

Part I

PC Overview

Welcome to Part I, where I introduce you to the PC, piece by piece. Here you'll find a visual tour, personal introductions, basic understandings, and a hint of what's to come as you uncover the basics of the ever-useful personal computer.



In this part . . .

- ✓ **Basic computer science**
- ✓ **PC types and models**
- ✓ **Hardware expansion**
- ✓ **The operating system**
- ✓ **The Internet**
- ✓ **Files, folders, and your stuff**

What You See: Basic Hardware

A computer is really the sum of its parts more than it is a single gizmo. The parts all have official, technical names, which you may know already. Some parts live inside the box; some dwell outside. Connecting everything are cables — vast, tangled, and ugly. All together, the pieces, parts, and cables make up your computer system.

The central item in the computer system, the hive of high-tech wonderment, the PC's bosom (as it were), is the *console*. Other items surround the console and connect to it. Those things are *peripherals*.

Despite the common elements, each computer system is quite unique, sporting different internals, different types and amounts of storage, and different software to make things go. I suppose that's why the things are *personal* computers and not *generic* computers. The basic PC setup — console and peripherals — is illustrated in Figures 1-1 and 1-2.

Figure 1-1

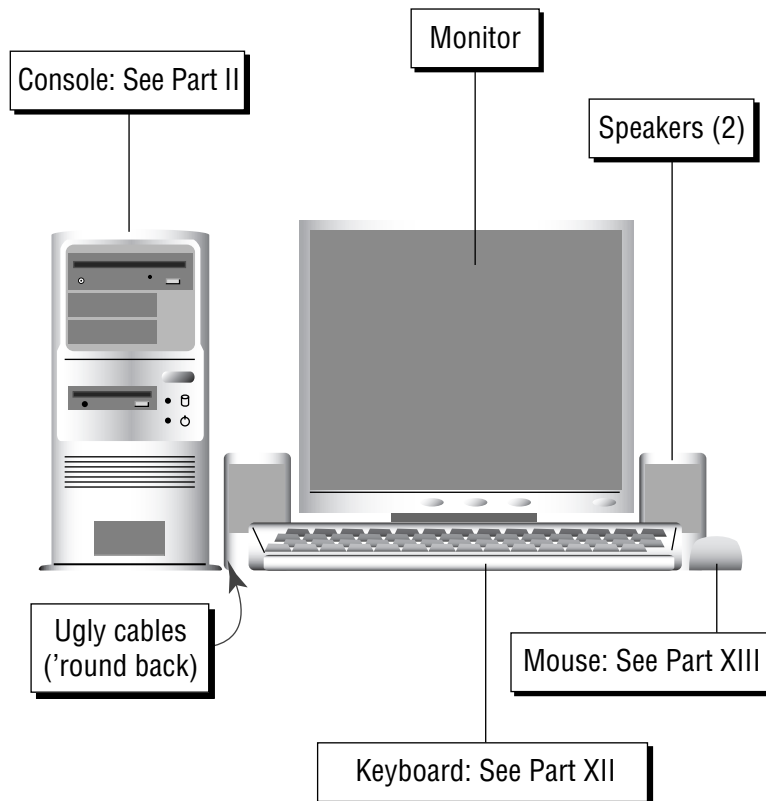
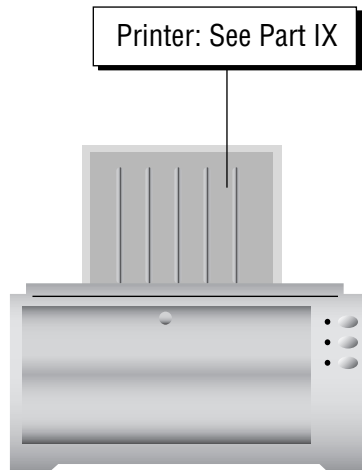


Figure 1-2

Here are some of the basic components you should recognize and know by their official names:

- ✔ **Console:** The centerpiece of any computer system. It's the box-o-guts! Also called the *system unit* and often mistakenly referred to as the CPU. **See also** Part II.
- ✔ **Monitor:** The computer's display. It can sit on top of or to the side of the console. This part of the basic computer system is necessary because it's how you see the information the computer displays, also known as *output*.
- ✔ **Keyboard:** The thing you type on, and one method for you to send information to the computer, also known as *input*. Despite all the computer's graphics, most of the time you spend using it involves typing. **See also** Part XII.
- ✔ **Mouse:** The gizmo that helps you work with graphical images that the computer displays on the screen. It's the second method you use for entering information (next to the keyboard), a second form of *input*. **See also** Part XIII.
- ✔ **Speakers:** The PC speaks! And squawks, and plays music, and often talks. To hear that stuff, you need speakers. They can be either external or part of the monitor. **See also** Part II.
- ✔ **Printer:** The device that puts your work down on paper — documents, copies of e-mail messages, charts, graphics, photos, or anything else your creative heart desires. The printer is the PC's second most popular gizmo for output. **See also** Part IX.

