CNET EDITORS' NOTEBOOK BUYING GUIDE

The CNET editors' guide to notebooks clues you in to what you need to know, from finding the type of notebook that fits your lifestyle to all of the latest trends.

1. What kind of notebook is right for me?
2. How do I find the right fit?
3. What are my processor, screen, and memory options?

4. What types of drives do I need?
5. What do I need to stay connected?
6. What accessories do I need?

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❶ WHAT KIND OF NOTEBOOK IS RIGHT FOR ME?

To choose the right notebook--one with the right set of features at the right price--you'll need to figure out how you'll want to use your machine. Match your needs to one of these user profiles to get started.

Home user

Home users are increasingly turning to notebooks as second or third PCs for the home. Notebooks can offer similar performance and features to those of a desktop PC, but they can be easily moved from room to room. Two types of notebooks are suitable for home users: mainstream notebooks and desktop replacements.

KEY FEATURES:

Mobile Celeron, Pentium 4-M, or desktop (Pentium 4) processors

At least 128MB of memory

Large hard drive for storing digital photos and video

14-inch display or larger

Fixed or swappable CD-RW and/or DVD drives

Wired and wireless networking

External keyboard and mouse

Microsoft Windows XP Home

Microsoft Works Suite

Student

Students and others on a tight budget should look for a laptop that delivers the most bang for the buck. In particular, students need a notebook that is small and light enough to lug back and forth across campus but rugged enough to withstand bouncing around in a backpack.

KEY FEATURES:

Mobile Celeron, Pentium 4-M, desktop Pentium 4, or PowerPC G4 processors

At least 256MB of memory

Big hard drive to hold all those MP3s

| CD-RW drive for burning audio CDs |
| Wired and wireless networking for network-equipped classrooms and dorm rooms |
| Microsoft Windows XP Home or Apple Mac OS X |
| Microsoft Office XP Standard Edition or Office X for Mac OS |

Frequent flier ✈

If you spend a lot of time on the road, size and weight are the two most critical factors in choosing a new notebook--even if it means sacrificing a little on performance and features. The smallest and lightest notebooks, *ultraportables,* weigh less than four pounds and are no thicker than a spiral-bound notebook.

| KEY FEATURES: |
| Pentium III-M processors |
| At least 128MB of memory |
| A 12-inch display |
| Wired and wireless networking |
| Extra battery for those cross-country flights |
| Media slice or external USB CD-RW/DVD drive |
| Port replicator for the desk |
| Microsoft Windows XP Professional |
| Microsoft Office XP Professional Edition |

Business power user 💼

If you rely on the same notebook at work, at home, and on the road, you need a well-balanced system. And it has to deliver the performance to keep up with a wide range of applications. A *thin-and-light* is just the ticket.

| KEY FEATURES: |
| Intel Pentium M processor |
| 256MB of memory |
| Midsized hard drive |
| A 14-inch display |
| Swappable, combination CD-RW/DVD drive |
| Wired and wireless networking |
| Extra battery |
| Microsoft Windows XP Professional |
| Microsoft Office XP Professional |

Multimedia author or gamer 🎮

If you demand more from a notebook, you'll need a true *desktop replacement.* Whether you're designing a Web site, editing home movies, or mowing down aliens, your notebook will demand a powerful processor, plenty of memory, great graphics, and a healthy hard drive.

