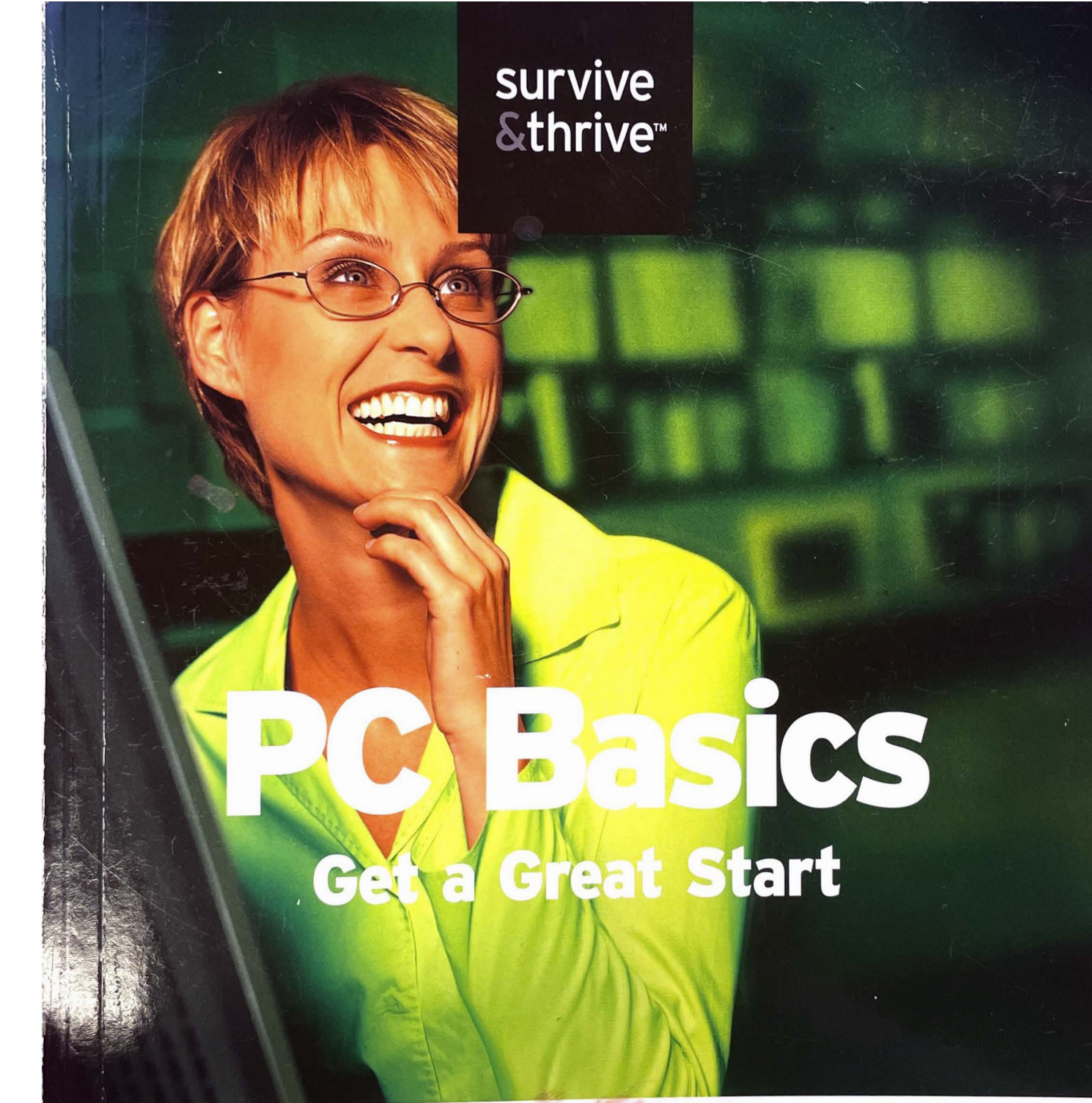




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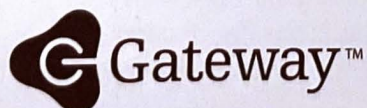
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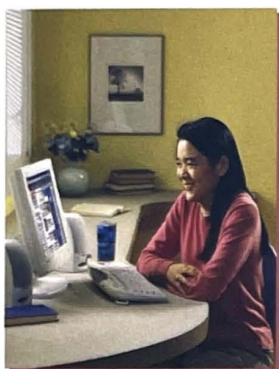
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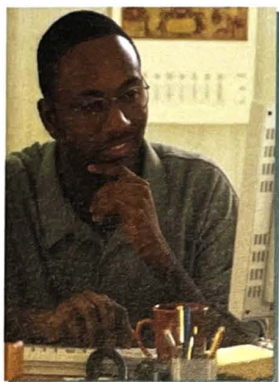
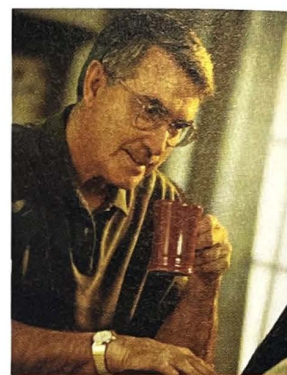


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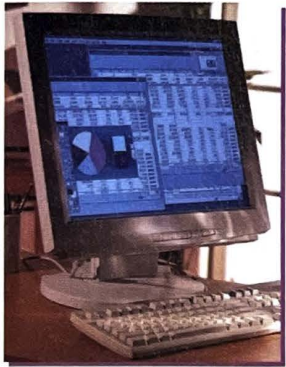
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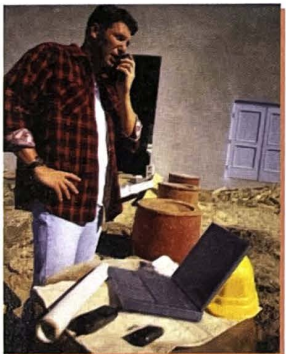
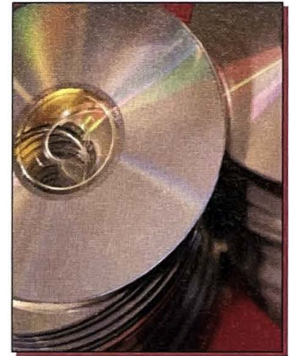


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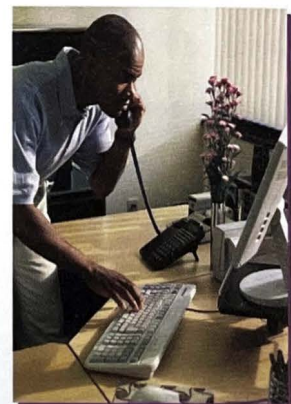


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It's hard to predict what forms computers will take in the future. Technological advances can come at any time and you can assume, that computers will most likely continue to get faster, smaller, and cheaper.

Understanding Common PC Components

Now that you've been introduced to the modern computer, let's review some standard computer terms and basic PC components. Becoming familiar with them will help you to get the most out of this book and your PC.

Hardware and Software

The two main classifications of a PC are *hardware* and *software*. All physical objects attached to a PC (things you can touch), including the monitor, keyboard, mouse, and printer, are considered hardware. Many types of hardware devices are available for PCs; a complete list is too long to include here. We do, however, discuss many common PC devices later in this chapter. Generally speaking, hardware devices can sometimes be called *hardware*, *devices*, or *components*.

Hardware is further divided into two groups by function: *input* and *output*. Input hardware is any object that is used to enter information (text, sound, or images) into a PC. Examples of input hardware include keyboards, mice, scanners, digital cameras, and microphones, as shown in Figure 1-9.