- ✔ **Lots of ugly cables:** Rarely seen in the showroom and never in ads, although they exist! Cables! Lots of ugly cables keep everything connected. They're usually found 'round back of the console and other components. Yes, even wireless systems have lots of cables. **See also** Part II.

A computer system can include a variety of other devices and gizmos beyond the basic items mentioned here. These *peripherals* include scanners, digital cameras, external disk drives, modems, and a host of other gadgets various and sundry.

What You See: Console — the Front

The *console* is the sun of your computer's solar system, the central hub of activity. Every other device, gizmo, or gadget in the computer system plugs into the console in one way or another. The console is also home to many of your PC's most important, secret, and forbidden parts.

Figure 1-3 shows important items on the front side of the console. These are things you should be able to locate and identify on your own computer, although their specific locations may be different from what you see here:

- ✔ **CD-ROM / DVD drive:** Part of the PC's storage system, and one of the main disk drives, the CD-ROM / DVD drive is designed for reading and, often, creating CDs and DVDs. Access to the drive may also be hidden behind a panel or door.
- ✔ **Future expansion:** You can add disk drives or devices to the console. They may be obvious or well hidden, thanks to a clever console design.
- ✔ **Floppy drive:** An ancient part of the PC's storage system, although rarely found on today's PCs, this drive is designed to read from and write to floppy disks. Not every PC sold today has a floppy drive, but if yours does, it appears somewhere on the front of the console.
- ✔ **Air vents:** The thing's gotta breathe!
- ✔ **Secret door/connectors:** Many consoles have special connectors on the front for USB, digital video (IEEE 1394), and audio devices. These may be obvious on the front of the console or concealed behind a door or panel.
- ✔ **Buttons and lights:** The console has at least one button and some lights. Additional buttons may appear on some consoles, as with additional lights. The following list highlights some of the more common buttons and lights:
 - **Power button:** This button is used to start up the computer, turn the computer off, or do other power-related things. **See also** Part IV.





- **Reset button:** This button lets you take control during times of woe, by essentially forcing the computer to stop and start in one swift punch. It's a powerful button, although not every console has one.

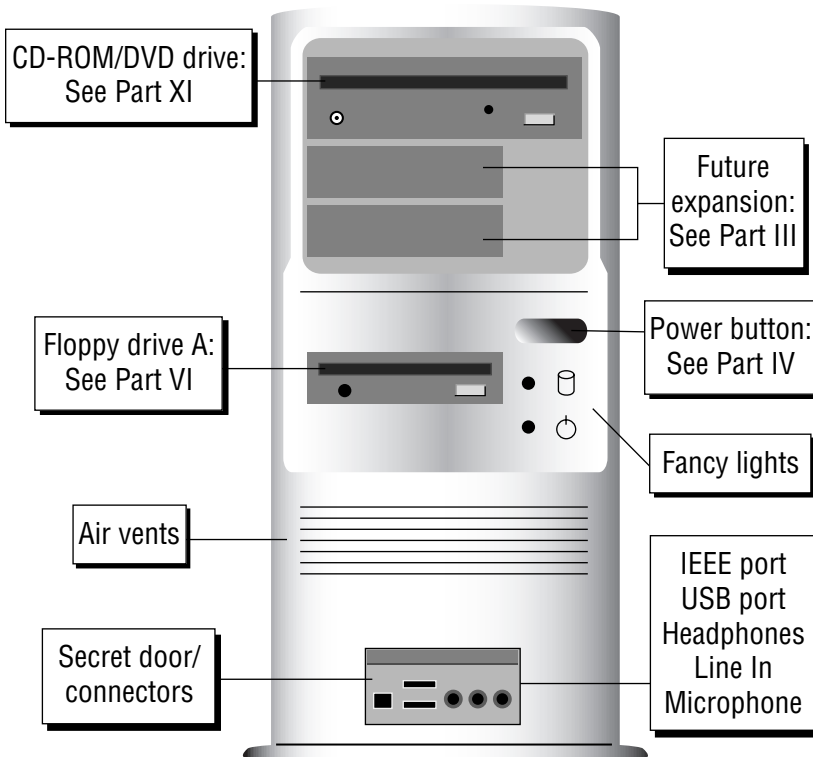


- **Sleep button:** This button appears mostly on laptop PCs and is used to put the system into a special suspended, or Stand By, mode. Few consoles have such a button, yet the sleep icon may appear as a light on the console, to indicate that the computer is not off, but, rather, is "asleep."



