ink jet—and go to a local copy shop for the color prints you occasionally need. The \$299 Samsung ML-1450 is a fine, inexpensive monochrome laser.

Prices for color lasers rival those for high-end monochrome lasers, so an office can get a workhorse black-and-white printer that also generates color prints—though it won't print photos well. Note that you'll sacrifice speed, and cartridges are expensive, but offices with occasional color printing needs won't have to buy them often. Lexmark's \$2069 C720N is a good, medium-priced color laser.

—Lisa Cekan ►

## FEATURES COMPARISON

| TOP INK JET PRINTERS  |  |  |   | TEST Center |
|---|--|--|---|-------------|
|   | INK JET PRINTER  | Specs <sup>1</sup>   | Comments  |             |
| 1   | <b>Best BUY</b><br>Canon S750 Color Bubble Jet Printer<br>★★★★★ May 02<br><a href="http://find.pcworld.com/22841">find.pcworld.com/22841</a> | • \$169<br>• 7.2 ppm B&W, 1.2 ppm color<br>• 2400 by 1200 dpi<br>• 100 sheets input, 50 output | The quick S750 printed beautiful glossy photos and handled text with good accuracy and speed for an ink jet. Its gray-scale images and lines were only adequate. Price drops \$30 this month. |             |
| 2   | <b>Best BUY</b><br>Epson Stylus C80<br>★★★★★ Jan 02<br><a href="http://find.pcworld.com/16660">find.pcworld.com/16660</a>                    | • \$149<br>• 6.9 ppm B&W, 1.5 ppm color<br>• 2880 by 720 dpi<br>• 150 sheets input, 30 output  | This fast unit works well for high-volume home-office printing. Text quality is adequate, but it excels at printing photos and uses pigment-based inks, so photos should last longer.         |             |
| 3   | Canon S520 Color Bubble Jet Printer<br>★★★★★ July 02<br><a href="http://find.pcworld.com/27442">find.pcworld.com/27442</a>                   | • \$129<br>• 6.6 ppm B&W, 1.0 ppm color<br>• 2400 by 1200-dpi<br>• 100 sheets input, 50 output | Text printed fast but looked somewhat fuzzy. Graphics and photos were smooth and detailed; colors appeared slightly oversaturated, though. The printer's price drops \$20 this month.         |             |
| 4   | HP Deskjet 940c Color Inkjet Printer<br>★★★★★ Jan 02<br><a href="http://find.pcworld.com/16681">find.pcworld.com/16681</a>                   | • \$149<br>• 4.7 ppm B&W, 0.7 ppm color<br>• 2400 by 1200-dpi<br>• 150 sheets input, 50 output | Text and graphics speeds were fairly slow, but gray-scale images looked beautifully smooth and sharp in our tests. Glossy photos displayed great detail and texture but were too dark.        |             |
| 5   | HP Deskjet 920c Color Inkjet Printer<br>★★★★★ Mar 02<br><a href="http://find.pcworld.com/19264">find.pcworld.com/19264</a>                   | • \$99<br>• 4.2 ppm B&W, 0.7 ppm color<br>• 2400 by 1200-dpi<br>• 100 sheets input, 50 output  | This inexpensive—albeit somewhat slow—printer turned in respectable image quality, with detailed, attractive graphics. The 90-day warranty is shorter than those of other vendors.            |             |
| Visit <a href="http://find.pcworld.com/30077">find.pcworld.com/30077</a> for more rankings and for product reviews. |  |  |   |             |

<sup>1</sup> Street prices are reported as of 6/14/02. Printing speeds listed are as measured by the PC World Test Center.





## Monitors

**WHAT MATTERS:** Inexpensive CRT and LCD models are suitable for general use, but many full-featured models are worth the extra cost.

IF YOU REPLACED an old PC in the last few years, you probably decided to use the old monitor with the new machine. That's okay if it's in good shape—most monitors have a life span of about five years—but if it's a worn-out 15-inch CRT that produces barely legible text at 800 by 600 pixels, you're hobbling your productivity.

Most monitor manufacturers produce entry-level lines that combine very low prices with pared-down features. These monitors work well enough for Web surfing, e-mail, and other office productivity tasks—as long as they provide adequate resolutions and refresh rates. Midrange and professional lines tend to offer better

image quality and extensive features, such as superior image-adjusting controls and USB 1.1 ports. Some professional-level monitors even include asset control, to help IS managers keep track of their companies' property via a LAN.

In general, graphic artists prefer CRT monitors because they show truer colors and greater nuance, whereas people who work mostly with text gravitate toward LCDs because pixels on an LCD have well-defined edges, resulting in sharply focused letters. Because CRTs redraw their screens more quickly than LCDs—so moving images never leave visible trails—gamers prefer them, too.



Samsung  
SyncMaster 152T

### Key Features CRT Monitors

► **TUBE TYPE:** Shadow-mask displays employ a metal sheet perforated with small holes to focus an electron beam that illuminates phosphors on the inside of the tube. These monitors usually have a slightly curved face, though some flat-screen models are available. Shadow-mask monitors are generally the monitor of choice for use with drawing applications such as CAD because they tend to render accurate straight lines.

Other CRT monitors have aperture-grille tubes, which send their electron beams through an array of thin vertical wires. The grille is supported by one or two wires that cause a faint line to appear in the bottom and top thirds of a white screen. Many aperture-grille models, which tend to cost more than shadow-mask displays, have a flat face. They typically render bright images, making them ideal for people who work with graphics. Though they cost more, flat-faced models repay the investment, because they present a clear, undistorted image and reduced glare from ambient light.

► **DOT PITCH:** Despite their prominence in advertisements, dot pitch and stripe pitch aren't the best indicators of a monitor's image quality. Dot pitch (or diagonal dot pitch) is the distance between two like-colored phosphors on a shadow-mask CRT. For aperture-grille tubes, vendors cite stripe pitch—the horizontal distance between two like-colored stripes of phosphor. For shadow-mask displays, ads may also list horizontal dot pitch; this is the distance between two columns of dots

### CLOSE-UP

## LCD MONITOR VS. CRT MONITOR

Elizo Nanao FlexScan L365 (left)  
and Samsung SyncMaster 700NF.



#### 15-INCH LCD

- Offers 15 inches of viewable area
- 9 to 10 pounds, and 8 inches deep
- Flicker-free
- Draws 35 watts of power
- Poor visibility at wide angles
- Optimal for text use



#### 17-INCH CRT

- Offers 15 inches of viewable area
- 35 to 40 pounds, and 16 inches deep
- Visible flickering at low refresh rates
- Draws 100 watts of power
- Clearly viewable at nearly any angle
- Best for graphics



of the same color—a lower number than for diagonal dot pitch, but one meant to be more comparable to the stripe pitch figure. Correlating these measurements with actual performance is difficult, but your eyes provide the best gauge of image quality: Observe how the kinds of documents and pictures you work with look.

#### ► RESOLUTION AND REFRESH RATE:

A 17-inch CRT monitor with a listed maximum resolution of 1600 by 1200 may seem high-end, but if it can display that resolution only at a refresh rate of 60 Hz, you shouldn't be impressed. A monitor's refresh rate indicates the number of times per second the screen gets redrawn. At any refresh rate lower than 70 Hz, your eye will likely detect the screen flickering.

Even if the monitor supports a high refresh rate, text and icons must be large enough for comfortable viewing. Text on a 17-inch monitor at 1600 by 1200 resolution will be small for all but the sharpest eyes, though most people could work at that resolution on a 21-inch model.

## LCD Monitors

► **NATIVE RESOLUTION:** Because an LCD uses a matrix of cells to display its image, it has a fixed (or native) resolution at which it looks best. A 15-inch LCD has a native resolution of 1024 by 768, while a 17- or 18-inch model will look its best at 1280 by 1024. If you set the monitor to a lower resolution, the image will blur, because the display will use only a portion of the pixels it contains and will scale up the resulting image to fill the screen.

Though scaling technologies have improved recently, you're likely to be disappointed with the results. Text looks jagged at nonnative resolutions, so an LCD is a good choice if you tend to use just one resolution for all applications.

► **VIEWING ANGLE:** An LCD's viewing angle (measured in degrees) indicates how far you can move to the sides or above or below the center of the display before the image begins to darken or blur. An angle of 160 degrees is advisable; a narrower angle may make the screen look as if you were seeing it through a tunnel.

Vendors measure viewing angles in different ways, so those specs are similarly meaningless, except within brands. Whatever the spec reads, viewing angle is vital, so view before you buy.

Many LCDs have stands that can adjust or swivel sideways; this can help compensate for a relatively narrow viewing angle.

► **CONTRAST RATIO:** This term refers to the difference in light intensity between the brightest white and the darkest black that an LCD can produce. Look for a contrast ratio of 300:1 or better—with anything lower, colors may wash out when you turn up the brightness and may disappear when you turn it down.

► **DIGITAL VS. ANALOG:** If your PC has a graphics card with digital video-out, choose a digital LCD. Because the image won't have to be converted from analog to digital and back again, it will be clearer. Even if your system doesn't have a DVI port, a digital LCD makes sense, since most also have an analog connection. Digital inputs tend to be found on relatively high-end models, but they are becoming increasingly prevalent at all price levels.

## Both CRTs and LCDs

► **SIZE AND DEPTH:** Bear in mind the size of your workspace when deciding on the type of monitor to buy. The average 17-inch CRT monitor can measure almost 17 inches deep and weigh 40 pounds or more, while an average 17-inch LCD takes up half the space, with a depth of 8 inches and a weight of 17 pounds.

## Recommendations

IF YOU PLAN to do little more than surf the Web and write e-mail, a basic CRT or LCD should suffice. A \$300-to-\$400 19-inch CRT is your best choice for graphics or image editing. For instance, ViewSonic's GS790, which earned a Best Buy on our most recent *Top 10 19-Inch Monitors* chart, delivers rich, lifelike colors.

If you spend most of your time editing text or using spreadsheets, a 15-inch LCD monitor like NEC's MultiSync LCD1550X makes a good choice. Prices start at under \$400 for 15-inch LCDs, but many 17-inch models now cost less than \$800.

—Kalpana Narayanamurthi ►

## FEATURES COMPARISON

| TOP LCD MONITORS |   |   |   | TEST Center |
|------------------|---|---|---|-------------|
|                  | 15-INCH LCD MONITOR   | Specs <sup>1</sup>  | Comments  |             |
| 1                | NEC MultiSync LCD1550X<br>★★★★★ June 02<br>find.pcworld.com/24881 | • \$549<br>• 13.6 by 7.9 by 14.9 inches, 13.2 pounds<br>• Analog and digital video inputs<br>• Pivots using PivotPro software | This monitor has an average price but provides excellent image quality. Dual inputs allow you to hook it up to an older PC or one with DVI-out. |             |
| 2                | Samsung SyncMaster 152T<br>★★★★★ NEW<br>find.pcworld.com/29942    | • \$549<br>• 14.1 by 7.2 by 14.1 inches, 6.6 pounds<br>• Analog and digital video inputs<br>• Optional USB 1.1 hub            | This lightweight, easy-to-carry panel with a silver finish renders exceptionally crisp, smooth letters. Colors also look bright and vibrant.    |             |
| 3                | NEC MultiSync LCD 1550M<br>★★★★★ NEW<br>find.pcworld.com/29943    | • \$499<br>• 13.6 by 6.4 by 14.3 inches, 9.9 pounds<br>• Analog video input<br>• Four-port USB 1.1 hub                        | The LCD 1550M feels sturdy, but its beige bezel looks dowdy next to more-stylish LCD monitors. Image quality is respectable, with vivid colors. |             |
| 4                | Iiyama Pro Lite 3835UT<br>★★★★★ June 02<br>find.pcworld.com/24801 | • \$549<br>• 13.5 by 8.4 by 13.5 inches, 13.2 pounds<br>• Analog and digital video inputs<br>• Pivots using PivotPro software | This gray-toned display performs extremely well on text and respectably on graphics, but trails the like-priced Samsung and NEC models overall. |             |
| 5                | Sharp LL-T15V1<br>★★★★★ June 02<br>find.pcworld.com/24921         | • \$399<br>• 13.3 by 7.4 by 12.7 inches, 7.5 pounds<br>• Analog video input<br>• Includes Sharp setup utility software        | This no-frills unit doesn't have a digital input, but it does offer reasonably good image quality, a stylish design, and an attractive price.   |             |

Visit [find.pcworld.com/30092](http://find.pcworld.com/30092) for more rankings and product reviews.

<sup>1</sup> Street prices are reported as of 6/17/02. Monitor dimensions are listed in order by width, depth, and height.





## Scanners

**WHAT MATTERS:** A scanner with at least 1200 dpi and 48-bit color depth gives demanding users the most image-editing flexibility.

TODAY'S CONSUMER SCANNERS commonly have optical resolutions of 2400 dots per inch—and that's likely to remain the maximum for a while because manufacturers are opting to improve ease of use rather than upgrade the core hardware. For example, HP will add a photo feeder to an upcoming model, and Epson is incorporating its Print Image Matching feature into future units to simplify color calibration with Epson printers. Support for Windows XP is now practically universal among new scanner models.

### Key Features

► **OPTICAL RESOLUTION:** For displaying photos on the Web or printing snapshots, 100 dots per inch is plenty of resolution; for capturing text using optical character recognition, 300 dpi is standard; any scan-

ner on the market can easily perform those tasks. But if you want to make 8-by-10-inch or larger prints, or enlarge smaller images, opt for a scanner with 1200 dpi or 2400 dpi of optical resolution. You'll have more image-editing flexibility if you start with the highest possible resolution. Be warned, however, that high-resolution images take a lot of hard disk space—even a modest 1200-dpi, 2-by-2-inch photo can consume 17MB. Also, scanning at high resolutions tends to take longer.

► **TRANSPARENCY ADAPTER:** Scanning slides or film requires a transparency adapter—a light source that shines through the film, which is normally held in place with a template. Transparency adapters can be built into a scanner's lid, or they can be separate modules. The separate adapters let scanner makers keep



Visioneer  
OneTouch 9000 USB

the lid thin or put an automatic document feeder into the lid. Transparency templates come in different sizes: Many are sized for three slides or a 6-inch-long filmstrip, and some are big enough for one or more large-format transparencies.

### ► AUTOMATIC DOCUMENT FEEDER:

An automatic document feeder is helpful if you need to handle high-volume optical character recognition or scan extra-long pages. HP and Microtek sell aftermarket ADFs (for around \$200) for some models, but buying a scanner and ADF separately is more expensive than purchasing a scanner that includes an ADF at the outset.

► **INTERFACE:** Scanner makers are currently releasing products that come with USB 2.0 interfaces (which are backward-compatible with USB 1.1 connections). We have not seen great speed jumps from USB 2.0 scanners so far.

► **COLOR DEPTH:** The amount of color (or gray-scale) data a scanner can recognize and save, called *bit depth*, is measured in bits per pixel. Since a scanner usually can capture more data than its driver can save, you'll frequently see bit depth qualified with a term such as *internal* or *hardware*, referring to how much data the scanner can recognize. *External* or *true* bit depth describes how much data the scanner's driver can save. For almost all forms of general-purpose use, 24-bit external color depth is sufficient.

### Recommendations

FOR GENERAL HOME and office use, opt for a scanner like the \$150 Microtek ScanMaker 4900, which has attractive output, good speed, a robust driver, and useful software. For heavy document processing, consider a scanner with a 25-sheet ADF, such as HP's \$399 Scanjet 5490c.

—Rebecca Freed ►

### FEATURES COMPARISON

| TOP FLATBED SCANNERS  |  |  |   | TEST Center |
|---|--|--|---|-------------|
|   | SMALL-OFFICE SCANNER   | Specs <sup>1</sup>   | Comments  |             |
| 1   | Microtek ScanMaker 4900<br>Best BUY ★★★★★ Aug 02<br><a href="http://find.pcworld.com/29124">find.pcworld.com/29124</a> | <ul style="list-style-type: none"> <li>• \$150</li> <li>• 2400-by-4800-dpi optical resolution</li> <li>• USB 1.1 interface</li> <li>• 48-bit external color depth</li> </ul>           | Solidly constructed model is easy to install; useful software, a robust driver, removable lid, and transparency adapter increase its value.                     |             |
| 2   | Visioneer OneTouch 9000 USB<br>★★★★★<br><a href="http://find.pcworld.com/29882">find.pcworld.com/29882</a> <b>NEW</b>  | <ul style="list-style-type: none"> <li>• \$129</li> <li>• 1200-by-4800-dpi optical resolution</li> <li>• USB 2.0 interface</li> <li>• 48-bit external color depth</li> </ul>           | Visioneer's latest places first among small-office units for overall speed, and its software bundle is a good value. The image quality could be better, though. |             |
| 3   | Canon CanoScan Lide 30<br>★★★★★<br><a href="http://find.pcworld.com/29883">find.pcworld.com/29883</a> <b>NEW</b>       | <ul style="list-style-type: none"> <li>• \$99</li> <li>• 1200-by-2400-dpi optical resolution</li> <li>• USB 1.1 interface</li> <li>• 24-bit external color depth</li> </ul>            | Like other CanoScans, the Lide 30 has a slim profile and produced vivid, accurate color scans. But this unit ranks among the slowest we've tested.              |             |
| 4   | Epson Perfection 1650 Photo<br>★★★★★ Aug 02<br><a href="http://find.pcworld.com/15842">find.pcworld.com/15842</a>      | <ul style="list-style-type: none"> <li>• \$199</li> <li>• 1600-by-3200-dpi optical resolution</li> <li>• USB 1.1 interface</li> <li>• 48-bit external color depth</li> </ul>           | Sturdy, versatile model produced zippy black-and-white scans and crisp, colorful images. Its price drops \$50 this month.                                       |             |
| 5   | HP Scanjet 5400c<br>★★★★★ Aug 02<br><a href="http://find.pcworld.com/29122">find.pcworld.com/29122</a>                 | <ul style="list-style-type: none"> <li>• \$199</li> <li>• 2400-by-2400-dpi optical interface</li> <li>• USB 1.1, parallel interfaces</li> <li>• 48-bit external color depth</li> </ul> | The 5400c scored better on monochrome line art than on color scans; video clips make installation foolproof. HP's driver includes an OCR engine.                |             |
| Visit <a href="http://find.pcworld.com/29954">find.pcworld.com/29954</a> for more rankings and product reviews. |  |  |   |             |

<sup>1</sup>Street prices are reported as of 6/14/02. The maximum bit depth a scanner's driver can save is commonly called its *external* bit depth. The maximum bit depth a scanner's hardware can capture is commonly called its *internal* bit depth. Of the two, external bit depth is the more important number for prospective buyers to focus on.





## The Split Personality Dual Display™ by Envision.

Crunch numbers, crunch quarterbacks. Surf the web, surf channels. With the new EN-7500 LCD display from Envision, you can pretty much do anything you want.

That's because this isn't just a computer monitor with vibrant color. It's also a TV. With remote. And picture-in-picture. Not to mention digital inputs like DVD. The cost won't sack you either.

So don't feel bad for watching the game. Just knowing that you *could* be working is good enough.



[www.ENVISIONmonitor.com](http://www.ENVISIONmonitor.com)

Check out our line of products at these local/online retailers.

**COMPUSA**  
WHERE AMERICA BUYS TECHNOLOGY

**STAPLES**  
[www.staples.com](http://www.staples.com)

**COSTCO**  
WHOLESALE

**amazon.com**



**Envision**



It seems the more freedom people have to be apart

the more they work together.



Select wireless-enabled IBM ThinkPad® notebooks with integrated dual antennas. Bring a whole new level of productivity to your office.

You'll find select models of our award-winning IBM ThinkPad notebook family are designed and optimized for wireless connectivity. Features like our unique dual antennas on select models maximize signal strength.\* IBM Access Connections software makes switching between operating environments easier. And select models give you connectivity choices, from Ethernet to Bluetooth technology for greater convenience. The fact is, you can pick from a wide range of systems, including select IBM ThinkPad notebooks which offer the exceptional performance and agility of the Mobile Intel® Pentium® III Processor - M. The choice is yours. Easier wireless management. Greater flexibility. Or all of the above. With IBM, you and your users will have many advantages. Where you choose to take them is entirely up to you.



\*Requires compatible wireless-enabled options, sold separately.

IBM ThinkPad X24  
(#2662MWU)



IBM recommends Microsoft® Windows® XP Professional for Business



Best blend of ThinkPad portability and essential features


## IBM ThinkPad R31

### Distinctive Features:

- ThinkLight™ keyboard light for low-light conditions
- IBM Rapid Restore™ PC\* - Unique managed data recovery solution (downloadable)

### System Specifications:

- Mobile Intel® Celeron® Processor 113GHz
- 13.3" XGA TFT display • Integrated Intel graphics
- 128MB SDRAM • 20GB hard drive
- Ultrabay™ Plus CD-ROM
- Microsoft® Windows® XP Home Edition\*
- 2.6 hr. Li-Ion battery\* • 5.3 lbs. travel weight\*
- 1-year limited warranty\*

**\$1,299\***  NavCode™ 26562HU-M449

With Microsoft® Office® XP Small Business\$ \$1,399

Customize Yours:

ThinkPad R31 Li-Ion Battery (#02K6821) \$139

ServicePac® Service Upgrade:<sup>1</sup>

3-year Depot Repair (#30L9192) \$132

Perfect balance of performance and portability

## NEW! IBM ThinkPad T30

### Distinctive Features:

- UltraNav™ - Convenient touch pad/full-function TrackPoint combination
- Hard Drive Shock Absorber

### System Specifications:

- Mobile Intel® Pentium® 4 Processor 160GHz - M supports Enhanced Intel SpeedStep™ technology\*
- 141" XGA TFT display
- 16MB ATI Mobility Radeon 7500 graphics
- 256MB DDR SDRAM • 20GB hard drive
- Ultrabay™ Plus DVD-ROM
- Microsoft® Windows® 2000 Professional
- 3.0 hr. Li-Ion battery • 4.9 lbs. travel weight
- 3-year/1-year battery limited warranty\*

**\$2,499**  NavCode™ 236621U-M449

With Microsoft® Office® XP Small Business \$2,599

Customize Yours:

ThinkPad Docking Station (#263120U) \$529

ServicePac® Service Upgrade:

3-year onsite/9x5/

Next Business Day Response (#30L9197) \$147

High-performance, versatile desktop alternative


## IBM ThinkPad A31

### Distinctive Features:

- Two swappable bays provide maximum expandability
- Web navigation keys - Unique shortcut keys replicate favorite browser functions\*

### System Specifications:

- Mobile Intel® Pentium® 4 Processor 160GHz - M supports Enhanced Intel SpeedStep™ technology
- 141" XGA TFT display
- 16MB ATI Mobility Radeon 7500 graphics
- 128MB DDR SDRAM • 20GB hard drive
- Ultrabay™ 2000 CD-ROM
- Microsoft® Windows® XP Professional
- 2.5 hr. Li-Ion battery • 7.2 lbs. travel weight
- 1-year limited warranty\*

**\$1,699**  NavCode™ 2652J3U-M449

With Microsoft® Office® XP Small Business \$1,799

Customize Yours:

IBM 128MB PC2100 SDRAM Upgrade (#10K0030) \$146

ServicePac® Service Upgrade:

3-year onsite/9x5/

Next Business Day Response (#30L9195) \$243

Extra-light, extra-small, ultraportable

## IBM ThinkPad X24

### Distinctive Features:

- Titanium composite top cover for added display strength
- IBM Embedded Security Subsystem

### System Specifications:

- Mobile Intel® Pentium® III Processor 113GHz - M supports Enhanced Intel SpeedStep™ technology
- 121" XGA TFT display
- 8MB ATI Mobility Radeon graphics
- 256MB SDRAM • 30GB hard drive
- Integrated Wi-Fi™ wireless technology\*
- Microsoft® Windows® XP Professional
- 4.0 hr. Li-Ion battery • 3.7 lbs. travel weight
- 3-year/1-year battery limited warranty\*

**\$2,674**  NavCode™ 2662MWU-M449

With Microsoft® Office® XP Small Business \$2,774

Customize Yours:

Ultrabay X2 media slot (#08N1180) \$199

ServicePac® Service Upgrade:

2-year onsite/9x5/

Next Business Day Response (#30L9190) \$98



## IBM makes wireless easier

IBM Access Connections software simplifies management of multiple connectivity environments. By saving the settings for your wired and wireless connections, it makes switching between them easy.

## Build your own ThinkPad notebook

Use IBM technology to design your own ThinkPad A, T and R Series notebooks. Visit [ibm.com](http://ibm.com) for more details.

## IBM Wireless Networking Options

High Rate Wireless LAN Gateway (#22P6401) \$199

High Rate Wireless Access Point 500 (#09N9906) \$449

High Rate Wireless Lan PC Card 128 (#09N9904) \$129

## ThinkPad Notebook Accessories

Lexmark Z35 Color Jetprinter (with system purchase only) (#W7LEX35) \$449

ThinkPad Nylon Carrying Case\* (#10K0207) \$49

72W AC Adapter (#02K6699) \$66

IBM USB Serial Parallel Adapter (#22P5298) \$69

ThinkPad Premiere Leather Carrying Case\* (#10K0209) \$99

128MB USB Memory Key (#22P8998) \$139

ThinkPad Port Replicator (#02K8667) \$179

Targus DEFCON Authenticator PC Card Fingerprint Reader (#31P6763) \$179.99

HP DeskJet 350c Color Portable Printer (#31P7612) \$279.99


1GB Microdrive with PC Card (#07N5574) \$379

ThinkPad CD-RW/DVD Combo II Drive (#08K9701) \$399

**Upgrade your system with Microsoft Office XP Small Business to Microsoft Office XP Professional with Publisher for only \$169 more.**

Call **1.866.426.0199** or go to **ibm.com/shop/M449** to buy direct, locate an IBM reseller or for more information.

 NavCode™ Get the latest pricing and information fast. Use NavCode on the phone or on the Web.

 Look for this symbol to quickly find wireless-enabled IBM systems.

Call or visit us online to learn about our comprehensive wireless solutions to meet your needs.

**Warranty Information:** For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12155, RTP, NC 27709. IBM makes no representation or warranty regarding third-party products or services. \*Prices do not include tax or shipping and are subject to change without notice. Reseller prices may vary. Available for download through Access IBM. Memory supports both system and video. Accessible system memory may be up to 32MB less than the amount stated, depending on video mode. GB = 1000000000 bytes when referring to storage capacity; accessible capacity is less. Some software may differ from its retail version (if available) and may not include user manuals or all program functionality. Software license agreements may apply. These model numbers achieved eTesting Labs, Inc.'s BatteryMark™ 401 Battery Runtime Time of the times shown above. This test was performed without independent verification by eTesting Labs, Inc. eTesting Labs, Inc. makes no representations or warranties as to these test results. BatteryMark is a trademark of Ziff Davis Publishing Holdings Inc., an affiliate of eTesting Labs, Inc., in the U.S. and other countries. A description of the environment under which the test was performed is available at: [ibm.com.pc.ibm.thinkpad.battery.htm](http://ibm.com.pc.ibm.thinkpad.battery.htm). Includes battery and optional travel travel instead of standard optical drive in Ultrabay bay if applicable, weight may vary due to vendor components, manufacturing process and options. \*Telephone support may be subject to additional charges. For onsite labor, IBM will attempt to diagnose and resolve the problem remotely before sending a technician. \*Certain Microsoft® software product(s) included with this computer may use technological measures for copy protection. IN SUCH EVENT YOU WILL NOT BE ABLE TO USE THE PRODUCT IF YOU DO NOT FULLY COMPLY WITH THE PRODUCT ACTIVATION PROCEDURES. Product activation procedures and Microsoft's privacy policy will be detailed during initial launch of the product or upon certain re-installations of the software product(s) or reconfigurations of the computer, and may be completed by Internet or telephone (toll charges may apply). These services are available for machines normally used for business, professional or trade purposes, rather than personal, family or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response-time objectives and are not guarantees. A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed. For the 9x5/4-hour service, calls dispatched after 1:00 p.m. local time, you can expect the service technician to arrive by the morning of the next business day. For noncritical service requests, a service technician will arrive by the end of the following business day. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. External peripherals, such as docks, tape drives and channel controllers, require their own, separate service coverage; they are not covered under the attached Machine. Service activation is required immediately following purchase. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. For failing non-IBM components, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer. Service does not cover accessories, supply items and certain parts such as batteries, frames and covers. \*With Intel SpeedStep, processor speed may be reduced to conserve battery power. \*Based on IEEE 802.11b. This wireless LAN product has been designed to permit legal operation worldwide in regions in which it is approved. Operation on channels 12-14 is not permitted in all regulatory regions of the world. Consequently the wireless LAN feature is limited to operate on channels 1-11 and will not support channels 12, 13 and 14. This product has been tested and certified to be interoperable with the Wireless Ethernet Compatibility Alliance and is authorized to carry the Wi-Fi logo. \*IBM does not manufacture, warrant or support this product, IBM logos and trademarks used under license. Contact IBM for details. \*Requires Internet access account; not included. All offers subject to availability. IBM reserves the right to alter product offerings and specifications at any time without notice. IBM is not responsible for photographic or typographic errors. All IBM product names are registered trademarks or trademarks of International Business Machines Corporation in the U.S. and other countries. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM Company. Intel, the Intel Inside logo, Celeron and Pentium are registered trademarks of Intel Corporation. Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. ©2002 IBM Corp. All rights reserved.



You may not see the razor wire, guard dogs or sirens.

But they're in there.



Files and data have never been safer on select IBM NetVista™ desktops with the Embedded Security Subsystem.

Built-in features like our Integrated Security Chip and downloadable security software mean passwords, documents, and electronic identities are protected. And that's just the beginning of an entire arsenal of security features guarding your data on select IBM NetVista desktops. With the addition of the powerful Intel® Pentium® 4 Processor, high-level performance and high-level security are now delivered in the same package on select models. IBM NetVista desktops have never been faster. And data has never been safer.



IBM NetVista X41  
with Integrated Flat-Panel  
(#627413U)



IBM recommends Microsoft® Windows® Professional for Business



Stability and manageability for your business

### NEW! IBM NetVista M42

#### Distinctive Features:

- IBM Embedded Security Subsystem
- IBM Rapid Restore™ PC<sup>1</sup> - Unique managed data-recovery solution (downloadable)

#### System Specifications:

- Intel® Pentium® 4 Processor 2.0GHz
- 256MB DDR SDRAM<sup>2</sup> • 40GB<sup>3</sup> hard drive
- Integrated 10/100 Ethernet • CD-ROM
- Stealth Black Desktop
- Microsoft® Windows® XP Professional<sup>4</sup>
- 3-year parts and onsite labor limited warranty<sup>5</sup>

**\$1,399\***  NavCode™ 830525J-M449

With Microsoft® Office® XP Small Business<sup>6</sup> \$1499

Customize yours:  
17" (16" viewable) IBM E74 Monitor (#17MONB1) add \$160  
with system purchase

ServicePac® Service Upgrade:<sup>7</sup>  
3-year onsite/9x5/  
4-hour Response (#41L2734) \$129

High performance and space-saving design


### IBM NetVista X41

#### Distinctive Features:

- IBM Embedded Security Subsystem
- 15" Integrated Flat-Panel Display

#### System Specifications:

- Intel® Pentium® 4 Processor 1.80GHz
- 128MB SDRAM • 40GB hard drive
- CD-ROM • 16MB ATI Rage 128 Ultra 4x AGP
- Microsoft® Windows® XP Professional
- 3-year parts and onsite labor limited warranty<sup>5</sup>

**\$1,899**  NavCode™ 627413U-M449

With Microsoft® Office® XP Small Business \$1999

ServicePac® Service Upgrade:  
3-year onsite/24x7/  
4-hour response (#41L2740) \$159

Leading-edge technology and affordable prices

### IBM NetVista A30

#### Distinctive Features:

- IBM Rapid Restore™ PC<sup>1</sup> - Unique managed data-recovery solution (downloadable)
- Access IBM - One-touch access to online support (requires Internet access, not included)

#### System Specifications:

- Intel® Pentium® 4 Processor 1.80GHz
- 128MB DDR SDRAM<sup>2</sup> • 40GB hard drive
- Integrated 10/100 Ethernet • CD-ROM
- Stealth Black Tower
- Microsoft® Windows® XP Professional
- 1-year parts and onsite labor limited warranty<sup>5</sup>

**\$769**  NavCode™ 831511U-M449

With Microsoft® Office® XP Small Business \$869

Customize yours:  
15" TFT Flat-Panel Monitor (#15TFTB1) add \$449  
with system purchase

ServicePac® Service Upgrade:  
3-year onsite/9x5/  
Next Business Day Response (#54P1861) \$132


@server

Powerful, affordable server technology

### IBM @server xSeries 220

#### Distinctive Features:

- Available dual (2-way) processor-capable design
  - Diagnostic LEDs, Automatic Server Restart<sup>8</sup> and Predictive Failure Analysis<sup>9</sup> are designed to improve uptime
- #### System Specifications:
- Intel® Pentium® III Processor 1.26GHz
  - 128MB memory standard / 4GB max<sup>1</sup>
  - No hard drive standard / Max optional storage of 293.6GB
  - Integrated 10/100 Ethernet and Ultra 160 SCSI
  - 5 available slots/5 available bays
  - Remote management capability with optional IBM Remote Supervisor Adapter
  - Tool-less tower chassis with optional 4U rack mounting
  - 3-year parts and 1-year onsite labor limited warranty<sup>5</sup>

**\$1,049**  NavCode™ 864641X-M449

18.2GB 10,000 rpm Ultra-160  
hard drive (#06P5750) \$249

ServicePac® Service Upgrade:  
3-year onsite/9x5/  
4-hour response (#21P2023) \$382



### Learn more about IBM security solutions

Check out [www.pc.ibm.com/us/webcast/index.html](http://www.pc.ibm.com/us/webcast/index.html)

### Build your own NetVista desktop or @server system.

IBM technology your design. Visit [ibm.com](http://ibm.com) for more details.

### IBM NetVista Desktop Accessories

|  |            |          |
|--|------------|----------|
| IBM 128MB PC2100 DDR <sup>2</sup> SDRAM Memory Upgrade | (#33L3302) | \$54     |
| IBM Wireless Keyboard and Mouse Kit                    | (#22P5170) | \$99     |
| IBM 256MB PC2100DDR SDRAM Memory Upgrade               | (#33L3304) | \$104    |
| Targus DEFCON Authenticator with USB Hub               | (#31P6762) | \$119.99 |
| IBM UPS 675 External USB                               | (#33L3478) | \$159    |
| Lexmark Z65 Color Jetprinter (with system purchase)    | (#W7LEX65) | \$169.99 |
| Iomega Zip 250 External USB Powered Drive              | (#22P5787) | \$179.99 |

### Leading server technology

IBM is the world's leading server vendor. Based on 2001 revenue as reported by IDC on March 8, 2002.

Upgrade your system with  
**Microsoft Office XP Small Business**  
to **Microsoft Office XP Professional**  
with Publisher for only \$169 more.

Call **1.866.426.0199** or go to **ibm.com/shop/M449**  
to buy direct, locate an IBM reseller or for more information.

 NavCode™ Get the latest pricing and information fast. Use NavCode on the phone or on the Web.

Call or visit us online to learn about our comprehensive security solutions to meet your needs.

**Warranty Information:** For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709. Attn: Dept JDJA/B203. IBM makes no representation or warranty regarding third-party products or services. \*Prices do not include tax or shipping and are subject to change without notice. Reseller prices may vary. <sup>1</sup>Available for download through Access IBM. <sup>2</sup>For NetVista models without a separate video card. Memory supports both system and video. Accessible system memory may be up to 64MB less than the amount stated, depending on video mode. <sup>3</sup>GB = 1,000,000,000 bytes when referring to storage capacity; accessible capacity is less. <sup>4</sup>Some software may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply. <sup>5</sup>Telephone support may be subject to additional charges. For onsite labor, IBM will attempt to diagnose and resolve the problem remotely before sending a technician. <sup>6</sup>Certain Microsoft® software product(s) included with this computer may use technological measures for copy protection. IN SUCH EVENT YOU WILL NOT BE ABLE TO USE THE PRODUCT IF YOU DO NOT FULLY COMPLY WITH THE PRODUCT ACTIVATION PROCEDURES. Product activation procedures and Microsoft's privacy policy will be detailed during initial launch of the product, or upon certain re-installations of the software product(s) or reconfigurations of the computer; and may be completed by Internet or telephone (to charges may apply). These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response-time objectives and are not guarantees. A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed. For the 9x5x4-hour service, calls dispatched after 1:00 p.m. local time, you can expect the service technician to arrive by the morning of the next business day. For noncritical service requests, a service technician will arrive by the end of the following business day. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. External peripherals, such as racks, tape drives and channel controllers, require their own, separate service coverage; they are not covered under the attached Machine. Service activation is required immediately following purchase. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. For failing non-IBM components, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer. Service does not cover accessories, supply items and certain parts such as batteries, frames and covers. <sup>8</sup>Maximum memory varies depending on model, and may require replacement of standard memory with optional memory module. All offers subject to availability. IBM reserves the right to alter product offerings and specifications at any time without notice. IBM is not responsible for photographic or typographic errors. All IBM product names are registered trademarks or trademarks of International Business Machines Corporation in the U.S. and other countries. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM Company. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation. Other company product and service names may be trademarks or service marks of others. ©2002 IBM Corp. All rights reserved.