| KEY FEATURES: |

Fastest Pentium M, Pentium 4-M or desktop P4, or PowerPC G4 processors

512MB to 1GB of memory

A 15-inch display or larger

Advanced graphics accelerator with 32MB or 64MB of its own memory

The largest and fastest hard drive available

Swappable CD-RW and DVD recordable drives

Multimedia connectors, such as S-Video, FireWire, S/PDIF
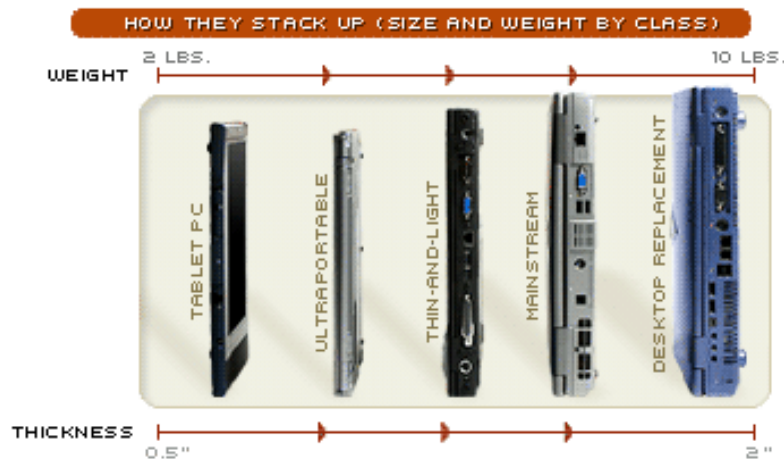
External keyboard and mouse

Microsoft Windows XP Home or Professional, or Apple Mac OS X

Microsoft Office XP Premium, Adobe Photoshop

② HOW DO I FIND THE RIGHT FIT?

Notebooks come in all shapes and sizes, and like a fine shirt, the best ones are custom-tailored to your needs. The thinnest and lightest notebook may feel great on your shoulder, but it may not have the features or the performance to get the job done. Before you start comparing models, you must first decide what type of notebook you need. Here's how.

HOW THEY STACK UP (SIZE AND WEIGHT BY CLASS)

Ultraportables

Ultraportables are the frequent fliers of the notebook world. No, they can't match the performance of their bigger brethren. Plus, their displays top out at 12 inches or so, and they don't have internal CD or DVD drives. But a few ounces here and there can make a huge difference if you spend a lot of time on the road. These systems are so light and small that you'll barely know they're in your laptop bag. The tiniest--sometimes referred to as *subnotebooks*--have 10-inch displays and cramped keyboards. Because of the trade-offs, ultraportables have never been hugely popular in the United States, but as performance improves and more users ditch drives and exchange files via e-mail instead, these little laptops could be poised for liftoff.

Toshiba Portégé R100

- 4 pounds or less
- Less than 0.5 inches thick
- Small displays (12 inches or smaller)
- Slower mobile processors, less memory, and smaller hard drives
- No internal CD, CD-RW, or DVD drives
- Fewer ports
- Microsoft Windows XP Home or Professional

Thin-and-lights

A thin-and-light offers the best balance between portability, performance, and features--especially for business travelers. Power-tuned mobile chips, such as the Intel Pentium M, now give these svelte systems performance that rivals that of notebooks twice their weight. Add in their 14-inch displays, combo CD-RW/DVD drives, and wireless networking, and thin-and-lights let you leave the office behind without missing a beat. It's no wonder this has become the hottest category of notebooks. You'll pay a slight premium for these do-it-all laptops, but for most business users, this is the best choice.

IBM ThinkPad T series

- 4 to 6 pounds
- Less than 1 inch thick
- Midsized displays (12 to 14 inches)
- Powerful mobile processors, lots of memory, spacious hard drives
- One swappable internal CD, CD-RW, or DVD drive
- All standard ports
- Microsoft Windows XP Home or Professional

Mainstream or value notebooks

The mobile equivalent of a budget desktop PC, these notebooks deliver the performance and features that most users need without all the stuff they don't. Though these devices are a little lighter and smaller than desktop replacements, mainstream notebooks still aren't suitable for business travelers. At one time, nearly all notebooks in this class had two fixed drives--a floppy and a CD or DVD drive--though that's starting to change with the new budget models that offer a single, swappable drive instead. Notebooks in this class won't set any speed records, but they offer more than enough oomph for typical tasks, such as e-mail, Web browsing, and word processing.