- **Hard drive light:** This festive light flashes as the hard drive is being accessed. Because hard drives are often buried internally, the light provides a visual clue to whether the drive is alive or dead.
- **Power light:** This is merely a light on the console that is on when the computer is on. If your computer doesn't make much noise, this light is often your only clue that the sucker is turned on.

Figure 1-3

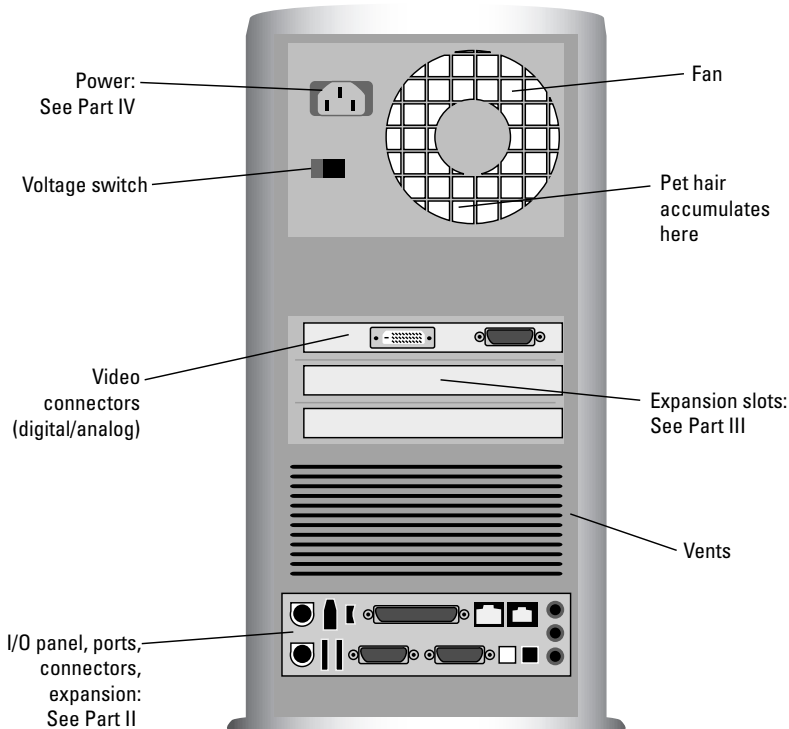


This list doesn't cover everything you could possibly find on the front of your computer. For example, your console may also have an infrared port for communicating with a laptop or handheld computer. Even so, become familiar with those few items mentioned in the list. Many computer manuals and software instructions assume that you know where everything is and what it's called.

What You See: Console — the Back

Forget the pretty face: When it comes to the important stuff, you need to look at the console's ugly rump (see Figure 1-4). That's where most of the computer's components connect to the console.

Figure 1-4



Other items are worth noting as well:

- ✔ **Power connector:** The power cord that plugs into the wall gazinta here.
- ✔ **Fan:** Air gets blown out here, to keep the inside of the console cool.
- ✔ **Voltage switch:** Some power supplies have two operating frequencies. This switch needs to be set only once to match the proper voltage for your country.
- ✔ **Expansion slots:** These slots are where add-on components and options are installed inside the console. You cannot see the slots directly, although the slot covers are visible on the back of the console, as shown nearby.
- ✔ **Expansion cards:** These items plug into the expansion slots and reveal a part of themselves on the console's rump, such as the digital video expansion card shown in Figure 1-4.
- ✔ **Vents:** That breathing thing again.
- ✔ **I/O panel:** Modern PCs put all their connectors in one central location, the I/O panel. It contains holes for plugging in a variety of goodies. *See also* Part II to find out what the holes are called and what plugs into them.

The I/O panel may be in one location, as shown in the illustration, or it may be split up into separate areas. For example, you can have one location for the mouse and keyboard connectors, plus another location for other items that attach to the console.

