

## Getting started - Computer guide

Microsoft and Apple updated their operating systems, Microsoft with Windows 7 and Apple with Snow Leopard. Windows 7 is less prone to crashing than the version it replaced, more refined, with additional features but fewer annoyances. Snow Leopard boots up faster than its predecessor, loads Web pages more quickly, and eats up less hard-drive space. Below, we'll help you to decide whether to upgrade.

Meanwhile, there's plenty of lean, mean, and green in new computers, be they Mac OS- or Windows based. You'll find space-saving profiles, more powerful and efficient chips, and environmentally friendly designs. The best computers are also security conscious, offering features designed to keep your machine and your data out of harm's reach.

Many desktop computers are still boxy and bulky but you can also choose from among slimmer models. Most major brands also offer all-in-ones, which integrate the parts of a computer into the display rather than in a separate tower. Smaller, more efficient laptops are also available. Netbooks have 10-to-12-inch displays and weigh about 2 to 3 pounds. They aim to be your second computer, the one you use to surf the Web and check e-mail while traveling, or a child's first system. But their small size imposes tradeoffs.

Apple's introduction of the iPad has ignited interest in highly portable tablet computers with a user interface that's simpler and more intuitive than that of a conventional personal computer.

When you shop, watch out for "great deals" that may not be so great. Before you buy a bargain PC at a rock-bottom price, take a closer look, because some computer manufacturers are replacing dual-core processors with single-core Celeron and Sempron processors to reduce costs. Others are using less-powerful Atom processors in systems that otherwise look like full-blown laptops and desktops. The resulting tests show, more sluggish performance when you try to surf media-rich websites, watch videos, or play 3D games.

The bottom line when shopping: If you're looking for a primary PC for general-purpose computing, avoid computers with single-core processors, such as some Atoms and Celerons. Also make sure you get more than 1GB of memory. Of course, if all you need is a low-cost netbook for general Web surfing and e-mail, with perhaps some word processing thrown into the mix, then an Atom-based netbook with a gigabyte or two of memory and at least a 160GB hard drive should serve you well.

## **Do you need a new PC?**

If your old computer is sluggish, it might be time for a new PC. First try these steps to beef up its performance: Delete programs you no longer use. If that isn't enough, and the computer is no more than four years old, add 1 GB of memory. Adding memory is an inexpensive and easy way to upgrade your computer.

If you're running out of space on the hard drive, burn your old music, photos, and videos onto a CD or DVD and delete them off your hard drive. To gain a lot more storage space, consider adding a hard drive. (An external hard drive is one of the easiest computer upgrades that even a computer novice can perform.)

Once you've cleared all your old files and moved any files to an external hard drive, run the Disk Defragmenter that's bundled with Windows. That will help your hard drive access files faster.

If none of that works, and the computer is more than four years old, it's probably time to replace it. Be sure to recycle your old computer, but don't forget to wipe your hard drive first.

## **Windows or Macintosh?**

Windows 7 is the latest iteration of Microsoft's operating system. It costs from \$120 to \$200 off the shelf..

An Apple computer running Mac OS X is a fine alternative to Windows. Apple computers can also run Windows, but you have to purchase and install it yourself. The latest version is Snow Leopard; current Apple users can upgrade for \$30. If you bought a new Mac after June 2009, you can upgrade for \$10.

## **Should you upgrade to Windows 7?**

Before you make any decisions, you should check your computer's compatibility, and that of your peripherals, with **Microsoft's Upgrade Adviser**.

Then, find the description of your situation below and proceed accordingly:

### **You're happy with your current system and OS.**

Save your money, at least for now. Sure, Windows 7 has some new interface tweaks that we think are pretty cool. But any time you upgrade, there's a potential for unpredictable problems. So why mess with success? Meanwhile, always download any critical Windows updates. Make sure you're using the latest version of your browser. And if you don't have any security software running, install a free antivirus program. Microsoft just released its free antivirus/antispyware software, **Microsoft Security Essentials**.