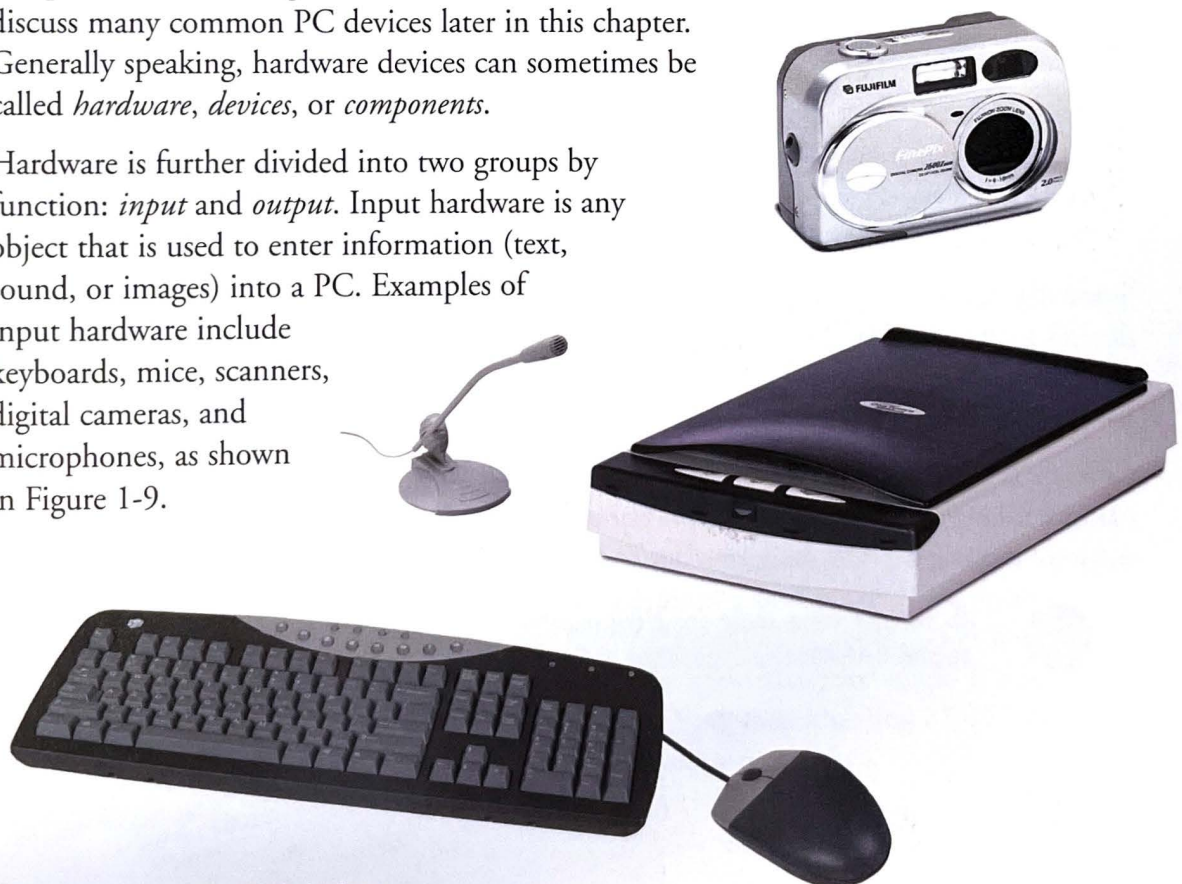


Figure 1-9 Common input devices.

Output hardware is any object that conveys something from inside the PC to the outside world. Examples of output hardware include monitors, speakers, printers, and MP3 players, as shown in Figure 1-10.



Figure 1-10 Common output devices.

Some devices are considered to be both input and output devices, including storage devices such as hard drives, floppy drives, Zip drives, and CD-RW or DVD-R drives. Devices that send and receive data, such as network interface cards (NICs) and modems, are input/output devices as well.

Software is a general term for “computer programs.” Written in one of any number of computer languages, software tells the computer how to perform tasks. Common types of software include the following:



To discover more about the capabilities of computers select the web segment: *Multimedia Capabilities* in the PC Basics course.

