

# Buying a Computer

**B**efore you buy a computer, think about your current and future needs, and those of your family. What do you want to do with your computer? What software will you be using?

Typical home computer software applications include word processing, electronic mail, games, educational programs, and financial and database management. If you want to perform specialized functions (farm accounting, building Web pages, computer-aided drafting, etc.), be sure to check the specifications for the programs you need *before* buying hardware. Using graphical programs (Print Shop Deluxe™, Adobe Photoshop™) and surfing the Internet will require a more powerful computer.

The software you plan to use will determine the hardware you need.

## Computer hardware

Many varieties of computer models are available—all with different price tags. Computer advertisements are filled with computer “specs” (specifications). How do you sort through all of the information? What do the words and acronyms mean? These definitions will help you make sense of the ads and choose the computer that’s right for you.

**Desktop, minitower, laptop, notebook:** These refer to the size and shape of the computer case.

**Processor:** A processor is like the engine in a car. It makes the computer work. Processor speed is measured in megahertz (MHz): 350 MHz, 400 MHz, 450 MHz, and so on.

**Memory SDRAM** (Synchronous Dynamic Random Access Memory): Memory is storage space in your computer that temporarily holds information currently being used. This high-speed memory holds a copy of the operating system, programs that are running, and any information being processed. Memory speed is measured in megahertz (MHz). The storage capacity of memory is measured in megabytes (MB): 16 MB, 32 MB, 64 MB, 12 MB, etc.

**Hard drive:** This is the storage device inside the computer where information is permanently stored. Hard drives range in size from 4.0 gigabytes (GB) to 18 gigabytes and more. One gigabyte stores the equivalent of approximately 711 floppy (1.44 MB) diskettes.

**Cache** (pronounced “cash”): Cache memory is special high-speed memory that handles frequently accessed information for fast reference.

### Computer life expectancy

The life expectancy for a computer is three years. You may use a computer for many years, but it will become outdated and will have trouble running newer programs.

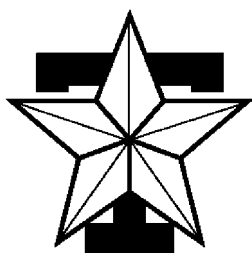
### Hardware tips

**Processor:** The higher the MHz number, the faster and more expensive the computer.

A 400 MHz Pentium II processor is recommended.

**Memory:** The more memory in the computer, the faster the software will run.

A minimum of 32 MB to 64 MB of memory is recommended.



## Hardware tips

**Hard drive:** As a general rule, you can't have too much hard drive space. A minimum of 4 GB to 10 GB hard drive is recommended, depending on the use of your computer.

**Cache:** The bigger the cache, the faster the computer can do its work, and the smoother programs will run. It is recommended to have 512 K to 1 MB of cache on your system.

**Monitor:** The higher the resolution, the better. The smaller the dot pitch, (typically from 0.25 mm to 0.31 mm), the crisper the image.

Faster refresh rates, (typically from 60 Hz to 85 Hz), are easier on the eyes and allow you to sit in front of the computer for longer periods of time without tiring.

**Video graphics card:** This card affects your monitor's image quality and the number of colors it can display. A minimum of 4 MB to 8 MB of memory for your graphics card is recommended.

**Sound card:** If the computer you're buying does not include a sound card or speakers, buy them separately.

**Modem:** Buy a modem that supports the V.90 protocol and has a speed of 56 Kbs.

**Monitor:** Monitors are sometimes sold separately from the computer and come in many sizes and shapes. The *Viewable Image Size* (VIS) is the diagonal measurement of the viewable screen size and is typically smaller than the total monitor size. The quality of the picture on the screen is determined by its *resolution*. A computer monitor is divided into many dots called *pixels* (like a TV). The spacing of these pixels is called *dot pitch*: the closer the spacing, the higher the resolution. The *refresh rate* is the number of times the computer screen is redrawn per second; it is measured in hertz (Hz). The faster the refresh rate, the more steady the image on your screen will appear (you'll see less "flickering").

**Video/Graphics card:** A graphics card is a circuit board inside the computer containing the necessary video memory and other electronics to provide pictures.

**CD-ROM or DVD-ROM drive:** A CD-ROM (Compact Disc-Read-Only Memory) disc is the same size as a music CD and holds more than 600 MB of text, graphics, video, and sound. A DVD-ROM (Digital Versatile Disc-Read-Only Memory) provides sharp images, superior audio, and full-frame-rate video playback of movies and music videos. DVD-ROM drives can also play existing CD-ROM discs, but CD-ROM drives cannot play DVD-ROM discs.

**Sound card:** A "multimedia" computer usually includes a sound card and speakers that provide high-quality stereo sound output. This product improves the sound from your computer, especially when running children's software, playing games, or listening to music.

**Operating system:** An operating system is software that schedules tasks, keeps track of files and directories, "talks" to printers, and displays a screen when no application program is running. Microsoft Windows 95™, Windows 98™, Windows NT™, and Mac OS 8™ are examples of operating systems.

**Modem:** A modem provides a communication link between your computer and telephone line. It may be inside the computer or located externally and connected to the computer by a cable. Some modems offer features such as fax, speaker phone, caller ID, and voice mail.