### **You're a Vista user frustrated with its performance and other shortcomings.**

Get the upgrade if your system is compatible. Windows 7 is more stable than Vista and it's got a good number of ease-of-use enhancements. And as a bonus, you'll get a grip on those frustrating User Account Controls, because Windows 7 provides options for different levels of settings.

### **You recently bought a new computer and qualify for a free upgrade.**

Get your upgrade. Most computer manufacturers are offering free Windows 7 upgrades to those who bought Vista-based computers from late June through January 2010. Be sure to register for the upgrade, and keep in mind that you might have to pay shipping and other costs to have the software sent to you. But also keep in mind that the Windows 7 upgrade option does not apply to Vista Basic-based computers.

### **You're an XP user.**

If your computer is no more than four years old and running Windows XP, and you want to upgrade to Windows 7, run the upgrade adviser. If you're cleared for Windows 7, you can upgrade, but you'll first have to either upgrade to Vista temporarily to allow the Windows 7 upgrade or you'll have to backup and then erase the contents of your hard drive before moving to Windows 7.

## Types of computers

The choices among desktop and laptop computers can be confusing. New desktops can be smaller and less conspicuous than some laptops. Meanwhile, some portable computers laptops offer features and capabilities that rival traditional desktops. Here are the types of computers--and the pros and cons--you need to consider.

**Desktops:** The desktop computer has become just another appliance you use every day. However, consider these pros and cons of desktop computers in general:

**Pros:** Desktops deliver more performance than laptops. They are less costly to repair. They allow for a more ergonomically correct work environment. They let you work on a larger screen and they can be equipped with better speakers. Desktops are available in various styles and configurations, all designed to appeal to different tastes--and uses.

**Cons:** They take up a lot of desk space, even with a thin LCD monitor.

### All-in-one

These incorporate all components, including the monitor, into one case. The components are tightly packed behind and underneath the display, making it difficult to upgrade or repair. Meant to be space savers, they're also designed to look less stodgy than a traditional computer. You'll pay a premium price for these models.

### Compact

If you don't have the space under your desk or you plan to put the computer on top of your desk, consider a compact or slim desktop. These are less than half the size of a full-size desktop. Like their larger brethren, compact desktops tend to be inexpensive. But they may be more difficult to upgrade and repair.

### Full size

If you have the space for a tower under your desk, consider a full-size desktop. While they are the largest type of desktop, they are the least expensive and the easiest to upgrade and repair. Full-size desktops offer the most features and options.

### Gaming

The sky's the limit for these, which are geared primarily toward gamers. You get the fastest quad-core processors, the most sophisticated graphics cards, multiple large hard drives, and plentiful RAM. Cases are usually large--and, in some cases, offer a fair amount of bling--with lots of room for expansion.

**Laptops:** Laptops let you use your computer away from your desk, but you pay for that mobility with a smaller screen and keyboard, and often at the expense of performance. Technological advances have lessened the performance compromises somewhat, though. Whether portability or power is your main consideration, screen size will be an essential factor in deciding which type of laptop is right for you:

**Pros:** Laptops can travel. They take up less desk space. They're easily stowed after use. They can do anything desktops can do.

**Cons:** Laptops cost more than comparably equipped desktops. Our reliability surveys show laptops are more repair-prone than desktops. Laptops are more expensive to repair.

### **12- to 13-inch**

If you're planning to carry the laptop around with you frequently, a 12- to 13-inch model is probably the right choice. In our tests of 13-inch systems, we found that you might have to sacrifice some speed, and you'll spend a few hundred dollars more than you would for a larger laptop. But you'll also lighten your load by at least a pound, and you'll find many of the same features on these laptops that are available on larger laptops, including webcams and memory-card readers. Some models shave a few ounces by removing the DVD drive.

### **14- to 16-inch**

Laptops with a 14- to 16-inch screen generally offer the ideal balance of performance, portability, and price. They weigh about 5 to 6 pounds or more. They're a good choice for those who need to take a laptop along less frequently, and a system in the 14- to 16-inch size range can easily be configured to serve as a desktop replacement.

### **17-to-18-inch**

For a full-blown, entertainment-oriented desktop replacement, consider a 17- to 18-inch model. You'll get better performance, a good-sized screen, and better speakers. It will cost more than a comparable desktop, but it's handy if you have space constraints or if you're planning to use it in areas of your house other than the home office.

