

Electronics

Buying a computer

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Introduction

Time for a new computer? Our guide will help you choose a PC that meets your needs.

We explain which specifications and features to look for, bring you an interactive guide to connections and ports, and tell you which brands and retailers our members rate most reliable.

Note: this report is a buying guide and does not contain test results.

Plus also see our [laptops test](#) and guide to buying [Apple Mac computers](#).

Laptop or desktop?

The first thing to consider is whether a laptop or desktop will best meet your needs:



Why buy a laptop?

Portability. Laptops are light, portable, and take up less space than a desktop PC.

Energy use. Laptops typically use less than 20 percent of the power of a desktop. Good for the power bill.

Why buy a desktop?



Price. Desktops offer better performance at a lower price.

Power. If you're into gaming or media applications using complex graphics, desktops usually have more power to handle them.

Upgrading. If you want to improve the memory, graphics card, or other components, it's far easier (and cheaper) with a desktop.

Ergonomics. A desktop is better than a laptop if you do a lot of computing or typing. Alternative ergonomic mice and keyboards are available.

If you decide a laptop meets your needs better than a desktop, see our separate [Laptop buying guide](#).

How will you use it?



What type of desktop do you really need? Consider what you'll use it for most of the time.

Below are three common scenarios translating to basic, mid-range and high-end requirements.

Decide which of the scenarios best matches your use to get an idea of the features and specifications you'll need.

Home surfer

Just want something that can browse the internet or write documents? Then you'll most likely be OK with a sub-\$1000 desktop. But you'll have to pay for upgrades in the future if you want to expand what your computer does.

What you need:

Processor: Intel Celeron Pentium 2.2GHz (or AMD equivalent)

Memory/RAM: 2GB DDR2

Graphics card: Integrated/onboard graphics

Hard drive: 300GB or more

Drives: DVD multi-drive

Display: 19 inch

Software: Windows 7 Home Premium; internet security suite.

Price: \$1000

Other things to consider: To reduce your costs, keep the keyboard, mouse, speakers and LCD monitor from a previous computer (but make sure they're compatible with the new system). Or consider buying a second-hand or ex-lease computer. It's recommended that you run Windows XP rather than the more demanding Windows Vista or Windows 7 on this level of computer.

All-round user

To keep your options open it's worth paying extra for a more advanced computer (\$1200-\$1800). This particularly applies if you have an interest in watching large video files, storing a lot of music, or playing the occasional game.

What you need:

Processor: Intel i3 2.93GHz (or AMD equivalent)

Memory/RAM: 4GB DDR3

Graphics card: Dedicated ATI or Nvidia card with 512MB RAM or higher

Hard drive: 500GB or more

Drives: DVD multi-drive

Display: 20 - 22 inch

Software: Windows 7 Home Premium; internet security suite.

Price range: \$1200 - 1800

Other things to consider: Ask whether the graphics card, sound card and RAM can be upgraded in the future.

Designer/gamer

Using Photoshop, Illustrator and other resource-intensive programs – or the latest 3D games? You'll need all the processing power, RAM and graphics capability you can afford. This comes with a price above \$2000. If you want a larger monitor or other peripherals you can easily spend \$3000+ all up.

What you need:

Processor: Intel i7 2.8GHz (or AMD equivalent)

Memory/RAM: 4 - 8GB DDR3

Graphics card: Dedicated ATI or Nvidia card with 1024MB RAM or higher

Sound card: Dedicated, with multimedia speakers

Hard drive: 1TB or more

Drives: DVD writer

Display: 24 inch or more

Software: Windows 7 Home Premium; internet security suite.

Price range: \$2000 - \$3000

Other things to consider: Typically these high-end computers are easily modified, so think about adding in any other desired components when you buy.

Specifications explained

You can't avoid computer specs forever. The key is working out what you need to know – and ignoring the rest. Here are the essentials.



Processor (CPU)

This is your engine. It's always been a case of the grunter the better: the higher the GHz number, the faster you're able to open and run programs.

However, the introduction of dual and quad cores makes this less straightforward. The cores mean the computer has multiple CPUs sitting side by side – and so it naturally runs faster.

*Tip: Check both the GHz number **and** the number of cores.*

Memory (RAM)

The more RAM you have, the more tasks your computer can do at once. Having an internet browser, music player, and graphics program simultaneously open might crash a weaker computer whereas one with more RAM will be able to handle the workload better.

Tip: Nearly all computers allow you to add additional RAM, so you can always upgrade. But check this out before you buy.

Hard drive

This stores all your information. Two things matter here – size and speed.

The **size** of a hard drive is measured in gigabytes (GB), just like RAM. Numbers start around 160GB and go right up from there. As a guide, a DVD movie is around 4-8GB while a song might be 4 megabytes (0.0039GB). Unless you're storing a lot of videos or games on your system, you'll probably find it hard to fill up all the available space.