Operating systems. An *operating system (OS)* is software installed on a PC that controls the way computer hardware and software interact. In other words, an operating system creates an environment in which software can operate on a PC. Examples of Microsoft® operating systems include Windows® 98, Windows Me, Windows 2000, and Windows XP® (see Figure 1-11). Other companies produce other operating systems, such as Sun Solaris®, Apple MacOS, and Red Hat Linux®, among many others.

Programs. The terms *program*, *application*, and *software* are typically used to describe the tools, utilities, or games that run on your PC. Examples of such programs include Microsoft Word (a word processor), Microsoft Excel (a spreadsheet program), WinZip® (a file-compression tool), Adobe® Acrobat® (a document viewer), Typing Tutor® (a typing trainer), and Hearts (a card game).



Figure 1-11 The standard desktop view of Windows XP, a common operating system.

Device drivers. A *device driver* is a special type of software that allows a specific hardware object to communicate with your PC. Without a device driver, hardware devices won't work with a PC. For example, the operating system requires a print driver to tell the computer how to interact with any printer. Most hardware vendors make driver installation easy—it usually requires no more effort than inserting a CD into your PC's CD-ROM drive and clicking an icon on a pop-up menu.

System Unit

The *system unit*, also referred to as a *case* or *tower*, is the box that surrounds and protects the internal components of a PC (see Figure 1-12). The primary components include:

- ◆ A motherboard
- ◆ A central processing unit (CPU)
- ◆ Memory cards
- ◆ Storage devices
- ◆ A power supply



Figure 1-12 A typical system unit, from the front, side, and back.



You may encounter references to a system unit as “the CPU” (an abbreviation for *central processing unit*). This is technically incorrect, however, because the term *CPU* identifies only the main processor chip on a PC’s motherboard—not the whole system unit.

Motherboard

The *motherboard*, sometimes called a *mainboard*, is the foundation of a modern PC. As shown in Figure 1-13, it features numerous *sockets* or *ports* that enable it to connect all devices in a PC, such as the CPU, memory cards, and storage devices. Each motherboard is typically designed for a specific type of CPU and memory card.

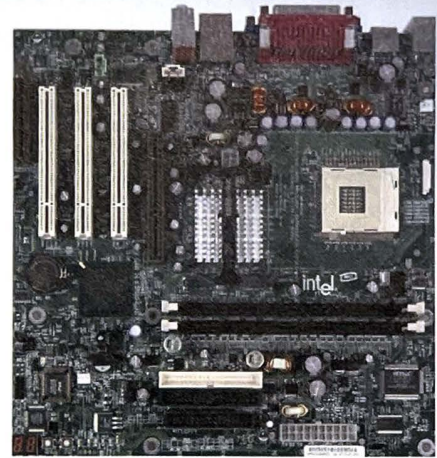


Figure 1-13 A typical motherboard.

More About . . . Motherboards

Every motherboard is different; each is designed to work with only a few specific CPUs and memory cards. Some motherboards support several types of memory, whereas most support only one type. Some motherboards can accommodate two or four CPUs, but most support only one. A motherboard that supports Intel CPUs does not support AMD CPUs, because each type of CPU uses different connectors. When you purchase a motherboard, CPU, or memory upgrade, make sure all such components are compatible.

CPU

The *central processing unit (CPU)* is the core component in a PC (see Figure 1-14). Sometimes referred to as the “brain” of the computer, the CPU interprets and carries out instructions, performs all computations, and controls the devices connected to the PC. There are a variety of CPUs available on the market. A well-known company is Intel®, which produces the Pentium® and Celeron® processors. Another company is AMD®, which produces the Athlon and Duron processors. In most cases, CPUs from Intel or AMD can be used with Microsoft operating systems.



Figure 1-14 A CPU not connected to the motherboard.

A CPU's speed is measured in hertz. Most CPUs today run at *gigahertz (GHz)* speeds, while some older systems are measured in *megahertz (MHz)*. MHz indicates how many million calculations a CPU can perform every second, while GHz indicates how many billion calculations a CPU can perform every second. Although Windows XP will run on a PC with a CPU working at a speed of 233 MHz, Microsoft recommends that your PC use a CPU that is 300 MHz or faster to achieve acceptable performance.