Dell Inspiron 1100

- 6 to 8 pounds
- More than 1 inch thick
- 14-inch display or larger
- Value mobile processors, base amounts of memory, and small hard drives
- Two fixed or swappable internal drives for floppy, CD, CD-RW, or DVD drives
- All standard ports
- Microsoft Windows XP Home

Desktop replacements

Like a luxury SUV, a desktop replacement is prepared for just about anything, but it rarely ever ventures off the beaten path. Though too big and heavy for anything but infrequent travel, these behemoths deliver the best performance and the most features available in a notebook. Typical options include massive screens; DVD burners; and large, comfortable keyboards. These notebooks also have two swappable drive bays so that you can mix and match optical drives, extra batteries, and other options. Generally, desktop replacements are popular among home and business users who do not travel regularly and want the muscle for tasks such as multimedia authoring, along with digital audio and video. Because they can be moved easily from room to room, they are a great choice as a second or third PC in homes with wireless networks. And as they close the gap with desktops in terms of 3D performance, devices in this category are getting the attention of gamers.

Compaq Presario 3000

- 7 pounds or more
- Well over 1 inch thick
- 15-inch to 17-inch displays
- Fastest mobile or desktop processors, most memory, and largest hard drives available
- Two swappable internal drive bays for floppy, CD, CD-RW, DVD, or DVD recordable
- All standard ports, plus multimedia connectors, such as S-Video, FireWire, S/PDIF
- Microsoft Windows XP Home or Professional

Tablet PCs

Comparable in size and weight to ultraportable notebooks, tablets occupy a different niche. They are available in two basic designs: tablets that look like traditional notebooks, but with displays that swivel and fold flat facing outwards, and slates that have no attached keyboard. All tablets use a special version of Windows XP that works in tandem with the digitized displays for navigating and entering data using a stylus. Until recently, tablets were primarily used in specialized fields, such as health care, insurance, and real estate, but sexier models with new software are slowly reaching a broader audience.

- Less than 4 pounds (some slates weigh as little as 2 pounds)
- Dimensions vary depending on design, but all are compact.
- 12-inch digitized displays
- Same mobile processors, memory, and hard drives found in ultraportables
- No internal CD, CD-RW, or DVD drives
- Fewer ports, especially on the slates
- Microsoft Windows XP Tablet PC Edition

NEC Versa LitePad tablet PC

❸ WHAT ARE MY PROCESSOR, SCREEN, AND MEMORY OPTIONS?

Notebook specs vary widely depending on what you need to get out of your portable computer. Manufacturers make trade-offs--slower processors allow for smaller batteries, for instance--so it's important to know what you'll have to sacrifice to get the notebook of your dreams. Many vendors offer configuration choices when you buy your notebook. We've broken out the most important specs so that you understand your choices.

Processor
Sometimes referred to as the *CPU,* or central processing unit, the processor is the brains of the computer. It's the most important chip in a notebook, and it has power-management features that extend battery life. Notebooks use a variety of processor types depending on their focus. We've explained each in the chart below:

PROCESSOR	NOTEBOOK TYPE	PROS AND CONS
Mobile AMD Athlon 4	Budget notebooks	Inexpensive but a bit slower than Intel Pentium chips, according to CNET Labs' tests.
AMD Althon XP-M chips	Desktop replacement, thin-and-light notebooks	Still undergoing tests. No conclusion yet.
Apple PowerPC G3	Apple iBook (budget notebook)	Long battery life and relatively inexpensive, but slower clock speeds limit performance, especially under OS X.
Apple PowerPC G4	Apple PowerBooks (performance and desktop-replacement notebooks)	Excellent performance and reasonable battery life but expensive, and clock speeds top out at 1GHz.
Mobile Intel Celeron	Budget notebooks	Extremely inexpensive, slightly slower than Intel Pentium chips.
Mobile Intel Pentium III-M	Ultraportable notebooks	Less expensive than many other processors but not as powerful. Longer battery life allows for lower system weight.
Mobile Intel Pentium 4-M	Desktop-replacement, thin-and-light notebooks	Very fast and expensive. Allows for only mediocre battery life.
Intel Pentium M	Desktop-replacement, thin-and-light, some ultraportable notebooks	Part of Intel's Centrino technology, the PM is both very fast and allows for long battery life. Very expensive.
Intel Pentium 4	Desktop-replacement notebooks	A chip intended for desktops, the Intel P4 is very fast and is less expensive than Pentium 4-M and PM chips, but it runs very hot and allows only poor battery life.
Transmeta Crusoe	Ultraportable notebooks	Long battery life but very slow.