**Netbooks:** Inexpensive and portable, netbooks are downsized laptops with a 10- to 12-inch screen that weigh 2 to 3 pounds and cost \$250 to \$500. They are designed chiefly for Internet use and light word processing. They are not meant to replace the full-functionality of your laptop or desktop. Many newer netbooks run Windows 7.

**Pros:** Not much larger than a hardcover book, netbooks are lighter, smaller, and less expensive than most standard laptops. They're very good for travel and might also make a good computer for a child.

**Cons:** Netbooks have small displays, keyboards, and touchpads, and performance is slow. They have no optical drive (although you can add an external one), so you can't easily install shrink-wrapped software or play CDs or DVDs. Netbooks are a relatively new computer category, and we currently have no reliability data.

**Tablets:** Lightweight and highly portable, tablets are made to be carried wherever you go. They're multifunctional, serving as Web browser, e-book reader, digital picture frame, movie viewer, and music player. Some will also include phone functionality. Apple's iPad was the first major tablet to market. It weighs 1.5 pounds and uses a bright display that rivals its 27-inch iMac counterpart. Battery life on the Wi-Fi version was 10 hours. Archos offers a 7-inch tablet for \$200. Others are expected from most major computer manufacturers.

## Computer features

Many components play a key role in how a computer performs, including the processor, memory, operating system, hard drive, video adapter (with video memory), optical drive, and display (monitor). Laptop computers have additional features and considerations that are important. Where applicable, we've noted feature information that is important and distinctive to the type of computers.

**Processor:** Also known as the CPU (central processing unit), the computer's `brain' is responsible for processing information. Speed is the most important factor when choosing a processor, so pay attention to the processor's family, the number of cores, and the clock speed.

Intel and AMD are the dominant manufacturers of processors. Intel's processor families include the low-end Atom, Celeron, and Pentium; the mid-range Core 2 and Core i3; and the high-end Core i5, and Core i7. AMD's processors range from the low-end Neo, Sempron, Athlon, and Turion; to the mid-range Phenom and high-end Phenom II.

Processors with multiple cores can process more data at the same time. You can usually tell how many cores a processor has by looking at its name. A Core 2 Duo has two cores and a Core 2 Quad has four cores. A Phenom X3 has three cores. But it's not always that clear; a Core i5 or i7 has four cores.

Clock speed, measured in GHz (gigahertz), determines how quickly it can process information. Within a processor family, the higher the clock speed, the faster the computer. Clock speeds typically range from 2 to 3GHz.

Power consumption is another important factor when choosing a processor. This is especially true for laptops--lower power consumption translates to longer battery life.

When buying a computer, make sure it has a processor that will be fast enough to handle your needs. If you are buying a desktop or a laptop, avoid computers that use the AMD Neo or Sempron processor, the Intel Atom or Celeron processor, or the Via Nano processor. For basic tasks like browsing the web and checking e-mail, opt for a low-end dual-core processor like the Intel Pentium Dual-Core and AMD Athlon/Turion X2. If you plan to use your desktop or laptop for entertainment like watching videos or playing games, get a faster processor such as the Intel Core 2 Duo/Quad, Intel Core i5, or AMD Phenom/Phenom II. If you're a hard-core gamer or plan to edit high-definition video, buy a computer with a high-end processor like the Intel Core i7. For less-intensive uses like productivity tasks, the Core i3 should suffice. If you're in the market for a netbook, stick to the slow but low-power-consuming Intel Atom processor.

## **Memory:**

The computer's memory, or RAM (random access memory), is used to temporarily store data while in operation. Computers with more memory tend to be faster than those with less, up to a point. Memory is measured in GB (gigabytes). Most brand-name desktops and laptops sold today have at least 4GB of memory. Computers with 3GB can be slightly faster. Any more than that is probably not beneficial unless you plan to run multiple memory-intensive applications at the same time and use a 64-bit operating system. Netbooks typically come with 1GB of memory, which is adequate.