Tip: Make sure the drive you're buying spins at 7200 revolutions per minute (rpm) or more. Anything less and you could be waiting a long time to save and retrieve files.

Graphics card / Video card

The main thing you need to know is whether the computer comes with **integrated** or **dedicated** graphics.

Integrated ("onboard") graphics just steal part of your RAM when necessary. While this makes a computer cheaper, it also means poor performance for most graphic-intensive programs.

A dedicated graphics card always has a set amount of memory available – so it can handle a much bigger workload. Card prices can vary remarkably. If you're into high-end gaming, expect to spend at least \$400 for a graphics card. Otherwise, you can get away with a cheaper mid-range dedicated card (around \$200). The important thing is that it's there.

Sound card

Most computers have "integrated sound," an audio processor on the motherboard. This is fine for most users, but if you want high quality audio for games, music and home theatre, look for a dedicated sound card. These give much better sound quality by reducing interference.

The most common computer sound cards are made by Sound Blaster, and range from as little as \$30 to over \$1,000 depending on the type and quality. Good cards suitable for most users are around \$100 to \$300.

Tip: Only gamers and music lovers need to look for a dedicated sound card.

Disk drives

Most computers have DVDRW drives capable of playing and recording both CDs and DVDs. Many also have dual-layer DVD writers capable of recording up to 8.5GB on a dual-layer DVD.

The latest and greatest machines have high-definition Blu-ray drives, but these are very expensive. (For more on DVD formats see our report on [Portable storage](#).)



Screen

The important things to consider are size, resolution and features.

Size: General users should be happy with a 17 or 19 inch screen. Gamers, graphic designers and movie buffs may want to look for bigger widescreen monitors.

Resolution: Typical resolution is 1280 x 1024 (SXGA) - most programs and websites are designed to run this resolution. Those with a need for better graphics should look for a 1680 x 1050 (WSXGA+) resolution or better (see below).

Features: Adjustability, built-in speakers, USB ports, S-video connections, widescreen and even wireless screens are features you can consider.

Tip: Our [test of LCD monitors](#) shows that the claims of brightness, contrast ratios and response times made by manufacturers make very little difference, if any, to the naked eye.

Many advertisements for LCD screens will state the screen size followed by some abbreviations. Here's what they mean:

Standard resolutions (4:3 aspect ratio)

VGA - an LCD screen with a resolution of 640 x 480 pixels

SVGA - 800 x 600 pixels

XGA - 1024 x 768 pixels

SXGA - 1280 x 1024 pixels (typical 17 inch screen)

SXGA+ - 1400 x 1050 pixels

UXGA - 1600 x 1200 pixels

Widescreen resolutions (16:9 aspect ratio)

WXGA - 1366 x 768 pixels

WSXGA+ - 1680 x 1050 pixels

1080p - 1920 x 1080 pixels

WUXGA - 1920 x 1200 pixels (typical large screen)

Peripherals

Once you've decided the basic specifications you need, think about what else you may find useful.



Mouse and keyboard

It's often possible to upgrade the standard keyboard and mouse to wireless and/or ergonomic ones at the time of purchase. Don't be afraid to ask as you're more likely to get a discount while you're buying the whole computer.

Speakers

Most PC packages come with a cheap pair of speakers, or you can buy them for around \$30 - a good option if your PC has integrated sound.

If you have a dedicated sound card, you may wish to buy better quality speakers to match - a 2.1 system (two speakers and a subwoofer), or a 5.1 or 7.1 system for surround sound. These systems can cost between \$80 and \$1000, but a reasonable set will set you back \$100 to \$200.

If you have a stereo system located close to the computer you could save money and clutter by cabling the output of the sound card to the auxiliary input of the stereo. You won't get some of the surround sound features of a dedicated system, but you will get good-quality stereo. Connecting cables are available from electronics shops. For most stereos you'll need a 3.5mm stereo to 2x RCA cable.

Tip: Only get serious about speakers if your computer has a dedicated sound card.

Which Windows?

Windows XP is still many people's favourite but is almost impossible to get. It's a good choice if you're after a cheap solution that'll run well on a less highly spec'd computer.

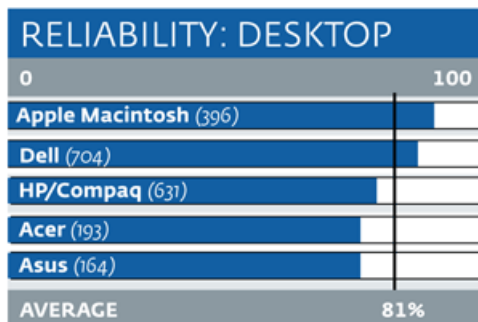
Windows Vista is on its way out. It has more features than XP, and requires a better system to run well. We'd recommend having at least 2GB of RAM if you're going with Vista.

Windows Seven is the new successor to the largely unpopular Vista. It's faster, less resource-hungry, and has a better user interface than Vista.