Memory
Every computer comes with a certain amount of physical memory, usually referred to as *main memory* or *RAM* (random-access memory). Computers store currently running applications and data in this area. To find out how much memory you'll need, take into

account your operating system and the applications that you plan to use. A general rule of thumb: You'll need 256MB for Windows XP or Mac OS X and 128MB for all other Windows and Mac operating systems.

If you're planning to hang on to your notebook for a long time, look for a laptop with easy-to-access memory slots, as memory is typically one of the first specs you'll want to upgrade.

Display size

Unlike traditional desktop CRT (cathode-ray tube) monitors, notebooks ship with thin, liquid-crystal displays (LCDs). Notebook LCDs range in size from 12.1 inches (diagonal) to 17 inches. For comfortable viewing at the preferred Windows resolution of 1,024x768, most people like 14.1-inch or larger LCDs.

The ultraportable Fujitsu LifeBook P series (left) has one of the smallest screens--just 10.6 inches--in order to accommodate its feather-light, 3.1-pound weight. The giant 17-inch Apple PowerBook (right), on the other hand, has the biggest notebook screen we've ever seen.

Notebook LCDs once varied widely in brightness, color, and sharpness, but today, you'll find much better quality across the board. Unfortunately, when it comes to LCDs, the specs reveal little about actual picture quality, so if you're picky about screens, compare some at your local dealer.

❹ WHAT TYPES OF DRIVES DO I NEED?

First, decide how big of a hard drive you need; this will depend on how much data you store. After that, determine what you'll use your notebook for. Will you be tackling the most basic computing tasks, or do you worship Scorcese and plan to make your own DVD movies?

Hard drive

A notebook hard drive removed from the system.

This magnetic disk provides you with space to save programs and files indefinitely--or at least for the life of the drive. Notebook hard drives can be bigger than 60GB, but these giant drives cost hundreds of dollars more than the default 20GB notebook drives. You'll need only a 20GB or 30GB drive unless you store lots of movies or tons of pictures. Be warned that capacity alone does not make a good hard drive. The hard disk's rotational speed also makes a big difference; a 5,400rpm notebook disk delivers significantly faster performance than a 4,200rpm model. The faster the disk spins, the better your notebook will perform overall.

CD and DVD drives

You need at least a CD-ROM to install software, of course. But unless you're buying a budget notebook, don't settle for anything less than a CD-RW drive so that you can burn your own CDs. For watching movies and playing monster games on the road, consider a CD-RW drive that doubles as a DVD drive. Some notebooks now offer DVD-rewritable drives, which can store up to 4.7GB on one disk. But unless you need to store huge files, such as movies, you may not need the more expensive DVD-RW drives.

Unless you're going budget, don't settle for anything less than a CD-RW drive.

Swappable vs. fixed

The least expensive notebooks come with *fixed* (built-in) drives. In other words, if you buy your notebook with a fixed DVD-ROM, you're stuck with that drive. A *swappable drive bay,* on the other hand, gives you optimum flexibility. For instance, you can pull out the DVD-ROM drive and swap in a combo DVD/CD-RW drive or even a second battery on many notebooks. We recommend going with a swappable bay if you can afford it. Keep in mind, however, that the smallest and lightest ultraportable notebooks may include neither fixed nor swapped optical drives, relying instead on external USB drives.

Here is a media module slipping into a swappable drive. Fixed drives won't let you remove the module.