## **Log-on security:**

For laptops: A growing number of notebooks include fingerprint scanners as a convenient alternative to typing a password when logging in. Some of Lenovo's laptops use face-recognition technology, as do some from Toshiba and other manufacturers. Lenovo's new IdeaPad uses VeriFace technology when you log in. With VeriFace, your face is scanned, via the laptop's webcam, and then scanned again to make sure it matches the initial scan every time you log in.

## **Operating system:**

Many people choose PCs running Windows because they're less expensive than Macs. Others choose PCs because they have a wider selection of games or they want to be fully compatible with Windows programs. If you go with a PC, you have a choice of several versions of Windows 7, each with its own hardware requirements. We recommend Home Premium as the Windows 7 version for most home users.

Macs are more expensive but are stylish, and they're also immune to most, if not all, viruses and spyware. Apple's support has been tops in the industry. While the company's phone support is only available free for 90 days, you can get unlimited technical support through the Genius Bar if you live near an Apple store. Apple released its most recent version of OS X, called Snow Leopard, in September 2009.



## **Video adapter and video memory:**

Also known as the video card, video accelerator, or graphics card, this is responsible for drawing what you see on your screen. There are two types of video adapters: integrated and discrete. The vast majority of computers sold have integrated video, which is slower and uses up part of your system's memory. That said, integrated video is perfectly fine as long as you don't plan to play complex 3D games like *The Sims* or *World of Warcraft*. Otherwise choose discrete video, which is faster and uses its own video memory. If you choose discrete, make sure that it has at least 256MB of video memory. Hard-core gamers should get 512MB to 1GB of video memory.

## **Video outputs:**

If you're buying a desktop, check to see what video outputs it has. Almost all desktops have an analog VGA output, which is compatible with flat-panel LCDs and older CRT monitors. Some have a digital DVI output for use with LCDs; this delivers a much cleaner and crisper image on the screen. If you're buying a laptop, a VGA output can be used with a projector for delivering presentations. The newest desktops and laptops might have an HDMI (High-Definition Multimedia Interface) output to feed video to an external HDTV.

## **Hard Drive:**

Also known as a hard disk, this is where your programs, documents, music, photos, and videos are stored. Bigger is better. Hard drive sizes are measured in gigabytes (GB) and commonly range from 160 to 1,000GB. While size matters, speed is equally important. Speed is measured in RPMs (revolutions per minute). A slow hard drive will take longer to start up programs (such as Windows) and complete tasks (such as installing programs or scanning your hard drive for viruses). For desktops, make sure it has a 7,200RPM hard drive. For laptops, make sure it has a 5,400RPM hard drive.

Hard drives often fail, and when they do you need to have a backup to recover your data. The best option is an external hard drive. These connect to your computer through its USB, FireWire, or eSATA port. Some desktops offer portable hard drive bays, which save space by letting you insert a removable hard drive inside the desktop.

Some high-end desktops and laptops can be configured with a RAID (redundant array of identical disks) array. These computers have two or more hard drives. There are several types of RAID arrays, the most common being RAID 0 and RAID 1. RAID 0 distributes your data across multiple hard disks, which can greatly improve speed. But if one drive fails, you'll lose data on all of your hard disks. On the other hand, RAID 1 automatically copies data from one hard disk to the other. There is no speed boost, but if one crashes, all your data will be safe on the other one.

SSDs (solid-state drives) are on the cutting edge of storage technology, allowing your computer to access data without the moving parts required by a traditional hard drive. So-called flash drives don't have the spinning disk of a conventional hard drive, so they use less power, work quieter, and should be more resistant to damage from rugged use. And because there are no moving parts, they promise quicker access to data. Netbooks are an exception; they may be bundled with very small solid-state drives that perform worse than traditional hard drives.

### **Optical Drive:**

This lets you read and write to CDs, DVDs, and Blu-Ray discs. DVD burners (also known as DVD+/-RW) are standard gear on today's computers. DVD burners can read and write to CDs and DVDs so you can backup your home-video footage or digital photos, for example. Recordable CDs (CD-R) can hold up to 700MB of data. Recordable DVDs (DVD+R, DVD-R, or DVD-RAM) can hold up to 4.7GB of data (single layer) or 8.5GB of data (dual layer).