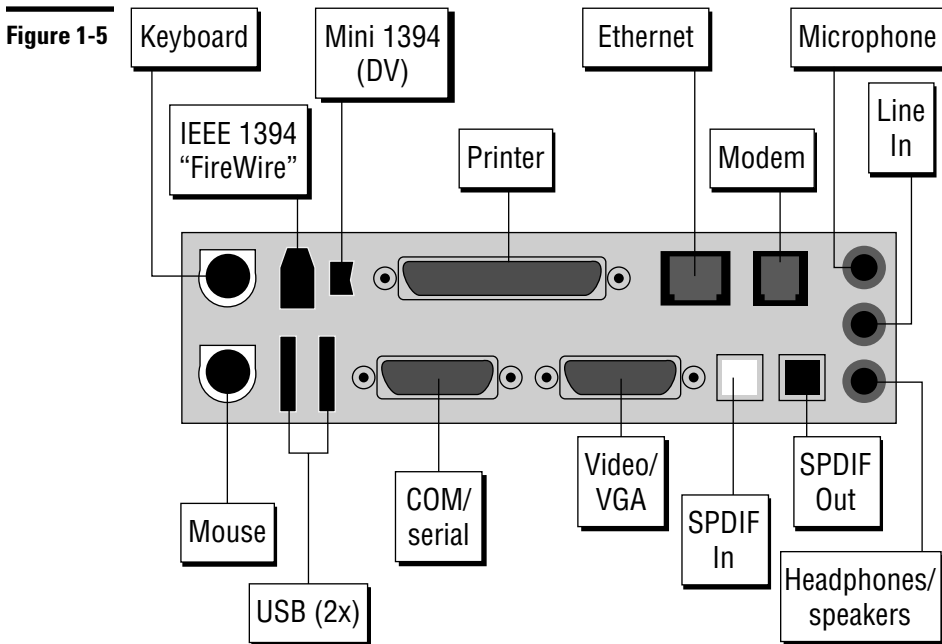
When the video connector (for the monitor) is on both the I/O panel and an expansion card, use the connector on the expansion card.

What You See: Console — the I/O Panel

I/O is computer-talk for input and output. The computer's world is all about input and output, and the console, because it's the center of your computer's world, plays a major role in that input/output thing. To accommodate all that input and output, an I/O panel is provided, replete with a variety of connectors. (See Figure 1-5.)

Here are a few items you can find on the I/O panel:

- ✔ **Keyboard connector:** Where the keyboard plugs into the console. A USB keyboard can plug into the USB port as well.
- ✔ **Mouse connector:** Where the mouse plugs into the console, although a USB mouse can plug directly into the USB port.
- ✔ **USB port:** The ever-versatile port for the multitude of USB devices to connect to your computer. *See also* Part III.



- ✔ **COM (or serial) port:** A once highly versatile connector that is now used primarily for ancient hardware — specifically, external modems and computer mice. Some consoles have two COM ports, labeled COM1 and COM2. In the olden days, it was called the RS-232C port. This port’s connector has nine pins.
- ✔ **Video connector:** Where the monitor connects to the console. It’s the same size as the COM port, but sports up to 15 holes. Use the I/O panel’s connector only when you cannot find a second connector on an expansion card. (The expansion card connector indicates the presence of a much more powerful video adapter.) Note that newer digital monitors use a white, rectangular connector that may also be exclusive to an expansion card, not the I/O panel.
- ✔ **S-Video out:** A connector used for video output, primarily on PCs with high-end video. You use the S-Video out port to connect the PC to a TV set. (This port isn’t shown in the illustration.)
- ✔ **SPDIF in/out:** A port that is used to connect the console to a high-end audio device, such as an external sound processor or a stereo system. The connector uses fiber optics to carry the sound signal, which is less

susceptible to outside noise than a traditional wire connector. SPDIF stands for Sony/Philips Digital Interconnect Format.

- ✔ **Microphone jack:** A jack that you can plug an optional microphone into for recording your voice or using voice-control software.
- ✔ **Line In jack:** An audio input used for connecting the PC's sound system to your stereo or VCR, for capturing audio and other sounds.
- ✔ **Headphones/speaker jack:** Where you plug in a set of headphones to listen privately to your computer, or plug in a set of speakers for more public listening.
- ✔ **Modem:** Where you plug in a standard phone cord, to connect your computer to the phone jack in the wall. That way, the computer's internal modem can use the telephone to contact the Internet. Modem holes can also be found on expansion cards in some PCs.
- ✔ **Phone:** A hole, if available, that's next to the modem jack. You can connect a standard telephone so that you can use a real phone on the same line as the computer.
- ✔ **Ethernet:** Where the computer connects to a network, or where you connect the computer to a cable or DSL modem. (Networking and the Internet are very similar things.) The hole for this port, also known as RJ-45, can also appear on the back of an expansion card. *See also* Part X.
- ✔ **Printer port:** Where the printer plugs in. This port is also called an LPT, or a Centronics, port. (That's for the old-timers.)
- ✔ **IEEE 1394 port:** A port that's similar to a USB port in that it accepts a variety of high-speed add-ons, such as an external disk drive, a scanner, or a videocamera. This port is also known as *FireWire*. The smaller of the IEEE 1394 ports, the 1394 *mini*, is used primarily to connect a digital video gizmo.
- ✔ **Joystick port:** A port that is found on some older PCs, used primarily to connect an old-style joystick or a MIDI musical device. Today, most of those gizmos are connected by using USB ports.