Brands and reliability

There are many competing international PC brands, as well as numerous companies who can custom-build machines to suit your needs. Which brand is best, and where should you buy it from?

Our latest computer reliability survey (see below) found that overall 81 percent of desktop computers had not required repairs in the previous 12 months.

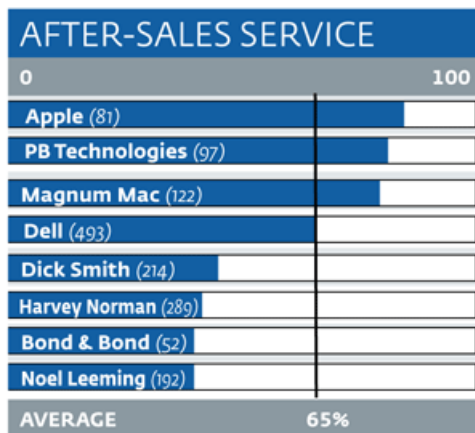


Apple and Dell desktops rated tops for reliability, with 91 and 86 percent of their owners reporting no repairs in the previous 12 months. That's a lot better than Asus and Acer, which both rated 74 percent.

Occupying the middle ground with an average rating of 82 percent was a group of 477 computers that had been custom-built for their owners.

After-sales service

Just over half the people in our survey had requested after-sales service: 65 percent of them rated it 'good' or 'very good' (see below).



Computer specialist stores rated far better than large retail chains. Apple led the ratings with 84 percent, followed by PB Technologies (80 percent) and Magnum Mac (79 percent).

Small local retailers rated well. There weren't enough responses to analyse individual retailers separately. But as a group they rated 76 percent for advice and support; and they were the most likely to send a technician to a customer's house to sort out computer problems.

For more information see our full [computer reliability report](#).

Buying options



Major retail chains

Chains such as Dick Smith, Noel Leeming or Harvey Norman are the most obvious choice for buying your first computer. You'll get a complete out-of-the-box system – but at a price. The major chains' prices are more expensive and their after-sales service ranks below average in our [computer reliability survey](#).

Specialist computer stores

These are cheaper than the chains and allow you to customise your computer. If you don't mind doing this, you can save money by ditching computer parts you don't need. Specialist stores provide the best after-sales service according to [our survey](#).

Second-hand

[Trade Me](#) is the logical place. Just be careful – you won't always be able to tell what kind of condition a computer is in and its warranty will often have run out. Remember a private sale doesn't give you the protection of the [Consumer Guarantees Act](#).

DIY

This is only recommended if you have plenty of computer knowledge or know someone who does. The advantage is that it's significantly cheaper than buying a pre-made computer.

Technical terms

Don't know your USB from your PCIe or your RAM from your ROM? We explain some commonly used terms:

AGP: Accelerated graphics port. A dedicated slot on the motherboard for the 3D graphics card. Somewhat dated now.

CPU: Central processing unit, also called the processor or chip. This is the engine of the computer. Generally the higher the processing speed, the better your computer will perform.

DDR RAM: Double data rate random access memory. A very fast type of RAM (see below). DDR2 and 3 are even faster.

Dedicated graphics: A separate graphics card with memory specifically allocated to graphics.

FireWire: A very fast port, often used for transferring data from a video or digital camera.

GB: Gigabyte. A measurement of data. 1GB = 1024MB

HDD: Hard disk drive. The central storage area of your computer for files and programs.

Integrated graphics: A chip on the motherboard that shares the video memory with the processor. Don't usually perform as well as dedicated graphics cards.

MB: Megabyte. A measurement of data.

Memory: Your computer has two types of memory: long term (hard-drive) and short term (RAM).

PCI: Peripheral component interconnect. A port for attaching components. Still used, mainly for internal modems and sound cards.

PCIe: Also known as PCI Express, this is the most common port on modern computers for attaching components like dedicated video cards and sound cards.

RAM: Random access memory. RAM stores information only when the computer's power is on.

USB: Universal serial bus. A very common port for attaching peripherals such as scanners, digital cameras and printers.

Our advice



Start by setting a budget.

List the tasks you need a computer for. Compare this with our [user profiles](#) to determine the components and features you'll need.

Make sure the deal meets your needs. Explain what you want as fully as you can. Ask questions, including: How much RAM can I upgrade to? How many expansion slots are there on the motherboard? What's the fastest processor this machine can upgrade to?

Ask what the warranty covers. Is it "on site" (so they'll come to you - this is rare) or "back-to-base" (so you have to take the computer to them), and how long does it last?

Is there a technical help-line, and what is the charge for calling?

Consider buying from smaller retailers rather than national chain stores. See [Brands and reliability](#) for the retailers that have given our members excellent after-sales service and support.

Be wary of buying extended warranties - they offer little extra protection over your consumer rights. For more information, see our article on [Extended warranties](#).

When you pick up your new computer, make sure everything is included. There should be an instruction manual, original CD-ROMs and licence agreements for all software installed, including the operating system, and warranty information.

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