More About . . . CPUs

When you shop for a PC, it's important to consider the CPU speed. Most PCs on the market today include CPUs that operate at speeds of 1 GHz or faster—sometimes 2 GHz or more! Of course, the PCs with the newest, fastest CPUs tend to be more expensive than their slightly older, slightly slower predecessors. Buying one or two generations or speed levels behind whatever CPU is currently fastest can usually save you money. Besides, very few programs are designed to take full advantage of the highest speeds and advanced technologies built into the most cutting-edge CPUs. Ordinary home-user tasks such as word processing, surfing the Internet, listening to audio files, and even editing home movies rarely tax even 1 GHz CPUs.

Memory Cards

Your PC uses *memory cards*, also called *memory sticks* (see Figure 1-15), to store *random access memory*, more commonly called *RAM*. RAM temporarily stores data, software, and the operating system while the PC is operating.

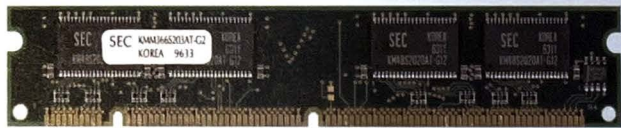


Figure 1-15 A memory card.



Data is stored in RAM until you assign it a permanent file name and storage location. For example, if you type a letter in WordPad on Windows XP and then turn off the power, everything you typed will be lost. But if you save your letter to a file on a storage device before you turn off the power, you can open that file to regain access to your letter after you turn the PC back on.

RAM is a very important part of a PC; in most cases, the more RAM a PC has, the better and faster it performs, and the more tasks it can handle at the same time. So, how much RAM is enough? Windows XP Home and Professional both require at least 64 MB, but Microsoft recommends 128 MB or more. In our experience, 256 MB is usually plenty for most activities in which a home user will engage.

More About . . . RAM

You can add RAM to a PC by inserting memory cards into the motherboard. There are many memory types and numerous memory features available. The user manual for your motherboard should indicate clearly what type of RAM it supports. In that user manual you may see some of the following names for memory components: SIMM, DIMM, SDRAM, DDR, and RDRAM. Other memory features listed in a user manual may include error checking (ECC), parity or non-parity, PC100, PC133, PC800, and PC2100. The specifics of what each of these acronyms and feature names mean are very technical. In most cases, you need to know only the type and features your PC requires.

Storage Devices

The information you enter in your PC needs to be stored somewhere; that's where storage devices come in. There are several types of storage devices available for PCs. The most common storage devices are:

- ◆ Hard drive
- ◆ Floppy drive
- ◆ CD drive
- ◆ DVD drive



Floppy drives, CD-ROM drives, and DVD-ROM drives are all examples of *removable storage*. That is, each uses readable and writable media that can be removed from the drive itself. (The term media refers to the individual items such as a floppy disk, compact disc, and so on that you can insert into or remove from a removable storage device.) Other removable storage devices include tape-backup drives and Zip/Jaz drives.

PC Basics

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PCs/PC Basics

Now that you're using a PC, you've got the power to make your life better in all kinds of ways. From introducing the PC, learning the components that make up your personal computer and to getting to know your Windows XP desktop, PC Basics covers it all. The CD-ROM takes the reader on a tour inside a PC. Learn how to work with the Start menu, utilize wizards and manage files and folders. Understand how to use a mouse, boot up the computer. You'll work smarter and faster - and learn how to do a whole lot more.

PC Basics will show you how to:

- Create shortcuts to files, folders, drives and programs
- Select, move, copy, delete, rename and search for files
- Troubleshoot basic problems with monitors and printers
- Explore the capabilities of recordable disc drives in playing audio CDs and DVDs.
- Learn how to organize and customize your computer
- Create folders and subfolders
- Work in a shared or networked environment

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