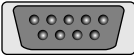
















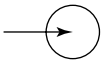




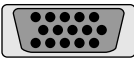



For more information on plugging stuff in, *see also* Part II.


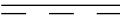










I/O Symbol Table

Connectors, connectors everywhere! They can look similar, or they can be confusing as all get-out. Fortunately, the computer industry understands how confusing connectors can be. To make things easier, many connectors on a PC console not only have unique shapes, but are also color coded and often flagged with specific icons, as shown in the handy nearby table.

Note that the colors aren't an established standard, so some PCs may sport a different color scheme than what's indicated. Also, not every connector is color coded.

Also note that different icons or symbols may be used on different PCs.

<i>Connector</i>	<i>Symbol</i>	<i>Name</i>	<i>Color</i>
		COM or serial	Cyan
		Digital video	White
		Ethernet or RJ-45	None
		IEEE 1394	None
		IEEE 1394 mini	None
		Infrared	None
		Joystick	Mustard
		Keyboard	Purple
		Line In (audio)	Grey
		Microphone	Pink
		Modem	None
		Monitor	Blue
		Mouse	Green

Connector	Symbol	Name	Color
		Power	Yellow
		Printer	Violet
	IN	SPDIF In	Pink or white
	OUT	SPDIF Out	Black
		Speakers or headphones	Lime
		S-Video	Yellow
		USB	None

The Basics: What Is a PC?

PC is an acronym for *Personal Computer*, so any type of personal computer, from a handheld or palm computer to a laptop to a desktop and, yes, even the Apple Macintosh, is a personal computer. As long as one person is using the computer, it's a *personal* computer, or PC.

Specifically, the type of computer now labeled a PC is the direct ancestor of the original IBM PC, introduced back in the early 1980s. Although there were other personal computers at that time, they were referred to as *microcomputers* and were used mostly by computer enthusiasts and home hobbyists.

Microcomputer was a play on words for *mini-computer*, but also on the name of the main piece of hardware, the *microprocessor*. (More on that in the next section.) The largest, most powerful computers available were *mainframe* systems, used by the government and large corporations. Mini-computers were used by small businesses and universities. Both the mainframes and minis had one central computer with multiple people using the system at once. The microcomputer, on the other hand, lacked such power and therefore was a one-person system.

When IBM introduced its own version of the microcomputer, it legitimized the microcomputer, making it “safe” for use in a business environment. Because of the IBM PC's tremendous popularity, it became the standard for all microcomputers.

Knockoffs and imitations were referred to as PC *clones* or PC *compatibles*. Those systems could run the same programs as the original IBM PC, but because the hardware wasn't made by IBM, manufacturers dared not use the term PC by itself. Over time, however, the terms *clone* and *compatible* were dropped, and any microcomputer that could use the same hardware and run the same software as the IBM PC was dubbed a PC.

The PC is now the standard computer platform around the world, so much so that being PC- or IBM-compatible is no longer an issue. Unless the computer says Macintosh or Sun on its case, it's a PC.

All this fuss over the term PC is really a tempest in a teapot. A computer is nothing more than a very fast, expensive calculator with a larger display and far more buttons. To better understand the thing, you must think of a PC in terms of its two main parts: hardware and software.

Hardware

Hardware is the physical part of the computer. If you can touch it, it's hardware.

The main piece of hardware is the computer's microprocessor, also called the central processing unit, or CPU. All other hardware inside the computer (the *console*) is designed to support and serve the microprocessor.

Supporting the microprocessor is more hardware. For storage, there's computer memory, or RAM, as well as disk drives. There's also a chipset, which consists of various support hardware that helps control the computer's monitor, networking, power management, and other hardware. All this stuff exists inside the console and lives on a large sheet of green fiberglass called the *motherboard*.

Software

Hardware by itself is dumb. That's because computer hardware must be controlled by software. Contrary to popular myth, the computer's microprocessor (hardware) isn't the computer's "brain." The computer's brain (if any) is the software that controls and runs the hardware.

The main piece of software in a computer is its *operating system*, which is really the PC's brain. The operating system is the one program in charge, the head honcho, the big cheese. The most popular PC operating system is Windows, produced by Microsoft Corporation. Other operating systems, such as Linux, can also be used on PCs, but Windows is by far the most popular PC operating system.