## Beyond the Box

Take tech on the road in the form of a digital camera, a digital video camcorder, a PDA, a mobile phone, or an MP3 player. With these devices, portability is as important as function—sometimes more important.

## Digital Cameras

**WHAT MATTERS:** High resolution will help you *print* great photos, but to get great photos in the first place, look beyond the pixels.

WITH DIGITAL CAMERAS, resolution remains the prime specification that vendors hype, and it's the most important buying criterion for customers. Relatively inexpensive 4-megapixel models are common, but only a couple of models reach 5 megapixels. Though experts predict the ascent will plateau at 6 megapixels, we doubt people will ever get enough.

However essential resolution is, other factors also matter: Cameras need more than just a high pixel count to make attractive pictures. For example, a lethargic camera that takes too much time between

shots may miss the best action, and a big, heavy camera may spend more time on the shelf than in your carry-on bag.

### Key Features

► **RESOLUTION:** If you intend to take pictures only to e-mail to distant friends or to print at snapshot size, a camera of most any resolution will do. Even so, more pixels give you greater flexibility—you can print sharper pictures at larger sizes, or crop small pieces out of pictures. Our rules of thumb: A 2-megapixel camera can usually produce a pretty 5-by-7 print;



Fujifilm FinePix  
F601 Zoom

a 3-megapixel camera, an 8-by-10; and a 4-megapixel model, an 11-by-17.

► **SIZE, WEIGHT, AND DESIGN:** To some users, how much a camera weighs and whether it fits in a pocket may be more important factors than resolution. *PC World* has tested cameras that weigh as much as 2.6 pounds and as little as 6.8 ounces. The heaviest, Olympus's sophisticated Camedia E-20N, has many features you'll never see on smaller cameras, but it's bigger than most single-lens reflex film cameras. The lightest, Kyocera's Finecam S3, is smaller than many PDAs. On the other hand, small cameras frequently have tiny dials and buttons that make changing settings somewhat trying.

► **ZOOM LENS:** Inexpensive cameras often lack optical zoom lenses. If we had to choose between an optical zoom and a one-step-higher resolution, we'd take the zoom—you won't have to magnify and crop the image in software (and discard some of that resolution as a result).

Some cameras have a difficult time focusing in close-up or in dim settings. A few cameras offer external lamps or infrared emitters to aid in focusing; such attributes are highly valuable if you photograph subjects in dark settings.

► **MANUAL FOCUS:** For close-ups or situations in which the camera can't get a focus lock, switching to manual focusing can help you get the picture. Low-end cameras often omit manual focusing or

### FEATURES COMPARISON

#### TOP DIGITAL CAMERAS

TEST  
Center

|   | SYSTEM  | Specs   | Comments  |
|---|---|---|---|
| 1 | <b>Canon PowerShot G2</b><br>★★★★☆ Dec 01<br><a href="http://find.pcworld.com/14800">find.pcworld.com/14800</a>       | • \$799<br>• 4 megapixels<br>• 32MB CompactFlash<br>• 3X optical zoom   | Full-featured camera takes the best photos we've seen and has a long battery life. Heavy, boxy body incorporates a swing-out viewfinder like that of a camcorder; includes a wireless remote control.                     |
| 2 | <b>Nikon Coolpix 995</b><br>★★★★☆ Dec 01<br><a href="http://find.pcworld.com/14801">find.pcworld.com/14801</a>        | • \$599<br>• 3.2 megapixels<br>• 16MB CompactFlash<br>• 4X optical zoom | Offers a huge, sometimes intimidating list of features, including a swivel lens and custom buttons. Photos look good, showing fine detail. Soon to be replaced by the 4-megapixel Coolpix 4500.                           |
| 3 | <b>Sony Cyber-shot DSC-F707</b><br>★★★★☆ May 02<br><a href="http://find.pcworld.com/23902">find.pcworld.com/23902</a> | • \$999<br>• 5 megapixels<br>• 16MB Memory Stick<br>• 5X optical zoom   | Besides futuristic styling, this camera has an impressive 5X optical zoom. Unique low-light features let it shoot in dark rooms with or without flash. The electronic viewfinder is not as sharp or as fast as we'd like. |
| 4 | <b>Nikon Coolpix 5000</b><br>★★★★☆ May 02<br><a href="http://find.pcworld.com/23881">find.pcworld.com/23881</a>       | • \$1099<br>• 5 megapixels<br>• 32MB CompactFlash<br>• 3X optical zoom  | At only 15 ounces, the Coolpix 5000 is light for a 5-megapixel camera. It offers a huge selection of controls but isn't the quickest or easiest camera to handle.   |
| 5 | <b>Sony Cyber-shot DSC-S85</b><br>★★★★☆ Dec 01<br><a href="http://find.pcworld.com/14803">find.pcworld.com/14803</a>  | • \$699<br>• 4 megapixels<br>• 16MB Memory Stick<br>• 3X optical zoom   | The DSC-S85 is well designed and easy to use, with extremely long battery life. Photos looked a bit oversaturated, however, and the shutter button is touchy. Sony's trademark Jog Dial simplifies menu navigation.       |

Street prices are reported as of 06/20/02. Visit [find.pcworld.com/29969](http://find.pcworld.com/29969) for more rankings and reviews.



allow only stepped focusing—you must choose from a few preset distances.

➤ **STORAGE:** At its highest resolution, a typical 2-megapixel model can store eight to ten images on an 8MB “starter” memory card. CompactFlash and SmartMedia cards cost about \$35 for 64MB, or \$65 for 128MB. Secure Digital cards cost more: about \$45 for 64MB, or \$75 for 128MB. Some Sony cameras store images on floppy disks or compact discs. But floppy storage is slow, and the disks hold only one or two high-resolution images. CDs store more images, but the cameras that use them are both slow and bulky.

➤ **BATTERIES:** Cameras use one or more of several battery types: AAs, either nonrechargeable alkaline (\$6 for four) or rechargeable nickel metal hydride (about \$14 for four); high-capacity disposable CRV3s (around \$12); or proprietary rechargeable batteries that can cost \$35 to \$75 to replace. Some chargers are larger

than the cameras their batteries plug into, but Canon’s Digital Elph series features a charger whose prongs fold out of its body (so it has no cord for you to deal with). For cameras that take AAs but don’t come with rechargeable batteries, consider buying rechargeable nickel metal hydrides (\$35 for a set of four and a charger).

➤ **MOVIES AND SOUND:** Many cameras can capture video as well as still shots, though memory cards don’t hold much video footage; the option is useful only for short clips. But some models don’t capture sound—can you live without talkies?

➤ **EXPOSURE SETTINGS:** All digital cameras let you shoot in fully automatic mode—just press the shutter release and you get a picture. Better cameras offer aperture- and shutter-priority modes, in which you adjust, respectively, either the size of the lens opening or how long the shutter stays open; the camera automatically controls the other variable to give

you the proper exposure. Usually the same cameras also offer full-manual exposure control, in which you set both variables. These modes make a camera adaptable to almost any situation.

Program modes let you select from presets that manage the exposure automatically—for example, choosing “Sports” will open the aperture to a wide setting and force a fast shutter speed. They’re useful, but you may have to spend extra time deciding which mode fits your setting.

➤ **WHITE BALANCE:** Almost all digital cameras let you choose a white-balance setting via presets. These settings tell the camera the color temperature of the light in a setting so that white comes out white and black comes out black—and, by inference, red comes out red. If you’re finicky about color accuracy, look for a manual calibrator in which you press a button while aiming at a white object.

➤ **USABILITY:** Good cameras can take pictures, display them, and let you scroll through menus quickly without having to stab buttons again and again to get something to work. Compare models side-by-side to gauge their speed.

➤ **LCD:** Low-end models often omit an LCD screen—a feature necessary for macro (close-up) shooting, and for reviewing just-taken images. LCD quality varies widely: Many wash out in sunlight or become grainy in low light, or the image changes if you tilt the camera slightly.

➤ **SOFTWARE:** Few cameras come with truly valuable image editing software, such as Adobe Photoshop Elements or Ulead PhotoImpact. Canon includes panoramic stitching software.

## Recommendations

LOOK FOR A MODEL that has a zoom lens, operates quickly, and offers flexible exposure settings, such as the Olympus Camedia C-3020 ([find.pcworld.com/25702](http://find.pcworld.com/25702)). If you expect to make large prints, opt for a 4-megapixel model, such as the Canon PowerShot G2. If size and portability matter, try out the diminutive models from Canon, Konica, and Kyocera.

—Alan Stafford ▶

## CLOSE-UP

### ZOOMING IN ON DIGITAL CAMERAS



A good camera's lens doesn't keep moving after you remove your finger from the zoom.

Look for the letters M, A, and P on the camera's control dial. They indicate manual exposure modes.

Well-designed cameras let you change some settings via buttons; others bury everything in deep menus.

An external lamp helps the camera focus in low (or no) light. Other cameras use infrared emitters instead.

The best cameras' lenses move quickly and quietly, and have little trouble focusing.

Canon PowerShot G2





## DV Camcorders

**WHAT MATTERS:** A big LCD screen and plenty of features justify a higher price, but overall size and ease of use are critical.

EVER SINCE HOME movie cameras were invented, people have been pointing them at one another and asking family and friends to do something amusing. And right from the start, people have been bored silly watching movies of others not doing anything amusing. Fortunately, the latest digital video camcorders and video editing software make shooting and editing a movie as simple as using a word processor, so it's easy to cut out the boring stuff and just show the priceless part where Uncle Bob trips over the cat and falls into the swimming pool. For more details on video editing apps, see our March 2002 review at [find.pcworld.com/29987](http://find.pcworld.com/29987). For our look at DVD authoring programs, see [find.pcworld.com/30059](http://find.pcworld.com/30059).

Digital camcorders still use videotape (most use a format called MiniDV), but some can also store video on memory cards. Camcorders that store video exclu-

sively on memory cards are now available, as well: Panasonic recently launched the SV-AV10, which can record up to 30 minutes of video to a Secure Digital memory card. However, this camera records video at a much lower resolution than a MiniDV camcorder does and highly compresses it, so memory cards won't start supplanting videotapes as the most convenient way to record video anytime soon.

### Key Features

► **SCREEN:** Having a large LCD screen on a camcorder lets you more easily see what you're recording and facilitates playback previews. When shopping, try the screen in daylight if possible; some wash out in bright sunlight, one environment in which you'll often be using the camcorder. A viewfinder, meanwhile, is easier to see in daylight and uses less power, extending the camcorder's battery life.



Canon Elura  
40MC

► **LENS:** Most modern camcorders have at least a 10X optical zoom, which should be adequate for general purposes. Vendors typically advertise the maximum digital zoom, but to achieve that length of zoom the camcorder enlarges part of the image to fill the screen, leading to grainy, pixelated, and generally unpleasant-looking images. At higher digital zoom settings, the quality is so poor you can't see what you are taping. Fortunately, most camcorders allow you to turn the digital zoom off or restrict how far it can zoom in. The spec for maximum optical zoom is the more interesting figure: It denotes the maximum zoom that the lens itself can achieve without enhancement.

► **BATTERIES:** Most camcorders won't last more than an hour with the included batteries. So factor in the cost of a higher-capacity battery that can keep the camcorder going, if you think you'll need it. A higher-capacity battery that can double the battery life typically costs \$50 to \$100.

► **MICROPHONES:** We've found that camcorders with microphones mounted in the front tend to produce better sound than those with microphones on the top; in particular, top-mounted microphones frequently pick up the voice of the person using the camera, drowning out everything else. Many of the more-expensive camcorders offer zoom microphones that can emphasize the subject's voice and minimize other sounds, and some also come with a socket to plug in an external microphone. Either type of microphone can be very useful when you're recording presentations or speeches and want to record the speaker but not the audience.

► **CCD SIZE:** As a general rule, the more pixels the camcorder CCD (the chip that captures the video) has, the better the image quality of the resulting video will be. Most camcorders also offer some

### FEATURES COMPARISON

#### DIGITAL CAMCORDER PICKS

|   | SYSTEM  | Specs  | Comments  |
|---|---|--|---|
| 1 | Panasonic PV-DV702<br>★★★★★<br><a href="http://find.pcworld.com/29834">find.pcworld.com/29834</a> | • \$740<br>• 3.5-inch LCD screen<br>• 10X optical/700X digital zoom<br>• 20.8 ounces | Offers an excellent screen, easy-to-use controls, and two very effective low-light modes. The viewfinder is black-and-white.  |
| 2 | Sony DCR-IP5<br>★★★★★<br><a href="http://find.pcworld.com/29991">find.pcworld.com/29991</a>       | • \$950<br>• 2.5-inch LCD screen<br>• 10X optical/120X digital zoom<br>• 12 ounces   | The smallest camcorder we've seen, at 1.9 by 4 by 3.1 inches. The controls are rather awkward to use, however, and only Sony's software can edit the MicroMV tape format.                         |
| 3 | Canon Elura 40MC<br>★★★★★<br><a href="http://find.pcworld.com/29992">find.pcworld.com/29992</a>   | • \$900<br>• 2-inch LCD screen<br>• 10X optical/700X digital zoom<br>• 13.4 ounces   | A small and sleek camcorder with plenty of features. Fits well in the hand, but the controls are a little confusing and the LCD screen is less spacious than those of similarly sized camcorders. |
| 4 | JVC GR-DVL120U<br>★★★★★<br><a href="http://find.pcworld.com/29993">find.pcworld.com/29993</a>     | • \$500<br>• 2.5-inch LCD screen<br>• 16X optical/700X digital zoom<br>• 22.4 ounces | This budget model has the highest optical zoom ratio we've seen; it has no memory card slot, however, and the LCD screen is smaller than those on cameras of comparable size.                     |
| 5 | Sharp VL-NZ100U<br>★★★★★<br><a href="http://find.pcworld.com/29994">find.pcworld.com/29994</a>    | • \$599<br>• 3-inch LCD screen<br>• 10X optical/300X digital zoom<br>• 16 ounces     | Has an interesting design with the LCD screen on the back of the case and a lens that you can rotate, but you need both hands to use it. The controls don't feel natural in your hand.            |

Street prices are reported as of 6/21/02. Visit [find.pcworld.com/29995](http://find.pcworld.com/29995) for more rankings and reviews.



form of image stabilization, in which the camera will try to compensate for vibrations that could result in blurred video.

➤ **ABILITY TO TAKE STILL IMAGES:** Many digital camcorders can act as digital cameras, saving still images to a memory card. Some can save images at the same resolution as a 2-megapixel camera. However, none of the camcorders we've tested have worked as well as dedicated still cameras do; they don't provide the same level of control or the same image quality. Many vendors offer similar models with and without this feature; if you aren't likely to use it, you can save \$100 or more by choosing the model that lacks it.

➤ **CONTROLS:** One important buying consideration is how well the camcorder balances size and usability. We have found that the controls on some smaller camcorders (such as the Sony DCR-IP5 and the Canon Elura 40MC) can be difficult to use because the controls don't naturally sit where your fingers fall; you sometimes have to shift the camera to reach them, or use both hands. In particular, on many smaller camcorders the zoom control (a control that most people use a lot) can be awkwardly placed.

➤ **LOW-LIGHT RECORDING:** Many camcorders can record in very low light, either with the help of an included infrared light

(which you can't see, but the camcorder can) or through a special long shutter mode that makes the most of the existing light; some more expensive models offer both. These can be useful in poorly illuminated settings, such as when you're capturing a camping trip or the creatures entering your yard after nightfall. Low-light footage may be grainy, however, and camcorders that use an infrared light capture only black-and-white video.

➤ **FORMAT:** Most camcorders use the MiniDV videotape format, but Sony also offers Digital 8 and MicroMV formats. A Digital 8 camcorder records digital video onto Hi-8 videotapes and can also play back analog videotapes recorded on Hi-8 camcorders. MicroMV camcorders (such as the Sony DCR-IP5) use a new type of tape that is smaller than MiniDV tapes. A MicroMV camcorder, however, compresses the digital video much more than a MiniDV camcorder, so most digital video editing programs are unable to edit the video. Sony does bundle a basic video editing program with its MicroMV camcorders, though; with most other camcorders you have to buy one separately. Many digital camcorders can record from a composite or S-Video source, as well, so you can transfer video from an older analog camcorder onto digital tape.

## Recommendations

MANY DISSIMILAR digital camcorders are available, priced from \$500 to \$2000, so spending some time familiarizing yourself with the designs of various models before buying is worthwhile; the way a camcorder feels in your hands can be an important factor. Smaller camcorders (such as the Sony DCR-IP5) often cost more than larger ones, but you can carry them in a pocket. Though plenty of cheaper models exist, we recommend you spend a little extra on a camcorder that includes a wider range of features, such as the Panasonic PV-DV702, a unit that has a bright, large LCD screen; a zoom microphone; and both long-shutter-speed and infrared low-light recording modes.

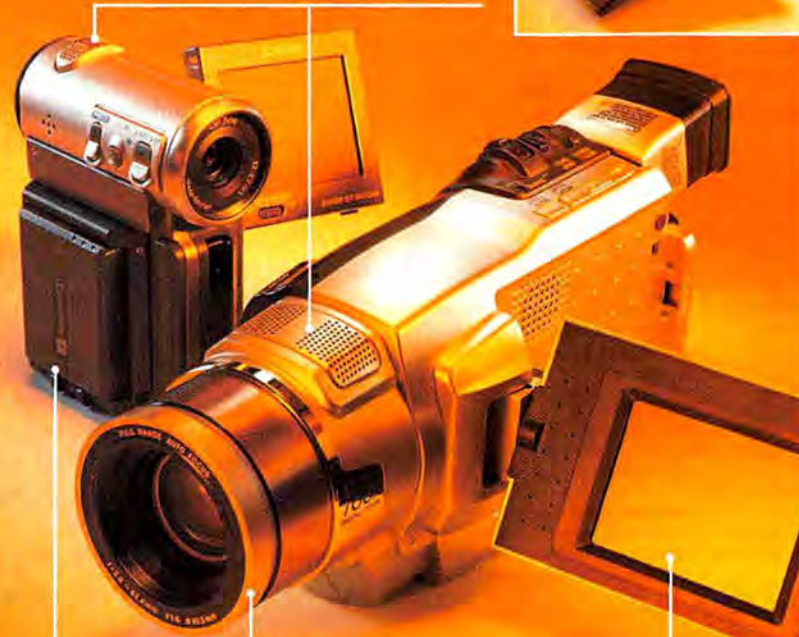
—Richard Baguley ▶

## CLOSE-UP

### WHAT TO LOOK FOR IN A CAMCORDER

The batteries that come with camcorders won't last more than an hour; higher-capacity batteries cost extra.

Front-mounted microphones tend to achieve better results than top-mounted ones.



Tiny models are easier to carry but can be harder to use.

Vendors advertise the maximum digital zoom; check the optical zoom.

A bigger screen is easier to see, but find out how it looks in daylight.

The Sony DCR-IP5 (left) and the Panasonic PV-DV702.





## PDAs

**WHAT MATTERS:** For simplicity look to a Palm OS-based device, and for a Windows look and feel go with a Pocket PC model.

WHILE PDAS of one type or another have been around for about a decade, the technological advances now being incorporated into them have made these devices even more attractive, particularly if you want something more than just an electronic version of a paper organizer.

Increasingly speedy processors are suddenly bringing the much-hyped "instant information at the touch of a button" cliché a lot closer to reality. Sharper, more energy-efficient color screens that equal high-end notebooks in image quality are becoming more widely available.

The ability to communicate wirelessly enhances PDAs' overall utility, making them useful for instant e-mail, instant messaging, and even phone calls. Though many PDAs today can browse the Internet, the transmission speed has been so glacial as to make this feature virtually unusable. But devices scheduled to ap-

pear starting in late 2002 will have integrated 802.11b wireless networking and high-speed third-generation (3G) support.

### Key Features

► **PLATFORM:** Three different types of PDAs exist now: the organizer with some PC features (Palm); the handheld PC with organizer features (Pocket PC); and the wireless e-mail/pager with organizer features (RIM BlackBerry). Though these platforms used to be distinct, the boundaries have blurred. Some formerly BlackBerry-exclusive functions, such as persistent connections, have found their way into Palms (the Palm 1705), and numerous Palm and Pocket PC-type apps have crept into BlackBerry systems.

► **OPERATING SYSTEM:** How you plan to use a PDA can suggest the operating system you should choose. Palm OS-based devices—such as PDAs from Palm,

HandEra,

Handspring, and

Sony—dominate the PDA market because of the operating system's simplicity. Unlike Windows or the Pocket PC OS, the Palm OS cannot multitask: It opens just one app at a time. Unless you use a third-party synchronization utility, the Palm OS will synchronize appointments and contacts only with its proprietary PC PIM, the Palm Desktop; most Palm OS vendors bundle an Outlook filter to sync with that desktop PIM. You'll need Dataviz's Documents to Go, Cutting Edge Software's Quickoffice, or similar software to create and edit Microsoft Office-compatible documents on a Palm OS device.

Microsoft's Pocket PC is basically a considerably shrunken version of its desktop Windows OS and includes Pocket PC versions of Microsoft Office applications such as Outlook, Word, Excel, and PowerPoint that let you create and edit documents as you would on your desktop. The integrated Windows Media Player handles MP3, WMA, and other multimedia files. Pocket PCs are available from Casio, Fujitsu, Hewlett-Packard, and Toshiba, among other vendors.

The RIM BlackBerry OS is primarily a wireless e-mail system that synchronizes e-mail messages and calendar items with the major enterprise-collaboration environments, Microsoft Exchange (Outlook) and Lotus Domino (Notes).

► **INTERNAL MEMORY (RAM):** Basic organizer functions (appointments, alarms, contact lists, tasks, and memos) use a fraction of the 8MB of RAM that most Palm OS PDAs hold. Color applications require more memory, however, and adding third-party utilities and games quickly eats up RAM, so look for a 16MB Palm OS device if you plan to load lots of extra programs. Apps on Pocket PC devices



Sony Clie  
PEG-NR70V

### FEATURES COMPARISON

| PDA PICKS |   |  |   |
|-----------|---|--|---|
|           | PDA   | Specs  | Comments  |
| 1         | Sony Clie PEG-NR70V<br>★★★★★<br><a href="http://find.pcworld.com/25621">find.pcworld.com/25621</a>      | NEW<br>• \$599 (\$100 less without camera)<br>• 16MB RAM, Memory Stick slot<br>• 320-by-480-pixel color screen<br>• 7 ounces | Elegantly designed, this model comes with a built-in digital camera, an integrated thumb-keyboard, a clever 360-degree swiveling screen, and a set of headphones.           |
| 2         | Toshiba Pocket PC E310<br>★★★★★<br><a href="http://find.pcworld.com/27821">find.pcworld.com/27821</a>   | NEW<br>• \$399<br>• 32MB RAM, Secure Digital card slot<br>• 240-by-320-pixel color screen<br>• 4.9 ounces                    | The sleekest and lightest Pocket PC device sports a bright color screen, a navigation wheel, and a headphone port for digital music. For the price, this is a true bargain. |
| 3         | Palm 1705<br>★★★★★<br><a href="http://find.pcworld.com/22181">find.pcworld.com/22181</a>                | NEW<br>• \$449<br>• 8MB RAM, Secure Digital card slot<br>• 160-by-160-pixel monochrome screen<br>• 5.9 ounces                | An always-on wireless network allows e-mail, instant messaging, and Net browsing. The copious software bundle includes a word processor, spreadsheet, and photo viewer.     |
| 4         | Palm M515<br>★★★★★ June 02<br><a href="http://find.pcworld.com/29819">find.pcworld.com/29819</a>        | • \$399<br>• 16MB RAM, Secure Digital card slot<br>• 160-by-160-pixel color screen<br>• 4.9 ounces                           | Housed in a tapered metal case, this Palm has a bright color screen that's easy to read in all lighting conditions. It's one of the lightest and thinnest PDAs available.   |
| 5         | Compaq IPaq H3850<br>★★★★★ Apr 02<br><a href="http://find.pcworld.com/21586">find.pcworld.com/21586</a> | • \$579<br>• 64MB RAM, Secure Digital card slot<br>• 240-by-320-pixel color screen<br>• 6.7 ounces                           | Though it has a large screen and ample memory, this otherwise outstanding PDA is somewhat marred by comparatively outsized dimensions and hefty weight.                     |

Street prices are reported as of 6/20/02. Visit [find.pcworld.com/30110](http://find.pcworld.com/30110) for more rankings and reviews.



require even more memory, especially to play audio or video; consider a unit with more than the minimum 32MB of RAM, preferably 64MB. You will still need an external memory card (see below) as well, to load your digital music and images on.

➤ **EXPANDABILITY:** Most PDAs other than BlackBerry devices carry external expansion slots to accommodate additional storage in the form of CompactFlash cards, Secure Digital cards, or Memory Sticks. (Early Handspring models included a proprietary Springboard module slot.) These slots can also hold add-ons such as cameras, MP3 players, phones, and GPS mapping antennas.

➤ **INPUT (KEYBOARD OR STYLUS):** The handwriting recognition capabilities on Palms and Pocket PCs have improved over the years, and all PDAs come with

a virtual hunt-and-peck on-screen keyboard. Still, many users have turned to one of the numerous third-party add-on keyboards. Some enterprising vendors such as Sony and Handspring have put thumb keyboards on their latest PDAs—without eliminating styluses—so you can choose the method of input you prefer.

➤ **SIZE AND WEIGHT:** Ideally, a PDA would fit in a shirt pocket without stretching it out of shape. But while a few can do that, many PDAs are too bulky and heavy to be called truly pocket-size. The lightest weigh about 4 ounces and measure about 4 inches high, 3 inches across, and 0.5 inch thick. A dress-shirt pocket can handle that easily—give or take an ounce. Any of the Palm-brand models, such as the M515 or I705, fit the bill (and the shirt) well. The Toshiba Pocket PC E310

does too. Though Sony's Clie PEG-NR70V is thin, at 7 ounces it is a tad too heavy for a pocket. The bulky 0.75-inch-thick Compaq IPAQ stands at the other extreme.

➤ **BATTERY POWER:** Bright color screens definitely make the PDA experience more pleasant, and they support more software choices than monochrome screens do. While Pocket PCs once laid claim to the highest-resolution TFT screens, some Palm OS PDAs now do as well. Currently two different technologies provide bright displays. The more common is backlighting, which illuminates the screen at some cost to battery life. Reflective screens, the other technology, still have backlighting but work well in outdoor or brighter ambient light without it. Before purchasing a PDA, check to see how well you can read the screen with the backlight off.

Rechargeable batteries, typically lithium ion, are more efficient today, as are the power control options on PDAs, but most monochrome and lower-end models still use AAA batteries. That said, you can expect up to a month of power between charges from some monochrome units, but no more than 10 hours of life from color-screen units with typical usage.

## Recommendations

IF YOU SIMPLY need to maintain an up-to-date appointment calendar, contact list, and to-do list when you are away from your PC, your best bet is to stick with Palm OS devices. Their easy-to-use data synchronization stands out. However, Pocket PC devices handle PC-like apps better while still offering conventional scheduling and contact synchronization. But this higher functionality can add up to a more complex system to master.

If the demands of real-time e-mail communication for enterprise connections drive your PDA needs, the RIM BlackBerry device makes the best choice. For individual instant e-mail, a wireless Palm OS device such as the Palm I705 is the way to go. Whichever one of these you choose, you'll need to pay a monthly wireless communications charge, as well.

—Michael S. Lasky ▶

## CLOSE-UP

### PALM VS. POCKET PC

Secure Digital card slots found on both Palm and Pocket PC PDAs offer a wide range of memory and function expansion capabilities.



Most Pocket PCs come with a dedicated notes button that activates a voice recorder.

Palm devices feature quick-access app-launch buttons and up/down scroll keys.

A handy rocker button lets you control screen navigation in any direction.

The Compaq IPAQ H3850 (left) and the Palm M515.





## Wireless Phones

**WHAT MATTERS:** A mobile phone's voice and data capabilities are only as good as the wireless service plan that goes with them.

MOBILE PHONES have become more than just convenient communication tools. But choosing a phone—and the service plan to go with it—requires some legwork.

Your choice of phone almost always depends on your choice of wireless service provider. With few exceptions, mobile phones work only on one provider because carriers have exclusive networks.

Next year, carriers will release the third generation of mobile communications technology, called 3G, which is supposed to deliver data transfers up to 2 megabits per second, compared with the current data transfer rate of up to 115 kilobits per second. 3G will be handy if you use a phone for wirelessly accessing data such as e-mail, text messages, and the Web.

Also on the horizon is Microsoft's Smartphone 2002 platform—a pared-down version of the Pocket PC OS that

will support Outlook, Internet Explorer, and Windows Media Player. Samsung and Sendo plan to release pocket-size handsets running this platform, and Cingular Wireless says that it will support it.

### Key Features

➤ **WIRELESS STANDARD:** World travelers are more affected by this than users based strictly in the United States, because most of the world uses networks based on the Global System for Mobile Communications standard. In addition to GSM, U.S. carriers work on the Code-Division Multiple Access and Time Division Multiple Access standards. Because carriers run on different networks, you can't, for example, use a Sprint PCS phone on Cingular's service.

➤ **WIRELESS MODE:** Choose a dual-mode mobile phone, which sends and re-



Motorola V70

ceives both digital and analog signals. It can fall back on analog service if a digital signal is unavailable, though roaming fees apply.

➤ **BAND SUPPORT:** Tri-band phones operate across three frequency bands. Theoretically, they provide better coverage than dual- or single-band phones. Tri-band world phones, which are compatible with three GSM frequencies—900 MHz (mainly in Europe), 1800 MHz (in Asia), and 1900 MHz (in the United States)—can function around the globe. Some tri-mode phones will work on two digital frequencies and an analog network.

➤ **DESIGN:** You can choose between flip-open and nonflip phones. To screen calls via caller ID, get either a nonflip model or a flip phone with a caller ID screen on the cover. If you buy a nonflip unit, make sure it has a keypad lock that prevents inadvertent dialing. Also consider ergonomics: Can you hear callers without constant adjustment? Can you use the phone with one hand? For example, you can't easily hold a slim phone to your ear by scrunching your neck and shoulder.

➤ **SIZE AND WEIGHT:** A typical nonflip mobile phone weighs about 4 ounces and is about the size of an energy bar—5 inches long, 2 inches wide, and an inch thick. Anything above that is considered large. Exceptions: phone/PDA hybrids such as Kyocera's 7135 Smartphone and Handspring's Treo units (each about the size of a pack of cigarettes), and Samsung's I300 (typical handheld size).

➤ **BATTERY LIFE:** Most new phones allow at least 3 hours of talk time and six days on standby. Some phones, including Nokia's, can last up to 14 days on standby. Of course, usage affects battery life,

### FEATURES COMPARISON

#### WIRELESS PHONE PICKS

|   | WIRELESS PHONE   | Specs <sup>1</sup>   | Comments   |
|---|--|--|--|
| 1 | Sony Ericsson T68<br>★★★★☆<br><a href="http://find.pcworld.com/29852">find.pcworld.com/29852</a> <b>NEW</b>    | <ul style="list-style-type: none"> <li>• \$200</li> <li>• GSM 900 MHz/1800 MHz/1900 MHz</li> <li>• 3 ounces; 3.9 by 1.9 by 0.8 inches</li> <li>• 7-hour talk time; 8 days standby</li> </ul> | Inexpensive, compact phone packs joystick navigation button, color screen, and world roaming. Available through AT&T Wireless, Cingular, and T-Mobile.                   |
| 2 | Motorola V70<br>★★★★☆<br><a href="http://find.pcworld.com/29840">find.pcworld.com/29840</a> <b>NEW</b>         | <ul style="list-style-type: none"> <li>• \$400</li> <li>• GSM 1900 MHz</li> <li>• 2.8 ounces; 3.3 by 1.8 by 0.8 inches</li> <li>• 4-hour talk time; 6 days standby</li> </ul>                | Smallest, most innovatively designed phone of this group has unique swiveling cover and circular display, though the keypad is a bit small. Available through Cingular.  |
| 3 | Handspring Treo 270<br>★★★★☆<br><a href="http://find.pcworld.com/29851">find.pcworld.com/29851</a> <b>NEW</b>  | <ul style="list-style-type: none"> <li>• \$499</li> <li>• GSM 900 MHz/1900 MHz</li> <li>• 4.8 ounces; 4.2 by 2.8 by 0.8 inches</li> <li>• 3-hour talk time; 6 days standby</li> </ul>        | Combines phone and PDA into the highest-priced, only Palm OS-compatible device here. Has a color screen and a tiny keyboard. Available through Cingular and T-Mobile.    |
| 4 | Nextel Motorola 190c<br>★★★★☆<br><a href="http://find.pcworld.com/29843">find.pcworld.com/29843</a> <b>NEW</b> | <ul style="list-style-type: none"> <li>• \$250</li> <li>• iDEN 800 MHz (based on TDMA)</li> <li>• 4.8 ounces; 3.5 by 2 by 1.1 inches</li> <li>• 3-hour talk time; 3 days standby</li> </ul>  | Flip-up, Java-enabled phone with separate caller ID screen on the cover is the only model here with speakerphone and two-way radio capability. Available through Nextel. |
| 5 | Nokia 6360<br>★★★★☆<br><a href="http://find.pcworld.com/29846">find.pcworld.com/29846</a> <b>NEW</b>           | <ul style="list-style-type: none"> <li>• \$150</li> <li>• TDMA 800 MHz/1900 MHz</li> <li>• 4.2 ounces; 5 by 1.8 by 0.9 inches</li> <li>• 5-hour talk time; 14 days standby</li> </ul>        | The most affordable phone on our list has voice recorder, internal (rather than pull-out) antenna, and six-line text display. Available through AT&T Wireless.           |

Visit [find.pcworld.com/30158](http://find.pcworld.com/30158) for more rankings and product reviews.

<sup>1</sup> Street prices are reported as of 6/12/02, with service activation.



and (depending on the phone) recharging the battery may take an hour or longer.

➤ **SCREEN:** If you intend to send and receive text messages, surf the Web, or use a built-in organizer, look for a phone that displays at least six lines of text. Anything less will make your eyes—and your thumb—sore from the scrolling. Some handsets let you adjust the font size to fit more text on screen, but the more digits you pack in, the tinier they get. Consider a phone/PDA hybrid (from Handspring, Kyocera, Nokia, or Samsung) if you plan to go online—hybrids offer larger screens than standard mobile phones do.

Make sure you can adjust display contrast and backlight strength; they make text and graphics easily viewable, even in bright places. Phones with color screens can make text easy to read, but you'll usually pay for that perk in short battery life.

➤ **KEYPAD:** The menu system and keypad layout should be intuitive, and the buttons easy to press. Look for a joystick-style knob (such as the one on Sony Ericsson's T68) that simplifies menu navigation. Most handsets, however, come with up/down and left/right arrow keys.

Phone/PDA hybrids such as Handspring's Treo come with a tiny keyboard that makes data entry less complicated than touching a keypad on a handheld screen like those on Samsung's I300.

➤ **CALL FEATURES:** New phones are loaded with call-management features like phone books, call histories, and speed dialing. Some handsets (including a few from Kyocera and Nextel) even come with a speakerphone. Nextel also offers models that function as a two-way radio connecting you with other Nextel users in your group. This feature doesn't count as airtime—great for roving staff. Enabling other features such as call waiting, caller ID, and voice-activated dialing requires activation from a carrier.

For security features, look for a phone that restricts outgoing and incoming calls, locks the keypad, and protects or mass-deletes phone book entries. If you want to talk on the phone hands-free, get a headset or an earpiece. For cord-free calling,

consider a wireless, Bluetooth-enabled headset; Sony Ericsson and Nokia offer phones with this extra-cost accessory.

➤ **WIRELESS DATA:** Though few people exchange data wirelessly through their phones, nearly all new models can send and receive e-mail and SMS (Short Message Service) text messages, download ring tones and simple games, and connect to the Internet (usually through a minibrowser that works best with text-only versions of sites like Yahoo, Ama-

its phones; some providers (including Verizon) offer free trials. Poll friends and colleagues about their experiences.

Travel cross-country? Sign up for a national plan, so you can send and receive calls anywhere in the United States and in parts of Canada without incurring extra charges; with local or regional plans you must pay roaming fees outside your area. To use a world phone in other countries, you'll need international roaming service.

Carriers offer discounts if you sign a

## CLOSE-UP

### DIALING FOR FEATURES



Sony Ericsson's T68 features a joystick-style navigation button.



Nextel's clamshell-design Motorola I90c has a handy caller ID screen on the cover.



Handspring's phone/PDA hybrid Treo 270 has a large color screen for easy text viewing.