External drives

External drives--storage and media-burning options that hook up to your notebook via cable--come in many shapes and sizes. Most of these drives hook up to your notebook's USB or FireWire connector. Drive choices include external floppy, CD-ROM, combo DVD/CD-RW, DVD-ROM, DVD-RW, hard drive, Zip, LS-120, and others. There are also smaller external drives, such as the Trek 16MB USB ThumbDrive, that plug directly into your USB connector sans cable. These little drives, sometimes called *keychain drives,* are brilliant for transferring small amounts of data between notebooks or between notebooks and PCs. Many notebook users don't need external drives, but there are scenarios that require them. For instance, if you buy a tiny ultraportable that lacks a built-in CD-ROM drive, make sure you get an external one so that you can load software.

This is an external drive tethered to a Sony notebook.

❺ WHAT DO I NEED TO STAY CONNECTED?

To send and receive e-mail, browse the Web, and share files or printers, your notebook must be able to connect to a network or the Internet. This is usually done via a modem, an Ethernet hookup, or a wireless connection. But your notebook has additional connectivity needs, too. Notebooks include a variety of *ports,* or connectors that physically link to and communicate with different kinds of equipment, including digital cameras and external monitors.

If you can't find the port you want, you can usually buy a port replicator or a docking station, which adds connectors. These notebook-expansion options tend to be pricey, however, so you're generally better off buying a notebook that has everything that you'll need out of the box. Find out about each type of connection below.

PC Cards vs. mini-PCI

The PC Card, a credit card-shaped device that plugs into a slot on your notebook can provide a number of connection types--modems, USB connections (say, for your digital camcorder), and wireless LAN radios are all available in PC Card form. PC Cards are handy because they're easy to upgrade and because you can buy third-party PC Card solutions after you purchase your notebooks. However, most notebooks come with only one or two Type II PC Card slots, forcing you to limit the number of PC Cards you can add.

The mini-PCI card, on the other hand, is a smaller, more compact version of a PC Card. Notebook manufacturers install mini-PCI cards inside notebooks, which has a couple of advantages: these cards are usually cheaper, and they leave PC Card slots open for additional uses. Unfortunately, mini-PCI cards are almost impossible to remove or upgrade because they're integrated, and sometimes they take power from the notebook's CPU.

If you know you're going to want 802.11 wireless on your notebook, consider a system that integrates these connections on a mini-PCI card, leaving your PC Card expansion slot(s) free.
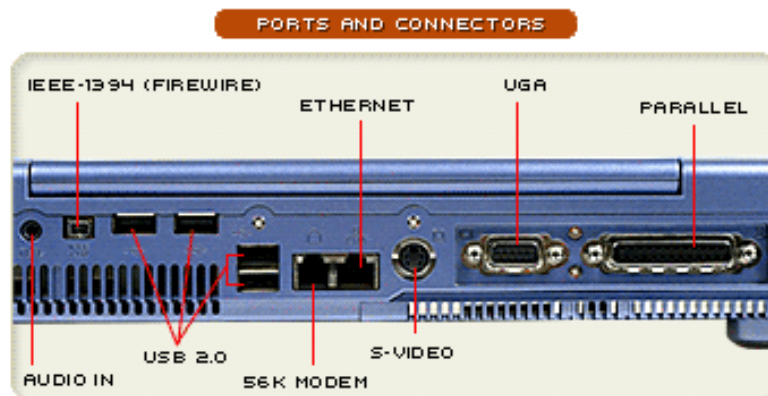
Modems and Ethernet ports
Virtually all notebooks come with 56Kbps-modem (RJ-11) and Ethernet (RJ-45) connections. Look for a system that integrates these connections on a mini-PCI card, leaving your PC Card expansion slot(s) free.