Other software comes in the form of programs that carry out specific tasks. By using various programs, you can direct the computer to perform a variety of services. Indeed, it's this versatility that has kept the PC popular and useful over the past 25 years or so.

- Computer software is nothing more than instructions that tell the hardware what to do, how to act, or when to lose your data.

- ✓ Although computer software comes on CDs or DVDs, those discs aren't software. Software is stored on discs, just as music is stored on a CD or a video is stored on a DVD.
- ✓ You never have to learn about programming to use a computer. Someone else does the programming; then you buy the program (the software) to get your work done.

You

The last part of your computer system is you, the computer operator. Although software controls the hardware, it's you who controls the software, by telling it what you want done.

The computer does whatever you want it to do. Its flexibility and potential are really unlimited. If you want a system to help you compose music, you can assemble the proper hardware and software to make that happen. If you want to run a business, you can do that too. The flexibility and configuration possibilities of the PC are endless, which is why the PC has remained the best-selling, most useful computer platform in the universe.

The Basics: Types and Models of PCs

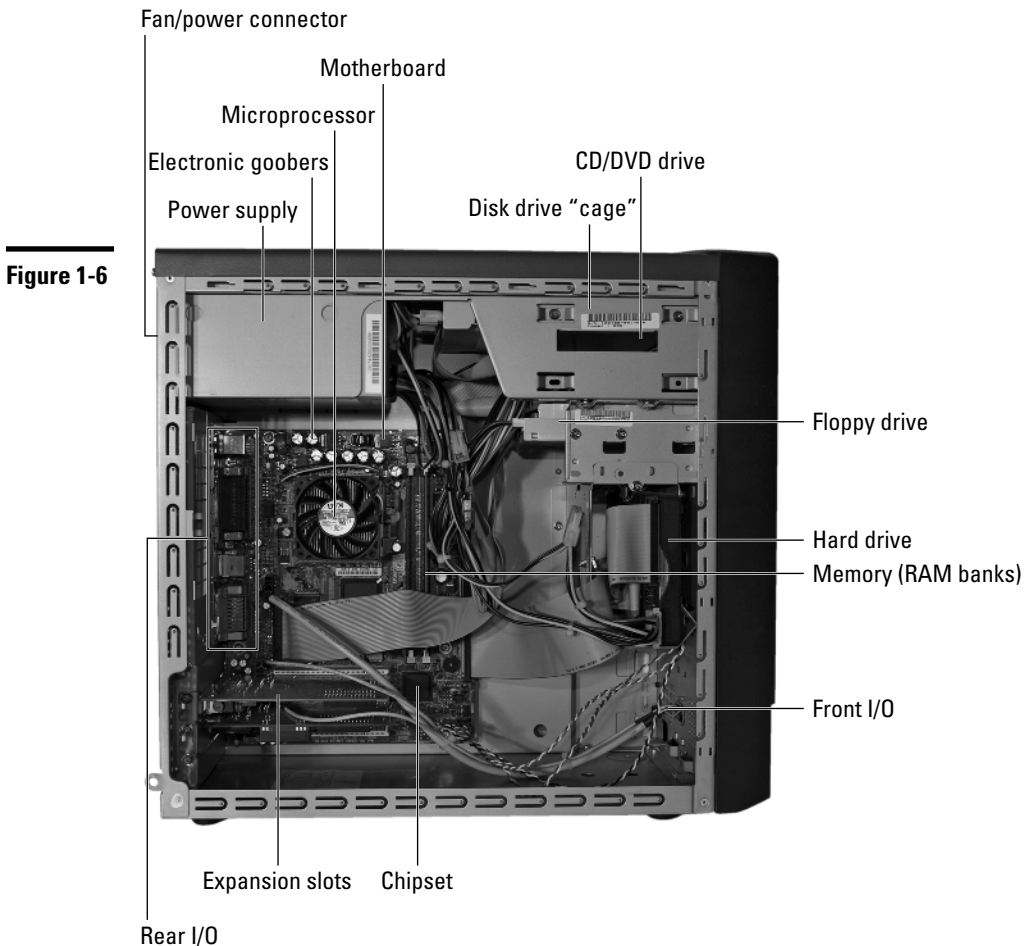
There's no such thing as the *typical* PC. Not only does each manufacturer add its own touches of design and style, but different and various configurations are also available. They're all PCs, but how they look and — most importantly — how they sit on your desk divides them into various subclasses. Here's the rundown:

- ✓ **Desktop:** The original IBM PC sat flat and square on top of a desk, which is why that model and similar ones are referred to as desktop computers. Typically, the monitor is set right on top of the slablike console.
- ✓ **Desktop (small footprint):** This arrangement is basically the same as the traditional desktop, although the console is considerably smaller — often, too small to set the monitor atop the console. The *footprint* refers to how much desk space the console occupies.
- ✓ **Minitower:** This PC configuration is the most popular. It's essentially a small-footprint desktop on its side, although the PC isn't really sideways. The console is small enough to sit on top of your desk, with the monitor sitting right next to it.
- ✓ **Notebook or laptop:** This portable version of the PC is usually the size of a typical three-ring binder or coffee-table book. Yes, they manage to squeeze everything in a desktop PC into a portable, battery-powered, convenient unit. Despite their heftier price tags, laptops are very popular and often outsell desktop PCs.

- **Tower:** This older style of PC is like the minitower, but considerably taller and with more room inside the console. This box is found mostly in the “back office” of a business, where it controls the network or is used to prop up one end of a wobbly table.

The Basics: Inside the Console

You find nestled inside the console the core elements of a computer, as shown in Figure 1-6. These are the basic elements of the computer system, the electronic orchestra through which the PC plays its tune.



The location of these gizmos varies from computer to computer, but, if you're curious, the following list details some of the more important elements:

- ✔ **Power supply:** This doojobbie serves two purposes. First, it converts the AC current from the wall into DC current to drive the motherboard and devices inside the console. Second, the power supply houses the fan that keeps the console's insides cool. The power supply connects to each internal disk drive as well as to the motherboard and any expansion cards requiring extra juice. This item also connects to the power button.
- ✔ **Motherboard:** This main circuitry board inside the console is the home base for the PC's microprocessor, memory, chipset, and other vital components.
- ✔ **Disk drive cage:** This metal structure is used to hold the various disk drives installed in the console as well as provide space for more disk drives.
- ✔ **CD-ROM/DVD drive:** The drive is installed in the disk drive cage, in one of the places where the drive can be accessed from the front of the console (so that you can insert and remove CDs or DVDs). The drive also connects to the power supply and to a special connector on the motherboard.
- ✔ **Hard drive:** This drive lives inside the console's drive cage, but doesn't need to have access to outside the case. The hard drive is connected to the power supply and the motherboard.
- ✔ **Floppy drive:** Like the CD-ROM/DVD drive, this drive is installed in the console's drive cage with outside access. The floppy drive is connected to the power supply and the motherboard. Don't be surprised not to find one on your new PC; it's quickly becoming a relic.
- ✔ **Memory:** The computer's memory, or *RAM*, is installed into a series of banks on the motherboard. Memory comes in tiny expansion card modules called *DIMMs*. They plug into corresponding slots on the motherboard.
- ✔ **Microprocessor:** This is the main chip. The boss. The CPU. All the other electronics inside the console are designed to work well with, and serve, the microprocessor. Today's PCs come with high-speed, high-power microprocessors that require extra cooling; the microprocessor wears a special little fan like a hat, which helps keep it cool.
- ✔ **Chipset:** One or more computer chips on the motherboard supply the computer's basic personality (so to speak). These chips control input/output (I/O) as well as the basic configuration of the computer's monitor, keyboard, mouse, networking, and other main components.
- ✔ **Expansion slot:** Designed for internal expansion of the computer, this type of slot isn't as plentiful as in years past. This is because most of the features previously added by using an *expansion card* (video, networking, modem, more memory) are now part of the chipset on the motherboard.

Also, more and more devices that were once added internally (DVD drives, extra hard drives) can now be added externally, thanks to the USB port. Even so, expansion slots remain inside the console and allow you to further add to or configure your PC. Expansion cards plug into expansion slots, like adding new shelves inside a cupboard.

Depending on your PC's design, it can use any or all of the potential four types of expansion slots:

- **ISA:** The traditional type of expansion slot of ancient design (available on the first IBM PC, 25 years ago), and occasionally found in some PCs sold today. The main reason is for backward compatibility with older expansion cards. ISA stands for Industry Standard Architecture.
- **PCI:** A more advanced type of expansion slot than ISA. PCI stands for Peripheral Component Interconnect. Most PCs have at least one of these slots, if not more. (It depends on the size of the console.)
- **AGP:** An expansion slot designed specifically for advanced, high-end graphics cards. AGP stands for Accelerated Graphics Port. Not every motherboard has this slot. (Lesser graphics adapters plug into a PCI slot or are included in the chipset.)
- **PCI-Express** and **PCI-X:** Two new standards designed to replace the PCI expansion slot. Both are faster than PCI and, as you can guess, they're not compatible with each other. Still, they're presently the best solution for high-end graphic cards; both new PCI standards are much more efficient than AGP.