Its integrated, if tiny, keyboard helps simplify data entry.

zon, and CNN). The availability of such features depends on your service plan.

Going online while you're waiting for the elevator is a cool idea, but most mobile phones connect at slow speeds: 8 kbps on current GSM networks, or up to 19.2 kbps on networks using a technology called CDPD (Cellular Digital Packet Data). One step toward faster transfers is a technology called GPRS (General Packet Radio Service), a wireless standard that can run at speeds up to 115 kbps. Some phones from Motorola, Nokia, and Sony Ericsson are compatible with GPRS; Cingular and T-Mobile offer it. Faster still is 3G, which we expect carriers to roll out next year.

➤ **PHONE SERVICE:** Not all networks are created equal. Service can be erratic even if a carrier claims to have coverage in an area; reception quality varies, too. Before you buy, try the service and one of

one-year or longer contract (break it, and you'll get hit with hefty fees). Signing up for more minutes than you'll likely use per month will ultimately cost less than a lower base with additional per-minute fees. Services like wireless Web, e-mail, and text messaging cost extra. Look into replacement plans or extended warranties, which entitle you to a new phone if yours is lost, gets stolen, or goes kaput.

## Recommendations

**THE SWEET SPOT:** a compact, dual-band phone like Sony Ericsson's T68 that lasts for 3 or more hours of talk time. Globetrotters, look for a GSM-enabled, tri-band phone and international roaming service; check rates from AT&T Wireless, Nextel, and T-Mobile. In choosing a carrier, compare calling-plan rates and coverage areas.

—Grace Aquino ➤





## MP3 Players

**WHAT MATTERS:** Today's players pack more songs than ever, and the devices are easier to manage, too.

A PORTABLE DIGITAL audio player sets your music free so you can easily mix and match songs in any order and take all the tunes with you. Hard drive-based players such as the Apple iPod have the greatest amount of storage space, but they also cost the most. Flash memory models are small but hold a limited number of songs. Though the media used by MP3 CD players is inexpensive, these devices have a certain nontrendy chunkiness to them.

### Key Features

► **STORAGE:** If you want to house your entire music collection on just one device, consider purchasing a hard drive-based player—a 20GB drive holds about 5000 4-minute songs compressed at 128 kilobits per second. Flash memory-based models generally max out at 128MB (that works out to approximately 30 songs at 128 kbps), but their tiny size is a bonus.

Look for a model that permits you to add memory through either CompactFlash or SmartMedia cards, which cost about \$70 for 128MB. Even if you spring for the expansion media, however, you may quickly outgrow the player. MP3 CD players like the iRiver America IMP-350 SlimX are the size of standard portable CD players, but they use inexpensive CD-R or CD-RW discs (one disc can hold about 10 hours of music, or 150 songs at 128 kbps).

► **FILE MANAGEMENT:** MP3 files include ID3 tags that list the artist, track, album name, genre, and more. Working with this data, a player can organize the files for you. Most hard drive-based players sort files into artist, song title, and genre lists, and can read playlists that you create with software like Musicmatch Jukebox. You obtain song information easily via software enabled to work with

an online track-listing database called the Gracenote CDDB Music Recognition Service, or you enter the info manually. Look for an easy-to-read LCD screen that shows the information you frequently use.

► **TRANSFER SPEED/PORT TYPE:** Most players today use the USB 1.1 interface, but downloading one 5GB batch of songs from your PC can take all night. Look later this year for players that employ the much faster USB 2.0 standard. With FireWire (IEEE 1394) you can transfer an entire song in seconds, but few PCs have a FireWire port. (You can add a FireWire PCI card to your PC for as little as \$50.)

► **SOFTWARE:** All players come with software that allows you to download songs to them. Some of the more popular units have drivers you can use within RealOne or Musicmatch Jukebox; this permits you to rip from a CD-ROM and download the resulting MP3 file to your player from the same application. Other players, such as the Pogo RipFlash, come with their own specialized software. And some hard drive-based players appear as a drive within Windows Explorer, so you can drag and drop files into the device.

### Recommendations

FLASH-BASED players are easy to tote and have reasonable starting prices. Good-value MP3 CD players usually retail for less than \$200, and additional blank discs are cheap. You get a two-fer with hard-drive players, though they cost more initially: You can carry a huge music collection in a fairly portable device, and such players often have intuitive file management systems and clear LCDs that display song information. The bottom line? Look for a player that holds the most songs in the smallest package you can afford.

—Michael Gowan ►



Samsung Yepp  
YP-905

### FEATURES COMPARISON

#### MP3 PLAYER PICKS

|   | PLAYER  | Specs   | Comments   |
|---|---|---|--|
| 1 | Apple iPod<br>★★★★☆<br><a href="http://find.pcworld.com/29810">find.pcworld.com/29810</a>                   | <ul style="list-style-type: none"> <li>• \$499</li> <li>• Hard drive</li> <li>• 10GB storage</li> <li>• Plays MP3 files</li> </ul>                | This expensive, sleek player has intuitive file management and navigation. Its FireWire interface allows for fast file transfers. However, it requires a download of one of several software packages to work with Windows.          |
| 2 | Samsung Yepp YP-905<br>★★★★☆<br><a href="http://find.pcworld.com/29813">find.pcworld.com/29813</a>          | <ul style="list-style-type: none"> <li>• \$190</li> <li>• Embedded flash memory</li> <li>• 64MB memory</li> <li>• Plays MP3, WMA files</li> </ul> | This tiny player can tuck into almost any pocket. A clear display simplifies navigating the stored music. Comes with a USB 1.1 connection, an FM tuner, and a voice recorder, but its memory cannot be expanded.                     |
| 3 | Sonicblue RioRiot<br>★★★★☆ July 02<br><a href="http://find.pcworld.com/27741">find.pcworld.com/27741</a>    | <ul style="list-style-type: none"> <li>• \$350</li> <li>• Hard drive</li> <li>• 20GB storage</li> <li>• Plays MP3, WMA files</li> </ul>           | Thanks to its large, crisp LCD screen, the RioRiot makes managing and navigating its vast storage space easy. File transfers via its USB 1.1 interface are slower than on other USB 1.1 devices, however. Also has an FM tuner.      |
| 4 | Pogo RipFlash<br>★★★★☆<br><a href="http://find.pcworld.com/29814">find.pcworld.com/29814</a>                | <ul style="list-style-type: none"> <li>• \$129</li> <li>• Flash memory</li> <li>• 32MB memory</li> <li>• Plays MP3, WMA files</li> </ul>          | This small player includes a ton of features: a good price, expandable memory (SmartMedia), voice recording, and a USB 1.1 interface. Also records audio directly to an MP3 file from the line-in port, but the MP3 quality is poor. |
| 5 | iRiver America IMP-350 SlimX<br>★★★★☆<br><a href="http://find.pcworld.com/29815">find.pcworld.com/29815</a> | <ul style="list-style-type: none"> <li>• \$180</li> <li>• CD</li> <li>• No internal memory</li> <li>• Plays MP3, WMA files</li> </ul>             | Well named, this sleek player has upgradable firmware and an FM tuner, and its LCD screen is conveniently located on the handy remote. However, it has limited options for managing and navigating its stored music.                 |

Street prices are reported as of 6/26/02. Visit [find.pcworld.com/30098](http://find.pcworld.com/30098) for more rankings and reviews.





**Six Degrees™**  
timefreeing technology™

## **Too much time and not enough email? Didn't think so.**



Remember the days when email was a good thing? It brought you the information you needed fast, and enabled you to respond instantly.

Then, almost overnight, six billion email messages a day were circulating through the Internet – all of them seemingly headed for your inbox. Suddenly, your email wasn't boosting your productivity, it was zapping it.

Six Degrees™ software from Creo puts your email back to work for you. It eliminates the need to refile email or search for that elusive message. Your email isn't going away – so you may as well put it to work.

Download a FREE 30 day trial of Six Degrees:

**[getsixdegrees.com](http://getsixdegrees.com)**

**creo™**

The Creo products mentioned in this document are trademarks or service marks of Creo Inc. and may be registered in certain jurisdictions. Other brand or product names are the trademarks or registered trademarks of their respective owners. © 2002 Copyright Creo Inc. All rights reserved.





# ALL THIS AND MORE AT NETSCAPE.COM

News from CNN. Scores from Sports Illustrated. The latest from Entertainment Weekly, People and InStyle. Plus Instant Messenger, MapQuest, weather, search and email. The list goes on and on. See for yourself.

**Visit the new Netscape.com today.**



**Netscape.com™**  
All the net you need

© 2001 Netscape Communications Corp. Photos are the copyrighted property of their respective owners and are used with permission. Netscape.com, the Netscape logo, CNN.com, CNNsi.com, EW.com, InStyle.com, People.com, and Time.com are trademarks of the AOL Time Warner, Inc. companies. All other trademarks are the exclusive property of their respective owners. All rights reserved.




# CD ORGANIZER

Designed for PC

Convenience that's  
out of this world!

- Software automatically scans and stores disc titles and filenames eliminating manual entry
- Retrieve discs by title, filename or keyword with a click of a mouse
- Holds up to 75 discs
- Supports multiple towers
- USB Interface



Do you waste a lot of time searching for CDs? At KDS USA, we created the ultimate gadget that solves this problem.

Simply connect the CD Organizer to your PC's USB port, install the software and start cataloging your discs. Whether you have CDs or DVDs, the CD Organizer software automatically scans and stores disc titles, filenames and folder names using your CD-ROM or DVD-ROM drive. Retrieve discs by title, filename, or keyword with a click of a mouse. If you lend a disc to a friend, it even reminds you when it's due back.

Stop wasting time searching for CDs by purchasing the CD Organizer online or at a retailer near you!

For more details and a list of retailers visit [www.kdsusa.com](http://www.kdsusa.com), email us at [kds\\_cdorganizer@kdsusa.com](mailto:kds_cdorganizer@kdsusa.com) or call 1-800-283-1311.



©2002 KDS USA, Inc. All rights reserved. Specifications and design subject to change without notice. The CD Organizer is not a CD-ROM or DVD-ROM drive. KDS USA is not responsible for typographical errors.

**KDS** USA



## SUCH

THE BEST  
& WORST  
PLACES  
TO BUY  
ON THE  
WEB

From big names to cheap no-names, we rate today's PC gear sites for price, selection, and service.

BY ANNE KANDRA

I'M BROWSING an online store whose home page features a slick-looking sales rep in shades hawking deals on digital cameras, laptops, and so on—a little cheesy-looking, maybe, but the price is right. Another site's home page is more cluttered than my eight-year-old's bedroom floor, but it offers free shipping. Still another site has a clean layout, lots of product information, and a trusted name, but yikes—high prices!

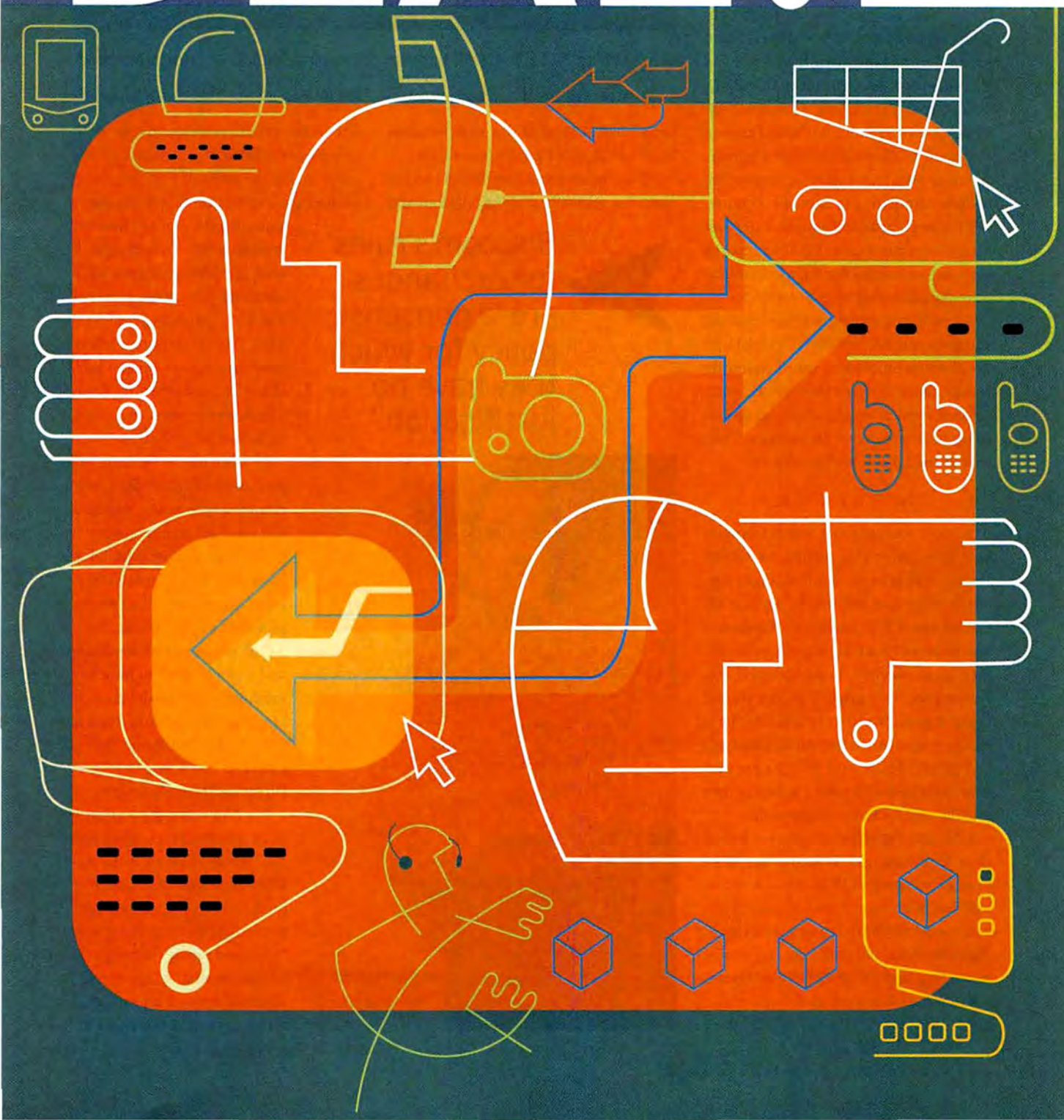
Choosing where to buy stuff online can be a baffling experience. You want a great price, but not if it means crummy service or shady deals. You also want a site that's easy to get around and tells you everything you want to know—from full product specs to total price with shipping to return policies. Finally, you want a site that'll be there for you if there's a problem.

To find out where you can get the best bargains and service, we shopped at a dozen online computer stores. Our goal? To locate the smoothest overall shopping experience—and to cull the sleazy vendors from the virtuous. In the end, we were pleased to find more good guys than slimy sales reps, though we still encountered snafus. Here's our story. ▶

ILLUSTRATIONS BY CELIA JOHNSON



# DEAL?





## HOW WE TESTED

WE ORDERED FROM big-name vendors Amazon.com, Buy.com, CDW, Computers4Sure, Dell, ECost, Micro Warehouse, Outpost.com, and PC Connection, along with no-name stores—A2Z Computers, MP Superstore, and TigerDirect—that often show up on shopping search engines because of their low prices. From each store, we bought an IBM ThinkPad R31 notebook, an Olympus Camedia D-40 Zoom digital camera, a 19-inch NEC MultiSync FP955 monitor, and a copy of Microsoft's Office XP Standard Upgrade. If a store didn't have what we wanted, we bought a similarly configured substitute.

We also comparison-shopped 16 other products—from PCs to PDAs to security software—by checking their availability, price, and shipping costs at every store.

We evaluated sales and return policies, shipping options, and overall ease of use. We ordered online and called customer service along the way to test its efficiency. As stuff arrived, we unpacked and powered up each item except the software. Then we returned the items for refunds.

## THE BIG PICTURE

OUR BEST EXPERIENCE was at Computers4Sure (which is owned by Office Depot), thanks to its easy-to-navigate site, terrific selection, and helpful service. PC Connection, CDW, and Micro Warehouse also came out near the top of our list for their good selection, fair prices, and reliable service. Our gripe: Vendors should make a greater effort to tell shoppers which items are nonreturnable (although Computers4Sure and PC Connection made exceptions by taking products they initially said couldn't be returned).

A2Z and TigerDirect get our booby prize for bungling every step of our shopping experience. A2Z had a lost order, indifferent customer service, and apparently used software being sold as new; TigerDirect had little selection, aggressive marketing, and distrust of its customers.

As for the other sites, each had a major glitch that landed it in the middle. Dell

took weeks to refund money for a couple of returned items, and its phone customer service can be like an Escher print: loops leading nowhere. Buy.com makes it difficult to talk to a rep. ECost has a tough

return policy, MP Superstore's selection is limited, and Outpost.com's site design is clunky and hard to navigate. And while Amazon.com is a great place to buy books and CDs, we'd go elsewhere for PC gear.



## Selection: Puny to Plenty

OF THE 12 SITES, CDW had the broadest selection of computer products, offering 19 of the 20 on our list. Computers4Sure also did well, offering all but 2. Most of the other vendors had 14 to 16 of the products available.

MP Superstore and TigerDirect had the slimmest selection, offering only four and

five of the products, respectively. Both companies offered other models by the same maker for some of our items, and we had the impression that TigerDirect

tends to sell a vendor's low-end product lines—for example, it sells NEC-Mitsubishi's \$270 AccuSync 95F monitor but not the \$395 MultiSync FP955. Also, MP Superstore offers hardware only—you can purchase almost anything from a microwave oven to a clock radio, but not software.

In addition to selling PC gear, most of the resellers offer extended warranties. TigerDirect takes an earnest approach in this area. At checkout, I was beseeched with a "special message" from Carl Fiorentino, president of TigerDirect.

Carl apparently understands that I can't afford to have my machine go down, and goes on to explain that peace of mind is just a click—and about \$200—away, in the form of TigerDirect's extended warranty.

Turning down the warranty is as simple as clicking the "no" option (which is the default), and you don't have to read Carl's plea, which says that you'll never pay for any "approved repair" but neglects to specify what's "approved." Always compare an extended warranty against the maker's.

Buy.com's rules for exchanges are 'a nonsense policy for which they have no justification.'



Pam Falcioni,  
Web designer





## Usability: Clean vs. Clunky

WHAT'S MORE FRUSTRATING than a Web site that doesn't sell what you want? One that sells the item but makes it impossible to find.

To test each Web site's ease of use, I plugged the manufacturer number of each product into the search field to make sure I got the correct item in one click. Manufacturers' product numbers are available from their Web sites and at pricing search engines like PriceGrabber. Five of the 12 sites—A2Z, CDW, Computers4Sure, ECost, Micro Warehouse, and PC Connection—found every item by

its number on the first try, and most others came up with at least one or two.

It's a good thing that A2Z's search feature found most of the products right away, because the site's design is clunky and hard to negotiate. The home page lists three categories: Computers, Notebooks, and, obscurely, Barebones (which consists of computer cases, processors, memory chips, graphics cards, fans, and

so on), along with several dozen subcategories for specific components.

Speaking of bare bones, that generously describes A2Z's product information. When I linked to the IBM ThinkPad (which wasn't in stock), I got a cryptic list of abbreviated configuration details (the product description read "TP R31 P3/1130 128MB 30GB 14.1 DVD 56K ETH W2K"); it tells you what you want to know if you speak geek, but it would have been nice to see a description using actual words and sentences, and maybe a product photo. In fact, the model name of the notebook wasn't even listed anywhere, so it took me a while to confirm that I had indeed found the right item. ▶

### FEATURES COMPARISON

## SHOPPING SITES: COMPUTERS4SURE LEADS THE PACK

| ONLINE STORE  | Out of 20 products, it had... | Products' cost vs. average cost at other stores | Bottom-line price before purchase <sup>1</sup> | Site design and navigation | Product descriptions and photos | Restocking fee | Refund within... <sup>2</sup> | Comments   |
|---|-------------------------------|---|--|----------------------------|---------------------------------|----------------|-------------------------------|--|
| <b>Computers4Sure</b><br>★★★★★<br><a href="http://www.computers4sure.com">www.computers4sure.com</a>  | 18                            | 2 percent more                                  | Yes  | Excellent                  | Excellent                       | None           | 2 to 5 days                   | All-around decent online store offers a great selection of computer products. Provided good service on our orders.               |
| <b>PC Connection</b><br>★★★★★<br><a href="http://www.pcconnection.com">www.pcconnection.com</a>       | 12                            | 7 percent more                                  | No   | Excellent                  | Excellent                       | 15 percent     | 5 to 7 days                   | Gives helpful information on its Web site and easy checkout process, but has so-so selection.                                    |
| <b>CDW</b><br>★★★★★<br><a href="http://www.cdw.com">www.cdw.com</a>                                   | 19                            | 4 percent less                                  | Yes  | Very good                  | Very good                       | None           | 3 to 6 days                   | Has the best selection here and an easy-to-navigate site. But no returns on several PC brands, including IBM.                    |
| <b>Micro Warehouse</b><br>★★★★★<br><a href="http://www.microwarehouse.com">www.microwarehouse.com</a> | 16                            | 1 percent less                                  | No   | Good                       | Good                            | 15 percent     | 3 to 5 days                   | Middle-of-the-road online vendor sells most of the items we looked for but has a weak search engine.                             |
| <b>Amazon.com</b><br>★★★★★<br><a href="http://www.amazon.com">www.amazon.com</a>                      | 16                            | 7 percent less                                  | Yes  | Good                       | Good                            | None           | 15 to 43 days                 | Good return policies, and selection has below-average prices. But there's no phone ordering, and finding PC gear can be tedious. |
| <b>Buy.com</b><br>★★★★★<br><a href="http://www.buy.com">www.buy.com</a>                               | 16                            | 1 percent more                                  | Yes  | Good                       | Good                            | 15 percent     | 4 to 20 days                  | Easy to find products, but it's very difficult to call company with questions. Hard-sells extended warranty.                     |
| <b>Dell</b><br>★★★★★<br><a href="http://www.dell.com">www.dell.com</a>                                | 14                            | 2 percent less                                  | No   | Good                       | Very good                       | 15 percent     | 4 to 49 days                  | Good prices, but took a long time to refund our money and put us through looping phone menus at customer service.                |
| <b>ECost</b><br>★★★★★<br><a href="http://www.ecost.com">www.ecost.com</a>                             | 16                            | 5 percent more                                  | Yes  | Good                       | Good                            | 15 percent     | 1 to 7 days                   | Provides a pleasing shopping experience, but charges handling fee and you can't return things from several manufacturers.        |
| <b>Outpost.com</b><br>★★★★★<br><a href="http://www.outpost.com">www.outpost.com</a>                   | 11                            | 3 percent more                                  | Yes  | Poor                       | Good                            | None           | 3 to 5 days                   | Finding items was difficult. Site doesn't save user info for separate orders, unless you set up an Express account.              |
| <b>MP Superstore</b><br>★★★★★<br><a href="http://www.mpsuperstore.com">www.mpsuperstore.com</a>       | 4                             | 6 percent less                                  | No   | Adequate                   | Adequate                        | 15 percent     | 8 to 28 days                  | Poor selection—it doesn't sell software. Web site is difficult to use, and product information is sparse.                        |
| <b>A2Z Computers</b><br>★★★★★<br><a href="http://www.a2zcomputers.com">www.a2zcomputers.com</a>       | 14                            | 3 percent less                                  | No   | Poor                       | Good                            | None           | 7 days                        | Offers good deals but doesn't list tax and shipping charges before you pay. Has a very clunky Web site and spotty service.       |
| <b>TigerDirect</b><br>★★★★★<br><a href="http://www.tigerdirect.com">www.tigerdirect.com</a>           | 5                             | 11 percent more                                 | Yes  | Poor                       | Very good                       | 15 percent     | 2 to 5 days                   | Limits many products to second-class makers. Accepts no returns on software, even unopened. Pushes extended warranty.            |

<sup>1</sup> Bottom-line price includes tax and shipping fees. <sup>2</sup> Refund time frame is the time between products' return date (via overnight and standard deliveries) and credit issued by bank.





**CLEAR VS. CLUTTERED:** CDW (top) has an attractive site, while MP Superstore plainly lists brands and models.

At least at A2Z I knew where I was. At Amazon.com's home page, the main search field didn't recognize any of the manufacturer numbers I entered, and because Amazon recommends items that are closely related to the product I'm searching for, I found myself in cybermall hell, clicking through things I didn't need.

I eventually made it to Amazon's electronics store and located the products I wanted by entering the product name in the search field. This worked fine and was intuitive enough, but because the site tries so hard to be everything to everyone, you have to click through many levels to find what you're after. Thankfully, Amazon provides useful online tools to let you track your purchase, set up buying histories, compare product features, and return or even auction off unwanted items.

TigerDirect didn't recognize any of the products' manufacturer numbers either—mostly because, except for the software, it didn't sell any of the items on our list. Locating similar substitutes for the monitor, camera, and notebook took well over an hour. The site's home page is cluttered and text-heavy, and searching involves working your way through multiple screens as you narrow the listings. To its

credit, TigerDirect's site does provide very thorough product descriptions and good—and enlargeable—photographs of its products.

Unfortunately, TigerDirect's user-friendly product descriptions don't make up for the relentless hounding that you're subjected to upon checkout. First comes the pitch for an extended warranty, but wait—there's more. Its customer information form asked me for my Social Security number, although the company no longer asks for this on its checkout page. Before the site confirms your order, you're hit up to buy a \$50 monthly telephone service in order to get a “free”

phone calling card. TigerDirect's final strike: Its order confirmation didn't include any price, tax, or shipping costs.

Another exceptionally kludgy site is Outpost.com (which is owned by computer retailer Fry's Electronics), where I

spent more time searching for products than I did preparing for my last karate belt. Do a search using a product name, and you're forced to sort through endless lists. Try culling it down by using one of its other puzzling search parameters, and the whole thing is more trouble than it's worth. And don't ask me why, but as I searched the site in vain for my IBM ThinkPad, I somehow kept ending up on the “Board Sports” page. (Outpost sells toys, kitchen tools, and home goods along with its notebooks and network routers—good news if you're tempted to pick up a blender or a Trivial Pursuit game while you're shopping for a new PC.)

In contrast, PC Connection's site is clean and well organized, and it provides excellent product photos and descriptions, including details like compatibility notes and system requirements. CDW seems geared to IT departments; it has corporate-sounding titles like “Resources” and CDW@Work and includes categories for networking and telephony equipment as well as training and other business services. The site is a bit text-heavy but straightforward and easy to navigate.



## Price: Wheelin' & Dealin'

A GREAT PRICE can tempt you into going with a dark horse over the tried-and-true. But remember to look at the whole picture. Sometimes that

terrific bargain isn't so terrific after you factor in taxes, shipping, and other fees.

I found significant price variations on some of the items I bought—and some of the best deals came from big vendors. For example, Amazon had the lowest price for the Office XP Upgrade, at \$193; A2Z was the priciest, at \$240.

If saving nearly \$50 isn't compelling enough, consider this: Amazon's software arrived shrink-wrapped and factory fresh, with all warranties, documentation, and discs intact. A2Z's shipment included a box full of packing peanuts with a scratched, dirty jewel case containing two smudged discs that looked like they'd

been handled before. The software also lacked any warranty or product documentation. “It must've been a shipping error,” says an A2Z spokesperson. According to a Microsoft spokesperson, the software's product key is legitimate, although all genuine Microsoft software should come in a retail box with a license agreement, manuals, and a certificate of authenticity.

Some bargains came from small players like MP Superstore, which sold Olympus's Camedia D-40 for \$505—about \$100 less than most of the other vendors. Dell charged the highest camera price at \$699.

All resellers let you choose the shipping method, from standard (the least expen-



sive option that takes about 5 to 7 business days) to overnight delivery. CDW offered the most choices by far, with more than 30 shipping alternatives.

I asked for standard shipping for everything I bought and found that costs varied more widely than you might expect. ECost, unlike others, charges a handling fee (although for our purchases this was offset by its free shipping offer if you spend over \$500), and its shipping costs were generally higher than those of the other vendors. For example, I paid a steep \$78 to ship the NEC monitor, compared to just under \$40 at PC Connection, Computers4Sure, and several others.

Vendors often provide free shipping, especially for heavier items like monitors or desktop PCs, so it's worth scouting these deals out. Don't forget about sales tax—you'll have to pay it if the company you're buying from has a store, warehouse, or facility of any kind in your state.



## Service: Highs & Lows

WHEN ONLINE SHOPPING works as it's supposed to, you can buy anything from PCs to antique coins without ever talking to a human being.

Sound antisocial? Maybe. But if you've waited on the phone for a rep, a bit of antisocial behavior doesn't sound so bad.

Some companies, including Amazon and Buy.com, make it next to impossible to reach anyone by phone. But to be fair, Amazon puts enough information on its site that you'll probably find the answer to your question if you look hard enough. If not, you can e-mail the help department, as I did to ask why my credit card was turned down for one of my purchases. I got an e-mail response within an hour. In contrast, an e-mail query I sent to A2Z apparently went straight to the online circular file—I never got a response.

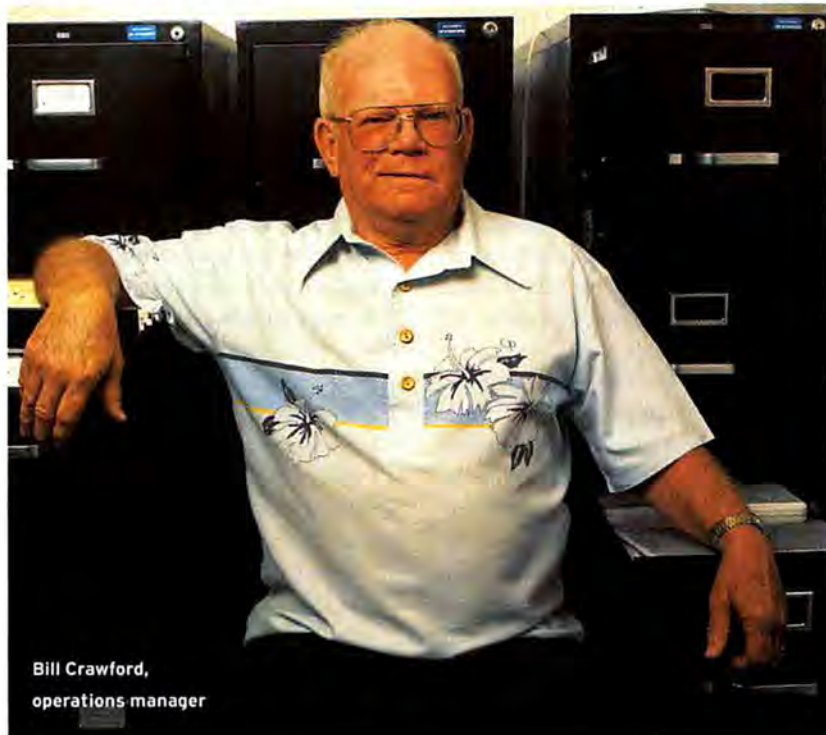
My shopping cohort, *PC World* Associate Editor Grace Aquino, had a less satisfying experience with Amazon's customer service. Her IBM ThinkPad order involved numerous e-mail messages but no computer. Amazon confirmed her order but could not process her payment; she had to go through Amazon affiliate EBS. She e-mailed EBS a few times to finalize the sale. Days later, an EBS rep e-mailed to say that the laptop was unavailable; he could order the product but could not guarantee when it would arrive. Aquino didn't bother with the order.

Most reps we spoke with were polite and knowledgeable, with a few exceptions. When our shopping researcher, Mick Lockey, called A2Z to check the price for Symantec Norton Internet Security 2002, he learned that it was a non-retail box copy without manuals. When he asked what recourse he would have if he had any problems, the rep responded, "Don't worry, it's a brand-new disc."

Sometimes you might know more than the rep does. Aquino called Outpost to arrange a return of Office XP and was told that the company didn't accept returns on software. When she pointed out that the site says unopened software boxes were returnable, the rep agreed. We wonder: Was he sneaky or just uninformed?

Bill Crawford, operations manager at the nonprofit Community Access Center in Riverside, California, had a more frustrating time with Outpost. He bought two scanners from the company. One scanner worked fine, but the other was dead on arrival. An Outpost rep told him to send the broken scanner back for a full refund. Crawford did, then waited and waited. When he called Outpost, reps would promise to call him back but never did. It wasn't until almost eight months after the purchase that he got the refund. The ►

➤ Crawford says his group 'loaned' Outpost \$250, since the site took eight months to send a refund.



Bill Crawford,  
operations manager



center, which helps people with disabilities live independently, survives on government funding and grants, Crawford says. "We do not have funds available to 'loan' businesses like Outpost \$250."

But talking to customer service isn't always negative. MP Superstore e-mailed me, asking me to call. Uh-oh, I thought, here comes the pitch to buy more stuff. Turned out that the rep, Sam, called to tell me the IBM laptop was unavailable. He was helpful at providing alternatives.

Service at Computers4Sure, however, is a little worrisome. The reps sounded as if I'd interrupted naptime—one rep was bored and sleepy and another actually yawned while explaining return policies.

But at least they didn't argue with me, as the reps at TigerDirect did. When I called to find out why the Toshiba notebook I ordered never arrived, the rep brusquely informed me that the laptop

was on back-order and he had no idea when it would be available.

I asked him to cancel the order. He sighed and told me he couldn't, mumbling something about the order "already being at the manufacturer." I told him to call the manufacturer, and he sighed and mumbled again. I heard the phone drop, followed by a long silence. As I was about to hang up, he returned and offered to let me buy another item. When I told him I just wanted to cancel the order, he sighed, mumbled, and dropped the phone again. After an even longer silence, he returned and grudgingly agreed to cancel the order.

Aquino also got a taste of customer service TigerDirect-style. When she asked to return her unopened copy of Office XP, the rep refused, explaining, "People could buy a shrink-wrap machine, copy the software, and return it as if it's never been opened." Now that's what we call trust.



## Delivery: As Promised

SHOPPING AND SERVICE ASIDE, how did the companies do in delivering the goods? The good news: Almost everything I ordered

arrived in time and in good condition—except for A2Z's incomplete Office XP. The bad news: Aquino didn't fare as well.

Once again, A2Z dropped the ball. More than two weeks after she ordered

her notebook and camera, neither had arrived, although she had received an e-mail confirmation and her credit card had been charged for both purchases. She called a rep, who promised to look into the matter and call her back within 10 minutes.

No one called back. Aquino called again. Nobody at A2Z seemed to have any idea what had happened to her order. The order was canceled, and the accounting department promised a refund. Not only did she never get an explanation of why her order was lost, but her refund was short by \$3. When she called to complain, the accounting rep she ▶



**THE REAL MCCOY:** Software should come in a sealed box with all documentation. The Office XP from A2Z (right) was incomplete.

## SHOPPING TIPS

### CAUTION: SHADY SITE AHEAD

SHOPPING SEARCH engines are great for sniffing out low prices, but they're lousy judges of character. If the site points you to a store of questionable integrity, be prepared to do a little background check of your own. Take your business elsewhere if you get three or more of these warning signs.

▶ **DIRT-CHEAP, EH?** Some stores deal in gray-market goods, selling things like digital cameras and other electronics intended for foreign markets. The warranty and manuals are likely to be useless in the United States. Confirm that the product is intended for American consumers.

▶ **CAN'T ORDER ONLINE?** Either the site isn't set up to process online payments—a red light in itself—or it asks you to call to close the deal, where you might end up in an endless sales pitch.

▶ **TOO MUCH INFORMATION:** Opt out if a vendor asks for your Social Security number or bank account information. A reputable site will require only your name, shipping and billing address, and credit card information—anything more should be optional.

▶ **NO COMPANY ADDRESS:** Some sites—even upstanding ones like Amazon—prefer you to contact them via e-mail and make it tricky to find phone numbers, but it should be listed somewhere. Call the number to make sure there's someone at the other end.

▶ **NO INFO ON POLICIES:** Always look for info on shipping rates, ways to track shipments, and sales tax. Also read the entire return policy before you place an order.

▶ **BAD GRAMMAR:** Poor writing indicates sloppiness. A company with a well-designed, well-edited Web site is generally more likely to put the same effort into customer service.



**SleekLine® 2.4GHz Pentium®4 Systems**  
**Maximum Power! Minimum Space!**



- > 2.4GHz; 256MB; 120GB; DVD/CD-RW
- > Faster Than *PC World's* Top 15 PCs!
- > 75% Smaller Than Mid-Tower PCs!
- > Can be Mounted, Stacked, or Racked
- > Tremendous "Bang For The Buck"

Visit our website or call (800) 722-6555 to learn more.

**sleekline.com**

**SleekLine is a Division of PC Power & Cooling, Inc. Established 1985**

Made in the USA. Includes 3-Year Warranty and Free 24/7 Support.