Wireless antennae and radios
Many notebooks also include built-in antennae for wireless networking (802.11, or Wi-Fi) so that you need to add only a PC Card to enable wireless networking. Or, even better, some notebooks include internal mini-PCI, Wi-Fi radio, or network-interface cards (NICs) embedded in the notebook itself. Intel's new Centrino technology includes just such a setup, although Centrino itself has some limitations. Read more about Centrino here.

If you choose a notebook with networking built in, make sure you understand the difference between the networking standards that are currently on the market, including 802.11a, 802.11b, and 802.11g. Our Wireless networking 101 primer can help.

If your notebook doesn't offer either a built-in antenna or wireless mini-PCI, it's fairly easy to find PC Cards that get the job done. CNET lists a variety of these network adapters here.

Other ports and connectors
Most notebooks have a printer port, a VGA port for an external monitor, and at least one USB port for connecting an external keyboard and mouse, drives, digital cameras, and MP3 players. If you plan to use your notebook for watching DVDs or making presentations, look for a notebook with a *multimedia jack* (a combined stereo- and video-out). For home use, you may want a stereo

input, a game port, a MIDI connector, and a FireWire port for capturing and editing digital video or hooking up an external storage drive.

WHAT ACCESSORIES DO I NEED?

If you haven't accessorized your notebook, you haven't lived. Here are some of the best ways to do it.

Docking station or port replicator

IBM's port replicator works for many different ThinkPad notebooks.

A *docking station* contains a mixture of ports, slots, drive bays, and security features, and it usually attaches to the notebook from underneath. Docking stations come in a variety of shapes, ranging from the same size as your notebook, which is often referred to as a *media slice,* to much bigger--some stick out five inches past the back of your notebook. As the name implies, a docking station is where you park your notebook when you get back to the office, giving you easy access to your network, along with a bigger monitor, a regular keyboard, additional storage devices, and the convenience of leaving cables plugged in when you walk away from your desk.

A *port replicator,* on the other hand, is a smaller, stripped-down version of a docking station that mainly features--as you might guess--ports, such as USB or parallel. A port replicator can range from the size of a box of toothpaste to just shy of docking-station stature. When you're on the road, a port replicator is a convenient way to increase your connectivity.

Laptop bag

A solid notebook carrying case is worth the extra money.

You're about to drop a couple grand or more on a laptop, and the last thing you want to do is spend even more money on a carrying case. So, you save a few bucks by going with the manufacturer's basic case. But basic bags often lack a padded shoulder strap or internal pockets. You'll be kicking yourself soon when your nine-pound load is cutting a groove into your shoulder and all of your peripherals come tumbling out of your bag in a tangled mess. Dig into your wallet for a sturdy, comfortable carrying case, and your shoulder will thank you. Look for padded shoulder straps, reinforced corners, and specialized compartments designed to hold the AC adapter, the extra batteries, and so on.

Extra battery

The Compaq Evo N410c features two extra batteries.

If you do even a modest amount of traveling, we recommend getting a second battery. They range from $100 to $300, and they are worth the money. Many notebooks allow you to swap them into the main media bay. Other secondary batteries clip on to the back of the notebook or attach via a cable. Next time you're trapped on the tarmac, working away on your laptop, and your primary battery is about to die, you'll thank us for encouraging you to buy that second cell. If you rarely travel with your notebook, however, and your laptop is pretty much always plugged in, don't bother with a second battery.

External drives

This is an external drive hooked via a cable to a Sony notebook.

External drives--storage and media-burning options that hook up to your notebook via cable--can be a pain to carry around and hook up, plus they can be pricey. You're generally better off buying a notebook that has everything you need out of the box. Nevertheless, external drives are sometimes required. If, for instance, you buy an ultraportable that lacks a built-in CD-ROM drive, make sure you get an external drive so that you can load software. Types of external drives include CD-ROM, CD-RW, combo DVD/CD-RW, DVD-rewritable, floppy, hard drives, Zip drives, and more.