## Making a good purchase

**Know your spending limits:** Balance your needs against your budget. Be sure to include the price of software, printer, and other add-ons you may want—especially the monitor, if it is sold separately from the computer. New computer prices start at about \$600.

Some computers come "bundled" with software at no extra cost. Make sure that these bundled programs are adequate for your needs. If the applications (software) are not included in your initial purchase, you will need to budget for these costs. Individual software programs can be expensive and range in cost from \$10 to several thousand dollars, depending upon the type of software you need.

There are other expenses involved in owning a home computer system, including blank disks, printer cartridges or toner, upgrades, or computer furniture. Additional expenses may include magazine subscriptions, Internet access fees, and computer training classes.

**Know your computer dealer:** Shopping for a computer that best suits your needs is only part of the process. Many people buy computers from large national companies, sometimes by mail-order, with very good results. You can order a computer with the software you want pre-installed, and then set it up yourself when it arrives, following instructions the company provides. However, first-time purchasers may be more comfortable with a local dealer who can support them both before and after the sale. A local dealer can set the computer up for you, guarantee and service it, and advise you when you have questions or technical problems.

On your first visit to a computer store, evaluate the store itself as well as the hardware and software it sells. Let the salesperson know how you are planning to use your computer. Ask the salesperson to let you work on one of the computers, and use a software program that will suit your needs and demonstrate the capabilities of the computer.

**Consider these questions about the store:**

- ◆ How long has the store been in business?
- ◆ What are the dealer's services and policies for sales, returns, repairs, and upgrades?
- ◆ Does the store carry software as well as hardware?
- ◆ How extensive is the product line?
- ◆ Does the staff have special expertise in a particular area (home use, small business, education, etc.)?
- ◆ Are training sessions available?
- ◆ Have other customers been satisfied with sales and service?

**Consider these questions about the computer:**

- ◆ Can you easily add more memory?
- ◆ Are empty expansion slots available in the computer? Empty expansion slots will allow you to add more functions to your computer (scanner card, sound card, network card).
- ◆ Can you add a CD-ROM and/or a tape drive (if it doesn't come standard)?
- ◆ Can speakers be added? A sound card?
- ◆ Does the computer have an internal modem? If not, can one be added?
- ◆ Will the salesperson demonstrate the different processor speeds for you?

## **Computer peripherals**

Any piece of hardware equipment that is connected to your computer system is considered a **peripheral**.

**Mouse:** A mouse is an input device that sits on the desk beside the computer. When it is moved across the top of the desk, a pointer moves on the computer screen.

**Keyboard:** A keyboard is an input device you use to type information into the computer. If you're going to type at a computer for long periods of time, you might consider an ergonomic keyboard.

**Printer:** The two main choices in home computer printers are **ink jet** printers (also called bubble jet) and **laser** printers. A laser printer produces higher-quality output, but it also carries a higher price tag.

Print speed is measured in pages per minute. Print quality is measured in resolution.

For more information on printers, see the publication "Computer Peripherals" (MKT-3378).

## **Computer Recommendations**

As of July 1999, standard industry configurations include:

### **Windows system**

400 MHz Pentium  
64 MB SDRAM  
10 GB Hard drive  
Multimedia  
(32x CD, sound card, speakers)  
Windows 98

### **Macintosh system**

G3, 300MHz  
64 MB SDRAM  
8 GB IDE hard drive  
24x (max) CD-ROM drive  
6 MB SDRAM video memory  
Audio/Video card  
Mac OS 8

### **Windows laptop system**

266 MHz Pentium  
64 MB SDRAM  
4 GB Hard drive  
14.1" active matrix color display  
Multimedia  
(20x CD, sound card, speakers)  
Cable for external floppy drive  
Windows 98

### **Macintosh laptop system**

PowerBook G3, 300 MHz  
14.1-inch TFT screen  
64 MB SDRAM  
8 GB hard drive  
20x (max) CD-ROM drive  
4 MB SGRAM video memory  
Mac OS 8.5

## **Buying used computers (secondhand, refurbished, or rebuilt):**

Buying and selling old computers seems to be more and more popular today. Newspaper want ads, Web pages, and computer stores are full of outdated computers. An older PC may be advertised as a 386 or 486, and may be running Windows 3.1 operating system or MS-DOS (Microsoft-Disk Operating System). An older Macintosh computer may be a Classic II, Classic III, SE, Quadra, or Performa, and may be running Macintosh operating system 6.0, 6.5, or 7.0.

Older computers may seem like a good deal, but be careful of their limitations. Can the computer be upgraded to run:

- ◆ current operating systems,
- ◆ educational software,
- ◆ tax or accounting software,
- ◆ games, and
- ◆ productivity software such as calendars, full-featured word processors, and greeting-card creators?

Can the computer be upgraded to connect to the Internet? If the computer can be upgraded, how much are you willing to spend? Many software packages are available only on CD-ROM, and an older computer may not have a CD-ROM drive. Carefully evaluate any secondhand computer before buying it.

## **More information**

You can find more information and definitions of computer terms at these web sites:

- PC Webopedia  
<http://webopedia.internet.com>
- ZDWebopedia  
<http://www.zdwebopedia.com/>

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