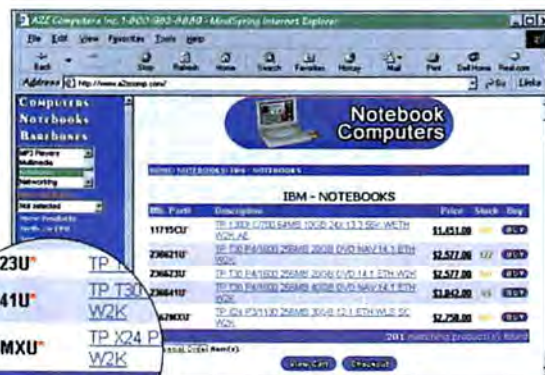
Performance details available on website. SleekLine is a registered trademark of PC Power & Cooling, Inc. Specifications subject to change without notice. ©2002



talked to couldn't explain that mistake either. She eventually got a full refund.

Aquino's other disappointment came from Amazon, which didn't deliver either of the items she ordered—first the notebook, then the digital camera. Since she'd received a confirmation of both the order and the shipment of the camera, she expected that to arrive. No luck—nearly two and a half weeks after her order, she got an e-mail from Amazon that said the camera was undeliverable, indicating that the shipping address (which was different from her billing address) was incorrect (even though the address indicated in the confirmation e-mail was accurate), so the camera would be returned to inventory and Aquino would be refunded for it.

"Shouldn't someone have called to verify the shipping address?" she notes. "If they tried to deliver on a Saturday when [my company's] mailroom was closed, shouldn't they have tried again on Monday?" Maybe not—after all, that would mean making a phone call.



#### Special Order Items:

All Special Order items (i.e. discontinued, soon to be discontinued or proprietary items) are not refundable. If you are not sure if the item is returnable, please contact one of our sales associates at 800-993-8889 for further assistance prior to placing your order online. Also, please keep in mind when you are placing your order for a special order item, make sure it is compatible with your operating system and existing hardware components.

There will be no refund on special order items. No exceptions.

All defective special order items will have to be returned to the manufacturer for a replacement or exchange, depending on the manufacturer's policy. A2Z Computers power warranty does not cover special order items.

**READ THE FINE PRINT:** A2Z Computers' return policy is rather sneaky. The company marks many products on its site with an asterisk, which means the items are not returnable.



## Point of No Returns

AS YOU MIGHT EXPECT from any retailer, online computer stores want you to buy stuff. They don't want it returned. They'll do anything to

keep you from returning it. That said, all the sites we shopped at do allow returns, but most have restrictions. Many of the stores exclude returns on products by certain manufacturers, such as Compaq, IBM, and others. Unless you read the site's return policy before you close the deal, you won't know that.

Some sites have return policies that seem downright strange. Take Pam Falcioni's experience at Buy.com. Her father bought her a 100MB Zip drive but she wanted to exchange it for a 250MB version. Falcioni, a Web designer in Bend, Oregon, got the receipt from her father and contacted Buy.com.

She was astonished that they refused to accept an exchange from anyone but her father. She traded several e-mail messages with Buy.com reps, but never got a good explanation of the policy. "That was the most frustrating part," Falcioni recalls. "It's a nonsense policy for which they have no justification." In the end, she went to her local Staples store, where it took just minutes to exchange the drive for a higher-capacity one.

Always read the return policy before placing an order because there may be hidden rules. ECost's return policy, for example, excludes a large number of products, and the company has a clause that seems to have been writ-

ten by a vengeful vice principal: If you claim to be returning an unopened box and are caught in a lie about that, the site will charge you a jaw-dropping 50 percent restocking fee (rather than the normal 15

**Lie about a returned item at ECost—you pay 50 percent restocking.**

percent). Take that, naughty customer!

While I didn't have any problems returning products to A2Z, the company does include a rather sneaky twist to its generous-sounding return policy. A large number of products are marked with an asterisk indicating "special order." These items are not returnable.

### BROWSING FOR BARGAINS

IF YOU'RE IN THE MARKET for a new PC, or shopping around for a digital camera, should you go online? Sure. Plenty of Internet shops, such as Computers4Sure, offer good deals, dependable service, and an efficient shopping experience. But how do you find the best sites?

First, compare prices at different vendors, but don't just go for the cheapest one. Call or e-mail customer service to test its responsiveness—if a price looks suspiciously low, ask for more specific information, such as whether the item is new or used, and intended for U.S. consumers, and check the warranty terms. Finally, always read the company's terms of service, especially the vendor's return policy, before you buy. Armed with these rules, look to make some great deals. ■

*Anne Kandra is the Consumer Watch columnist for PC World. Additional reporting by PC World Associate Editor Grace Aquino and freelance writer Mick Lockey.*



# Performance far beyond "built-in" limits

## TEST RESULTS

Windows  
2000/XP  
Built-in  
Defragmenter

Diskeeper  
7.0

|                   |            |                      |
|-------------------|------------|----------------------|
| SCHEDULING        | NONE       | AUTOMATIC            |
| SPEED             | SLOW       | 300-500%<br>FASTER   |
| THOROUGHNESS      | INCOMPLETE | DEFRAGS<br>ALL FILES |
| RESOURCE<br>"HIT" | HIGH       | TRANSPARENT          |

## Built-in limits can create performance barriers...

Why? Built-in defragmenters require system admin privs to run, but cannot be run remotely. They drain system resources when running, but need to be run daily. Today's system demands require a fast, transparent and *automated* defragmenter—something a "lite" defragmenter can't deliver. Diskeeper® 7.0 is so advanced it runs itself, precisely when needed, anywhere on the network. It's like hiring an expert to constantly monitor system performance and keep it peaking—with increases up to 200% or more.

**What does Microsoft® say?** "The version included with Windows 2000 provides limited functionality in maintaining disk performance..." "If you need to automate the disk defragmentation process, obtain a third-party disk defragmenter tool." — Microsoft Knowledgebase articles Q227463/Q223146

### Can you really afford to use a manual defragmenter?

"The decision to defragment the enterprise automatically versus manually will save companies thousands if not millions of dollars." — IDC



Call 1-800-829-6468  
Ask for extension #2004

### The Bottom Line:

"These tests clearly show... Diskeeper is a better product for defragmentation."

—Lloyd Holder,  
CEO of NSTL

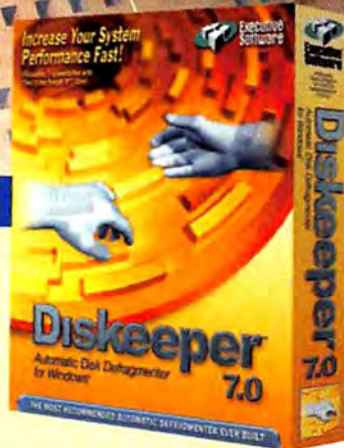
For less than the cost of a minor memory upgrade Diskeeper could be increasing the speed of your system now—automatically!



Download it immediately at:

[www.PW4.diskeeper.com](http://www.PW4.diskeeper.com)

30-day Trialware and more info also available at this location

© 2002 Executive Software International, Inc. All Rights Reserved. DISKEEPER, EXECUTIVE SOFTWARE and the EXECUTIVE SOFTWARE logo are trademarks and registered trademarks owned by Executive Software International, Inc. Windows, Windows NT and the flag logo are registered trademarks owned by Microsoft Corporation. All other trademarks and brand names are the property of their respective owners.





## KINGSTON TECHNOLOGY: COMMITTED TO MEMORY

[www.shop.kingston.com](http://www.shop.kingston.com)

Are you feeling a bit lost in your own digital universe? Do you know where to go when you've tapped your handheld PC's memory, or when you've run out of space on your digital camera?

Do you know who to trust with that MP3 library you can't live without?

As the world's largest third-party memory manufacturer, Kingston Technology Company Inc. has for years been helping PC enthusiasts upgrade the RAM in their PCs with demonstrations and system-specific memory guides at its retail Web site, [www.Shop.Kingston.com](http://www.Shop.Kingston.com).

Now many mobile users, from digital shutterbugs to PDA-wielding business travelers, are turning to [Shop.Kingston.com](http://Shop.Kingston.com) for advice on their Flash and other memory upgrades.

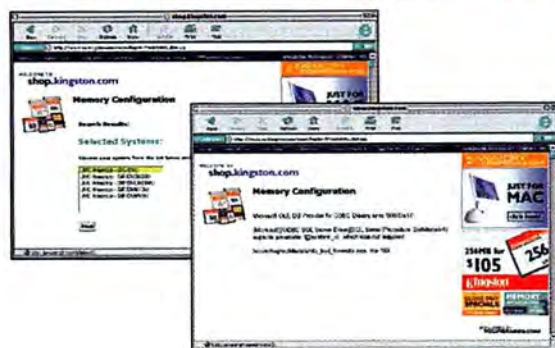
[Shop.Kingston.com](http://Shop.Kingston.com)'s extensive searchable database takes the guesswork out of finding the right upgrade for digital devices, as well as PCs, Macs, and printers. A customer can use the site's unique and powerful Memory Configurator to find his system, and choose from a list of matching available upgrades.



"If you're looking to get more digital music on your MP3 player, the Memory Configurator at [Shop.Kingston.com](http://Shop.Kingston.com) can lead you to a 258MB CompactFlash upgrade that stores up to 100 songs," says Jason Jacobi, a Kingston spokesman.

"Or let's say you're looking for an SD upgrade card to store more photos on your new JVC MiniDV camera," Jacobi adds. "[Shop.Kingston.com](http://Shop.Kingston.com) is going to have the 128MB SecureDigital Card you're looking for."

And shoppers can trust the Memory Selector to direct them only to those memory modules that are compatible with their systems. (Kingston actually guarantees the compatibility of all memory found through the Memory Selector.)



### MEMORY YOU CAN TRUST, PRICES YOU'LL LOVE

Kingston each year builds and tests more than two million customized modules for hardware manufacturers and systems developers. Many of the world's leading PC makers install Kingston memory in their base systems.

Now Kingston is bringing that same quality memory, and the same guarantees, to individual users of mobile devices, at factory-direct prices.

And Kingston supports even novice upgraders with free tutorials and installation guides for Flash memory and any other type of module the company sells. [Shop.Kingston.com](http://Shop.Kingston.com) also provides detailed Adobe Acrobat PDF-formatted installation guides from leading PC manufacturers.

Kingston's Jacobi says first-time memory buyers will have no trouble learning to install their upgrades.

"At [Shop.Kingston.com](http://Shop.Kingston.com)," Kingston says, "we provide an animated installation guide that takes the anxiety out of the installation process for users at any level. It makes upgrading quick and easy."

Even if a customer has trouble with his upgrade, he can always call Kingston at 800-435-0640 and consult with a live Kingston memory expert, 24 x 7.

With its extensive support for first-time upgraders and 24-hour customer service, Kingston is bringing its memory products and high-level support to users of nearly every kind of mobile device or desktop PC. As a leading manufacturer, Kingston can provide upgrades for printers, iMacs, digital cameras, and the latest PDAs.

"Our size, reputation, and knowledge base," Jacobi says, "has helped make [Shop.Kingston.com](http://Shop.Kingston.com) the de facto Internet Memory Center for all of the devices in your digital universe."





Printer Memory



Multimedia Card



CompactFlash Card



SmartMedia Card



DataPak PC Card  
Hard Drive



SecureDigital Card



Digital Media Readers



PC/Server  
Memory



MAC Memory



**COMMITTED  
TO MEMORY**

fast | easy | secure | 100% compatible

LIMITED TIME OFFER

**FREE**  
NEXT DAY  
SHIPPING\*

## Welcome to the Memory Center of Your Digital Universe

- Support for all leading digital devices
- Memory upgrades built to perform
- Easy-to-use Product Configurator
- Award winning service and support

For more details, visit [www.shop.kingston.com/digitaluniverse](http://www.shop.kingston.com/digitaluniverse)

 **Kingston**  
TECHNOLOGY



© 2002 Kingston Technology Company, Inc. 17600 Newhope Street, Fountain Valley, CA 92708 USA (714) 435-2600 Fax (714) 435-2699. All rights reserved. All registered trademarks and trademarks are the property of their respective owners. Terms and pricing subject to change without notice. \*Offer valid on promotional SKUs through September 31, 2002. Offer limited to qualifying Kingston part numbers and is subject to availability. Valid only in the USA. No cash value will be substituted. Additional restrictions may apply.





# PC AMERICA: INVENTORY MANAGEMENT AT POINT OF SALE

[www.pcamerica.com](http://www.pcamerica.com)

While many motorists in Dimondale, Mich. say the family-owned Windmill Truck Stop is a home away from home, its controller, Kevin Edelmann, says it's been more like a house of accounting horrors. Besides monitoring retail fuel sales in the truck stop's "truckers only" area, he also has to keep an eye on commuters' and travelers' purchases in the king-sized complex's convenience store, family restaurant, motel, and auto service center. "Keeping track of all of that inventory has been a nightmare," Edelmann says.

The Point of Sale (POS) system that the Windmill had been using since 1982 did a fine job of ringing up sales, but it couldn't tell store managers anything about what was on the shelf. "The system only broke sales down by department," Edelmann says. "So it couldn't tell the difference between a tube of toothpaste and a bottle of shampoo."

Edelmann found only a few POS solutions that were easy to use, Microsoft Windows-based, and able to support multiple input devices. And none of them could manage the 20,000-plus items in the Windmill's convenience store and restaurant. "We desperately needed a solution that could bring all of these components of our business together," he says.



## PC AMERICA

Things finally turned around at the Windmill once Edelmann deployed PC America's Cash Register Express (CRE 2000), a Windows-based POS program that works with ordinary PCs and peripherals, as well as barcode scanners, receipt printers, and pole displays (which show charges at the checkout counter). Now all of the Windmill's cashiers can use touch screens and barcode scanners to enter orders and update inventory. And setting up CRE 2000 could not be easier, says Edelmann. "PC America did



The home page for PC America speeds you to the point-of-sale products you need.

an excellent job pulling all of the hardware together initially. But the great thing about their software is that I can grab any component I want off the shelf and throw it together in no time. This is one slick program."

The Windmill has processed more than half a million transactions with CRE 2000 and PC America's Restaurant Pro Express (RPE 2000) since October 1999. And Edelmann predicts that PC America will continue to develop the software he needs to keep things running smoothly. "PC America is constantly improving upon their products," he says.

Now PC America is helping retailers like the Windmill to move beyond the sale itself to increase revenues. A new feature in CRE 2000 gives businesses the ability to print coupons on the bottom of sales receipts on an Epson TM-T88II receipt printer. They can use the coupons to advertise specials on slow business days (e.g., "10 Percent Off All Purchases Every Tuesday"), or to give their customers discounts on overstock items (e.g., "Get a Free Six-Pack of Pepsi on Your Next Visit").

CRE 2000's couponing feature promises retailers an excellent route to a crucial dimension in retail sales. "Repeat business is the most important aspect of any business," says PC America's president, Howard Gosman. "With this addition to our POS package, we are giving our customers a quick and easy-to-use method for creating it."





## Cash Register Express Software for Windows...\$495

Computerize any type of retail store using Cash Register Express for Windows. Computerization pays for itself, saving you thousands of dollars, giving you peace of mind, and making the best use of your time. Cash Register Express



has more than 250 of the most desired point of sale features to help you leapfrog past your competition by controlling costs, reducing errors and increasing efficiency.

## More Software for Your Retail Store

- ◆ Video Express
- ◆ Salon Express
- ◆ Auto Express
- ◆ RestaurantPro Express
- ◆ Barcode Express
- ◆ Label Works
- ◆ Inventory Track Express

- ◆ Credit Card Software
- ◆ All Single or Multiuser

All PC America Software requires Microsoft Windows. The software was written in Visual Basic using Microsoft Access Files. The source code is available.

# CASH REGISTER EXPRESS™

**More Profit!**

**More Sales!**

**More Customers!**

*Save Time, Reduce Theft,  
Speed Checkout, Increase Accuracy,  
Reduce Costs, Make Better Business  
Decisions by computerizing  
your Retail Store.*



**SYSTEMS  
START AT  
\$495.**



**Barcode Scanners \$495\***  
Metrologic, Symbol, NJCR, Percon, PSC



**Receipt Printers \$299\***  
Star, Ihaca, Citizen, Epson



**Barcode Printers \$799\***  
Cognitive Solutions Barcode Blaster



**Pole Displays \$289\***  
Logic Controls

## Dealers Wanted!

Join our dealer program.  
It's **FREE**. It's the fastest way  
to make money...AND  
we make it **EASY**.

## MORE INFO?

- ◆ Call Toll Free  
1-800-722-6374
- ◆ [www.pcamerica.com](http://www.pcamerica.com)
- ◆ Fax on Demand  
1-845-267-3551



**Cash Drawers \$189\***  
MMF, Logic Controls,  
Indiana, APG



**Programmable Keypads \$495\***  
Logic Controls, Cherry, Genovation  
**Credit Card Readers \$189\***  
Unitech, Mag-Tek

\*All prices depend on make and model.

# 1-800-PC-AMERICA

Call Toll Free 1-800-722-6374

PH: 1-845-267-3500

FX: 1-845-267-3550

PC America  
60 N. Harrison Ave.  
Congers, NY 10920



**Portable Data Collectors \$695\***  
American Microsystems AMS3000





# CRUCIAL MEMORY:

## CRUCIAL.COM EXPANDS FLASH MEMORY OPTIONS

[www.crucial.com](http://www.crucial.com)

It was hard to believe, a year or two ago, that our \$500-plus PDAs or digital cameras would ever need more memory. But as users adapt to their new filmless, wireless world, they're looking to add flash memory to their gadgets and productivity tools quickly, and without any hassle.

Few online vendors, however, are leading flash memory buyers to the exact memory cards they require. They often force their customers to sift through long and confusing lists of memory cards, sometimes from unnamed manufacturers.

Crucial.com is an exception. As a division of Micron, one of the world's leading memory manufacturers, Crucial.com's reputation for quality is now making it a go-to site for flash memory purchases. Crucial.com's search tools, articles about flash memory, and glossary of terms help make buying flash memory easy and affordable.

And Crucial recently expanded its flash memory line to include higher-density CompactFlash cards and a wide range of MultiMediaCards, which are commonly found in digital still and video cameras, PDAs, and cell phones.



### GUARANTEED COMPATIBILITY

Crucial.com guarantees the compatibility of every flash memory card purchased through the site's Memory Selector<sup>SM</sup>, an all-in-one search tool for finding exactly the right memory for a particular system.

With the Memory Selector, Crucial.com shoppers simply enter their electronic device's make and model (or other information), and the site returns a list of memory upgrades that are guaranteed to work with that system. Flash memory buyers can also search the site by standard memory type, such as "CompactFlash" or "MultiMediaCard."



And all of Crucial.com's memory products are mechanically and electronically compliant with stringent industry standards.

### DESIGNED WITH THE CUSTOMER IN MIND

For shoppers unsure about using flash memory upgrades, or those who simply want to know more about how their devices work, Crucial.com has posted articles about flash memory upgrades and their benefits. The site also includes a glossary of terms for buyers of all types of memory.

"Our customers know they're getting the best flash memory available, at great prices," says Cynthia Gibson, product marketing manager at Crucial.com.

Crucial.com backs all of its flash memory with a five-year warranty and free technical support through its live-chat Expert Line, or via e-mail and a toll-free telephone number. Crucial.com also keeps its customers' personal data safe and secure. The site's Safe Shopping Guarantee promises shoppers that their transactions are encrypted and personal information kept completely confidential.

Crucial.com already sells over 94,000 memory upgrades for more than 15,000 computers, peripherals, and handheld devices. And the site, according to Crucial.com's Gibson, is expanding its flash memory offerings to meet its customers' growing demands.

"We became a leader in the memory upgrade market because our customers knew they could count on us for only the highest-quality memory," says Gibson. "But our customers also know that we will always grow our product line in order to meet all of their memory upgrade needs."







BizRate.com



# Upgrading your memory doesn't have to be complicated.

## You need Crucial RAM.



Select your system make and model at [Crucial.com](http://Crucial.com), and you'll find memory guaranteed to be compatible with your system or your money back. It's that easy! Best of all, you'll get the same top-quality memory the world's leading computer makers install in their systems. Visit [Crucial.com](http://Crucial.com) and get great memory upgrades at low, factory-direct prices.

**\$49<sup>49</sup>**

**256MB PC133 SDRAM**  
for today's most popular systems

**Prices reflect an automatic 10% discount for ordering online.** Prices may vary according to specific system requirements. The prices listed were valid on 7/2/02 when we sent this ad to the publisher; however, prices may have dramatically increased or decreased since then. Visit the FAQ section of [Crucial.com](http://Crucial.com) to learn more about why memory prices go up and down.

©2002 Micron Technology, Inc. All rights reserved. The Memory Experts is a service mark and Crucial Technology, the Crucial logo and Micron are registered trademarks of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners. Crucial Technology is a division of Micron Semiconductor Products, Inc., which is a wholly owned subsidiary of Micron Technology, Inc. Phone 208-363-5500. Fax 208-363-5501. E-mail [crucial.sales@micron.com](mailto:crucial.sales@micron.com). Crucial Technology is not responsible for omissions or errors in typography or photography.

Order online:  
**[www.crucial.com](http://www.crucial.com)**  
or call toll-free 1-888-363-3065

**crucial**  
TECHNOLOGY  
A Division of Micron  
The Memory Experts





# SYS TECHNOLOGY, INC:

## HOT COMPANY, COOL TECHNOLOGY

[www.syslcd.com](http://www.syslcd.com)

If you are like a lot of people considering the purchase of a snazzy new LCD monitor, you probably have several key criteria in mind. You want the monitor to be compact and super-slim for desktop space savings. You want it to be easy on the eyes, fair on the pocketbook, and stingy when it comes to energy consumption.

You have standards and criteria for the company behind the LCD monitor, too. You want the vendor to be a world-class company with a long history in the market, not some fly-by-night outfit. You want that company to treat customer service and product quality as its primary commandments. And you'd like to be able to make your purchase at any number of convenient outlets.

This prized combination of purchase criteria points in the direction of one single supplier—Sys Technology, Inc. (SYS International, Inc., dba Sys Technology, Inc.), [www.syslcd.com](http://www.syslcd.com). This Cypress, California-based manufacturer has been producing high-performance technology products since 1988, priding itself on quality, performance, customer service, and fair prices that are lower than those charged by the big-name vendors while matching those vendors step-for-step in quality and product integrity.



Moreover, Sys is in the midst of a major effort to become a national, brand-name company, having launched a national promotional campaign in the pages of *PC World* magazine. Spearheading this national effort is Denis Karpeles, senior vice president of sales and marketing at Sys.

With so much going for the company, it's small wonder that when the giant OfficeMax chain considered carrying the LCD displays of six different major monitor vendors, it settled on one winner: Sys Technology, Inc. Its LCD monitors will initially be carried in more than 300 OfficeMax stores around the country.



LCD buyers at OfficeMax will be greeted at the Sys display area with a special demonstration multimedia DVD, showcasing the Sys LCD monitors in stock and their diverse applications and features. The Sys LCDs can also be purchased through several other sources, including TigerDirect, J&R Music, PC Mall, PC Connection, Stereo Advantage, RCS, IBS, Nebraska Furniture Mart, and American TV.

The Sys LCDs are available in 15", 17", and 18" models. Specifications for the popular 17" active-matrix TFT SXGA model include 1280 x 1024 native resolution, .26mm dot pitch, a 120-degree viewing angle, support for 16.7 million colors, full-front-panel OSD controls, and internal speakers. These and other specifications of the full line of Sys LCD monitors meet or beat the specifications of the big-name vendors, but at consistently lower prices. All Sys LCD monitors come with a three-year labor guarantee and a one-year warranty on the panel.

So whether you're buying for a major corporation, government entity, or educational organization, or whether you're just a savvy end user who demands the very best for your money, it makes sense to explore the great LCD monitors from Sys Technology. After all, you stare at your monitor for hours each day. It's not polite to stare! Except at SYS.







"IT'S SHOW TIME"

IT'S NOT POLITE TO STARE!  
EXCEPT AT...

SYS



We understand that it's human nature to stare at all things striking: the sky after the year's worst storm, your baby daughter's first smile, a cherry red sports car. A SYS TFT LCD Monitor can be striking in its own way. Thin, silver-blue tone, 15" LCD XGA 1024x768, 16.7 million colors, 350:1 Contrast Ratio, 210 CD/M<sup>2</sup> brightness. Built-in speakers and wall mountable...like a Monet. After all, you stare at your monitor for hours each day.

**OfficeMax**

officemax.com

SYS 15" and 17" LCD Monitors are now available  
at select OfficeMax locations.  
OfficeMax is a registered trademark.

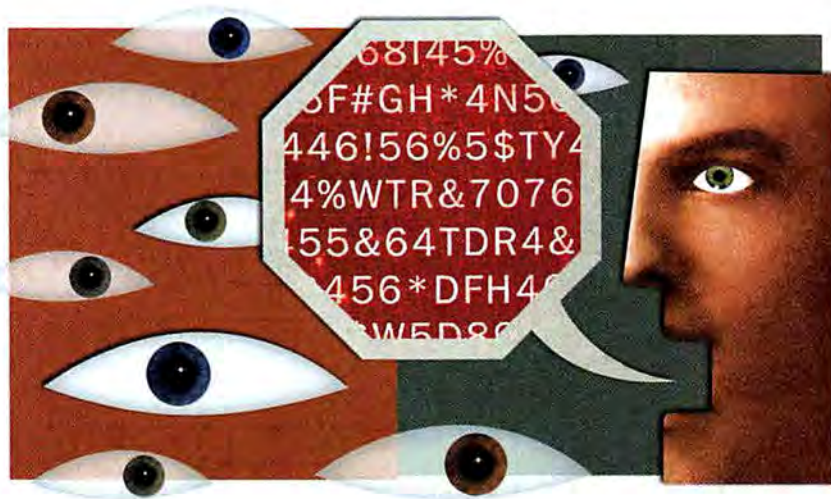
Copyright © 2002 SYS International. All rights reserved.

For Inquiries, Call SYS Toll Free at: 1-866-613-9963. Please visit us at: [www.syslcd.com](http://www.syslcd.com).



# HERE'S HOW

EDITED BY MICHAEL S. LASKY AND DENNIS O'REILLY



## WINDOWS TIPS

SCOTT DUNN

### Keep Prying Eyes at Bay With Windows' Passwords

**Windows XP** IT SEEMS NOT a week goes by without some panic over a virus or hack attack that exploits a new Windows security leak. We may not be able to rewrite Windows XP code, but we can make the OS a bit more secure. The first step in any security plan is to protect your system with a password. Here are the ABCs (and some XYZs) of password protection in Windows XP.

**Make your password difficult to crack.** You already know, of course, that you should never base your password on your name, your pet goldfish's name, or even your

favorite aunt's name—unless she's affectionately known as Aunt Y#ji7\_Q. Other fundamental password-creation rules aren't so obvious, however. For example, Microsoft claims that the type of encryption Windows uses makes passwords that are either 7 or 14 characters long harder to crack than passwords of other lengths. In addition, the company recommends that you use a mix of alphabetic characters, numerals, and typewriter symbols in your passwords, and specifically that you include at least one symbol in the second through sixth characters.

**Give yourself a clue.** Windows XP lets you create a hint to jog your memory in case you forget your password. (Note that this option works only if your computer is not part of a network domain. To check, right-click *My Computer*, select *Properties*, click the *Computer Name* tab, and then look for an entry for 'Domain'.)

Open Control Panel and click or double-click *User Accounts*, depending on your setup. If you're an administrator, choose your account name. Click *Change my password* or *Create a password* (if you don't have one). Enter your existing password (if you have one), your new password, and your password hint. Even if you're just adding hint text, you still must enter the old password in the top boxes.

Make your hint clear enough to remind you but vague enough not to reveal your password (since anyone can view your hint). When you're finished, click either *Change Password* or *Create Password*. The next time you forget your password when logging on, click the ? button to the right of the password prompt to see your hint.

**Prevent forgotten passwords.** If hints don't do it for you, Windows offers an alternative. (If your PC is part of a network domain, skip to the second paragraph down.)

Open Control Panel and click or double-click *User Accounts*, depending on your setup. If you're an administrator, click your account name and look for a link on the left that reads *Prevent a forgotten password*. Select it to start the Forgotten Password Wizard, which enables you to create a "password reset" disk that lets you devise a new password.

If your computer is connected to a network domain, log off and then log back on to the local computer only (this tip applies to your Windows log-on pass-



**158 WINDOWS TIPS**

Get the upper hand on Windows' password options; organize your information using an index-card application.

**162 INTERNET TIPS**

Just say no to junk e-mail; log off an Outlook Express identity; find the free version of Real's media player.

**164 STEP-BY-STEP**

Ensure peak performance from your hard disk and other drives by optimizing your EIDE connection.

**166 HARDWARE TIPS**

Three options for old PCs; an easy way to find the cause of Windows error messages; muzzle your modem.

**170 ANSWER LINE**

Figure out which application will open a file that your system doesn't recognize automatically; put the shortcuts you prefer in Windows' Open and Save As dialog boxes; modify your Send To menu.

words, not to your domain passwords). Press **<Ctrl>-<Alt>-<Delete>** and then click *Change Password*. Finally, click *Backup* to launch the Forgotten Password Wizard.

The wizard warns you that you're making a disk anyone can use to change your

your Windows log-on password and have no password reset disk, you may be not be entirely out of luck. If your PC has an administrator account, log on to Windows using that account and reset the forgotten password for the other account. Once

again, open Control Panel and click or double-click *User Accounts*, depending on your setup. Select the forgetful person's account and click *Reset Password* or *Change Password* (depending on whether your PC is connected to a network domain). Enter the new password twice, as indicated in the dialog box, and click OK. (Note: The Reset Password button may be disabled for users who log on to a network domain; this

tip works only for Windows log-ons, not domain passwords.) Resetting Windows' password can cause you to lose others, such as the passwords for Web sites and network connections, but at least you're not shut out of your account completely.

**Salute before you log on.** Setting your PC so that it requires you to press **<Ctrl>-<Alt>-<Delete>** before you log on to Windows protects your computer from Trojan horse programs, which can imitate log-on screens and trick you into revealing your user name and password. Using the "three-finger salute" ensures that you see the authentic Windows log-on screen. To enable this setting for a computer connected to a network domain, log on as the administrator, open the User Accounts Control Panel as described above, and click the *Advanced* tab. Under *Secure Logon*, check the option *Require users to*

press **Ctrl+Alt+Delete**. Then click OK.

If your PC is not connected to a network domain, log on as an administrator and open *User Accounts*. Click *Change the way users log on or off*. Uncheck *Use the Welcome screen* and click *Apply Options*. Users will now have to type both their account name and their password after pressing **<Ctrl>-<Alt>-<Delete>**. They also lose the ability to do fast user switching, but the PC will be a bit more secure.

**Use the keyboard to lock your system.** Going for a cup of coffee? Lunch? A meeting? Play it safe and lock your PC so that you have to enter a password to use it again. If your system is connected to a domain, simply press **<Ctrl>-<Alt>-<Delete>** and click *Lock Computer*. You'll have to



**FIGURE 1: FORGOT YOUR PASSWORD?** This won't be a problem after you've created a handy password reset disk.

password and log on to your account. Follow its prompts until you've clicked *Finish* and completed your password reset disk. Put the disk in a safe place.

The next time you forget your password, retrieve your reset disk and log on using a random, incorrect password. When you press **<Enter>**, a dialog box or pop-up balloon will appear, depending on whether you're connected to a network domain (see **FIGURE 1**). Click *Reset* or *Use your password reset disk* to start the Password Reset Wizard. Follow the wizard's prompts to create a new password and hint, if you want one. Then click your account again and type the new password. You can now return your reset disk to its hiding place. No need to create a new one: This disk will work fine no matter how many times you change your password.

**Seek a higher power.** Even if you forget



**FIGURE 2: LOCK YOUR DESKTOP** with just a click or two, using a customized shortcut.

press **<Ctrl>-<Alt>-<Delete>** again and enter your password when you return. If you're not on a domain, press **<Windows>-L** to bring up the log-on screen without ►



closing any apps. When you come back, pick your account and enter the password. **Or lock your PC with a shortcut.** If you're a mouse maven, you may want to lock your computer by double-clicking a desktop shortcut or by choosing one on your Start menu. To create a shortcut, open the folder you want to put it in, right-click inside the folder, and choose *New>Shortcut*. Type **rundll32.exe user32.dll,LockWorkStation** (include a space after '.exe') and click *Next*. Type a name for your shortcut and click *Finish*. If you don't like the shortcut's look, right-click the icon and choose *Properties*. On the *Shortcut* tab, click *Change Icon*; then click *Browse* and find a file with the icon of your choice. For example, you can select the *Shell32.dll* folder in Windows' *System32* folder, click *Open*, and then choose one of the key icons in this file (see **FIGURE 2**). Click *OK* twice to assign the icon to the shortcut.

**Set a backup lockdown.** If you think you'll forget to lock your PC when you leave it, you can have your system automatically lock when the screen saver, standby, or hibernate features come on. These settings should be on by default, but it never hurts to check: Right-click the desktop and choose *Properties*. Click the *Screen Saver* tab and choose a screen saver from the drop-down list (if needed). Specify the wait time and check *On resume, display Welcome screen* or *On resume, password protect*. Now open Control Panel. If you're using *Category View*, click the *Performance and Maintenance* icon. Click or double-click *Power Options*. Click the *Advanced* tab and make sure *Prompt for password when computer resumes from standby* is checked. Click *OK*.



**FIGURE 3: FEELING LUCKY?** This setting in Tweak UI lets you skip password log-ons.

## PASS ON PASSWORDS



I'M THE ONLY person who uses my home PC. I find it time-consuming and frustrating to sign in with a password each time I start my computer. How can I eliminate this security feature?

*Norman Ernst, Hauser, Idaho*  
PASSWORDS AREN'T for everybody. Maybe your system isn't connected to any other PC (via the Internet or another method) and you're the sole user. Or you may have a lot of faith in your antivirus software and are unconcerned about privacy. Whatever the reason, you can skip the password prompt in all versions of Windows if you wish. In Windows 9x and Me, choose *Start>Settings>Control Panel* and double-click the *Passwords* icon. Under the *Change Passwords* tab, click *Change Windows Password*. Type your old password in the *Old Password* box (duh), and leave the remaining two boxes blank. Click *OK* and then *Close*. Now double-click the *Network* icon. Under the *Configuration* tab, make sure that *Primary Network Logon* is set to *Windows Logon*. Click *OK* and close Control Panel. Click *Yes* if prompted to restart your computer.

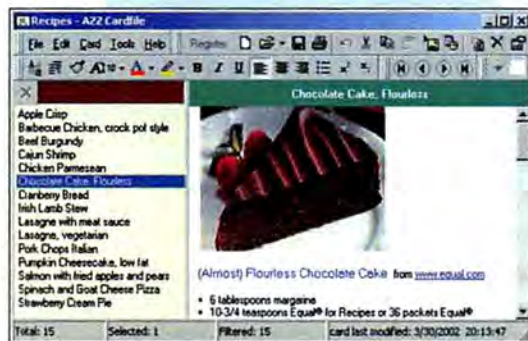
In Windows 2000 and XP, you need to download and install Microsoft's free Tweak UI program. For Windows 2000, download Tweak UI 1.33 at [find.pcworld.com/29888](http://find.pcworld.com/29888). After double-clicking the download to extract the compressed files, right-click the *tweakui.inf* file (the icon looks like a notepad with a cog in front) and choose *Install*. After installation, you should be able to launch Tweak UI from Control Panel. Once it's open, click the *Logon* tab; check *Log on automatically at system startup*. Enter your name and password and click *OK* (see **FIGURE 3**). For Windows XP, download PowerToys at [find.pcworld.com/29889](http://find.pcworld.com/29889). Double-click the downloaded file to start the installer. You don't need to install all the PowerToys; instead, use the 'Custom setup' option to install only Tweak UI. Follow the setup wizard's instructions, and once

## WINDOWS TOOLBOX

### Keep Tabs on Your Life With AZZ Cardfile

WAY BACK IN the days of Windows 3.1, Microsoft included a utility called Cardfile. It was much like a real file of index cards, handy for notes that kept track of friends, businesses, recipes—you name it. Cardfile is long gone, but thanks to Antanas Zdravys of Vilnius, Lithuania, you can have a much-improved version.

AZZ Cardfile makes it easy to add, edit, and remove cards and arrange information any way you want. It's a snap to add hyperlinks that launch a file, start your e-mail program, or open a Web page. Want to make a call? Just double-click a phone number and press <F5> to launch



Cardfile's built-in dialer (or the Windows dialer, if you prefer). Office-like toolbar options make formatting just as simple. The program's search feature is likely to find a desired card before you even finish typing a keyword. Customizable toolbars round out the features. It's well worth the \$12 registration. Go to [find.pcworld.com/29765](http://find.pcworld.com/29765) to download your copy.

the program is installed, choose *Start>All Programs>PowerToys for Windows XP>TweakUI for Windows XP*. In the left panel, double-click *Logon*, then click *Autologon*. In the right panel, check *Log on automatically at system startup*. Enter your name and domain (or current computer name), set your password, and click *OK*. ■

Send your Windows-related questions and tips to [scott\\_dunn@pcworld.com](mailto:scott_dunn@pcworld.com). Windows Tips pays \$50 for published items. Scott Dunn is a contributing editor for PC World.