Mouse and keyboard

Working for hours with just a pointing stick or a touchpad can take a toll on your hand, wrist, and forearm. To save yourself some wear and tear, invest in a small travel mouse. These can cost as little as $20, they usually hook up via a USB cable, and they're are very easy to tote. The same advice applies to typing for hours on your notebook's keyboard. If you plant your notebook on your desk when you work, hook up a USB keyboard and relieve your wrists. If you prefer working without wires, get a wireless mouse and keyboard.

Wireless keyboard and mouse from IBM.

⊕ CNET EDITORS' NOTEBOOK PICKS

Since CNET reviews every notebook you should know about, our top picks change frequently. Come back to notebookbuyer.cnet.com for updates.

TOP NOTEBOOKS BY USER TYPE:

HOME-USER
- Dell Inspiron 8500
- Alienware Area 51m
- Apple PowerBook G4 series
- Compaq Presario 3045us
- Toshiba Satellite 5205-S503

STUDENT
- Acer TravelMate 803LCi
- IBM ThinkPad T40
- Toshiba Tecra M1
- Toshiba Portégé 4010 series
- Sony VAIO Z1 series
- Fujitsu LifeBook S series
- Dell Inspiron 1100

FREQUENT-FLIER
- Dell Latitude X200
- IBM ThinkPad X31
- Sharp Actius UM series
- Toshiba Portégé R100

BUSINESS
- Acer TravelMate 803LCi
- Fujitsu LifeBook S series
- IBM ThinkPad T40
- Sony VAIO Z1 series
- Toshiba Tecra M1
- Toshiba Portégé 4010 series
- Dell Latitude D800
- Dell Latitude D600

MULTIMEDIA OR GAMES
- Alienware Area 51m
- Apple PowerBook G4 series
- Compaq Presario 3045us
- Dell Inspiron 8500
- Dell Latitude D800
- Toshiba Satellite 5205-S503

TOP STORAGE OPTIONS:

KEYCHAIN DRIVES
- M-Systems DiskonKey
- JMTek USBDrive Professional
- Trek 16MB USB Secure ThumbDrive
- Sony Micro Vault USB drive
- Dioneer USB Memory drive

EXTERNAL HARD DRIVES
- Maxtor Personal Storage 3000DV 60GB FireWire
- Iomega 80GB USB 2.0 HDD 3.5-in. ext. HD 7,200rpm
- Western Digital 80GB ext. USB 2.0 HD 8.9MS 7,200rpm 2MB
- Maxtor 5000LE 80GB ext. USB 2 HD 5,400rpm 1Touch Backup
- EZQuest Cobra+ 120

EXTERNAL CD-RW DRIVES
- Iomega 52X CD-RW (USB 2.0)
- EZQuest Boa 52X/24X/52X CD-RW
- LaCie CD-RW 52X/24X/52X USB
- Verbatim CD-RW 48X/16X/48X
- CenDyne 40X/12X/40X external USB 2.0

ZIP DRIVES
- Iomega Zip 750MB USB 2.0

NOTEBOOK ACCESSORIES

▸ Top 10 accessories

▸ Dazzle DVD Creation Station 200

▸ HP Photosmart 1315

▸ Kenneth Cole case

▸ Memorex H-51 Stereo Headset

▸ Targus Deluxe Universal Carrying Case

▸ Kensington Micro Saver Cable and Lock

▸ Tripp Lite Pv 140-watt DC/AC Mobile Inverter

MICE AND KEYBOARDS

▸ Logitech MX700 Optical Mouse

▸ IBM Optical Scroll Mouse

▸ Micro Wireless Desktop Keyboard, Mouse Combo

▸ Logitech Wheel Mouse Optical

▸ OBI-IBM Wireless Keyboard and Mouse Kit

▸ Sony Compact Keyboard

STUDENT NOTEBOOKS

▸ Acer TravelMate 803LCi

▸ IBM ThinkPad T40

▸ Toshiba Tecra M1

▸ Toshiba Portégé 4010 series

▸ Sony VAIO Z1 series

▸ Fujitsu LifeBook S series

▸ Dell Inspiron 1100