Blu-ray Disc (BD) drives are the newest standard. BD drives are capable of playing the growing list of Blu-ray movies and can store up to 25GB of data (single layer) or 50GB of data (dual layer), almost six times the capacity of a DVD.

### **Monitor:**

For desktops: Unless you're a graphic artist, there's little reason to choose an almost-extinct CRT. LCDs offer numerous advantages over the CRT, chief among them their smaller footprint. Sizes range from 15 to 24 inches and larger (measured diagonally). The most common sizes are 19 and 20 inches.

Most are widescreen, which are designed to fit widescreen movies better without the black bars, but give you less screen area per inch over a non-widescreen display. Those who plan to edit photos or videos may want to pay attention to differences in color, viewing angle, contrast, and brightness. You can often obtain a discount on an LCD monitor by buying it bundled with a new computer.

**Display:**

For laptops, a 15- to 16-inch display, measured diagonally, should suit most people. Displays that are 13, 14, and 17 inches are also common. The screens on most laptops are glossy instead of matte. Glossy screens have more saturated colors and deeper blacks, but are also much more prone to glare. Like desktop displays, most laptops have widescreen displays to fit widescreen movies better.

LED-backlighting displays provide more efficient use of power, resulting in longer battery life. Color on LED-backlighting screens is in most cases not significantly different than that on other types of displays.

**Battery:**

For laptops: When not plugged into a wall outlet, laptops use a rechargeable lithium-ion battery for power. Laptops go into sleep mode when used intermittently, extending the time between charges. You can lengthen battery life if you dim the display, turn off wireless when not needed, and use only basic applications. Playing a DVD movie uses more battery power than other functions, but most laptops should be able to play one through to the end. Many laptops can accept an "extended" battery, adding size and weight but giving as much as twice the battery life.

**Case:**

For desktops: Form factors for computers are more varied now. In addition to the most common tower format, you can find all-in-one and small-form-factor (SFF) computers. Mainstream computers usually come in towers, which fit on top of or under a desk. The all-in-one form factor, such as the Apple iMac, packs all the components into the same enclosure as the LCD display. Only the keyboard and mouse are separate. Sony, HP, Dell, and Gateway also have all-in-one models. SFF cases include the Dell Studio Hybrid and the Apple Mac mini.

**Networking:**

For connecting to the Internet, all desktops come with an Ethernet port that lets you run a wire between your desktop and your router. But if it's not possible to run such a wire through your home, consider a Wi-Fi wireless adapter. Some desktops have this built-in, while others require you to buy one and install it separately. You'll also need a wireless router. All laptops come with wireless built-in, and most have a wired Ethernet port as well.

Wireless adapters mostly use the newer 802.11n standard (which is backward-compatible to the older 802.11g). Unless you have an exceptionally large house, there's no reason to buy an 802.11n wireless adapter. 802.11g is slightly less expensive and fast enough for most people's needs, and its range is wide enough to cover a medium-sized house. If you do select an 802.11n adapter, make sure your router supports 802.11n as well.

### **Mouse:**

Desktops typically come with a mouse to move the cursor on the screen. Most mice bundled with desktops are optical mice, which have light sensors on their underside to track movement. Apple offers its Magic Mouse, which has a touch-sensitive top surface that works in a similar manner to a multitouch touchpad. Mice come in all shapes and sizes. Some are ergonomically contoured to match the shape of your palm, while others are designed to be stylish. They can also be either wired or wireless. If you have a wireless mouse, you won't have to deal with a cord, but you will have to recharge or replace the batteries every few months.

### **Touchpad:**

Most laptops use a small touchpad in place of a mouse; you slide your finger across it to move the cursor. You can also program the pad to respond to a 'tap' as a 'click,' or scroll as you sweep your index finger along the pad's right edge. Touchpads come in various sizes; the larger ones let you move the cursor farther across the screen without lifting your finger.

Some models let you use multi-fingered gestures for zooming and rotating images. An alternative system uses a pointing stick the size of a pencil eraser in the middle of the keyboard. You can attach a USB or wireless mouse or trackball if you prefer.