# Best Performance

"A system that can take on anything."

Cnet Editors' Choice June 2002



GSA Contract #GS-35F-0567K

EXTREME PERFORMANCE FOR WINDOWS® XP



Boost software performance with QuantiSpeed™ architecture

Make gaming opponents wish they had an AMD Athlon™ XP processor

3DNow! Professional technology brings digital photos and video files to life with rich, vibrant colors and textures

Enjoy efficient multitasking w using multiple peripherals



Introducing 1U/2U/4U servers.



3 Year Limited Parts Warranty / Lifetime Labor Warranty  
30 Days Money Back Guarantee  
Optional 24 Hours Tech Support Available  
Free System Set-up Guide and User Manual  
Free System Recovery CD

## ABSTM™ Awesome 3200

Chieftec Aluminum Case w/Acrylic Windows 420-Watt PS & Neon Light (Color Option Green/Yellow/Blue/Silver/Black/Beige)  
NEW Asus A7V333 VIA KT333 Chipset Motherboard w/DDR333 & USB 2.0  
Kingston 512MB Fast PC2700 333MHz DDR SDRAM Memory  
120GB 7200RPM Ultra ATA Hard Drive  
Pioneer 16X DVD Player & Mitsumi 1.44MB Floppy Drive  
Plextor 40X12X40 BURN-Proof™ CD-ReWritable Drive  
NVIDIA® GeForce4™ TI 4600 w/128MB Video Card  
Hitachi 19" 22mm 1600x1200 Color Monitor  
Creative Labs SoundBlaster Audigy Platinum Sound Card & Mic  
Klipsch ProMedia 5.1 THX-Certified 500W Subwoofer/Speakers  
3Com 905 10/100 Network Card & U.S. Robotics 56K Modem  
Microsoft Internet Keyboard & IntelliMouse Optical  
Microsoft Windows® XP Home Edition  
Free 7/24 Tech Support and 1 Year Onsite Service  
Free Software: Corel WordPerfect Office 2002 CD  
Free ABS™ PC Organizer (3" Color Binder for Manual, Drivers, etc.)

AMD Athlon™ XP Processor 2200+ with  
QuantiSpeed™ architecture\*\* outperforms competitive 2.2GHz processors **\$2129**

AMD Athlon™ XP Processor 2100+ with  
QuantiSpeed™ architecture\*\* outperforms competitive 2.1GHz processors **\$2079**

## ABSTM™ Bravado 2100

Inwin Mid-Tower Case w/300 -Watt PS Beige Color  
Kingston 256MB Fast PC2100 DDR SDRAM Memory  
MSI™ NVIDIA® nForce2™ Chipset Motherboard  
40GB 7200RPM Ultra ATA Hard Drive  
Pioneer 16X DVD Player & Mitsumi 1.44MB Floppy Drive  
Lite-On 32X12X40 SMART-BURN™ CD-ReWritable Drive  
Integrated NVIDIA® GeForce Advanced Graphics Processor  
Hitachi 17" 24DP 1280x1024 Color Monitor  
Integrated Surround Sound Audio Processor  
Creative Inspire 5300 5.1 Subwoofer/Speakers  
PCI 10/100 Network Controller & V92 PCI 56K Modem  
Microsoft Internet Keyboard & Optical Mouse  
Microsoft Windows® XP Home Edition  
Free Software: Corel WordPerfect Office 2002 CD  
Free ABS™ PC Organizer (3" Color Binder for Manual, Drivers, etc.)

AMD Athlon™ XP Processor 2000+ with  
QuantiSpeed™ architecture\*\*\* outperforms competitive 2.0GHz processors **\$929**

AMD Athlon™ XP Processor 1900+ with  
QuantiSpeed™ architecture\*\*\*\* outperforms competitive 1.9GHz processors **\$899**

## ABSTM™ Awesome 3100

Enemarr Full-Tower Case w/330 -Watt PS Beige or Black Color  
NEW Asus A7V333 RAID VIA KT333 Chipset Motherboard w/DDR333 & USB 2.0  
Kingston 512MB Fast PC2700 333MHz DDR SDRAM Memory  
Two 40GB 7200RPM Ultra ATA Hard Drives  
Pioneer 16X DVD Player & Mitsumi 1.44MB Floppy Drive  
Plextor 40X12X40 BURN-Proof™ CD-ReWritable Drive  
NVIDIA® GeForce4™ TI 4600 w/128MB Video Card  
Hitachi 19" 22mm 1600x1200 Color Monitor  
Creative Labs SoundBlaster Audigy X-Gamer Sound Card w/IEEE 1394 & Mic  
Creative Inspire 5700 5.1 Subwoofer/Speakers  
3Com 905 10/100 Network Card & U.S. Robotics 56K Modem  
Microsoft Internet Keyboard & IntelliMouse Optical  
Microsoft Windows® XP Home Edition  
Free 7/24 Tech Support and 1 Year Onsite Service  
Free Software: Corel WordPerfect Office 2002 CD  
Free ABS™ PC Organizer (3" Color Binder for Manual, Drivers, etc.)

AMD Athlon™ XP Processor 2200+ with  
QuantiSpeed™ architecture\*\* outperforms competitive 2.2GHz processors **\$1929**

AMD Athlon™ XP Processor 2100+ with  
QuantiSpeed™ architecture\*\* outperforms competitive 2.1GHz processors **\$1879**

## ABSTM™ Sensation 1200

Inwin Mid-Tower Case w/300 -Watt PS Beige Color  
Kingston 128MB Fast PC2100 DDR SDRAM Memory  
40GB 7200RPM Ultra ATA Hard Drive  
A-Open 56X CD-ROM Player & Mitsumi 1.44MB Floppy Drive  
Add 32x12x40 CD-ReWritable Drive @ \$60  
NVIDIA® GeForce4™ MX440 w/64MB Video Card  
Hitachi 17" 24DP 1280x1024 Color Monitor  
Creative Labs SoundBlaster Audigy Sound Card w/IEEE 1394 & Mic  
Altec Lansing AV5500 5-Piece Subwoofer/Speakers  
PCI 10/100 Network Controller & V92 PCI 56K Modem  
Microsoft Internet Keyboard & Optical Mouse  
Microsoft Windows® XP Home Edition  
Free Software: Corel WordPerfect Office 2002 CD  
Free ABS™ PC Organizer (3" Color Binder for Manual, Drivers, etc.)

AMD Athlon™ XP Processor 1900+ with  
QuantiSpeed™ architecture\*\*\* outperforms competitive 1.9GHz processors **\$849**

AMD Athlon™ XP Processor 1800+ with  
QuantiSpeed™ architecture\*\*\*\* outperforms competitive 1.8GHz processors **\$829**

## ABSTM™ Bravado 2300

Antec Performance Plus660 Mini-Tower Case w/330 -Watt PS Beige Color  
NEW Asus A7V333 VIA KT333 Chipset Motherboard w/DDR333 & USB 2.0  
Kingston 512MB Fast PC2700 333MHz DDR SDRAM Memory  
60GB 7200RPM Ultra ATA Hard Drive  
Pioneer 16X DVD Player & Mitsumi 1.44MB Floppy Drive  
Lite-On 40X12X48 CD-ReWritable Drive  
NVIDIA® GeForce4™ MX460 w/64MB Video Card  
Samsung 17" 20mm 1280x1024 Color Monitor  
Creative Labs SoundBlaster Audigy Sound Card w/IEEE 1394 & Mic  
Creative Inspire 5300 5.1 Subwoofer/Speakers  
PCI 10/100 Network Controller & V92 PCI 56K Modem  
Microsoft Internet Keyboard & Optical Mouse  
Microsoft Windows® XP Home Edition  
Free Software: Corel WordPerfect Office 2002 CD  
Free ABS™ PC Organizer (3" Color Binder for Manual, Drivers, etc.)

AMD Athlon™ XP Processor 2100+ with  
QuantiSpeed™ architecture\*\* outperforms competitive 2.1GHz processors **\$1079**

AMD Athlon™ XP Processor 2000+ with  
QuantiSpeed™ architecture\*\*\* outperforms competitive 2.0GHz processors **\$1029**

## ABSTM™ Sensation 1100

Inwin Mid-Tower Case w/300 -Watt PS Beige Color  
Kingston 256MB Fast PC2100 DDR SDRAM Memory  
40GB 7200RPM Ultra ATA Hard Drive  
Pioneer 16X DVD Player & Mitsumi 1.44MB Floppy Drive  
Add 32x12x40 CD-ReWritable Drive @ \$60  
NVIDIA® TNT2™ M64 w/32MB Video Card  
Hitachi 17" 24DP 1280x1024 Color Monitor  
Integrated Intel AC97 Sound  
Altec Lansing AV5300 Subwoofer/Speakers & Mic  
PCI 10/100 Network Controller & V92 PCI 56K Modem  
ABS™ Keyboard & Mouse  
Microsoft Windows® XP Home Edition  
Free Software: Corel WordPerfect Office 2002 CD  
Free ABS™ PC Organizer (3" Color Binder for Manual, Drivers, etc.)

AMD Duron™ Processor 1.3GHz **\$669**

AMD Duron™ Processor 1.0GHz **\$649**

ABSTM PCs use genuine Microsoft® Window®  
www.microsoft.com/piracy/howtotell



**800.230.4233**

Corporate Sales

**800.926.8088**

Sales Hours: Mon-Fri 8:30AM-5:30PM PST Technical Support: Mon-Fri 8:30AM-5:30PM PST  
Technical Support: 800.685.3471 General Office: 562.695.8823 9997 East Rose Hills Road, Whittier, CA 90601

Price, specification, and terms are subject to change without notice. Picture shown with upgrade options. ABSTM is not responsible for errors in typography and/or photography. 30-day money back guarantee does not include opened software, parts, or special order merchandise. Original shipping and handling fee along with return shipping charge are non-refundable. Products returned after 30 days or in a non-refundable condition are subject to a restocking fee. Onsite service may be provided by contracted third party provider. Technician will be dispatched if necessary following phone support. AMD, the AMD Arrow logo, AMD Athlon, AMD Duron, and combinations thereof are trademarks of Advanced Micro Devices, Inc. "QuantiSpeed" architecture operates at 1.8GHz. "QuantiSpeed" architecture operates at 1.73GHz. "QuantiSpeed" architecture operates at 1.67GHz. "QuantiSpeed" architecture operates at 1.60GHz. "QuantiSpeed" architecture operates at 1.530GHz.



# INTERNET TIPS

SCOTT SPANBAUER

**INSTANT CHAT FOR  
POWER TALKERS**
**INSTALL REALONE  
WITHOUT HASSLES**
**MULTIPLE IDs IN  
OUTLOOK EXPRESS**

## The Junk Mail Hater's Guide to Opting Out

IF A WEB SITE asks me whether I want to receive spam, and I say no, that means no. Earlier this year, Yahoo decided that even though many of its users had already opted out of its various e-mail marketing messages, it would nevertheless sign

First, let's visit Yahoo. To review your personalization settings at the site, browse to [my.yahoo.com](http://my.yahoo.com), and sign in with your Yahoo ID and password (if you're not a Yahoo subscriber, you can sign up on the same page). Next, click the *Account Info*

link that appears at the top of the page—you will be asked to enter your ID and password once again for security. Now you're looking at your Yahoo ID Card, which summarizes details that you've provided to Yahoo in the past, including your zip code, gender, occupation, and even your address and phone number.

To alter any of these items, click the small *Edit* button at the top of each ID Card section, and delete or change the information listed there.

Next, click the *Edit your*

*marketing preferences* link in the center of the ID Card. If you haven't visited the site for a few months, it may look like mine (see **FIGURE 1**). Yahoo automatically signed me up for every category of its special offers and marketing communications. Click the *No* button next to those offers you don't want to receive. If you've supplied your street address or telephone number (you might want to think twice about that), scroll to the bottom of the page and check *Do not contact me via*

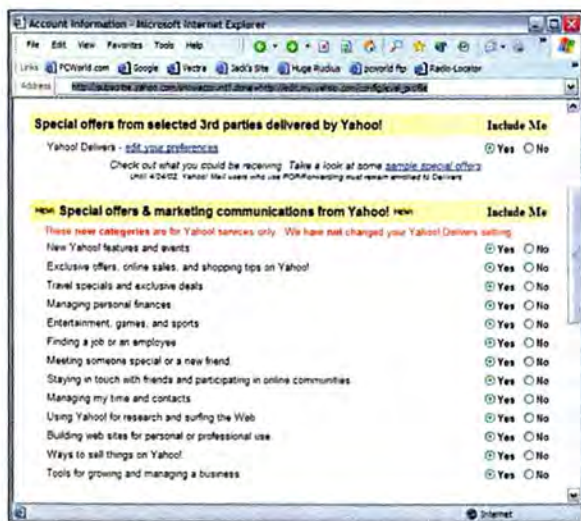
*postal address* and the similar telephone option, unless you want to receive even more junk mail and telephone solicitations than you already do. For the Yahoo Delivers service, you can either deselect the service completely by clicking its *No* button, or leave it enabled and click its *Edit your preferences* link to select the product categories you do want to hear about. Click the *Save Changes* button at the bottom of the page in order to make the settings permanent—we hope.

Other sites let you control your preferences and opt out of junk mailings in similar ways. For Microsoft services such as Hotmail and MSN Messenger, visit [www.passport.com](http://www.passport.com) and click the *Edit the information in your .NET Passport* link. America Online offers two important personalization links: Go to keyword **preferences**, and click the *Privacy* and *Marketing* links there. If you receive the *New York Times'* free daily e-mail version (highly recommended), visit [www.nytimes.com/membercenter](http://www.nytimes.com/membercenter) to control personal information and the delivery and marketing options. Even PCWorld.com offers the same kind of controls for those who use its optional Member Services. Just scroll down to the bottom of the page, click the *Member Services* link, and log in.

### OE: LOG OUT, DON'T JUST EXIT



IN THE FEBRUARY issue, *PC World* gave Microsoft's Outlook Express 6 the Best Bet rating among e-mail clients ("Browsing and Beyond," [find.pcworld.com/26222](http://find.pcworld.com/26222)). However, I could not find any



**FIGURE 1: CHECK YOUR YAHOO preferences, and deselect as needed to stop unwanted e-mail, junk mail, and phone calls.**

them up (see [find.pcworld.com/29855](http://find.pcworld.com/29855)).

I guess the company is within its rights. After all, Yahoo users don't have to pay for such services as Yahoo Messenger and Yahoo Mail. Fortunately, you can still opt out of receiving marketing messages from the company if you like. And while you're at it, you may want to review your personalization settings at other online sites and services to make sure your online privacy is protected and to keep your in-box free of clutter.

### R.I.P. FOR DOMAIN NAME BUYERS GUIDE

THE DOMAIN NAME registrar review site that I recommended in February's column, [DomainNameBuyersGuide.com](http://DomainNameBuyersGuide.com), is apparently no longer master of its own domain (name). The URL now takes you to a commercial site offering domain name registration. Until a review site similar to the original appears, you'll have to settle for The Internet Corporation for Assigned Names and Numbers' simple accredited registrar list (head to [find.pcworld.com/28801](http://find.pcworld.com/28801)).



way to log off my identity after a given session—so when I close OE, anyone could open the program again and read all the e-mail in that account. Is there a better way to log off an identity than restarting Windows?

*Anand Narayan, via the Internet*

THERE ARE MANY reasons why I think Outlook Express is a good e-mail program, and an important one is its unique ability not only to manage multiple e-mail accounts, but also to allow multiple users (families, for example) to maintain individual, private in-boxes and address lists. The feature you are looking for is there, though it's easy to miss.

To log off an Outlook Express identity, choose **File•Exit and Log Off Identity**. You can also log off by selecting **File•Switch Identities** and clicking the **Log Off Identity** button (see **FIGURE 2**).

But don't allow your paranoia to subside completely. The strength of Outlook Express's log-on security depends greatly on which version of Windows you use, and on how your version of Windows is

## HOW TO DEAL WITH 'REAL'

WHEN I PICKED RealNetworks' RealOne as my favorite media player in February's "Browsing and Beyond" story, several readers expressed shock that I recommended a program that charges by the month for downloads, takes over playing every kind of media file on your PC, and tries to install adware in the bargain. I still like RealOne and recommend it to you. But you don't have to pay a dime for it, and you can use it without giving up control of your PC to RealNetworks.

When you visit Real's Web site at [www.real.com](http://www.real.com), avoid all the large Download Now links and instead click the little blue *Our Free Player* link that's located midway down the page. Subsequent screens will try to lure you into one-month trial subscriptions and other attempts to separate you from your cash.

Just keep clicking the links that lead to the free browser. After you give the company an e-mail address (it doesn't have to be yours), the downloading begins.

Real will first try to install the Real-Download Express 5 utility, an app that tracks the download process and forwards the information to RealNetworks. Just click **No** in the security dialog box that pops up asking you to allow the Real-Download installation.

If the download process fails, you can find the tiny, tiny link on the download page that says 'click here'. Congratulations! You have managed the nearly impossible task of downloading the free RealOne Player Gold.

Now for taming RealOne's hunger for your media file associations. When you launch the installation file, RealOne gives you the choice of Express or Custom installs. If you choose Express, RealOne will make itself the king of all media on your PC—so choose Custom instead.

During installation, RealOne will ask you to approve a long checklist of file types it knows how to play. Be sure to remove the check mark from file types that you want to continue playing on another program on your system, such as Windows Media Player or Winamp, and then finish the installation.

## DOWNLOAD OF THE MONTH

### MIRC 6.01

CHAT, CHAT, CHAT. There are many kinds of chat. Internet Relay Chat is what got it all started back when the Internet was still an inside secret. IRC remains an important tool because it is uncensored, private, and not subject to any corporation's terms of service. Though there are many ways of plugging in to IRC, one of the best for Windows users is MIRC's \$20 MIRC 6.01. The free 30-day evaluation version is a 1.1MB download from [find.pcworld.com/27062](http://find.pcworld.com/27062).

Unlike AOL's, Microsoft's, and Yahoo's instant messaging systems, IRC consists of multiple networks of independent chat servers, each hosting multiple chat channels. Using a few basic commands, you join or exit existing channels, create your own channel, find out more about other users on the channel and send them private messages, and even decide who can and can't join your channel. In other words, getting started can be a bit daunting. Though MIRC's online help file is an excellent introduction to using IRC, you'll find even more guidance at [www.irchelp.org](http://www.irchelp.org). Now start tawking.

If you assign RealOne a file type that already belongs to another program, or if you install another program and tell it to take control of one of RealOne's file types, RealOne will eventually pop up a dialog box telling you that it's reasserting its claim (most media players and Web browsers do the same thing, but just don't post an announcement).

To get everybody cooperating, open RealOne's Preferences dialog box by choosing **Tools•Preferences** from RealOne Player's menu bar, select **Media Types**, check only those types you want RealOne to play, and click **OK**. Finally, look for a similar settings screen in your other media players and deselect the file types you assigned to the RealOne Player. ■

Send your questions and tips to [nettips@spanbauer.com](mailto:nettips@spanbauer.com). We pay \$50 for published items. Scott Spanbauer is a PC World contributing editor.



**FIGURE 2: LOG OFF** Outlook Express to keep your e-mail in-box and address book private.

configured. If you're using Windows 95, 98, or Me, it's a trivial matter for knowledgeable snoopers to view your in-box. So if you want to protect your e-mail and other files from the prying eyes of coworkers, curious teenagers, or the office janitor, you need the stronger log-on security, encryption, and file access controls that are offered by Windows XP Professional and Windows 2000 Professional.



# STEP BY STEP

STAN MIASTKOWSKI

## Get Maximum Speed From Your New Drives

IT'S A BUYER'S market for drives. Low prices for fast CD-RW drives, cutting-edge rewritable-DVD drives, and the most recent generation of high-capacity hard drives make it a perfect time to upgrade.

But unless you do some installation planning, you may be disappointed with the performance of your new peripherals. Your new CD-RW drive might create coasters instead of finished discs, and

in some cases your PC could slow down.

But that doesn't mean you should be reluctant to upgrade. Just follow the tips presented below to make sure that your new peripherals will be on friendly terms with your PC's existing drives.

For more of the nitty-gritty details of installing drives, see "Install a Bigger, Faster Hard Drive" in the June 2001 issue ([find.pcworld.com/29879](http://find.pcworld.com/29879)) and "Manage Your Drive Connections" in the November 2000 issue ([find.pcworld.com/29880](http://find.pcworld.com/29880)).

And as always, do a complete backup before you start your upgrade project. ■

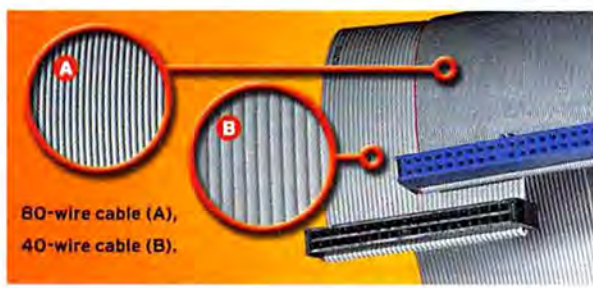
Stan Miastkowski is a contributing editor at PC World. Address your questions to him at [stan\\_miastkowski@pcworld.com](mailto:stan_miastkowski@pcworld.com).

**1 Keep hard drives on their own EIDE channel.** Every PC has two EIDE channels, primary and secondary. Each channel can handle two drives, designated as "master" and "slave." For the best performance, keep hard drives on the primary channel (A) and other drives on the secondary channel (B). If possible, you should avoid installing a hard drive on the same channel with a slower optical drive, because this can limit the hard drive's performance.



**2 Set slower drives as slaves.** You should always configure the faster drive on an EIDE channel as the master, and the slower as the slave. For example, if you have both a 5400-rpm hard drive and a 7200-rpm drive, set the latter's jumpers to make it the master. If you're running a CD-RW or rewritable-DVD drive on a secondary channel with a read-only optical drive, make the rewritable drive the master to ensure reliable disc creation.

**3 Use the correct cables.** Today's hard drives require 80-wire data cables to achieve maximum performance. CD-RW drives, rewritable-DVD drives, and other EIDE devices (Zip drives or tape backup units, for example) use 40-wire cables. But the connectors on both types of cables, as well as the connectors on the motherboard, are identical. Make sure you don't use the wrong type of cable with your PC's hard drives. Using an 80-wire cable with CD or DVD drives is fine, although it won't improve their performance. And you must use an 80-wire cable if you mix a fast hard drive with a slower device on the same channel.



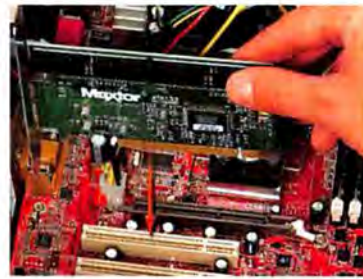
**4 Use the latest software.** For hard drives, use the included installation software to make sure that the entire capacity is available. That's particularly important if your PC is more than two or three years old. Check the support section of your PC maker's Web site for an updated BIOS.

| IomegaWare™ 3.1.1  |  |              |           |              |         |        |          |         |        |          |        |        |          |        |        |          |
|--|--|--------------|-----------|--------------|---------|--------|----------|---------|--------|----------|--------|--------|----------|--------|--------|----------|
| <p><b>What's new in this version?</b></p> <ul style="list-style-type: none"> <li>Updated Active Disk engine</li> <li>Various Windows XP fixes</li> </ul> |  |              |           |              |         |        |          |         |        |          |        |        |          |        |        |          |
| <p><b>Other Helpful Links</b></p> <ul style="list-style-type: none"> <li>Download Center</li> <li>Product Support</li> </ul>                             | <p><b>Download Table</b></p> <table border="1"> <thead> <tr> <th>Connection</th> <th>File Size</th> <th>Release Date</th> </tr> </thead> <tbody> <tr> <td>ATA-133</td> <td>1.5 MB</td> <td>10/10/00</td> </tr> <tr> <td>ATA-100</td> <td>1.5 MB</td> <td>10/10/00</td> </tr> <tr> <td>ATA-66</td> <td>1.5 MB</td> <td>10/10/00</td> </tr> <tr> <td>ATA-33</td> <td>1.5 MB</td> <td>10/10/00</td> </tr> </tbody> </table> | Connection   | File Size | Release Date | ATA-133 | 1.5 MB | 10/10/00 | ATA-100 | 1.5 MB | 10/10/00 | ATA-66 | 1.5 MB | 10/10/00 | ATA-33 | 1.5 MB | 10/10/00 |
| Connection   | File Size  | Release Date |           |              |         |        |          |         |        |          |        |        |          |        |        |          |
| ATA-133  | 1.5 MB   | 10/10/00     |           |              |         |        |          |         |        |          |        |        |          |        |        |          |
| ATA-100  | 1.5 MB   | 10/10/00     |           |              |         |        |          |         |        |          |        |        |          |        |        |          |
| ATA-66   | 1.5 MB   | 10/10/00     |           |              |         |        |          |         |        |          |        |        |          |        |        |          |
| ATA-33   | 1.5 MB   | 10/10/00     |           |              |         |        |          |         |        |          |        |        |          |        |        |          |

Rewritable-DVD drives and other EIDE devices such as Zip drives require specific drivers. Even if you recently purchased the drive, check the maker's Web site for the latest driver update.

**5 Install an add-in high-speed controller.** Most new hard drives use the Ultra DMA/133 interface (aka ATA/133). Such drives will work on any PC EIDE interface, but only PCs manufactured in the last six months or so have built-in Ultra DMA/133 support. Most older PCs use Ultra DMA/100 or Ultra DMA/66 interfaces, and a slow interface can reduce your drive's speed.

To wring the maximum speed from an Ultra DMA/133 drive, consider installing an Ultra DMA/133 add-in board (about \$50) from a vendor like Promise Technology ([www.promise.com](http://www.promise.com)).





# Solutions for Business

The best technology solutions for business—anywhere!

# STOP!

We'll beat any price or competitive promotion on select computers! Call or visit [pcmall.com](http://pcmall.com).

# PC Mall

## Reclaim Your Desk!

19" Flat Panel Display x36  
#970985 Call for details.

only **\$839**

15" Flat Panel LCD w/ Speakers  
152-L-C-JT #967346  
Call for details.

only **\$349**

SONY 18" Flat Panel Display ssm-s81  
#367070 Call for details.

only **\$945**  
Call for Best Price!

17" Flat Panel LCD w/TV Tuner & Speakers  
#967676 Call for details.

only **\$699**



**COMPAQ**  
**1.7GHz Intel®**  
**Pentium® 4 processor**  
128MB RAM, 20GB hard drive  
48X CD, Windows XP Pro/2000  
**Evo™ D310** #974656  
Call for details. Monitor sold separately.

**\$729!**

## Software for 1 or 1000

Want to save on Volume Licensing?  
Visit [pcmall.com](http://pcmall.com) or  
call 1-800-555-4204  
and have a Licensing Specialist help today!

**Microsoft**  
**Windows XP Pro**  
Software Assurance  
#321350  
Call for details.  
**\$116.99!**

**Microsoft**  
**Office XP Pro**  
Open License  
#981332  
Call for details.  
**\$419.99!**

**pcAnywhere 10.5**  
Host & Remote for Windows  
#358932 Call for details.  
Price reflects \$80 mfr. mail-in rebate through 2/28/03.  
**\$79.99!**

**NEW!**  
**TOSHIBA**  
**1.2GHz Intel® Celeron™ processor**  
256MB RAM, 30GB hard drive, DVD/CD-RW  
14.1" Active Matrix Display, Windows XP Pro  
**Satellite 1400-S151**  
#973563  
Call for details.

**\$1,348!**

**IBM**  
**1.6GHz Intel® Pentium® 4 processor**  
256MB RAM, 20GB hard drive, DVD, NIC  
14.1" Active Matrix Display  
Windows 2000  
**ThinkPad T30**  
#455659  
Call for details.

**\$2,199!**

**COMPAQ**  
**1.2GHz Intel® Pentium® III processor**  
256MB RAM, 30GB hard drive, DVD/CD-RW  
56K, NIC, 14.1" Active Matrix Display,  
Windows 98  
**Evo™ N160**  
#968303 Call for details.

**\$1,399!**

**COMPAQ**  
**1.4GHz Intel® Celeron™ processor**  
128MB, 20GB hard drive  
48X CD-ROM, 10/100 NIC  
Windows XP Home  
Microtower Form Factor  
**Evo D300v**  
#973842 Call for details.  
Monitor sold separately.

**\$499!**

## Business or Home Office

**SONY**  
**DSC-F707 Digital Camera**  
5.24 Megapixels  
#962753  
**\$998!**  
Call for Best Price!

**Street Pilot III GPS**  
#994401 Call for details.  
**\$619.95!**

**SONY**  
**CLIE PEG-NR70V**  
#445228  
Call for details.  
**\$549!**

**COMPAQ**  
**iPAQ 3950 Pocket PC**  
64MB RAM  
32MB ROM  
#974883 Call for details.  
**\$649!**

**hp**  
**200x1 Combo Drive**  
2.4X DVD; 12x10x32 CD  
#447976 Call for details.  
**\$439.99!**

**40GB EIDE Ultra ATA 100 Hard Drive**  
#205809 Call for details.  
**\$71.99!**

**NEW!**  
**Nikon**  
**Coolpix 4500**  
4.0mp, 4X zoom  
#974515 Call for details.  
**\$699!**

**Back UPS PRO 1400** #93094  
Call for details.  
**\$369.99!**

## PC Mall is Your Printer Source!

**Phaser 6200N Color Laser Printer**  
#478646  
Call for details.  
**\$2,299!**

**hp**  
**Color LaserJet 4600DN Printer**  
#972514 Call for details.  
**\$2,399!**

**LaserJet 2200DN Printer** #957974  
Call for details.  
**\$1,058!**

**hp**  
**LaserJet 4100N Inkjet Printer**  
#948807 Call for details.  
**\$1,465!**



**Nobody Delivers Faster!**  
Order today—  
get it tomorrow!

Priority Code: **ZPCW902**

**Turbo 11 Wireless Gold PC Card**  
#950604 Call for details.  
**\$79.99!**

**D-Link**  
**DWL-900AP+ Enhanced Wireless Access Point**  
#973019 Call for details.  
**\$116.95!**

**1-888-932-2490 [pcmall.com](http://pcmall.com)**  
Fastest Overnight Delivery! Place your order as late as 10:00 p.m. EST and get it by 10:30 a.m. the next morning! FedEx



# HARDWARE TIPS

KIRK STEERS

REUSE, RECYCLE  
OLD HARDWARE

DEDUCE THE CAUSE  
OF PC PROBLEMS

TAME YOUR  
MODEM'S ROAR

## What Should You Do With Your Old Computer?

IF YOU USE THE WISE advice in this month's Buyers' Guide issue to find your perfect PC, you may wonder what to do with your old system. You can't trade it in, and selling it may be more of a hassle than it's worth. If you throw it away, you may actually have to pay someone to take it. Is a three- or four-year-old PC really worthless? Not at all! Here are some ways to extend an old PC's usefulness.

### WHY NOT KEEP IT?

A SMOOTH TRANSITION to a new system isn't guaranteed. A corollary to Murphy's Law states that the day after you delete a file, throw out a software manual, or give away an old computer is the day you desperately need it. Your old system may not be suited to high-speed graphics or fast-paced games, but if it's sporting a Pentium II CPU or better, it's probably more than adequate for word processing, Web

browsing, and other basic tasks. New home networking products make sharing a high-speed Internet link cheaper and easier than ever. Check out [find.pcworld.com/29750](http://find.pcworld.com/29750) for more on home networks.

If your old computer is too slow, consider adding more RAM. Upgrading your PC's memory is easy and still relatively cheap (though not as cheap as it was a few months ago). It's often an effective performance booster, especially if your old PC has less than 128MB of RAM. Point your browser to [find.pcworld.com/29751](http://find.pcworld.com/29751) for more on memory upgrades.

Another way to breathe new life into an old system is to reinstall Windows and your applications. Over time, Windows accumulates bugs and glitches that slow performance. After the reinstall, be sure to download all patches available for your OS from Microsoft's Windows Update site at [windowsupdate.microsoft.com](http://windowsupdate.microsoft.com).

If your PC has to go, consider donating it to a charity that accepts computers. To find a local one, search the PEP National Directory of Computer Recycling Programs at [find.pcworld.com/29753](http://find.pcworld.com/29753).

Here are a few donating tips:

**Make sure your PC is wanted.** Any system with a Pentium processor or better should be suitable for donation. Call first, however, to find out if any restrictions or rules apply—and be sure to ask about delivery instructions, parking, pickups, and so on.

**Include everything.** Package the keyboard, mouse, manuals, and software disks with the PC. A total system is easier to process and much more useful than a partial one.

**Clean it up.** Giving your PC's exterior a quick wipe-down is a welcome courtesy. Also, remove all your personal files. You can do this with a program such as Norton SystemWorks 2002, or you can simply reformat the hard disk. If you reformat, be sure to reinstall the operating system. Otherwise the organization may have to pay for a new license.

**Get it in writing.** For tax purposes, get a receipt from the organization to confirm your donation. Make sure it has the date, the make and model number of your PC, and the make and model number of all other equipment you donate. The IRS allows you to deduct the fair market value of your PC, not the replacement cost or the purchase price. See Publication 526,

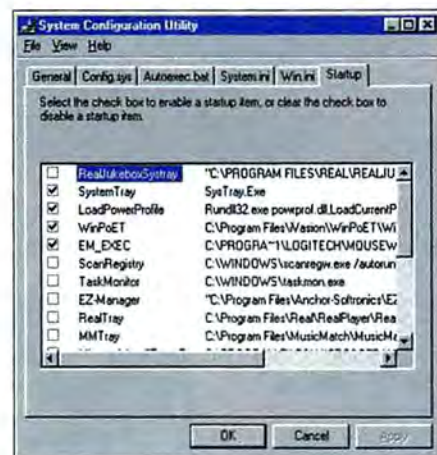


FIGURE 1: THE SYSTEM CONFIGURATION Utility lets you choose autostart programs.

Charitable Contributions, on the IRS Web site at [find.pcworld.com/29756](http://find.pcworld.com/29756).

### A GREEN MACHINE

IF NO ONE WANTS your old PC and monitor, don't just throw them away. A monitor contains as much as 8 pounds of poisonous lead, and PCs also have small amounts of mercury, lead, and cadmium.

Do yourself and every other living thing on the planet a favor: Take your worn-out computer equipment to a certified recycler. Hewlett-Packard and IBM have recycling programs, as do some Best Buy locations. To find a recycler near you, visit [find.pcworld.com/29759](http://find.pcworld.com/29759) to see the Environmental Health Center's list of electronic equipment recyclers. Recycling ►

### WHAT'S IN A NAME?

EVERYTHING, if you've got an unmarked modem, graphics card, or other piece of hardware and you need to find a driver to run it. Most hardware manufacturers have the drivers for old hardware available for download, but you have to know what you're looking for. Fortunately, you may be able to unmask your nameless hardware via its FCC identification number, which is printed on many different types of devices. Head to [find.pcworld.com/29763](http://find.pcworld.com/29763) to look up your mystery metal in the FCC identification database.





# The Power of You.

Antec's all new TruePower power supplies:

With their innovative design, your computer

will run quieter and perform better than ever.

Power, performance and flexibility.

With the quality you expect.

That's Antec's commitment.

That's computing your way.

Available in 330, 380, 430, 480 & 550 Watt models.

TruePower is also featured in Antec's new Performance Plus Enclosures.

[www.antec-inc.com](http://www.antec-inc.com)



**Antec**  
Performance



buy.com





old equipment may require a small fee, but when you consider the environmental damage you'll avoid, it's a bargain.

Before you cart your old PC off to the glue factory, defray your costs with a little beneficial cannibalism. Several PC components are easy to remove, and they may come in handy in the future.

Why not install your old hard drive in your new system? It's the easiest way to transfer your old files and folders to a new computer. (Migration software packages can do the same thing without having to open the PC's case, but they're a bit pricey for a single move. Note that Windows XP can handle many migration tasks itself.) Your old hard drive can also serve as a very fast backup platform. Head over to [find.pcworld.com/29760](http://find.pcworld.com/29760) for step-by-step instructions on installing and removing a hard drive.

Hang on to your old computer's graphics card—if it has one. (Many budget systems put their graphics chips on the motherboard.) In a pinch, a spare graphics card can be a lifesaver. And as we describe at [find.pcworld.com/29762](http://find.pcworld.com/29762), a second card may allow you to connect two monitors to your new machine.

You may want to retain your old system's modem as well. If you use DSL, cable, or another high-speed Internet connection and your new system doesn't have an analog modem, installing one to serve as a backup in case your high-speed service goes down could be invaluable.

Such spare components as network interface cards, sound cards, floppy drives, and CD-ROM drives are less likely to be useful for the casual or the very busy PC user, but holding on to these components can save you some money if you ever decide to build your own computer.

## PLAY PC DETECTIVE

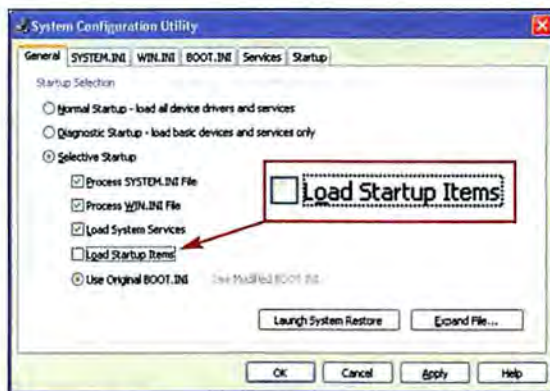
**I** UPGRADED my system with new components, new software programs, and more RAM. Now I get error messages when Windows launches and see all kinds of quirky behavior when programs run. One of my new additions must be

the cause, but which? How can I isolate the problem without uninstalling everything?

*Ian Moore, Billings, Montana*

A HANDY TOOL called System Configuration Utility simplifies identifying buggy or incompatible hardware drivers and software. In Windows 98, Me, and XP, click **Start**•**Run** and enter **msconfig** to open the program. The Startup tab lists programs that launch automatically when Windows loads (see **FIGURE 1**). Unchecking one keeps it from doing so.

To find the source of your problems, start by disabling all the programs that automatically launch at Windows' startup. Under the General tab, uncheck **Load startup group items** or **Load Startup Items** (see **FIGURE 2**), depending on your version



**FIGURE 2: UNCHECK 'LOAD STARTUP ITEMS' to disable all programs that start automatically when Windows loads.**

of Windows. Reboot your system, and if the problems end, then you know one of these programs is the culprit.

To isolate the offender, recheck your **Load startup** option. Restart, reopen System Configuration Utility, click the **Startup** tab, and enable one program at a time by checking the box next to its name. Reboot after re-enabling each program; when the problem starts to recur, you've found the source of your conflict.

If this process of elimination doesn't work, follow the same steps with the listings under the **System.ini** and **Win.ini** tabs. These settings are holdovers from the dark, antiquated days of Windows 3.1. They're rarely used now, but some old hardware and software may affect these settings. And if they do, they're prime candidates as troublemakers.

## MUZZLE YOUR MODEM

**SOMETIMES I HAVE** trouble sleeping and go online in the middle of the night. When my modem logs on, the screeching sound wakes up everyone in the house, especially my dog. Is there any way I can get my modem to shut up?

*Peter Hall, San Diego*

JUDGING FROM the many e-mail messages I get on this subject, lots of people—and dogs!—are being slowly driven crazy by the nerve-jangling mating call of analog modems. Fortunately, there's an easy way to silence most of them.

Many modems let you set the volume level. In Windows 98 and Windows Me, open Control Panel and double-click the Modem icon. Click the **Properties** button and select the **General** tab. You may see a sliding bar that adjusts your modem's volume. If you use Windows XP, open Control Panel's Classic View, click or double-click **Phone and Modem Options** (depending on your system), choose the **Modem** tab, make sure your modem is selected, and click **Properties**.

If your modem properties lack volume controls, set Windows to enter the AT command string that silences your modem automatically each time it connects.

(The AT command set is the de facto standard for controlling modems.) To do so in Windows 98 and Me, open your modem properties as described above and choose the **Connection** tab. Now select the **Advanced** button, and in the 'Extra settings' text box, type **atm0** (that's a zero, not the letter 'O'). In Windows XP, click the **Advanced** tab in your modem properties and type **atm0** in the text box under 'Extra initialization commands'. ■

Send your hardware-related questions and tips to [kirk\\_steers@pcworld.com](mailto:kirk_steers@pcworld.com). We pay \$50 for published items. Kirk Steers is a PC World contributing editor.

## Norton SystemWorks 2002

\$70; Symantec  
[www.symantec.com](http://www.symantec.com)



# ARE YOU READY FOR MORE?

- \* 3 Years Parts & Labor Warranty
- \* 30-Days Money-Back Guarantee
- \* Lifetime Toll-Free Tech. Support
- \* Government & School PO's Welcome!

## Freeway Innovation i1500M Start at \$645

- INTEL P4 PROCESSOR
- 256MB PC2100 DDR MEMORY
- 40GB ATA100 HARD DRIVE
- AMPTRON DDR MOTHERBOARD
- SAVAGE 4 2D/3D VIDEO ACCELERATOR
- REALTEK ALC100 SOUND
- INTEL 56K V.92 VOICE MODEM
- 10/100 BASE T LAN
- 16X DVD-ROM
- optional 32x10x40 CDRW DRIVE +\$65
- 1.44MB FLOPPY
- ATX 320W MED TOWER
- WINDOWS KEYBOARD & INTERNET SCROLL MOUSE
- 180W 2 PIECES STEREO SPEAKERS
- MS WINDOWS XP HOME EDITION
- **FREE** 2002 STAROFFICE SUITE
- **INCLUDES** 17" .25 DPI CRT MONITOR



|                    |       |
|--------------------|-------|
| P4 1.6GHz          | \$645 |
| P4 1.6A GHz (512K) | \$659 |
| P4 1.7GHz          | \$665 |
| P4 1.8A GHz (512K) | \$685 |
| P4 1.9 GHz         | \$689 |
| P4 2.0A GHz (512K) | \$715 |
| P4 2.2A GHz (512K) | \$745 |
| P4 2.4A GHz (512K) | \$869 |



**\$645**

## Freeway Innovation i3500M Start at \$865

- INTEL P4 PROCESSOR
- 256MB PC2100 DDR MEMORY
- 40GB 7200RPM ATA133 HARD DRIVE
- ECS P455A DDR MOTHERBOARD
- NVIDIA GF4 MX440 64MB DDR W/ TV OUT
- AC97 3D SOUND
- INTEL 56K V.92 VOICE MODEM
- 10/100 BASE T LAN
- 16X DVD-ROM
- 32X12X40 CDRW DRIVE
- 1.44MB FLOPPY
- ATX 350W SUPER MED TOWER - BLACK
- WINDOWS INTERNET KEYBOARD - BLACK
- INTERNET (SCROLL) MOUSE - BLACK
- MICROLAB M600 5-PC SUBWOOFER SPEAKERS
- MS WINDOWS XP HOME EDITION
- **FREE** 2002 STAROFFICE SUITE
- **INCLUDES** VIEWSONIC 17" .25DPI FLAT CRT MONITOR - BLACK



|                    |        |
|--------------------|--------|
| P4 1.6GHz          | \$865  |
| P4 1.6A GHz (512K) | \$879  |
| P4 1.7GHz          | \$885  |
| P4 1.8A GHz (512K) | \$905  |
| P4 1.9 GHz         | \$909  |
| P4 2.0A GHz (512K) | \$935  |
| P4 2.2A GHz (512K) | \$965  |
| P4 2.4A GHz (512K) | \$1089 |



**\$865**

## Freeway Innovation i6500M Start at \$1435

- INTEL P4 PROCESSOR
- 512MB PC2100 DDR MEMORY
- 80GB 7200RPM ATA133 HARD DRIVE
- INTEL D845BGSE MOTHERBOARD W/USB2
- NVIDIA GEFORCE 4 TI4400 128MB DDR W/ TV OUT
- SOUNDBLASTER AUDIGY W/EEE 1394
- INTEL 56K V.92 VOICE MODEM
- 10/100 BASE T LAN
- 16X DVD-ROM
- 40X12X48 CDRW DRIVE
- 1.44MB FLOPPY
- ATX 420W TURBO SERVER TOWER
- MICROSOFT INTERNET KEYBOARD
- MICROSOFT OPTICAL (SCROLL) MOUSE
- CREATIVE INSPIRE 5300 6-PC SUBWOOFER SPEAKERS
- MS WINDOWS XP HOME EDITION
- **FREE** 2002 STAROFFICE SUITE
- **INCLUDES** 19" .25 DPI CRT MONITOR



|                    |        |
|--------------------|--------|
| P4 1.6GHz          | \$1435 |
| P4 1.6A GHz (512K) | \$1449 |
| P4 1.7GHz          | \$1455 |
| P4 1.8A GHz (512K) | \$1465 |
| P4 1.9 GHz         | \$1469 |
| P4 2.0A GHz (512K) | \$1495 |
| P4 2.2A GHz (512K) | \$1525 |
| P4 2.4A GHz (512K) | \$1649 |



**\$1435**

## Freeway Innovation A1800M Start at \$525

- AMD PROCESSOR
- 256MB PC133 SDRAM MEMORY
- 40GB ATA100 HARD DRIVE
- SIS740 CHIPSET MOTHERBOARD
- 128BIT 2D/3D GRAPHIC ACCELERATOR
- REALTEK ALC100 SOUND
- 56K V.90 MODEM
- 10/100 BASE-T LAN
- 16X DVD-ROM
- optional 32X10X40 CDRW DRIVE +\$65
- 1.44MB FLOPPY
- ATX 320W MED TOWER
- WINDOWS KEYBOARD & INTERNET SCROLL MOUSE
- 180W 2 PIECES STEREO SPEAKERS
- MS WINDOWS XP HOME EDITION
- **FREE** 2002 STAROFFICE SUITE
- **INCLUDES** 17" .25 DPI CRT MONITOR



|                     |       |
|---------------------|-------|
| AMD Duron 1000      | \$525 |
| AMD Duron 1200      | \$535 |
| AMD Athlon XP 1600+ | \$565 |
| AMD Athlon XP 1700+ | \$575 |
| AMD Athlon XP 1800+ | \$585 |
| AMD Athlon XP 1900+ | \$609 |
| AMD Athlon XP 2000+ | \$629 |
| AMD Athlon XP 2100+ | \$669 |



**\$525**

## Freeway Innovation A3800M Start at \$795

- AMD PROCESSOR
- 256MB PC2100 DDR MEMORY
- 40GB 7200RPM ATA133 HARD DRIVE
- ASUS DDR333 MOTHERBOARD
- NVIDIA GF4 MX440 64MB DDR W/ TV OUT
- AC97 3D SOUND
- INTEL 56K V.92 VOICE MODEM
- 10/100 BASE T LAN
- 16X DVD-ROM
- 32X10X40 CDRW DRIVE
- 1.44MB FLOPPY
- ATX 350W TURBO CASE TOWER - BLACK
- WINDOWS INTERNET KEYBOARD - BLACK
- INTERNET (SCROLL) MOUSE - BLACK
- TSUNAMI XG-2100 3-PC SUBWOOFER SPEAKERS
- MS WINDOWS XP HOME EDITION
- **FREE** 2002 STAROFFICE SUITE
- **INCLUDES** VIEWSONIC 17" .25DPI FLAT CRT MONITOR - BLACK



|                     |       |
|---------------------|-------|
| AMD Duron 1000      | \$795 |
| AMD Duron 1200      | \$805 |
| AMD Athlon XP 1600+ | \$835 |
| AMD Athlon XP 1700+ | \$845 |
| AMD Athlon XP 1800+ | \$855 |
| AMD Athlon XP 1900+ | \$879 |
| AMD Athlon XP 2000+ | \$899 |
| AMD Athlon XP 2100+ | \$939 |



**\$795**

## Freeway Innovation A6800M Start at \$1295

- AMD ATHLON XP PROCESSOR
- 512MB PC2700 DDR333 MEMORY
- 80GB 7200RPM ATA133 HARD DRIVE
- ASUS DDR333 MOTHERBOARD
- NVIDIA GEFORCE 4 TI4400 128MB DDR W/ TV OUT
- SOUNDBLASTER AUDIGY W/EEE 1394
- INTEL 56K V.92 VOICE MODEM
- 10/100 BASE T LAN
- 16X DVD-ROM
- 40X12X48 CDRW DRIVE
- 1.44MB FLOPPY
- ATX 420W TURBO SERVER TOWER - BLACK
- WINDOWS INTERNET KEYBOARD - BLACK
- INTERNET (SCROLL) MOUSE - BLACK
- CREATIVE INSPIRE 5300 6-PC SUBWOOFER SPEAKERS
- MS WINDOWS XP HOME EDITION
- **FREE** 2002 STAROFFICE SUITE
- **INCLUDES** 19" .25 DPI CRT MONITOR



|                     |        |
|---------------------|--------|
| AMD Athlon XP 1600+ | \$1295 |
| AMD Athlon XP 1700+ | \$1305 |
| AMD Athlon XP 1800+ | \$1315 |
| AMD Athlon XP 1900+ | \$1339 |
| AMD Athlon XP 2000+ | \$1359 |
| AMD Athlon XP 2100+ | \$1399 |



**\$1295**

Visit us at **www.freewaytech.com** for 24 hour secure ordering  
or call toll-free **1.866.384.3888** Mon-Fri 9am-6pm Sat 9am-2pm PST

Prices and configurations are subject to change without notice. Not responsible for typographical errors. Photos may not represent actual products. Valid RMA number required for all returns. Shipping charges are not refundable and are deducted from price. No refunds will be made for merchandise returned after 30 days from the date of the invoice. Buyer is responsible for all freight costs on all returns of merchandise. Credit will not be given for incomplete or damaged returns. All systems come with a 3 year limited warranty and 30-day money-back guarantee.





## ANSWER LINE

LINCOLN SPECTOR

# What Apps Should I Use to Open Mystery Files?

**I** USE Microsoft Works. When I send a spreadsheet or word processing file via e-mail, the recipients sometimes complain that they are unable to open the attached file. What should I do?

*Sonia Delmundo, Brooklyn*

I'LL ANSWER YOUR specific question first, and then I'll address the general issue of dealing with file formats your system doesn't automatically support.

The best way to share files created in Works is to save the files in a non-Works format. Current versions of Works come with Microsoft Word, the most popular word processor used today. If you use Word rather than the Works word processor, your documents will have the standard .doc extension by default, and just about everyone will be able to read them.

Take care not to send out files in the program's default .wps format, which few other programs support. Before you send a file, select *File•Save As*, and in the Save As dialog box's 'Save as type' pull-down menu, select *Rich Text Format (\*.rtf)*. Save the file, and then e-mail the RTF version.

## BETTER 'SEND TO' ACCESS

IN JULY, I DESCRIBED how to add items to the Send To menu (see [find.pcworld.com/29891](http://find.pcworld.com/29891)). Bruce Bevit of Longwood, Florida, suggests an easier way to accomplish this in Windows 98, Me, and XP (but not in Windows 2000). Select *Start•Run*, type *sendto*, and press <Enter>. This opens your Send To folder. After you add shortcuts to this folder, they will appear whenever you right-click a file and select *Send To*. Conversely, removing an item jettisons it from the Send To menu.

The drill is pretty much the same with anything you create in the Works spreadsheet program. In the 'Save as type' pull-down menu, select *Excel 97-2000*.

But how do you open an e-mail attachment that's in a file format your system can't handle automatically?

First, make an educated guess about the kind of file you're dealing with. If the e-mail message refers to a letter or résumé, the attachment is likely from a word processor. If it refers to a budget, chances are that the attachment is a spreadsheet. Launch the appropriate program and drag the file into it, but drop it on the menus at the top of the app's screen, not the blank work area. If it loads, you guessed right and your PC supports those types of files.

If you have trouble with odd file types, you may need to get a file-viewing program. Ontrack's \$30 PowerDesk Pro 5 shows contents of files created in many formats, and it lets you copy data out of the files and paste them into one of your own programs. You'll find the program at [www.ontrack.com/powerdesk](http://www.ontrack.com/powerdesk).

## CUSTOMIZE DIALOG BOXES

**I** CAN I CUSTOMIZE the Places Bar in Internet Explorer 6's Save As dialog box so the icons point to my favorites rather than to Microsoft's?

*James L. McCrystal, Jr., Cleveland*

THE PLACES BAR is a column of shortcut icons located on the left side of Windows'

standard File Open and File Save dialog boxes. The easiest way to customize it is by using Microsoft's Tweak UI freeware. There are separate versions of Tweak UI for Windows XP and for every other version of Windows; the XP version is part of PowerToys for Windows XP. Download the version for your OS at [find.pcworld.com/29948](http://find.pcworld.com/29948) (scroll down as needed).

**Windows XP:** After you download and install PowerToys for Windows XP, select *Start•All Programs•PowerToys for Windows XP•Tweak UI for Windows XP*. In the left pane, click *Common Dialogs*. For further instructions, skip to "All versions" below.

**All other Windows versions:** Once you've successfully downloaded and installed Tweak UI, select *Start•Settings•Control Panel*, and double-click *Tweak UI* (in Win-

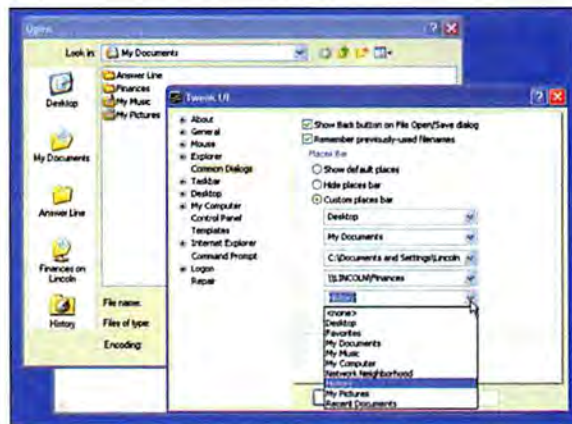


FIGURE 1: CUSTOMIZE THE PLACES BAR in Windows' dialog boxes by using this option in Microsoft's Tweak UI freeware.

dows Me, you may have to click *view all Control Panel options* first). If you find that your Tweak UI dialog box doesn't include three rows of tabs, upgrade to the current version. Click the *Open* tab.

**All versions:** Click the *Custom places bar* radio button. Below that, you'll find five pull-down menus representing the five Places icons. You can change any icon by selecting a different folder from the pull-down menu or by typing the full path to a different folder (see FIGURE 1).

Send your questions to [answer@pcworld.com](mailto:answer@pcworld.com). Answer Line pays \$50 for published items. Lincoln Spector is a contributing editor for PC World. You'll find his humorous writing at [www.thelinkspector.com](http://www.thelinkspector.com).

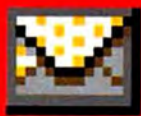




Zip/Unzip Files



Lock your PC and files



Send/Receive Emails



# Do more Carry less...



## USB DRIVE™ PROFESSIONAL

**Store over 700 floppy disks of information on a single USBDrive.**

Save, store and transport your files the simple way.

- Plug 'n' Play into any USB Port on your PC or Mac.
- Tiny size, Huge capacity – up to 1GB.
- Store and Transport your Word, Excel, PowerPoint, MP3 and Movie files.
- Take your files with you, wherever you go.

Available at the following locations:



amazon.com



McAfee

PC Mall

www.usbmall.com

© 1999-2002 JMTek, LLC. All rights reserved. Printed in USA. JMTek, the JMTek logo, USBDrive and the USBDrive logo are registered trademarks of JMTek, LLC in the U.S.

**www.usbdrive.com**





FOR ADVERTISING INFORMATION  
CALL TOLL FREE:

**888/254-0711**

Senior Vice President of Sales  
Neal Mandel 212/655-5157

Southeast/Midwest Northwest  
Shirley Nixon 212/655-5114 Michelle Deutsch 212/655-5201

Sales Manager/Northeast/West Coast  
Debra Robbins 212/655-5111

SHOP  
HERE

# PC WORLD

## MARKETPLACE

### INTERNET / ISPs

|                         |              |
|-------------------------|--------------|
| AIT .....               | 800/878-4084 |
| Blue Genesis.....       | 866/258-3351 |
| Datapipe .....          | 877/773-3306 |
| Dialtone Internet ..... | 800/617-1407 |
| Fatcow.com.....         | 866/506-9573 |
| Jade Internet.....      | 888/732-7989 |
| NetNation .....         | 888/277-0000 |
| OLM.net .....           | 877/265-6638 |
| Rackshack .....         | 800/504-7873 |
| Starweb .....           | 877/533-4932 |
| Timehost Network .....  | 888/598-1772 |

### PRODUCTIVITY

|                    |              |
|--------------------|--------------|
| Crichlow Data..... | 800/678-4535 |
|--------------------|--------------|

|                           |              |
|---------------------------|--------------|
| Inkfarm.com.....          | 800/465-3276 |
| Princeton Disc .....      | 800/426-0247 |
| Projector People.com..... | 888/228-9865 |
| Videx .....               | 541/758-0521 |
| Worth Data .....          | 800/345-4220 |

### TRAINING/ENTERTAINMENT

|                          |              |
|--------------------------|--------------|
| Academic Superstore..... | 800/580-9237 |
| Micro 2000 .....         | 800/436-1695 |
| Smart Certify.....       | 877/TRAINING |

### SYSTEMS/PERIPHERALS

|                       |              |
|-----------------------|--------------|
| Granite Digital ..... | 510/471-6442 |
|-----------------------|--------------|

### MEMORY/UPGRADES

|                      |              |
|----------------------|--------------|
| 1-800-4-MEMORY ..... | 800/463-6679 |
|----------------------|--------------|

### SERVICES/SUPPLIES

|                            |                      |
|----------------------------|----------------------|
| Affordable Computers.....  | 877/906-2884         |
| Big Clearance .....        | 888/828-3636         |
| Drivesavers .....          | 800/440-1904         |
| Ei Printing.....           | 800/245-5775         |
| inkjetkits.com.....        | 800/644-3475         |
| Maximus .....              | 877/442-5001         |
| Rimax .....                | 866/746-2987         |
| Softman Products .....     | 888/999-2611         |
| Software Consultants ..... | 800/221-2880 code 77 |
| Sonicguard.....            | sonicguard.com       |
| Zalman .....               | 714/693-8880         |

### CONSUMER

|                         |              |
|-------------------------|--------------|
| DotPhoto.....           | dotphoto.com |
| Enzyte .....            | 877/436-9983 |
| Stephen L. Geller ..... | 800/279-8634 |



## Con.fi.dence

1. The state or quality of being certain



### Managed Hosting Services

Confidence. It doesn't just happen. You have to make it happen. At DataPipe we have consistently invested in the best technology and the brightest people to give our clients the confidence they need to succeed.

#### Get Confident

Confident in the speed and reliability of our network. Confident you can scale at any time to any level. Confident our support teams are here for you 24 hours a day, 7 days a week, 365 days a year. Confident in our data backup, restoration and disaster recovery services. Confident in our proactive, accountable managed services.

#### Talk to us about:

- Clustering
- Co-Location
- Data Backup and Restoration
- Disaster Recovery
- Firewall Security
- Global Load Balancing
- High Availability Solutions
- Managed Services
- Server Load Balancing
- Storage Solutions
- VPN
- Web Hosting

Get Confident. Get it Right. Get DataPipe.

Call Toll Free: 1-877-773-3306  
www.DataPipe.com



managed

# Web Hosting

We enable businesses and empower entrepreneurs



Rated #1 Web Hosting  
Company with RateHosts

ADVANCED *Internet* TECHNOLOGIES

NEW

Award Winning Shopping Cart

**MCart PRO**  
Version 4.0



Site Search Services

**FREE** Secure Directories

Website Design Tool

**FREE** Unlimited POP Emails

eTools Office Suite

**FREE** Wireless Enabled

Toll Free 24/7 Support

and MUCH MORE...

## Resellers

Additional Domains  
(LINUX)  
**3<sup>99</sup>**/month

Additional Domains  
(Windows)  
**6<sup>99</sup>**/month

Linux and Windows OS  
30 Money Back Guarantee

plans start at

# 7<sup>95</sup>

NO SETUP FEE if switching from a competitor. Ask about a month of **FREE HOSTING**.

FREE PAL Membership with Promotion Code - PCW0702

| Your Hosting Solution                      | Server 1 | Server 2   | Server 3   | Server 4    |
|--|----------|------------|------------|-------------|
| Disk Space (can be customized)             | 225 MB   | 450 MB     | 850 MB     | 30 GB       |
| Max # of domains you can host              | N/A      | 30         | 85         | 300         |
| Base Monthly Server Cost*                  | \$15.95  | \$49.95    | \$129.95   | \$319.95    |
| Max. per domain cost @ \$3.99/domain/mo    | N/A      | \$119.70   | \$339.15   | \$1,197.00  |
| Max. possible cost to you/ month           | \$15.95  | \$169.65   | \$469.10   | \$1,516.95  |
| Your monthly gross profit @ \$21.95 domain | N/A      | \$658.50   | \$1,865.75 | \$6,585.00  |
| Your monthly net profit reselling hosting  | N/A      | \$488.85   | \$1,396.65 | \$5,068.05  |
| Additional Profit Reselling AIT Extras**   | N/A      | \$1,500.00 | \$4,250.00 | \$15,000.00 |
| Total Monthly Profit                       | N/A      | \$1,988.85 | \$5,646.65 | \$20,068.05 |

\*Requires 24 month contract

\*\*Assumes Reseller sells the many FREE AIT offerings at \$50/month per customer (Standard Accounts)

**AIT.com • sales@ait.com • 1-800-878-4084**

Order a  
.us domain  
today.

**us**  
AMERICA'S INTERNET ADDRESS™

MARKETPLACE

Shop Here! Internet • ISPs





**\$99**  
a year

**big hosting plan.  
simple price.**

- 100MB disk space
- 100 email accounts
- 5GB monthly transfer
- Shopping Cart
- Frontpage Support
- CGI, PHP, MySQL
- Control Panel
- Lots more!

**WWW.FATCOW.COM/ONE**

Toll Free: 1-866-506-9573

TIMEHOST.COM

**ONLY \$99**  
per month

**Dedicated Linux Server**

In addition to the power of the dedicated server, you also have access to the expertise of Timehost. Each Dedicated Server Package includes free support & consulting, of which you may use to get advice, direction, or advanced technical tutoring of the Server itself.

Call Now (888) 598-1772

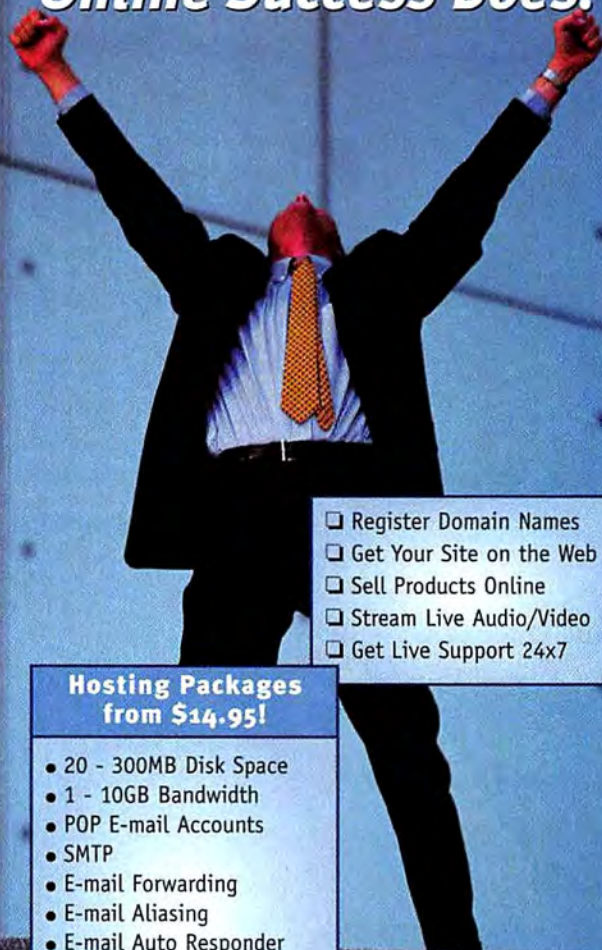
One smile at a time

**No Setup Fee**

~ virtual hosting ~ email hosting ~ resellers

**Web Hosting  
Doesn't Excite Darren...**

**Online Success Does.**



- ☐ Register Domain Names
- ☐ Get Your Site on the Web
- ☐ Sell Products Online
- ☐ Stream Live Audio/Video
- ☐ Get Live Support 24x7

**Hosting Packages  
from \$14.95!**

- 20 - 300MB Disk Space
- 1 - 10GB Bandwidth
- POP E-mail Accounts
- SMTP
- E-mail Forwarding
- E-mail Aliasing
- E-mail Auto Responder
- Graphical Usage Statistics
- Web-based Control Panel
- FrontPage Extensions
- 24 x 7 FTP Access

**30** Day Money Back Guarantee

**2 Months\* FREE!**

Enter Promo Code  
pwcm when Ordering



**NetNation®**

A GOOD HOST THINKS OF EVERYTHING  
NASDAQ: NNCI

Web Hosting | E-commerce | Media Streaming | Managed Services

**1 888 277 0000**

**www.netnation.com/pw**

\*Some conditions apply. See [www.netnation.com/pw](http://www.netnation.com/pw) for full details. Offer subject to change without notice.

©2002 NetNation Communications, Inc. All rights reserved.  
NetNation and the NetNation logo is a registered trademark of NetNation Communications, Inc.



## Are you **paying too much** for Web Hosting?

### A TALE OF TWO DEVELOPERS



[Running his own server]



[Running VM Server]

Writers as low as \$4.99

#### Developing an Ulcer

- Costs \$1,000's in servers and management
- Very restricted, can only add limited features
- Server crashes with a spike in traffic
- Guaranteed 99.9% chance of getting a headache

#### Developing a really nice tan

- One flat fee of \$129 for a multi-domain server
- Tools to build and manage world class websites
- Award winning platform - UNIX/NT Hybrid
- 99.9% uptime guarantee - NO SETUP FEE

Introducing: **The Most Reliable Web Hosting Server on the Planet:**

[www.bluegenesis.com](http://www.bluegenesis.com) • [sales@bluegenesis.com](mailto:sales@bluegenesis.com)

### VM Server

Enjoy the freedom to manage your own server, and the comfort knowing that your websites are running on our award winning clustered architecture. Let BlueGenesis.com take care of all the hardware, software, and systems infrastructure, while you concentrate your efforts on what matters most: building your customers websites and making more money!

Single domain hosting available for as low as \$9.99!

For leading hosting packages and domain names

**Call TODAY! 1-866-258-3351**

\*\*\*Monitor this ad and we will not pay you up to a 30 day free trial.

**Blue Genesis**

Check out our free demo at [BlueGenesis.com](http://BlueGenesis.com)!

**100% dedicated IBM @server.  
100% Managed Hosting.**

**100% customer satisfaction.**



Managed Hosting on an IBM @server

#### Value Solutions

Starting at \$149 per month

#### High Performance Solutions

Starting at \$375 per month

#### Mission-Critical Solutions

Starting at \$1,395 per month

Your Choice of Linux, Windows 2000,  
Windows NT or FreeBSD



Managed Dedicated Hosting

As an IBM Premier Business Partner, we are proud to offer the world's most advanced servers at remarkably affordable prices. The power, performance, stability and scalability of these servers go hand in hand with Dialtone's reliable network and outstanding technical support.

Call: 1.800.617.1407 or visit: [www.dialtone.com/ibm22](http://www.dialtone.com/ibm22)

## Need More Uptime?

At OLM we use our "web hosting weight" to provide you with 99.9% "uptime" guaranteed! Whether it's your first "ride" with a hosting company, or you are in need of a "larger" provider, hang on tight!

OLM provides Tier 1 networking, with multiple high speed redundant connections, and 24/7 server monitoring. So, don't get left out in the rain. Let OLM brighten your day with quality service you can count on.

Hop on with [www.olm.net/pcworld](http://www.olm.net/pcworld)  
You'll "see" service you never "saw" before.

**OLM.net**  
Web Hosting Solutions @ Your Service

877-2-OLM.NET • [info@olm.net](mailto:info@olm.net) • [www.olm.net/pcworld](http://www.olm.net/pcworld) ©2002 OLM, LLC

Web Hosting

E-Commerce

Server Solutions

Domain Registration



# ACADEMIC DISCOUNTS

FULL VERSION ACADEMIC PRICES FOR STUDENTS, TEACHERS & SCHOOLS

|                   |       |                  |       |                 |       |
|-------------------|-------|------------------|-------|-----------------|-------|
| Amorphium Pro     | \$98  | Flash MX         | \$98  | Studio MX       | \$189 |
| AutoCAD LT 2002   | \$329 | LightWave 3D 7.5 | \$395 | Universe 4      | \$239 |
| Bryce 5           | \$78  | Office XP Pro    | Call  | Vectorworks 9.5 | \$85  |
| Dreamweaver MX    | \$98  | Painter 7        | \$197 | Wacom Graphire2 | \$84  |
| EyeCandy 4000     | \$69  | Photoshop 7      | Call  | Xara X          | \$79  |
| FileMaker Pro 5.5 | \$148 | Poser 4          | \$119 |                 |       |
| Finale 2003       | \$239 | Sound Forge 6    | \$147 |                 |       |

Use Discount Code PCW95 to save 50% on ground shipping.

1-800-580-9237 FAX ID'S & PO'S TO 512-450-0263

www.AcademicSuperstore.com



## Web Hosting

with FREE Domain Registration

**\$9.95** /mo

- no set up fee

**Starweb ProHost**

Web Site in a box! 4 pages - custom design \$195

1-877-533-4932

www.starwebprohost.com



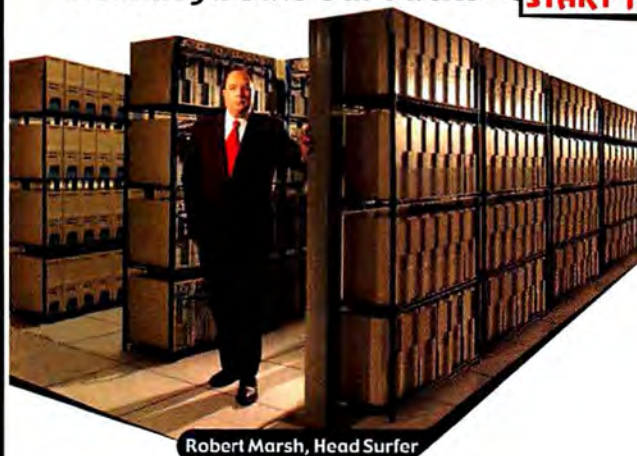
# Shopping for computer products?



The fastest, easiest way to get your hands on exactly what you're looking for is the **PC World Marketplace** classified ads. From memory and software to peripherals and service, it's where one-stop shopping begins.

**PC WORLD Marketplace**

Nothing beats our racks **START YOUR OWN WEB HOSTING BUSINESS TODAY!**



Robert Marsh, Head Surfer

### CARRIER CLASS DATA CENTER

- Highly Secure Guarded Facility
- 24/7/365 Network Operations Center
- 24/7/365 Technical Support
- Redundant Conditioned Air Systems
- Multiple OC-12 SONET Rings
- Redundant Fiber Entry Points
- Redundant UPS Systems
- 1250 KW Generator Onsite
- VESDA Early Warning Smoke Detection

Absolutely nothing\*

**\$99**

Instant Activation!  
**Dedicated Server**

**Intel Celeron 1.2 GHz**

512 RAM • 60 GB HD • 7200 RPM HD

256k OBC - 100MHz FSB

400 GB Transfer Included

Host Hundreds of Web Sites



Over 6,000 Served!

1-800-504-SURF | rackshack.net

Price subject to change. Quantities Limited. See website for complete details.  
\*Per month. Set-Up fees apply.



# Bar Code Headquarters

RF Lasers  
and  
RF CCD's

True Type and  
Postscript  
Bar Code Fonts



On-line  
RF Terminals



Lasers,

Wands, CCD's,  
Slot Badge, etc.

Batch  
Data Collectors

For a complete catalog or to shop  
online, visit us at

[www.barcodehq.com/w](http://www.barcodehq.com/w)

or call **800-345-4220**  
or 831-458-9938



## ink & toner

- \$3.50 shipping! • \$2 off: enter promo code "PCW45"
- All brands: Alps, Oki, Lexmark, HP, Brother, more!

### Hewlett-Packard

|        |               |       |
|--------|---------------|-------|
| 51645A | New HP        | 24.61 |
|        | Refilled cart | 17.91 |
| C6578A | New HP        | 52.91 |
|        | Refilled cart | 27.91 |
| C6578D | New HP        | 31.91 |
| C1823D | New HP        | 29.99 |
|        | Refilled cart | 22.99 |

### Canon

|            |             |       |
|------------|-------------|-------|
| BCI-3bk    | Orig Canon  | 13.79 |
|            | Inkfarm bnd | 6.85  |
| BCI-3cyl/m | Orig Canon  | 11.98 |
|            | Inkfarm bnd | 6.85  |
| BCI-21c    | Orig Canon  | 16.99 |
|            | Inkfarm bnd | 10.75 |

### Epson

|         |               |       |
|---------|---------------|-------|
| S020189 | Orig. Epson   | 23.99 |
|         | Inkfarm brand | 9.99  |
| S020093 | Orig. Epson   | 18.95 |
|         | Inkfarm brand | 8.99  |
| S020187 | Orig. Epson   | 21.64 |
|         | Inkfarm brand | 10.75 |

1-800-INKFARM

**inkfarm.com**  
the ink & toner supersite.™

The source for all your  
CD/DVD duplication needs.