### **Keyboard:**

Most computers come with a standard wired keyboard. Some keyboards have CD (or DVD) controls that let you pause, play back, change tracks, and change the volume. Some also have additional keys to expedite getting online, starting a search, launching programs, or retrieving e-mail. Like mice, keyboards can also be wireless.

## **Sound system:**

Computers for home use feature a high-fidelity sound system that plays CDs or downloaded music files, synthesized music, game sounds, and DVD-movie soundtracks. Three-piece speaker systems with a subwoofer have deeper, more powerful bass. Surround-sound systems can turn a PC into a home theater. There are connections for an external audio source (such as a microphone) and for headphones.

For laptops: The small speakers built into laptops often sound tinny. And a brand name like Altec Lansing or Harmon Kardon doesn't mean that they'll sound good. Headphones or external speakers deliver much better sound. But some larger laptops include much better speakers and even a subwoofer for deeper bass.

## **Touchscreens:**

Touchscreens are beginning to show up in some desktops and laptops. These allow you to use your fingertip right on the display to control what you're doing, for example making the screen larger or smaller, selecting menu items, and more.

**Ports:** The ports to look for on a computer include USB, FireWire, Ethernet, and S-video or HDMI. USB ports let you connect many add-on devices, such as digital cameras or external hard drives, as well as a memory drive for copying files to and from the hard drive. Having these ports at the front of the case makes connecting devices more convenient.

An Ethernet port or wireless network card lets you link several computers in the household to share files, a printer, or a broadband Internet connection. FireWire or IEEE 1394 ports are used to capture video from digital camcorders and connect to other peripheral devices. An S-video or HDMI output jack lets you run a video cable from the computer to a television so you can use the computer's DVD drive to view a movie on a TV instead of on the computer monitor. Media-center PCs (equipped with TV tuners) can also capture video from a VCR, letting you copy tapes to DVDs. Other slots to look for on a new computer are memory-card readers for flash cards.

For laptops: Most laptops let you attach those devices without the docking station. At least two USB ports for easy hook-up of, say, a printer, digital camera, or scanner are standard. A wired network (Ethernet) port is also standard. A FireWire port for digital-video transfer is common. An internal wireless-network (Wi-Fi) adapter is standard. Another option is an internal Bluetooth wireless adapter to link to a Bluetooth-capable cell phone, camera, or another laptop.

**Docking station:**

For laptops: Some notebooks offer a connection for a docking station, a \$100 to \$200 base that makes it easy to connect an external monitor, keyboard, mouse, printer, network, and power in one step.

**Computer brands**

This list characterizes the major computer brands. In choosing a brand, also consider the manufacturers technical support and reliability as shown in our surveys ([link to surveys](#)). For the most current list of outlets where a computer brand is available, use a shopping search engine.

**Acer:**

Gateway and eMachines are owned by Acer. The companies do not sell their products direct to consumers, unlike most other computer makers. Acer Aspire products run the gamut of consumers from budget to high end. The Aspire One line is Acer's netbook offering. It has also entered the 3D space with a laptop.

**Apple:**

Apple computers usually cost significantly more than Windows-based systems. Apple computers use Apple's operating system, Mac OS X. Macs can also run Windows. Mac OS X has had fewer problems with viruses and other malware. The company primarily offers several consumer lines, the MacBook and MacBook Pro (laptops), the iMac (all-in-one desktops), the Mac mini (a small form-factor budget desktop), and the iPad (touch-screen tablet). Apple's telephone tech support is limited to three months, but you can get unlimited free tech support at the Genius Bar in Apple stores.

**Asus:**

Asus was first to market in the U.S. with a netbook, the EeePC. Laptops range from budget to high end. Its Essentio desktop brand is limited to value and mid-range users. It also sells a nettop, the Eee Top—a low-end all-in-one computer with a touch screen. Asus does not sell its lines direct to consumers, unlike most other computer makers.

**Compaq:**

Compaq is owned by HP. Its value line of desktops and laptops is sold under the Compaq Presario brand.