CD/DVD Replication • Printing  
Packaging • CD Business Cards  
CD-R/DVD-R Bulk Media  
CD/DVD Copiers/Recorders  
MP3 Players • Printers

Call today!

800.426.0247

[www.princeton-disc.com](http://www.princeton-disc.com)

24 hr. rush service available



## CyberLock™

Access Control for Your Entire Facility

Who! Where! When! What!

| Key Name      | Lock Name     | Date/Time              | Status          |
|---------------|---------------|------------------------|-----------------|
| Joe Wilson    | East Entrance | 03/20/2000 06:14:22 AM | Denied          |
| Abby Chaney   | West Entrance | 03/20/2000 07:28:03 AM | Key Authorized  |
| Pete Sussman  | Records Room  | 03/20/2000 07:59:15 AM | Out of Schedule |
| John Michaels | Computer Room | 03/20/2000 08:00:03 AM | Key Authorized  |
| John Leller   | West Entrance | 03/20/2000 08:12:16 AM | Key Authorized  |
| John Banks    | Library       | 03/20/2000 08:12:16 AM | Key Authorized  |
| John Banks    | Library       | 03/20/2000 08:12:16 AM | Denied          |



Track access to everything in the building!  
The intelligent CyberLock cylinder installs without  
hardwiring in doorways, supply cabinets, cash  
drawers, and even in padlocks. User access can be  
limited to certain times and days, and an audit trail  
is stored in both the CyberLock and CyberKey™.

To learn how easy it is to upgrade to an intelligent  
access control system, call today or visit:

[www.videx.com/lock29](http://www.videx.com/lock29)



1105 N.E. Circle Blvd., Corvallis, OR 97330  
541-758-0521 • Fax 541-752-5285

GC01413

Savings are just  
a click away.



### proxima 9260+

XGA (1024 x 768), 2500 lumens,  
15.2 lbs., ProjectionLink compatible  
Call for Today's Lowest Price!



### NEC VT45

Special Purchase.  
SVGA (800 x 600), 1000 lumens, 5.6 lbs.  
Call for Today's Lowest Price!  
Bonus offer! Add a replacement lamp  
for only \$54 more.



**TOSHIBA TLP-B2 Ultra**  
New! XGA (1024 x 768), 1250 lumens,  
5.8 lbs., with carry case  
Call for Today's Lowest Price!

InFocus EPSON SANYO MITSUBISHI  
SONY HITACHI

ProjectorPeople.com  
Call 888-228-9865

M-F 8-8 EST. or order online at  
[www.projectorpeople.com](http://www.projectorpeople.com)



MARKETPLACE

Shop Here! Productivity



# Get Our Entire IT Course Library FREE!

For a limited time, when you purchase SmartCertify Direct's MCSE ClassWare course at the regular price\*, you'll get online access to our entire course library...  
**FREE for TWO FULL YEARS!**



## Our IT Course Library Includes:

|      |          |                |
|------|----------|----------------|
| MCSE | A+       | Novell         |
| MCP  | Cisco    | Office 2000    |
| MCS  | Network+ | Office XP      |
| MCD  | Oracle   | And Much MORE! |
| .NET | Lotus    |                |

Limited Offer. May expire at any time!

- Anytime, Anywhere Training
- Over 3,000 Course Titles
- 24-hour Online Mentoring from Certified Advisors
- Online Labs and Seminars
- Test Prep Exams\*\*
- Hands-on Interactive Exercises
- Telephone Access to IT Courseware Specialists
- Money-back Certification Guarantee\*\*\*

**Call NOW to  
Try Our Courses FREE!!**

**TOLL FREE 1-877-TRAINING**  
1 - 8 7 7 - 8 7 2 - 4 6 4 6

Toll Free 1-800-475-5831 • Voice (727) 724-8994 • Fax (727) 726-6922

\*Free Library offer only applies with the purchase of the full MCSE course at regular price. Not valid with any other offer or discount. \*\*Not available for some courses. \*\*\*Only applies to certification courses. Call for complete details on money-back guarantee.



## Micro2000

## The ULTIMATE A+ Certification Bundle

Micro 2000's A+ Certification Bundle contains the two most powerful tools you could have in your arsenal:

Micro 2000's all new A+ Certification Course - which contains extensive training guides, 3 hours of instructional video, and 7 hours of realistic simulations. Also included is Challenge Interactive, the interactive test simulator from Wave Technologies, which contains over 700 sample test questions to make sure you're ready to pass and get your certificate.



**Micro-Scope V.X** - recognized by technicians everywhere. Micro-Scope is operating system independent and communicates directly with the PC's hardware with results far more accurate than DOS or Windows based diagnostics. This new version includes new testing for **LAN cards** and **Multi-processor systems**. The new version also includes a **PC Health screen** to monitor system temperature, fan speeds, and voltage. Includes excellent **FREE** phone support. Our technicians can walk you through any technical situation, whether you're in your office or on-site.

**WWW.MICRO2000.COM**

**Call  
Today:  
1-800-436-1695**

## BuyCheapSoftware.com

A Softman Products Company

Phone: (310) 305-3644 • FAX: (310) 305-3645  
e-mail: sales@buycheapsoftware.com

**888.999.2611**



### Microsoft

All Microsoft OEM software includes hardware

|   |        |
|---|--------|
| Word XP 2002 CD/COA Full OEM Version              | \$52   |
| Office XP Pro Upgrade Retail Box                  | \$274  |
| Office XP Pro Full Version Retail Box             | \$393  |
| Office XP Standard Upgrade Retail Box             | \$214  |
| Office XP Standard Full Version Retail Box        | \$374  |
| Office XP Small Bus. Full OEM Version, CD/COA     | \$179  |
| Office XP Professional Full OEM Ver., CD/COA      | \$315  |
| Office 2000 Pro Full OEM Version, CD/COA          | \$334  |
| Office 2000 Small Bus. Full OEM Ver., CD/COA      | \$195  |
| Office XP Developer Ed. Full Retail Box           | \$549  |
| Office Pro 95 Full OEM, CD/COA/Manual             | \$129  |
| Office Pro 4.3 Full OEM, CD/COA/e-manual          | \$69   |
| Project 2002 Pro Full Retail Box                  | \$855  |
| Project 2002 Server Full Retail Box, 5-user       | \$1324 |
| Project 2000 SR-1 Full Retail Box                 | \$395  |
| Visual Studio Pro 6.0 Full Ver. Retail Box        | \$569  |
| Visual Studio.net 2002 Pro Full Retail Box        | \$649  |
| Visual Studio.net 2002 Dev. Ent. Full Retail Box  | \$1098 |
| Visual Studio.net Arch. Ent. 2002 Full Retail Box | \$1289 |

### Microsoft Windows

|   |       |
|---|-------|
| Windows XP Home Ed. Up-Grade Retail           | \$99  |
| Windows XP Home Edition Full OEM              | \$98  |
| Windows XP Pro Edition Full OEM               | \$155 |
| Windows XP Pro Edition Up-Grade Retail        | \$178 |
| Windows XP Pro Edition Full Retail Ver.       | \$209 |
| Windows 2000 Pro SP2 Full OEM Version         | \$159 |
| Windows Millennium Full OEM Version           | \$89  |
| Windows 98.2 Upgrade Retail Box               | \$101 |
| Windows 98.2 CD/COA Manual Full OEM Version   | \$99  |
| Windows 98.2 Plus CD/COA Manual Full OEM Ver. | \$122 |
| Windows 95 OSR 2.5 w/CD-Manual-License OEM    | \$47  |
| Windows 3.1 w/CD-Manual-License OEM           | \$45  |
| DOS 6.22 & Windows 3.11 w/CD-Man-Lic. OEM     | \$69  |

### Windows Server & BackOffice 2000

|   |        |
|---|--------|
| WINDOWS 2000 Server Full OEM w/5-CAL                    | \$709  |
| WINDOWS 2000 Server Full Retail Box w/5-CAL             | \$795  |
| WINDOWS 2000 Server Full Retail Box w/10-CAL            | \$919  |
| WINDOWS 2000 Server Full Retail Box w/25-CAL            | \$1059 |
| WINDOWS 2000 Adv. Server Full Ver. w/25-CAL             | \$1349 |
| WINDOWS 2000 Terminal Server 20-Client Access Lic. only | \$1435 |
| WINDOWS 2000 Server 20-Client Access License only       | \$384  |
| NT Server 4.0 CD Full OEM Version w/5-CAL               | \$379  |
| NT Server 4.0 CD Full OEM Version w/10-CAL              | \$399  |
| BackOffice Server 2000 Full Retail w/5-CAL              | \$1990 |
| BackOffice Server 4.5 w/5-CAL Full Retail Box           | \$1259 |
| BackOffice 2000 Small Bus. 5-CAL Full Retail            | \$1230 |
| BackOffice 4.5 Small Bus. Serv. 5-CAL Full Ver.         | \$769  |

### MS Server Family Products

|  |        |
|--|--------|
| SQL 2000 w/5-CAL, Full Ver./Retail Box               | \$1295 |
| SQL 2000 w/10-CAL, Full Ver./Retail Box              | \$1779 |
| SQL 2000 Standard One Proc., Unlimited               | \$3249 |
| SQL 2000 Enterprise Ed. Full 25-CAL, Full Retail Box | \$4399 |
| SQL 2000 Enterprise Ed. One Processor, Unlimited CAL | \$4895 |
| SQL 7.0 Standard w/5-CAL, Full Retail Box            | \$1199 |
| SQL 7.0 Standard w/10-CAL, Full Retail Box           | \$1329 |
| SQL 7.0 Standard 20-Client Access License only       | \$699  |
| Exchange 2000 w/5-CAL Full Retail Box                | \$1039 |
| Exchange 2000 Enterprise Ed. w/25-CAL Full Retail    | \$1699 |

### Corel WordPerfect/Draw

All Corel OEM software includes hardware

|   |       |
|---|-------|
| Wordperfect Office 2002 Pro Full OEM CD only      | \$55  |
| Wordperfect Office 2002 Pro Full OEM CD-Manual    | \$85  |
| Wordperfect Office Std. 2000 Full OEM CD only     | \$39  |
| Wordperfect Office 8.0 CD-Manual, Full OEM Ver.   | \$25  |
| CorelDraw 10.0 Graphics Suite Full Retail Version | \$389 |
| CorelDraw 9.0 Full Office Version Retail Box      | \$94  |
| CorelDraw 9.0 Graphics Suite Program CD only OEM  | \$49  |



### Adobe

|  |       |
|--|-------|
| Acrobat 5.0 CD Full Retail Version - WINDOWS         | \$219 |
| Acrobat 5.0 CD Full Retail Version - MACINTOSH       | \$199 |
| Photoshop Elements 1.0 Full Retail Version - WINDOWS | \$77  |
| Photoshop 7.0 Full Retail Version - WINDOWS          | \$559 |
| Photoshop 7.0 Full Retail Version - MACINTOSH        | \$569 |
| Pagemaker 7.0 Full Retail Version - WINDOWS          | \$359 |
| Pagemaker 7.0 Full Retail Version - MACINTOSH        | \$245 |
| Illustrator 10.0 Full Retail Version - WINDOWS       | \$259 |
| Illustrator 10.0 Full Retail Version - MACINTOSH     | \$389 |
| InDesign 2.0 Full Retail Version - WINDOWS           | \$489 |
| InDesign 2.0 Full Retail Version - MACINTOSH         | \$359 |

### Symantec

|  |       |
|--|-------|
| Norton Anti-Virus 2002 Full CD Version                   | \$17  |
| Norton Anti-Virus 2002 Full Retail Version               | \$39  |
| Norton Anti-Virus 2001 Full Retail Version               | \$20  |
| Personal Firewall 2002 Full Retail Box                   | \$35  |
| Norton Internet Security 2002 Full Retail Box            | \$45  |
| Norton Internet Security 2001 Full Retail Box            | \$21  |
| ACT 2000 CD only, Full Version, e-manual                 | \$39  |
| ACT 2000 CD & Manual Full Version                        | \$57  |
| PC Anywhere32 10.5 Full Ver. Host & Remote w/CD only     | \$35  |
| PC Anywhere32 10.5 Full Ver. Host & Remote w/CD & Manual | \$82  |
| PC Anywhere32 10.5 Full Ver. Host & Remote 10-user       | \$750 |
| PC Anywhere32 10.0 Full Retail Box                       | \$59  |
| WinFax Pro 10.02 Full Version, Retail Box                | \$67  |
| Norton System Works 2002 Pro CD only                     | \$35  |
| Norton System Works 2001 Pro Retail Box                  | \$44  |
| Norton System Works 2000 Retail Box                      | \$29  |

**SAME DAY SHIPPING**  
100% SATISFACTION GUARANTEED  
Excellent Service Since 1997

**13470 W. Washington Blvd. • Marina del Rey, California 90292**

Prices subject to change without notice. All trademarks are property of their respective owners. Call for pricing on products not listed.

**Corporate POs &  
CODS WELCOME**



# FireWire 1394 RAID - ULTRA 320 SCSI - Custom Cables

If you want Ultra SCSI Performance use our Quality Cables & Active Terminators.

High Performance Solutions for Ultra100 IDE and FireWire Improves Performance

## FireVue™ FireWire Case Kits

**\$139** 3.5" 5.25"

Simply add your IDE drive to our case and you have an instant FireWire Drive. Two models, 3.5" and 5.25". Supports Hard Drives, CD-Roms, tape, and a variety of other devices.

- 50 Watt Power Supply
- 40MB/s Fast FireWire
- 1 Year Warranty
- Supplies power to bus

Cases come with additional face panels.

## Now with ATA-6!

## FireVue™ FireWire Bridge Boards

If you have an existing case or if you want to have an internal drive connected to the FireWire bus then this is the solution for you. It plugs into any IDE Hard Drive and converts it to FireWire. With its super fast 40MB/s operation it's the fastest choice on the market to date.

**\$89**

- Up to 2 Drives supported
- Large Capacity Drives Supported
- Fast 40MB/s speed
- Mounts in any case

## FireVue™ FireWire to Cardbus

The perfect solution for any PCMCIA Laptop or Portable computer. This card is both Mac and PC compatible. Gives you two 1394 6-pin FireWire connectors.

- Supports up to 400MB speed.
- Optional Power Supply

## FireVue™ FireWire to PCI Host

Gives you four 1394 6-pin FireWire connectors. IEEE Standard compliant with auxiliary power connector on card. Supports up to 400MB speed. Works with Mac OS 8.6 or newer, just plug it in. Also supports Windows 98SE, ME, 2000, and XP.

## Active Digital SCSI Repeater

Models for all SCSI types. Fixes SCSI Cable Problems. Doubles Cable Length (up to 18')

## SCSIVue™ Gold Diagnostic Cables

Benefits:

- No Loss of Important Data
- Faster Performance
- Test Cable Integrity

Features:

- Diagnostic Indicators
- Large Ferrite Filters
- Triple Shielding (Unique Design)
- Double Gold 20u" Plated Connectors
- Extra Heavy 26 Gauge Wire
- 100 Styles in Stock

## Gold VHD Ultra320 SCSI Cable

Features:

- New .8mm Ultra 320 SCSI Connector
- Triple Shielding (Unique Design)
- Double Gold 20u" Plated Connectors
- Diagnostic Indicators
- Large Ferrite Filters

## LVD-TFO Teflon® Internal Cables

Benefits:

- Less Errors, Ultimate Performance
- Silver Wire Improves Signal Quality

Features:

- Perfect 90 or 132 Ohm Impedance
- Custom in 1 Day
- Triple Pronged Connector - Gold contacts Silver Wire



# FIREWIRE PRODUCTS

Our NEW FireWire RAID Systems will transfer data at speeds up to 100MB/s!!!

**FireVue™ FireWire RAID** systems offer up to 800 gigabytes of storage. Using the second generation of FireWire. We are now able to get a true 40MB/s data transfer rate; using 3 channels our data transfer rate hits 100MB/s!

**800 Gigabyte 8 Hot-Swap Bays**  
8-Bay Tower holds 800 Gigabytes of Hot-Swap-able Drives. Bays incorporate exclusive Blue Neon Light.  
**\$3999 System Case Kit**

**400 Gigabyte 4 Hot-Swap Bays**  
4-Bay Tower holds 400 Gigabytes of Hot-Swap-able Drives. Bays incorporate exclusive Blue Neon Light.  
**\$1999 System Case Kit**

**200 Gigabyte 2 Hot-Swap Bays**  
2-Bay Tower holds 200 Gigabytes of Hot-Swap-able Drives. Bays incorporate exclusive Blue Neon Light.  
**\$999 System Case Kit**

Our Hot-Swappable RAID Systems offer quick and easy bay interchangeability and complete fault tolerance. Each Hot-Swap Bay includes 2 fans and our exclusive Blue Neon Light. Systems can be custom configured to your specific needs. Our RAID Systems use standard IDE ATA100 Drives offering low cost and high reliability.

## FireVue™ FireWire Adapters

These FireWire 1394 Gender Changer and Cable Extenders allow you to use your current cables to extend or change your connector ends. Our exclusive LED circuit lets you know that power is being supplied to the 1394 bus.

4-4 Pin - Connects 2 Cables  
6-6 Pin - Connects 2 Cables  
4-6 Pin - Converts 6p Cable  
6-4 Pin - Converts 4p Cable

**\$19.95**

## FireVue™ FireWire Snap-In Cables

These Snap-In FireWire Cables allow you to easily install a FireWire drive into any existing case or computer.

6", 12", 18", 30"

**\$13.95**

## FireVue™ Gold FireWire Cables

Diagnostic LED monitors power on the FireWire cable. Gold Connectors, Ferrite Beads, and perfect cable characteristics. Lengths up to 32', both 4 and 6 pins.

Our 32' 6 pin to 6 pin Cable is a Granite exclusive. These cables go longer because they are made better! 2 x Specification.

From: **\$19**

## FireVue™ FireWire 6" Patch Cables

LED shows that power is being supplied

6" Patch Cable connects External Cases or Internal Drives in RAID Cases. Large Ferrite Bead protect cable from static and noise interference.

**\$19.95**

# ULTRA 320 SCSI PRODUCTS

## SCSIVue™ Ultra 320 SCSI Cases

From: **\$99**

Options:

- Ultra 320 LVD Cable Kit
- Dual Hot-Swap Redundant PS
- Hot-Swap SCSI Bays w/ Bracket
- 2-3 Fan Bay
- Coolers w/ Brk
- Temp Alarm System

• Ultra SCSI Custom Teflon Cable Available

• Custom Enclosures in 1 Day for RAID & Arrays

## SCSI Cable Tester - LED Readout

This Digital SCSI Cable Tester can test all the popular cable styles for opens, shorts, and unreliable operation. Battery powered for easy use an

Special Packag of all 3: **\$99**

Three models to choose: • 50 IDC • 50 Cen • 68 MD

## SCSIVue™ SCSI RAID Enclosures

Ultra 320 SCSI Towers 12.4" 15 Bay

From: **\$999**

Temperature ALARM!

## SCSIVue™ RackMount RAID

Our 8 Bay Rack Mount Enclosure includes a 250 watt power supply. These cases are commercial quality. Optional rails are also available.

**\$399**

Bay Cooler Kit keeps those HOT Ultra SCSI Drives COLD as ICE!

Dual Fan & Bracket **\$29**

HOT SWAP Pull Out Bays Compatible with all 50 pin & 68 pin SCSI Buses up to Fast SCSI 2. From: **\$79**

## FireVue™ FireWire Hot-Swaps

**Hot-Swap Case Kit \$229**

Additional TRAYS **\$29.95**

**FireVue™ FireWire** Hot-Swap Case Kits offer versatility and low cost transportable data storage. You simply buy the kit and as many extra bays to hold all the storage you need. Perfect for video production jobs, just dedicate a drive and bay for every job. With the low cost of IDE storage this system is one of the most cost effective "on-line" storage systems available.

**Hot-Swap w/ 60 Gig IBM \$399**  
**Hot-Swap w/ 100 Gig WD \$519**  
**Hot-Swap w/ 120 Gig IBM \$579**

Above systems include, everything needed to plug and play on any Mac or Windows 98SE, ME, 2000, XP platform.

**Hot-Swap w/ 60 Gig IBM \$399**  
**Hot-Swap w/ 100 Gig WD \$519**  
**Hot-Swap w/ 120 Gig IBM \$579**

Above systems include, everything needed to plug and play on any Mac or Windows 98SE, ME, 2000, XP platform.

## FireVue™ FireWire Hot-Swap Bay

**\$159**

The Hot-Swap FireWire Bays fit all standard 5 1/4" openings. Can be used in any standard enclosure computer opening. Comes with Neon glow bar indicator, Ultra fast 40 MB/s second generation speed, and two cooling fans.

## FireVue™ FireWire 6 Port HUB

These FireWire 1394 HUB / Repeater allow you to connect up to 6 devices. They can also be wired together to offer unlimited capabilities. Power Supply guarantees proper operation of many devices at the same time and rejuvenates the lines.

**\$99**

## SCSIVue™ Active Terminator

Seven models available with optional Remote LED Pak. These are the finest terminators available, they fix SCSI problems and improve reliability.

Benefits:

- Improves SCSI Bus Performance
- Less Errors: More Reliable Data Transfer
- Diagnoses Problems • Analyzes Signal Quality

Features:

- Active Regulation • Fast 50 & Fast Wide 68
- Status Indicators • Gold Contacts

From: **\$39**

## Hot Swap Powered Terminator

**\$49**

Now you can safely remove any SCSI device from a SCSI chain by simply clicking a switch. Optional Power Supply provides termination power to portable setups or when termination power is not being supplied properly.

## Gold Diagnostic Adapters

From: **\$39**

- 68 Pin Drive to 50 Pin IDC (runs wide drive as narrow)
- 80 Pin SCA Drive to 68 Pin (converts SCA to 68 SE or LVD)

For Adaptec Ultra Wide Cards • Adapters with partial termination built in for 68 to 50 converters (converts Host Adapter to 50 Pin Micro) Adapters

**FREE Technical Support!!!**  
Available to everyone, customer or not.

Online Catalog at... [www.scsipro.com](http://www.scsipro.com)

Granite "The Solution Company"

**Granite**  
D+H+I+A+E

3101 Whipple Rd. Union City, CA. 94587 Ph: 510-471-6442 Fax 510-471-6267

MARKETPLACE  
Shop Here! Systems • Peripherals



**CNPS** Computer Noise Prevention System

[www.ZalmanUSA.com](http://www.ZalmanUSA.com)

# ZALMAN

## Noiseless CPU cooler

Graphic Card Cooler  
North Bridge Cooler  
Fan & Bracket  
Fan RPM Controller  
Power Supply Unit

**CPU Coolers**  
CNPS2005+  
3000+  
3100+  
3100Gold+  
5100ACu  
5100Cu  
5500ACu  
5500Cu  
6000ACu  
6000Cu  
6500A-Cu  
6500A-Cu  
6500B-Cu  
6500B-Cu

**Other Coolers**  
ZM17Cu  
NB32J

**Fan & Bracket**  
FB123  
BR123  
ZM-F1  
ZM-F2

**RPM Controller**  
Fan Mate 1  
Power Supply  
ZM300A-APF

**ZalmanUSA, Inc.**  
1565 Harmony Circle  
Anaheim, CA 92807  
tel (714)693-8880  
fax (714)693-8890  
e-mail: zalman@zalmanusa.com

**ZALMAN**

Most Epson and Canon Inkjet Cartridges

**Buy 1  
Get 2 FREE**



**The Best Deal in Inkjet Cartridges**

- Spend \$25 and we throw in FREE SHIPPING!
- ALL Cartridges guaranteed for 6 months!
- LOWEST PRICES around on EPSON 777 and C60 CARTRIDGES!!

**1-877-906-2884**

[www.acsmsupplies.com/pc.html](http://www.acsmsupplies.com/pc.html)

**Affordable Computer Supply Marketplace**  
Leading On-Line Supplier of High Quality Generic Printer Supplies

**CAN'T FIND YOUR CDs?**  
**Misplaced Files Got You Down?**  
**Having Headaches Finding the Right Game?**

# THE CD MANAGER IS YOUR ANSWER

- FOR FAST AND ACCURATE CD-RETRIEVAL
- USB CONNECTION TO YOUR COMPUTER
- SOFTWARE LOCATES YOUR FILE/CD FOR YOU
- STORES 150 CDs
- SEE THRU CASE
- PROTECTS FROM MOISTURE



**INTRODUCTORY OFFER**  
**SAVE \$20**  
**NOW ONLY \$99.95**  
PLUS \$14.95 S&H

**1.877.442.5001**

ORDER ON LINE  
[www.maximusmarketing.com/cdmanager/](http://www.maximusmarketing.com/cdmanager/)

The MAXIMUS CD-MANAGER is designed for storing CD, DVD, CDR and VCD disks. Saves space, convenient, highly efficient storage management, a must-have storage solution in this day and age. USB connected to your computer, easy to install, operates with your computer or as an independent device. The MAXIMUS CD-MANAGER is stackable: Allowing you to daisy chain 128 units or 19,200 CDs.

**MAXIMUS MARKETING • 354 S. OYSTER BAY ROAD, SYOSSET, NY 11791 • 516.931.7390**  
System Requirements: Pentium 166, USB Port, PC Running Microsoft Windows 95/98/2000/ ME/XP, CD-ROM drive

**STATION 1**

**Snap Together.**  
**No Tools Required.**  
Sturdy and durable.  
Unique high tech design.  
Wheels for complete mobility.



**RIMAX**

Call toll free or log on to  
[www.78.com](http://www.78.com) to order

**866-746-2987**



# Got Computer Knowledge? Want Your Own Business + A Large Income? Here's How:

If you've always wanted a high-income computer business, one you could start from home part-time, then take a look at Soft-Temps. Soft-Temps® is a new, low-cost, computer service and software training business that's part of the fastest growing industry in America. You don't need to be a computer "guru" to get started. Computer experts in your area will gladly visit your clients and do the work for you in exchange for a portion of your billings. This can leave you with a huge income . . . and the time to enjoy it!

## Just look at these benefits:

- Start from home, part-time or full-time.
- Be up and running FAST.
- No need for an office or expensive overhead.
- Local computer experts will do the work.
- Soft-Temps is unique in the marketplace.
- This is the hottest new business in America!

## **What is Soft-Temps?**

Soft-Temps is a proven business that's growing at an astounding rate. As part of our team, you'll be able to earn very large profits in the fastest growing industry in America. No prior business experience needed.

## **A Large Income And The Free Time To Enjoy It**

Why join Soft-Temps? Simple. You'll be able to earn a larger income than you may ever have thought possible. More importantly, you won't have to work a lot of hours.

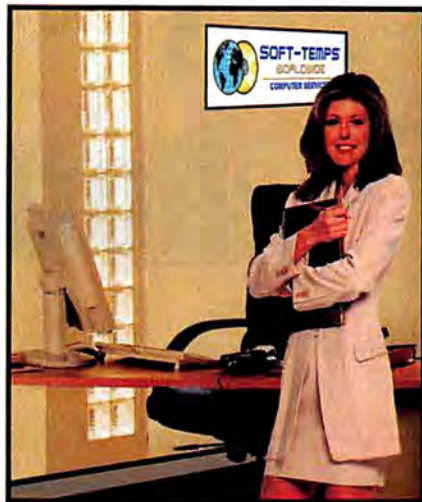
You'll be relying on local computer experts & service pros to handle your on-site appointments. With Soft-Temps, you set appointments with small businesses in your area to perform today's most in-demand computer services. And again others will do the work for you.

## **Phone Rings Off The Hook With Qualified Experts!**

With Soft-Temps, you'll use a part-time group of computer "consultants" who work on a "per-job" basis for you. They're not your employees . . . they work by the hour and travel to the jobs as you need them. Don't worry about payroll, there is none. You just split the fees you charge your business clients with the consultants who perform the computer services . . . such as personalized software training, repairs, system upgrades, network service, and so on.

## **Attract Clients Like A 10 Ton Magnet Attracts Nails!**

Our proven marketing system, consisting of a personalized web site, CD & video client presentation system, color brochures & sales tools, etc., helps you attract all the business you can handle. This gives you the flexibility to start out part-time and advance to full time as your business grows. We provide you with a



complete array of marketing materials. All you do is follow our system, which was developed over 3 years by one of America's leading business development firms.

## **Our "Business In A Box" . . . A Turn-Key System**

When you join, we'll include everything you need to get started at one low enrollment fee. We'll also include live tech support (FREE) available 45 hours per week. Since our income is tied to your success, we'll be here at every step. So if you need help, we're here for you.

## **Call Now To Request Your FREE Info Package**

Want to learn more about how you can easily start your own Soft-Temps business? Call us toll free or visit us on the web. We'll send you a FREE information package that describes everything. Hurry, while rates are still low!

# 1-800-221-2880 Code 77

Local 1-772-232-0103

[www.stfranchise.com](http://www.stfranchise.com)

**FREE VIDEO OFFER** When you call to request your FREE information package, be sure to ask for a free CD & video. Our business hours are 9am-6pm Eastern Time, Mon-Fri.



# The easy way to get real prints from your digital photos!



NEW! Photos on your phone!

**Join FREE!**  
**Get 30 FREE Prints!**

## Sell Your Photos Online

Perfect for event photographers, newspapers & you!  
Just upload photos and set prices. dotPhoto fulfills your orders, and sends you a check when they sell!

[www.dotphoto.com](http://www.dotphoto.com)

Current Software.

**BIG**  
CLEARANCE.COM

Clearance Prices.

**Big Deal**  
Windows XP  
From \$96

Buyers, Sellers & Dealers Welcome

### Adobe Top Products

|              |            |
|--------------|------------|
| Illustrator  | from \$145 |
| PageMaker    | from \$89  |
| FrameMaker   | from \$209 |
| InDesign     | from \$149 |
| GoLive       | from \$99  |
| LiveMotion   | from \$129 |
| AfterEffects | from \$149 |
| Premiere     | from \$179 |

### Borland Top Products

|                  |            |
|------------------|------------|
| Borland C++      | from \$379 |
| Borland Delphi   | from \$389 |
| Borland JBuilder | from \$390 |

### Corel Top Products

|                 |           |
|-----------------|-----------|
| CorelDRAW       | from \$54 |
| WordPerfect Std | from \$42 |
| WordPerfect Pro | from \$55 |

### Intuit Top Products

|                |            |
|----------------|------------|
| Quicken Deluxe | from \$26  |
| Quicken Suite  | from \$32  |
| Quickbooks     | from \$119 |

### Microsoft Office Products

|              |            |
|--------------|------------|
| Office XP    | from \$195 |
| Office 2000  | from \$149 |
| Office 97    | from \$129 |
| Word 2000/XP | from \$49  |
| Project      | from \$179 |

### Microsoft Windows

|                        |            |
|------------------------|------------|
| Windows XP             | from \$96  |
| Windows 2000 Pro       | from \$139 |
| Windows NT Workstation | from \$79  |
| Windows Me             | from \$97  |
| Windows 98.2           | from \$102 |
| Windows 95             | from \$49  |

### Microsoft Servers

|                     |             |
|---------------------|-------------|
| Windows 2000 Server | from \$695  |
| NT Server           | from \$395  |
| ISA Server          | from \$1399 |
| SQL/Exchange Server | from \$999  |
| Visual Basic        | from \$105  |
| Visual Studio       | from \$479  |

|                   |             |
|-------------------|-------------|
| BackOffice Server | from \$1499 |
| BackOffice SBS    | from \$849  |

### Symantec

|                   |           |
|-------------------|-----------|
| Norton AntiVirus  | from \$15 |
| Internet Security | from \$19 |
| ACT               | from \$39 |
| PC Anywhere       | from \$37 |
| WinFax Pro        | from \$47 |
| SystemWorks Pro   | from \$27 |

### McAfee

|                     |            |
|---------------------|------------|
| VirusScan           | from \$12  |
| Utilities Deluxe    | from \$15  |
| Office 2000         | from \$12  |
| Total Virus Defense | from \$289 |

**Super Big Deal**  
ACT! 2000  
\$39

And that's not all! Call now or visit our website for current pricing on our full-line of products.

**FREE SHIPPING!**  
[www.bigclearance.com](http://www.bigclearance.com) 888-828-3636



Active Ingredient FDA Approved,  
Clinically Proven Ingredients and Easy Application



"SkinZinc is the most effective product I've seen for the treatment of bothersome skin disorders such as psoriasis, eczema, dermatitis and dandruff." Dr. S. Ravitz

# Psoriasis? Eczema? Dandruff? Bothersome Skin Disorders?

This customer had a significant skin disorder. Due to the explicit graphic nature, we are unable to show you.



BEFORE



AFTER

## Restore your skin to its healthy clear state in just days!

Finally! Relief for people who suffer from Psoriasis, Eczema, Dermatitis or other irritating skin disorders! Introducing Skin Zinc, the revolutionary skin treatment system that contains clinically proven ingredients that provide immediate relief from irritating skin disorders.

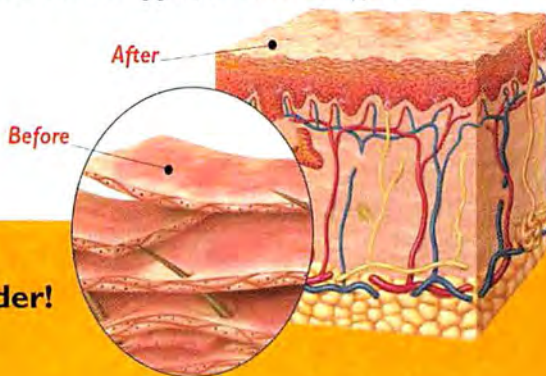
### Feel like you have brand new skin.

You owe it to yourself to look good and feel great. The SkinZinc system will provide relief and begin to restore your skin to its healthy clear state immediately. The active ingredients in SkinZinc are FDA approved and have been used safely to treat skin disorders for many years. Currently there is no known cure for psoriasis or eczema and SkinZinc does not claim to cure any diseases. Be sure to consult your physician if you have any questions.

### Easy application, No more mess!

Say good-bye to that dry, red itchy skin and say good-bye to those messy, smelly ointments. SkinZinc goes on like water. Its easy application spray bottle makes treatment of your skin a snap. Stop suffering and call now for your risk-free trial 1-800-279-8634, discount code 336.

SkinZinc is guaranteed to work for you. So stop apologizing for the way you look and start feeling great, call now while supplies last.



**Try SkinZinc Absolutely Risk-Free**  
**Ask how to get a FREE supply with your order!**  
**1-800-279-8634, discount code 336**

MARKETPLACE

Shop Here! Consumer



*Now, for a limited time, you can*



**maximize**

*the effective, reliable way to  
natural male enhancement*

**ENZYTE™**  
(saffragium asotas) capsules



try Enzyte and save up to 40%.

MARKETPLACE

Shop Here! Consumer

If you've ever wanted to increase erection size, you're not alone. Now, thanks to Enzyte, you can.

**Maximize the Pleasure** Most men on the Enzyte program report an increase in erection size and fullness from 12 to 31%, with an average reported increase of 24%. Additional benefits of Enzyte include increased sexual virility, energy, and stamina.

**How Enzyte Works** Enzyte is a natural vasodilator, that is, it stimulates blood flow to enhance engorgement during arousal, creating larger, fuller erections for a more satisfying sexual experience. Take two Enzyte capsules daily, and within just three to four weeks, you will begin to see results. For maximum effectiveness, continue to take Enzyte for three full months."

**Customer Satisfaction** An overwhelming majority of our customers are extremely satisfied with the results they receive from Enzyte. In fact, 82% of all customers who try Enzyte choose to purchase it again!

Now, for a limited time you can try Enzyte and save up to 40%. Simply fill out the mail-in form, call us toll free at 1-866-436-9983, or visit [enzyte.com](http://enzyte.com).

the pleasure

|  |           |   |
|--|-----------|---|
| Please Print   |           | PCWb0602  |
| Name   | Phone ( ) |   |
| Address  | Apt.      |   |
| City   | State     | Zip   |
| 1 Month Trial Supply .....   |           | \$ 69.95  |
| Full 3 Month Enzyte Program (Regularly \$239.95) .....   |           | \$ 149.95   |
| 7 Month Enzyte Supply* (Regularly \$349.95) .....  |           | \$ 199.95   |
| *Full 3 month program plus 4 month maintenance supply  |           |   |
| Certified Pack and Ship Process (CPSP) .....   |           | \$ 14.95  |
| <ul style="list-style-type: none"><li>Secure Lock System** Assures Confidentiality</li><li>Sterile Pack Insures No Package Tampering</li><li>Sales Tax (applicable to each state)</li><li>Expedited Rush Shipping-Product Guaranteed to Ship Within 48 Hours of Received Order</li></ul> |           | Canadian orders add \$10.00<br>All other international orders add \$15.00<br>\$ |
|  |           | Total Enclosed (U.S. Funds Only) \$   |
| Method of Payment: <input type="checkbox"/> MC <input type="checkbox"/> VISA <input type="checkbox"/> Am. Ex. <input type="checkbox"/> Disc. <input type="checkbox"/> Money Order  |           |   |
| Credit Card Number   |           | Exp. Date /   |
| Signature  |           |   |

Send Money Orders to: Lifekey Healthcare, Inc., Customer Care-Order Processing, Building Box 42635, Cincinnati, OH 45242

\*Study results based on customer response. \*\*Individual results may vary.  
Enzyte is not a contraceptive and will not aid in the prevention of sexually transmitted diseases.

Lifekey Healthcare, Inc., Cincinnati, OH © 2002, Lifekey Healthcare, Inc. All rights reserved.

PCWb0602

**Truth in Advertising:** Lifekey Healthcare, Inc. supports and encourages truth in advertising, and full disclosure of all advertising claims. We will continue to defend consumer rights and demand the same from all advertisers.



**Plans Starting at**  
**\$3** per month  
 No Setup Fee!  
 Instant Activation!  
 \$12.95 Domain Names  
 \$99 dedicated servers  
 Reseller plans  
 30 day money back guarantee  
 99.9% uptime guarantee  
**You will not find better prices!**  
**websytz.com**  
 Discount Hosting Solutions  
**1-888-732-7989**  
<http://www.websytz.com/pc>  
 Jade Internet Technologies, Ltd.

**NEW** SonicGuard.com  
**SonicWALL TELE3 TZ**  
 Extend corporate-level security  
 and privacy all the way to the  
 telecommuter's home  
  
**SONICWALL**  
 Now Available at [www.SonicGuard.com](http://www.SonicGuard.com)

**INKJET REFILLS**  
 Reduce printing costs up to 80%!  
 Fill your existing cartridges!  
  
 Do-it-yourself kits include illustrated  
 instructions, tools, and inks specific to each  
 model to provide the highest quality  
**REFILL KITS AND CARTRIDGES**  
**AVAILABLE FOR**  
 HEWLETT PACKARD, CANON, EPSON,  
 LEXMARK, APPLE, XEROX, OKIDATA,  
 BROTHER, COMPAQ, NEC, DIGITAL  
**www.inkjetkits.com**  
**800-644-3475**

**Find it  
fast.  
Buy  
it now.**  
  
**PC WORLD**  
**Marketplace**

**DATA RECOVERY: 800-440-1904**  
**7 good reasons to choose DriveSavers:**  
  

- Fastest, most successful data recovery service available.
- Recommended and certified by all drive companies to maintain your warranty.
- Advanced, proprietary recovery techniques.
- 24-hour, onsite, and weekend services.
- Retrieve recovered data instantly, over secured Internet lines with DATAEXPRESS™.
- Featured on CNN, BBC, Forbes; also in PCWorld, InfoWorld, MacWorld, Popular Mechanics, and many others.
- Federal and State Contracts.

  
*"Restoring Data and Peace of Mind Since 1985"*  
**"We Can Save It!"**  
 Visit DriveSavers at [www.drivesavers.com](http://www.drivesavers.com)  
©2002 DRIVESAVERS, INC. 400 BEL MARIN KEYS BLVD. NOVATO, CA 94949 INTL. 415.382.2000

**CHECKS!**  
  
**Check Us Out...**  

- FAST turn-around, low-cost shipping
- Software compatibility guaranteed! Quickbooks® / Quickbooks® / MS Money® Peachtree® / Custom programs and many more!
- Your logo imprinted FREE

**NEW catalog available with new product lines!**  

- 13 check colors available in many styles
- Business stationary, all kinds of envelopes
- Deposit slips, carbonless manual forms
- Software-ready laser invoices and statements

**Now offering toner/inkjet cartridges**  
**Call: 800.245.5775**  
**Fax: 800.893.0177**  
**Email: [info@checksforless.com](mailto:info@checksforless.com)**  
**www.checksforless.com**  
 The Excellence in Printing Company  
**EiPrinting**

# PC WORLD

## Classified

**MEMORY/UPGRADES**  
**WE CAN BEAT ANY QUOTED PRICE ON ANY MEMORY FROM ANYWHERE.**  
**WE CAN PAY HIGHER THAN ANYONE FOR YOUR OLD MEMORY.**  
 Lifetime Warranty on All Parts  
**1-800-4-MEMORY**  
**www.18004memory.com**

**PRODUCTIVITY**  
**POINT OF SALE!**  
 Before You Buy or Sell  
 Another Point Of Sale Package,  
 Take A Serious Look At  
  
 The POS Software You Can Depend On!  

- Point of Sale
- Accounts Payable
- Inventory Control
- General Ledger
- Accounts Receivable
- Mailing List

 Over the past 15 years, The General Store has replaced over 40 competitive packages. The General Store is a dependable, powerful, and flexible software solution that has been installed in retail stores around the world.  
 Call today for more information and a FREE DEMO, or visit our web site at [www.thegeneralstore.com](http://www.thegeneralstore.com).  
**800-678-4535**  
 Lakeland, FL 33801

**Shopping for computer products?**  
 Find it fast. Buy it now. The fastest, easiest way to get your hands on exactly what you're looking for is the PC World Marketplace classified ads.  
  
**PC WORLD**  
**Marketplace**



# PCWORLD

**PRESIDENT, CEO** Jeff Edman  
**EXECUTIVE ASSISTANT** Patricia Owen

## ADVERTISING SALES

**PUBLISHER**  
Bob Ostrow (508/370-0844)  
**ASSOCIATE PUBLISHER**  
Wayne Silverman  
(201/587-7318)  
**SALES ASSOCIATE** Lisa Iozzia  
(201/587-7358)

## EAST

**EASTERN ADVERTISING DIRECTOR**  
*New York City/Long Island/  
New England*  
Thalia M. Karakitsios  
(646/215-9395)  
*Mid-Atlantic/New York State/  
New Jersey/Southeast*  
Judy Sutter, Senior Account  
Manager (404/845-2884)  
*Midwest/Eastern Canada*  
Kathy McKay, Senior Account  
Manager (847/759-2723)  
**SALES ASSOCIATE**  
Tammy O'Sullivan  
(847/759-2722)

## WEST

**WESTERN ADVERTISING DIRECTOR**  
*Orange County/San Diego*  
Susan Green (949/442-4021)  
*San Francisco/Los Angeles/  
Western U.S./Western Canada*  
Robin Kofsky, Senior Account  
Manager (949/442-4024)  
**SALES ASSOCIATE** Sheila Morales  
(949/442-4014)  
*Silicon Valley/Oregon*  
Alicia Langer, Senior Account  
Manager (415/267-4578)  
**SALES ASSOCIATE**  
Vanessa Grenfell  
(415/978-3317)  
Duane Hampson, Senior Sales  
Development Manager  
(415/978-3133)

## Texas

Wayne Silverman, Associate  
Publisher (201/587-7318)

## CUSTOM PUBLISHING/EVENTS

**ASSOCIATE PUBLISHER, MARKET  
DEVELOPMENT** Michael Carroll  
(508/370-0842)  
**SALES ASSOCIATE**  
Angela Beaudoin  
(508/370-0841)

## AUTOMOTIVE ADVERTISING SALES

Joe McHugh & Associates  
(248/273-1480)

## PC WORLD MARKETPLACE/ PC WORLD ACTION CARDS

Neal Mandel (212/655-5157)

## PC WORLD REPRINTS

Erica Montgomery  
(717/399-1900 x142)

## PCWORLD.COM AD SALES

**ASSOCIATE PUBLISHER**  
Michael Carroll (508/370-0842)  
**Northwest**  
Melissa Gruber, Regional  
Manager (415/974-7373)  
**Southwest**  
Cindy Crow, Account Manager  
(949/442-4005)  
**East**  
Sean Murphy, Account Manager  
(212/399-3155)

## MARKETING & RESEARCH

**DIRECTOR OF MARKETING AND  
RESEARCH** Sandy Wong  
**SENIOR RESEARCH ANALYST**  
Lisa Huck

## CONSUMER MARKETING

**VICE PRESIDENT, CONSUMER  
MARKETING** Shawne Burke Pecar  
**ASSOCIATE CIRCULATION DIRECTOR**  
David Cobb  
**SENIOR MANAGER, RETENTION  
MARKETING** Lisa Radler  
**SENIOR SUBSCRIPTION MARKETING  
MANAGER** Rafael Sosa  
**SUBSCRIPTION MARKETING  
MANAGER** Linda Trinh  
**DIRECT MAIL MARKETING MANAGER**  
Simon Thaler  
**ASSISTANT MANAGER, RETENTION  
MARKETING** Patrick McConnell,  
Melissa Richards

## PRODUCTION

**DIRECTOR, PRINT AND ONLINE  
PRODUCTION** Nancy Jonathans  
**ASSISTANT PRODUCTION MANAGER**  
Lisa S. Mireles  
**ADVERTISING TRAFFIC MANAGER**  
Yvette B. Joplin  
**AD TRAFFIC COORDINATOR**  
Rob Octavio

## PCWORLD.COM STAFF

**GENERAL MANAGER**  
Ulla McGee  
**MARKETING PROJECTS MANAGER**  
R. Bruce McCurdy  
**CUSTOMER SERVICE SPECIALIST**  
Michael E. England  
**DIRECTOR, SOFTWARE ENGINEERING**  
Newton Bailey  
**LEAD SOFTWARE ENGINEER**  
Jim Hutson  
**SENIOR APPLICATIONS DEVELOPERS**  
Arturo Flores, Blossom Woo,  
Kayan Wong  
**TECHNOLOGY TRANSFER PROGRAM  
MANAGER** Wei Ming Xu

**EDITORIAL APPLICATIONS  
DEVELOPMENT MANAGER**  
Matthew Newton

## ADMINISTRATION

## HUMAN RESOURCES AND TECHNOLOGY

**SENIOR VICE PRESIDENT**  
Richard Willoughby  
**DIRECTOR** Katherine Coldwell  
**HR REPRESENTATIVE** Julie McKie  
**DIRECTOR TECHNOLOGY &  
INFRASTRUCTURE** Mary Zones  
**DIRECTOR, INFORMATION SYSTEMS**  
Norman Noble  
**SENIOR NETWORK ANALYST**  
Walter Clegg  
**CLIENT SERVICES MANAGER**  
Mariaelena Robles Quale  
**NETWORK MANAGER**  
Rodney Barnes  
**IT DEVELOPER/ANALYST**  
Stan Erhart  
**INFORMATION SYSTEMS SPECIALISTS**  
Eileen Chaney, Gabe Ramos  
**SENIOR SYSTEMS ADMINISTRATOR**  
Geoff Sturm

## FINANCE

**SENIOR VP, COO/CFO** Vicki Peilen  
**DIRECTOR, FINANCE**  
Diane Ryzek-Rae  
**DIRECTOR, ACCOUNTING**  
Michelle Reyes  
**BUSINESS MANAGER** Thomas Pena  
**ACCOUNTING ADMINISTRATION**  
Judith Bratton, Jason Villeneuve  
**DIRECTOR, ADVERTISING ACCOUNT  
SERVICES** Kevin Greene  
**MANAGER, FINANCIAL ADVERTISING  
SERVICES** Diane Hacker

PC World is a business unit of International Data Group (IDG). Headquartered in Boston, IDG is the world's leading technology media, research and event company, with annual revenues of \$3.01 billion. IDG publishes more than 300 newspapers and magazines in 85 countries, led by the *Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, and *Channel World* global product lines. IDG offers online users the largest network of technology-specific sites around the world, with 330 Web sites in 80 countries. IDG is also a leading producer of 168 computer-related expositions in 35 countries, and research arm International Data Corporation (IDC) provides computer industry research and analysis through offices in 43 countries worldwide. Company information is available at [www.idg.com](http://www.idg.com).

**THE COMPANY:** IDG is the world's leading technology media, research and event company. Founded in 1964, IDG had 2001 revenues of \$3.01 billion and has more than 12,000 employees worldwide. IDG offers the widest range of media options which reach more than 120 million technology buyers in 85 countries representing 95 percent of worldwide IT spending. IDG's diverse product and services portfolio spans six key areas including: print publishing, online publishing, events and conferences, market research, education and training, and global marketing solutions.

**PUBLICATIONS:** More than 100 million people read one or more of IDG's 300 magazines and newspapers in 85 countries each month. IDG's five global publication product lines—*Computerworld/InfoWorld*, *CIO*, *Macworld*, *Network World*, and *PC World*—account for more than 175 of these titles, delivering a consistent audience of buyers throughout the world.

**ONLINE:** IDG's online network includes 330 Web sites in 80 countries, reaching more technology buyers with the broadest network of technology content online. Supported by more than 2000 journalists, IDG's Web sites provide focused, useful content that meets the needs

of distinct communities around the world. Diverse advertising opportunities are available to advertisers on IDG's global ad network that offer enhanced web marketing programs including custom webcasts, e-mail newsletters and micronetworks. IDG's online network is also supported by the world's only 24-hour global technology news organization, the IDG News Service, reporting the latest technology news and analysis in multiple languages around the world.

**RESEARCH:** International Data Corporation (IDC) is the world's leading provider of global marketing intelligence. With research centers in 43 countries and more than 575 research analysts worldwide, IDC is uniquely positioned to provide a global perspective on IT market and technology trends, serving more than 3,900 clients worldwide. IDC is the leading provider of worldwide market research in consumer computing, including personal computing, interactive entertainment, and online services.

**EVENTS:** IDG is the leading producer of more than 168 globally branded conferences and events in 35 countries. Industry leading international events include LinuxWorld Conference & Expo, Macworld Conference & Expo, and BioITWorld Conference & Expo. Leading conferences include Agenda and Demo, in addition to hosting and creating customized online events and webcasts on [ITworld.com](http://ITworld.com). IDG produces 17 conferences and events in China alone, and was first to offer expos in emerging markets throughout Asia, Eastern Europe and Latin America.

**GLOBAL SOLUTIONS:** IDG Global Solutions helps the industry's leading IT companies build international brand recognition by developing globally integrated marketing programs via IDG's print, online and event products worldwide. IDG's diverse portfolio of global partnership services includes customized research, customized publishing, targeted conferences and seminars, and direct response tools.

Further information about the company can be found at [www.idg.com](http://www.idg.com).



# INDEX

WWW.PCWORLD.COM

| Advertiser                      | URL                         | Page number | Advertiser  | URL                             | Page number |
|---------------------------------|-----------------------------|-------------|---|---------------------------------|-------------|
| ABS Computer Technologies, Inc. | www.abspc.com               | 161         | Hungry Minds  | www.dummies.com                 | 86          |
| Alienware                       | alienware.com               | 67          | IBM Direct  | ibm.com/smallbusiness7055       | 124-127     |
| Antec Inc.                      | www.antec-inc.com           | 167         | JMTek, LLC  | www.USBDRIVE.com                | 171         |
| Anthro Corporation              | www.anthro.com              | 43          | JungSoftUSA, Inc.                                   | www.jsoftusa.com                | 95          |
| APC                             | http://promo.apcc.com       | 73          | KDS USA   | www.kdsusa.com                  | 139         |
| AT&T Wireless                   | www.attwireless.com         | 15          | Kerio Technologies Inc.                             | www.kerio.com                   | 80          |
| ATI                             | www.ati.com                 | 50-51       | Kingston Technology                                 | www.kingston.com                | 151         |
| Benq Incorporated               | www.benq.com                | 8           | Lexmark International                               | www.lexmark.com                 | 63          |
| Boxlight                        | www.boxlight.com            | 48          | McAfee  | www.mcafee.com                  | 94A         |
| Brother International           | www.brother.com             | 37          | McAfee.com  | www.mcafee.com                  | 71          |
| BTS Micro Biz Supplies          | www.hp.com/go/7marketing    | 22-23       | Memorex   | www.memorex.com                 | 81          |
| CDW Computer Centers, Inc.      | www.cdw.com                 | C2-1        | microexchange.com                                   | microexchange.com               | 14, 189     |
| Circuit City Stores, Inc.       | www.circuitcity.com         | 33          | MINOLTA-QMS   | www.minolta-qms.com             | 45          |
| Compaq Consumer                 | www.compaq.com              | 4-5         | Mystic Color Lab                                    | www.mysticcolorlabs.com         | 42          |
| Compaq SMB                      | www.compaq.com              | 38-39       | NEC-Mitsubishi Electronics Display of America, Inc. | www.necmitsubishi.com           | 96-97       |
| ComputerGeeks.com               | www.computergeeks.com       | 82          | Netscape  | www.netscape.com                | 138         |
| Corel                           | www.corel.com               | 6-7         | Olympus America                                     | www.olympus.com                 | 85          |
| Cox Business Services           | www.coxbusinessservices.com | 48          | Oracle  | smallbusiness.oracle.com        | 60          |
| Creative Labs                   | www.creativelabs.com        | 35          | Panasonic Digital Imaging Solutions Company         | www.panasonic.com/printers      | 66          |
| Creo, Inc.                      | www.creo.com/sixdegrees     | 137         | PC America  | www.pcamerica.com               | 153         |
| Crucial Technology              | www.crucial.com             | 12-13, 155  | PC MALL   | www.pcmall.com                  | 165         |
| CTX                             | www.ctxintl.com             | 29          | PC Power & Cooling Systems                          | www.pcpowercooling.com          | 147         |
| Dell Computer Corp.             | www.dell.com                | 30-31       | PC World & Network World Event                      | www.networkworld.com/events/SMB | 87          |
| Dell Computer Corp.             | www.dell4me.com             | 46-47       | Ricoh Corporation                                   | www.ricoh-usa.com               | 18          |
| Dell Computer Corp.             | www.dell.com                | C5-C8       | Roxio   | www.roxio.com                   | 56          |
| eBay                            | www.ebay.com                | 108-109     | Samsung Electronics America Inc.                    | www.samsungusa.com/monitor      | 54-55       |
| Education Direct                | www.educationdirect.com     | 44          | Seiko Instruments                                   | www.seikosmart.com              | 117         |
| Envision Peripherals, Inc.      | www.epius.com               | 123         | Sharp Electronics                                   | www.sharpsusa.com               | 20-21       |
| Executive Software              | www.diskeeper.com           | 149         | Sony Electronics                                    | www.sony.com/projectors         | 115         |
| FileMaker                       | www.filemaker.com           | 2-3         | Sprint Spectrum                                     | www.sprintpcs.com               | 99A-99B     |
| Freeway Technology Inc.         | Freewaytech.com             | 169         | Sys International, Inc.                             | http://www.syslcd.com           | 157         |
| Fujitsu PC Corporation          | www.fujitsupc.com           | 16-17       | Systemax  | www.systemax.com                | 58          |
| Gateway                         | gateway.com                 | 75-78       | Toshiba America                                     | www.toshiba.com                 | 101, 103    |
| Gateway                         | gateway.com                 | 110-111     | Viewsonic   | www.ViewSonic.com               | 11          |
| Hewlett Packard                 | www.hp.com                  | 40          | Xerox Network Printers                              | www.xerox.com/                  | 53          |
| Hewlett Packard                 | www.hpshopping.com          | 65, 83      |   |                                 |             |



The last time you saved this much  
money on a computer . . .

*let's just say you never have*

You will find remarkable savings  
on all your computing needs.

At MicroExchange.com we've  
taken the high cost of technology  
and made it the right price.



Refurbished products from name brand manufacturer's like  
Compaq, Dell, HP and more. You never have to worry about  
quality, since our products are put through stringent testing  
and certification standards to ensure a "like new" appearance  
and performance . . . **GUARANTEED!**

Shop online any time of day or night, and our friendly  
customer support representatives at 1-800-284-0406 are  
ready to help you with questions or ordering.

*until now!*



**Visit us today!**

**[www.MicroExchange.com/pcw](http://www.MicroExchange.com/pcw)**

**MICRO** Since 1985  
**EXCHANGE**

**acer**  
The dawn of a new day at Acer

**COMPAQ**

**hp** HEWLETT  
PACKARD

**DELL**

**IBM**

**Quantum**  
Leadership in Data Protection Solutions

All pricing subject to change. For all prices and products, MicroExchange reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or typographical errors in advertisements. All products sold by MicroExchange are third party products and are subject to the warranties if any of the applicable manufacturers. Please refer to [www.microexchange.com](http://www.microexchange.com) for additional terms and conditions.  
©2002 MicroExchange™, 13760 Diplomat Drive, Dallas Texas 75234 All rights reserved. All registered trademarks and trademarks are the property of their respective owners.





## Sick of Blue Screens? Get a Mac!

MAC HEADS ARE DISSING our machines again! Nothing new about that—except that now they're doing it on television in commercials paid for by Apple. They're calling Windows machines "horrid" and "clunky" and "unwieldy." They're even saying that they're "disgusted!"

You're probably thinking, "So what? They're like a religious cult. Apple's last big campaign featured famous dead people who'd never touched a computer, let alone a Mac."

But now they're bringing up the Blue Screen of Death! In public!

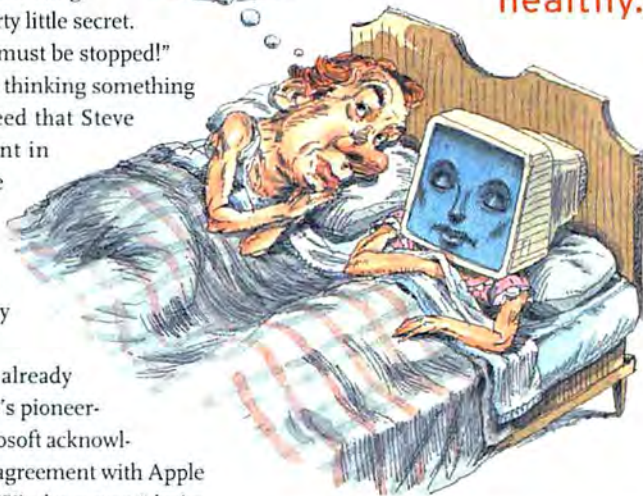
You're probably thinking, "Hey, that's our dirty little secret. These Apple guys must be stopped!"

Or maybe you're thinking something else—the Applesed that Steve Jobs wants to plant in your brain: "Is the Mac really easier and more reliable? And should I consider it for my next computer?"

After all, you're already using lots of Apple's pioneering concepts: Microsoft acknowledged in a written agreement with Apple back in 1985 that Windows was "derivative...of the visual displays generated by Apple's Lisa and Macintosh." And from Windows 1.0 to XP, the operating system has grown more Mac-like, not less.

Then there's innovation. The 3.5-inch floppy disk drive? First seen on the original Mac. Wireless networking via 802.11b (Wi-Fi)? As AirPort, it rolled out first in Macs. And Macs had built-in ethernet

**Don't fret: Fantasies about ditching Windows are perfectly normal—maybe even healthy.**



when it was a mere add-on for PCs. Although these technologies weren't invented at Apple, it committed to them long before they trickled down to Windows.

Some things *were* invented at Apple, including one advance now in every Mac: FireWire. Too bad the high-speed port (aka IEEE 1394) has been slow to catch on in PCs, in part because of the even slower-

to-arrive copycat USB 2.0 standard. And the Mac is often far more elegant: Thanks to Apple software, editing digital video or burning a DVD on a Mac is almost a pleasure. On PCs, it's almost always a pain.

Windows users just get used to annoyances that Mac users don't have to put up with. Exhibit A: the Registry. That nightmarish Microsoft innovation means it's far easier to move applications between Macintoshes than it is to go through the grueling reinstallation process that keeps PC users clutching their current machines rather than upgrading.

### GO TO APPLE.COM/SWITCH?

PRIOR VERSIONS of the Mac OS managed memory poorly and crashed more often than Windows. My limited experience with OS X suggests that these problems have largely been corrected. Still, the Mac is far from perfect. I continue to prefer the PC's windowing interface, its lack of proprietary connectors, and its freedom of hardware choice (particularly in laptops, where I like 'em small and Steve Jobs apparently doesn't).

But every day that brings a Blue Screen of Death, a networking disaster, or a collection of security warnings from Microsoft is a day that more Windows users will consider making the Big Switch. And while there's no hard evidence that Apple is developing an Intel version, consider this: If OS X were available for the machine you have now, wouldn't you be frustrated enough with Windows to give it a try? ■

*Contributing Editor Stephen Manes, a cohort of the public television series Digital Duo, has written about PCs for nearly two decades.*



Volume 20, number 9. PC World® (ISSN 0737-8939) is published monthly at \$24.95 for one year (12 issues), \$49.90 for two years (24 issues), \$74.85 for three years (36 issues) by PC World Communications, Inc., 501 Second Street #600, San Francisco, CA 94107. Foreign orders must be prepaid in U.S. funds with additional postage. Add \$12 per year for Canada; add \$30 per year for all other countries. Canadian GST Registration #R124669680. Periodicals Postage Paid at San Francisco, California, and at additional mailing offices. Canada Post International Publications Mail Product, (Canadian Distribution) Sales Agreement No. 2493993. POSTMASTER: Send address changes to PC World, Subscription Dept., P.O. Box 37571, Boone, IA 50037-0571. Editorial and business offices: 501 Second St. #600, San Francisco, CA 94107, 415/243-0500. Copyright © 2002, PC World Communications, Inc. All rights reserved. The trademark PC World is owned by International Data Group and used under license by PC World Communications, Inc. PC World Top 10®, Top 10™, PC World Top 100®, Top 100™, and Consumer Watch® are trademarks of International Data Group, Inc., and used under license by PC World Communications, Inc. Printed in the United States.



Light enough to travel the world. Powerful enough to rule it.



**Dell** | Home/Small Business

### Inspiron™ 4150 Notebook

**NEW Thin and Light Notebook with  
Uncompromising Performance**

- **NEW Mobile Intel® Pentium® 4 Processor-M at 1.60GHz**
- 14.1" XGA TFT Display
- 256MB DDR PC2100 SDRAM
- 30GB Ultra ATA Hard Drive
- 16MB DDR ATI® MOBILITY™ RADEON™ 7500 AGP 4X Graphics
- Modular 24x Max CD-ROM
- Windows® XP Home Edition, Works Suite 2002
- 1-Yr Mail-In Service

**\$1499**

Ask about our financing  
plans for qualified customers.  
**E-VALUE Code: 12730-S80815**

**Recommended upgrade:**

- Dell™ TrueMobile™ 1150 Wireless Card\* add \$159



**Introducing the NEW Inspiron 4150.** Starting at just 5.6 lbs. and

1.4" thin, it's strapped with Intel's™ fastest mobile processor ever, the

NEW Mobile Intel® Pentium® 4 Processor-M at up to 2GHz. That's

like putting the power of a desktop in your carry-on bag. Enjoy

cable-free, hassle-free performance and your choice of internal optical drives. It can even

be customized with your choice of colored palm rests and inserts. Maximum convenience,

maximum speed. All in a stylish little notebook that's backed by Dell's award-winning

service and support. Now great portability and great power are easy as Dell.

### ***Dell Rated #1 in Intel Notebook Satisfaction***

*Technology Business Research*

*Corporate Behavior and Customer Satisfaction Study*

*First Quarter 2002*

*– May 2002*



Amazingly powerful, amazingly portable. Easy as **DELL**

Visit [www.dell.com/pcworld](http://www.dell.com/pcworld) or call toll free **1-877-320-3355**.



**USE THE POWER OF  
THE E-VALUE CODE.**

Match our latest technology  
with our latest prices. Enter the  
E-VALUE code online or give it  
to your sales rep over the  
phone. [www.dell.com/evalua](http://www.dell.com/evalua)

Dell PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)



Work or play,  
We've got you covered.



## Dell | Small Business Desktops

### Dimension™ 4500S Desktop

#### NEW Mainstream Desktop Solution

- Intel® Pentium® 4 Processor at 1.80GHz
- 128MB shared DDR SDRAM
- 20GB Value Hard Drive
- 15" (13.8" v.s.) E551 Monitor
- Integrated Intel® Extreme Graphics
- 48x Max CD-ROM
- NEW Harman Kardon HK-206 Speakers
- Integrated Audio
- Windows® XP Home Edition, Works Suite 2002
- 1-Yr Limited Warranty, 1-Yr On-Site Service\*\*

**\$699** as low as **\$20**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S50806

#### Recommended upgrades:

- 256MB shared DDR SDRAM, add \$70
- Windows® XP Professional, add \$99

### Dimension™ 4500 Desktop

#### NEW Advanced Desktop Solution

- Intel® Pentium® 4 Processor at 1.80GHz
- 128MB Single-Channel DDR SDRAM
- 40GB (7200 RPM) Ultra ATA Hard Drive
- NEW 17" (16.0" v.s.) E772 Monitor
- NEW 64MB DDR NVIDIA® GeForce4 MX™ Graphics
- 48x Max CD-ROM and SB Live! Digital Sound Card
- NEW Harman Kardon HK-206 Speakers
- 10/100 PCI Fast Ethernet NIC
- Windows® XP Home Edition, Works Suite 2002
- 1-Yr Limited Warranty, 1-Yr On-Site Service\*\*

**\$849** as low as **\$24**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S50808

#### Recommended upgrades:

- 256MB Single-Channel DDR SDRAM, add \$70
- 3-Yr Limited Warranty, 3-Yr On-Site Service, add \$119

### OptiPlex™ GX260 Desktop

#### NEW Small Business Series

- Intel® Pentium® 4 Processor at 2GHz
- 256MB shared DDR SDRAM
- 20GB (7200 RPM) Hard Drive
- 17" (16.0" v.s.) E771P Monitor
- NEW Integrated Intel® PRO Gigabit™ Network Connection
- 48x Max CD-ROM, Integrated Intel® Extreme Graphics
- Office XP Small Business and Harman Kardon Speakers Bundle
- Windows® XP Professional
- 3-Yr Next Business Day On-Site Service\*\*

**\$1099** as low as **\$31**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S30810

#### Recommended upgrades:

- 24x CD Burner, add \$60
- 3-Yr Same-Day 4-Hour (5x10) On-Site Service,\*\* add \$99



## Dell | Small Business Notebooks

### Inspiron™ 2600 Notebook

#### Essential Notebook at an Economical Price

- Intel® Celeron® Processor at 1.20GHz
- 14.1" XGA TFT Display
- 128MB shared PC133 SDRAM
- 20GB Ultra ATA Hard Drive
- Intel® Integrated 3D AGP Video up to 32MB (shared\*) SDRAM
- Fixed Internal 24x Max Variable CD-ROM
- Internal 56K Capable Fax Modem
- Windows® XP Home Edition, Works Suite 2002
- 1-Yr Mail-In Service

**\$1049** as low as **\$30**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S80810

#### Recommended upgrades:

- Nylon Backpack Carrying Case, add \$79
- Spare Lithium Ion Battery, add \$79

### Dell™ SmartStep 200N Notebook

#### NEW Pre-Built Notebook at a Great Price

- Intel® Pentium® 4 Processor at 2GHz
- 15" XGA TFT Display
- 256MB PC2100 SDRAM
- 30GB Ultra ATA Hard Drive
- 32MB DDR ATI™ MOBILITY™ RADEON™ AGP 4X Graphics
- Fixed Internal 8x Max Variable DVD-ROM
- Internal Modem and NIC Included
- 12 Cell Li-Ion Battery
- Windows® XP Home Edition, Word Perfect Productivity Pack
- 1-Yr Mail-In Service

**\$1499** as low as **\$42**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S80815

#### Recommended upgrades:

- Nylon Backpack, add \$79
- 1-Year CompleteCare™ Accidental Coverage, add \$99

### Latitude™ C640 Notebook

#### Network-Optimized Mobility Notebook

- Mobile Intel® Pentium® 4 Processor-M at 1.60GHz
- 14.1" XGA Active Matrix Display
- 128MB DDR PC2100 SDRAM (Up to 1GB)
- 20GB Ultra ATA/100 Hard Drive
- 32MB DDR AGP 4X ATI™ Radeon™ Video
- Modular 24x Max CD-ROM/Floppy Drive
- Integrated v.92/56K Capable Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- Windows® XP Professional
- 3-Yr Mail-In Service

**\$1699** as low as **\$48**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S70816

#### Recommended upgrades:

- 8x Max DVD-ROM, add \$169
- 3-Yr CompleteCare™ Service,\*\* add \$169



## Dell | Servers and Workstations

### PowerEdge™ 500SC Server

#### Basic Server at Our Lowest Price

- Intel® Celeron® Processor at 1.20GHz
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 20GB (7200 RPM) IDE Hard Drive
- Upgradeable to 18GB SCSI Performance Hard Drive
- Optional PV100T Tape Back-Up
- Embedded Intel® 10/100 NIC
- 1-Yr 24x7 Technical Phone Support
- 1-Yr Next Business Day On-Site Service\*\*

**\$499** as low as **\$14**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S20804

#### Recommended upgrades:

- Custom Installation Survey, add \$199
- RAID IDE Hard Drive Controller, add \$299
- Windows® 2000 Server Operating System, add \$799

### PowerEdge™ 1400SC Server

#### Value Server with Performance and Scalability

- Intel® Pentium® III Processor at 1.26GHz
- Dual Processor Capable
- 128MB 133MHz ECC SDRAM (up to 2GB)
- 18GB (10K RPM) Ultra160 SCSI Hard Drive
- Upgradeable to 292GB Internal Storage Capacity
- Embedded Intel® 10/100 NIC
- 1-Yr 24x7 Technical Phone Support
- 1-Yr Next Business Day On-Site Service\*\*

**\$999** as low as **\$28**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S20809

#### Recommended upgrades:

- PV100T Tape Back-Up Unit with Software, add \$299
- PowerConnect™ 2016 16-Port Switch, add \$129
- 2nd 18GB SCSI Hard Drive, add \$249

### Dell™ Precision™ 340 Workstation

#### Affordable, Scalable Performance Workstation

- Intel® Pentium® 4 Processor at 1.90GHz
- 256MB PC800 ECC RDRAM
- 40GB (7200 RPM) EIDE Hard Drive
- 32MB ATI™ RAGE™ 128 Ultra AGP 4X Graphics Card
- 48x Max CD-ROM Drive, Integrated Sound
- Small Desktop Chassis
- Windows® XP Professional
- Lifetime 24x7 Dell Precision™ Dedicated Tech Support
- 3-Yr Next Business Day On-Site Service\*\*
- Monitor Not Included

**\$899** as low as **\$25**/mo., (46 prnts\*) 60 Days  
Same-As-Cash for qualified customers  
E-VALUE Code: 12731-S40808

#### Recommended upgrades:

- 3-Yr Same-Day 4-Hour (5x10) On-Site Service,\*\* add \$199
- NVIDIA® Quadro2 EX 32MB AGP 4X Graphics, add \$99

Visit [www.dell.com/pcworld](http://www.dell.com/pcworld) or call toll free 1-877-320-3355.







The fully loaded desktop that you don't have to be fully loaded to afford.



**Dell** | Home/Small Business

### Dimension™ 4500 Desktop

#### NEW Advanced Desktop Solution

- Intel® Pentium® 4 Processor at 2GHz
- 256MB Single-Channel DDR SDRAM
- 40GB (7200 RPM) Ultra ATA Hard Drive
- NEW 17" (16.0" v.i.s.) E772 Monitor
- 32MB ATI® RADEON™ Ultra Graphics Card
- 24x/10x/40x CD Burner, SB Live! Digital Sound Card
- NEW Harman Kardon HK-206 Speakers
- 56K PCI Data Fax Modem, 10/100 PCI Fast Ethernet NIC
- Windows® XP Home Edition, Works Suite 2002
- 1-Yr Limited Warranty; 1-Yr On-Site Service<sup>1</sup>

**\$999**

Ask about our financing plans  
for qualified customers  
**E-VALUE Code: 12729-S50809**

#### Recommended upgrades:

- 15" Midnight Grey Flat Panel Display, add \$240
- Windows® XP Professional, add \$99



#### High-powered technology that won't break the bank. It's

time you took advantage of the power of the NEW Dell Dimension 4500. With options like an Intel® Pentium® 4 Processor, CD Burner,

enhanced memory, and a 17" monitor, it's a fully loaded desktop at a

price that's hard to believe. The Dimension 4500 boosts your productivity, performance and stability at work, and enhances your multimedia experience at home – awesome digital imaging and video, music and gaming. A better overall computing experience, brought to you by the incredibly affordable Dell Dimension 4500. Built just for you and backed by Dell's award-winning service and support. The performance you're looking for, priced to put a smile on your face and leave a little change in your piggy bank.

### 14th Annual PC Magazine Readers' Choice Award

Service and Reliability

Dell Gets an "A" in Every Category

– August 2001



The latest technology, now within reach. Easy as



Visit [www.dell.com/pcworld](http://www.dell.com/pcworld) or call toll free **1-877-320-3355**.



#### USE THE POWER OF THE E-VALUE CODE.

Match our latest technology  
with our latest prices. Enter the  
E-VALUE code online or give it  
to your sales rep over the  
phone. [www.dell.com/evalue](http://www.dell.com/evalue)

Dell PCs use genuine Microsoft® Windows®  
[www.microsoft.com/piracy/howtotell](http://www.microsoft.com/piracy/howtotell)