**Dell:**

Inspiron is Dell's mass-market line. For higher performance and gaming systems Dell offers Studio XPS. Dell's compact desktop offerings include the Studio Hybrid and the Zino HD. The Dell Mini is its netbook series. For hard-core gamers, Dell offers Alienware systems. Inspiron One is its all-in-one brand with optional touch screen.

**eMachines:**

eMachines is owned by Acer and sells budget desktops, laptops, and netbooks. The company does not sell its products direct to consumers.

**Gateway:**

Gateway is owned by Acer. The companies do not sell their products direct to consumers, unlike most other computer makers. The NV, ID, and ED series are Gateway's budget and mainstream laptops. For premium performance and gaming systems, Gateway offers the P series. DX and LX are the budget and midrange desktop lines. FX is Gateway's high-end desktop, and ZX is its all-in-one. LT series is its netbook line.

**HP:**

HP is the No. 1 seller of desktops and laptops in the United States. In laptops, it offers the midrange Pavilion line, the budget G-series line, and the high-end premium Envy line. It has a convertible tablet called TouchSmart. In desktops, it offers the budget and midrange Pavilion line, a Pavilion Slimline (slimmer design), and the Pavilion Elite high-end desktop. There are three all-in-one lines, the All-in-One, the Omni, and TouchSmart (with touch screen). For netbooks, it's the HP Mini line.

**Lenovo:**

Lenovo has been expanding its offerings to consumers. IdeaPad is its midrange consumer laptop line. The C-series and H-series make-up its budget lines. Lenovo ThinkPads are its business notebooks. The IdeaCentre and C-series are its midrange consumer desktops and all-in-ones. The S-series is its netbook line.

**Samsung:**

Samsung is a relative newcomer to the U.S. laptop market. It does not sell its lines direct to consumers, unlike most other computer makers. Its R-series is its midrange laptop line, and the N-series is its netbook line.

**Sony:**

Sony computers usually cost more than other windows-based products. Sony's laptop line includes the smaller X, Y, and Z series, and the larger EA, EB, EC, and F series. All-in-one desktops are the JS-series and L series, midrange and high end respectively. Its W-series is netbooks, and its mini-laptop is called the P-series.

**Toshiba:**

Toshiba sells laptops and netbooks. Its consumer laptops include the Satellite line (budget and midrange), and the Qosmio line for high-end gaming. The Toshiba Mini is its netbook line. Satellite Pro, Tecra, and Portege are its business lines.

## **Computer shopping tips**

**Shop smart.**

Shop at an online retailer. Our subscriber surveys have found them generally superior to walk-in stores for selection and price. You can also save money by using coupon and forum sites such as Techbargains, FatWallet.com, and Ebates, which tend to provide information on rebates.

Macs aren't discounted that often, so take advantage of the price cuts that usually occur around the time Apple announces new models. That's when other retailers, such as Amazon.com, MacConnection, and MacMall, tend to clear out older stock. Models from other PC brands may also be discounted when their successors arrive, or buy à la carte.

**If you have special needs, order from the manufacturer's Web site.**

Menus show you all the options and let you see how a change affects the overall price. You might decide on a more-expensive processor and a bigger hard drive. Configure-to-order will often give you choices that you won't get if you buy an off-the-shelf model. But be sure to double-check your choices before ordering, and look for unwanted items that some manufacturers include by default.

**Shop at the right time**

January, July, and October are good times to shop; new models are expected to show up in stores at those times, which mean older inventory needs to be cleared out to make room. If a computer you like you like isn't on sale, ask for a better price. Apple usually offers free iPods and educational discounts to students buying computers during the back-to-school season. Otherwise, the best time to buy an Apple is right after the company makes a new-product announcement and retailers are selling off old inventory.



### **Get your coupons**

Check out coupon and deal sites such as Techbargains.com, FatWallet.com, and Ebates.

### **Ergonomics can make or break a laptop**

Especially when you're buying a laptop, you should try it before you buy it, if you can. Look for a keyboard with keys that don't feel mushy. Touchpads should be large enough so that your finger can cover the span of the screen without repeatedly lifting it, and touchpad buttons should be easy to find and press. The touchpad should also have a dedicated scroll area. Carry the laptop around for a few minutes and make sure it's not too heavy or too big. The laptop shouldn't get hot during use (89 to 100 degrees F is a good range), and it should run quietly. Glossy screens are now standard on most laptops. Several have added antireflective coatings, with mixed results. Finally, manufacturers are emphasizing design as much as what's inside; find one that suits your style.

### **Think green when you buy**

Some computers meet the Energy Star standard for efficient power use. Energy-use guidelines cover three operating modes--standby, sleep, and running--with systems entering sleep mode within 30 minutes of inactivity. Power supplies also need to operate more efficiently. You probably won't notice much difference in the operation of your computer but your electric bill might go down a bit. Look for the Energy Star label on qualified computers. Prices won't increase because of the new standard, according to a spokesperson for the Energy Star program. Another standard is EPEAT, which offers guidelines on what materials can be used in a computer. Depending on how well each computer meets their criteria, they are rated bronze, silver, or gold. A list of EPEAT compliant systems can be found at <http://www.epeat.net/>.

### **Recycle when you toss**

Most manufacturers also have recycling programs that help you to dispose of your old computer, but the programs vary considerably from one company to another.

## Consider tech support

Inevitably, that brand new laptop or desktop computer will break down. Or, you'll run into some technical difficulty with installing or removing software. So, when choosing a computer, it helps to know which company offers the after-sale support that matches your needs.

Which computer company is tops in terms of free tech support? Don't expect it to be anyone on the Windows side of the computer world.

Our latest survey on computer tech support (available to subscribers), conducted by the Consumer Reports National Research Center and drawn from our readers' personal experiences with 10,000 desktop and laptop computers, finds that Apple owners have much to smile about. Apple's tech support was able to solve Mac problems more than 80 percent of the time, according to those surveyed who used Apple's support.

Overall, however, the news isn't stellar when it comes to using tech support to fix annoying computer problems. According to those surveyed, problems were solved for only about 60 percent of those who actually had to contact a manufacturer for help. What's more, many computer makers' free technical support policies end in a year or less. (One notable exception is, again, Apple. Free phone support runs out after 90 days, but you can get unlimited free support at Apple stores--if you live near one.)

As such, salesmen will try to pitch an optional, extra-cost "extended" service plan. Our general advice is to skip such pricey extended service warranties. But if you absolutely need the hand-holding or know you'll travel everywhere with your laptop, you might want to consider one--especially since our latest report on extended service plans for computers (available to subscribers) finds that a few companies' extended plans do offer significantly better tech support compared to their limited free services.

# Windows 7 system requirements

**If you want to run Windows 7 on your PC, here's what it takes:**

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
- 1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)
- 16 GB available hard disk space (32-bit) or 20 GB (64-bit)
- DirectX 9 graphics device with WDDM 1.0 or higher driver

**Additional requirements to use certain features:**

- Internet access (fees may apply)
- Depending on resolution, video playback may require additional memory and advanced graphics hardware
- Some games and programs might require a graphics card compatible with DirectX 10 or higher for optimal performance
- For some [Windows](#) Media Center functionality a TV tuner and additional hardware may be required
- [Windows](#) Touch and Tablet PCs require specific hardware
- HomeGroup requires a network and PCs running Windows 7
- DVD/CD authoring requires a compatible optical drive
- BitLocker requires Trusted Platform Module (TPM) 1.2
- BitLocker To Go requires a USB flash drive
- [Windows XP](#) Mode requires an additional 1 GB of RAM and an additional 15 GB of available hard disk space.
- Music and sound require audio output

Product functionality and graphics may vary based on your system configuration. Some features may require advanced or additional hardware.

**PCs with multi-core processors:**

Windows 7 was designed to work with today's multi-core processors. All 32-bit versions of Windows 7 can support up to 32 processor cores, while 64-bit versions can support up to 256 processor cores.

**PCs with multiple processors (CPUs):**

Commercial servers, workstations, and other high-end PCs may have more than one physical processor. Windows 7 Professional, Enterprise, and Ultimate allow for two physical processors, providing the best performance on these computers. Windows 7 Starter, Home Basic, and Home Premium will recognize only one physical processor.