Your console's innards, and the motherboard specifically, have many more technical details, most of which aren't really necessary for the casual computer operator to know.

Be aware of your computer's microprocessor and its name and horsepower. Often, this information is displayed when the computer first starts — although you have to be quick to catch it.

You should also know the quantity of RAM installed in the console. Computers crave RAM, especially when they're running high-end graphics programs or complex computer games.

The expansion slots provide a way to add more internal components to your PC, although for starting out, the motherboard contains just about everything you need. Still, be aware that it's possible to add more features and abilities by simply purchasing and installing a new expansion card. *See also* "The Basics: Adding Hardware."



Please don't open your PC unless directed to by tech support or when you're installing or upgrading your computer. When you open your PC, be sure to turn off *and* unplug the console before opening it up and looking inside.

The Basics: Adding Hardware

The beauty of the computer is that it can be endlessly expanded or upgraded. The computer you own now probably won't look the same a month or a year down the road. It's the PC's ability to be expanded and improved on that has made it one of the most successful computer hardware designs ever.

You can add new hardware to your computer system in two ways: internally or externally.

Internal expansion

Internal hardware is added to the PC by plugging an expansion card into one of the expansion slots on the console's motherboard. At one time, this method was about the only way you could add more memory, better video, networking, or a special modem. Now, however, most of that stuff is included with the chipset on the motherboard. Even so, expansion slots remain for many purposes, which allows you to customize your PC any way you want.

Popular expansion cards let you add video support for a second monitor, a more advanced video adapter, a secondary network adapter, a custom sound card, a card to support extra internal disk drives, or a card to add another port (USB/IEEE) or accessory.

Beyond expansion cards, your console may have extra room for more memory or disk drives inside its drive cage. It may even be possible to replace the microprocessor with a better, faster version (although such an upgrade is often financially impractical).

Before going nuts, however, ensure that your PC has ample internal expansion options. The drive cage must have room for an extra hard drive, for example. And, you need to ensure that you have open expansion slots — and slots of the right type — for whatever expansion card options you crave.

If expansion is your goal, get a minitower or full-size tower PC. Those models often come with more expansion slots and drive cage "bays" than the smaller-format PCs.

External expansion

Everything that plugs into the console can be considered *external* expansion, although certain key parts of the PC aren't really expansion "options." The

keyboard, mouse, and monitor are necessary to the PC's basic operations. Even the printer and modem can arguably be considered basic PC components and not expansion options.

Although the PC has specific places to plug in a mouse, a keyboard, a printer, a modem, a network, and audio devices, true expansion happens on the PC thanks to the USB ports. Although at one time the IEEE port was pretty fast, today's faster USB port standards make it the PC expansion option of choice. In fact, you can even find USB-compatible mouse, keyboard, printer, network, and audio devices. USB is consuming the world of external computer expansion!

The most popular external expansion options are described in this list:

- ✔ **Digital cameras:** You can connect a digital camera to your computer for copying, or *downloading*, images. After they're in the computer, you can photo-edit those images, e-mail them, create a slide show, print them, or do a number of miraculous things.
- ✔ **Digital media players:** These handy gizmos contain copies of music, pictures, and video already stored on your PC. You simply "beam" the media to the player, and you can take it with you.
- ✔ **Scanners:** The scanner lets you create a graphical image for the computer by using anything that's flat. You can scan old photographs or your kid's artwork or even use the scanner with special software to read text.
- ✔ **Videocameras:** You can connect a videocamera to your PC directly for use in online chats or for online meetings, by creating your own *webcam*. You can also connect a videocamera to transfer your home movies. Special software can be used to edit those movies and create your own DVDs.
- ✔ **External storage:** Possibly the handiest thing to add to your computer system is more storage. Unlike days of yore, when you needed to know which end of a screwdriver to use, now you can add extra storage to your computer system by plugging in an external USB hard drive, CD-ROM drive, or DVD drive.

Numerous other expansion options exist. In fact, the list is long enough that it would make quite a thick book by itself. For the variety, simply check a computer catalog, online store, or retail computer store near you. **See also** Part II for information on connecting things to the console.

The Basics: Windows

The computer's operating system, Windows, is in charge of the entire computer. It does things you would never imagine, menial tasks and duties that are

obscure yet necessary. Fortunately, Windows has been honed over the years, and, despite the complexity of the PC, with Windows in charge, your duties as a computer operator aren't really that complex or involved.

Basically, Windows has four duties:

- ✔ **Present an interface for you, the human, to use the computer.** This interface is the *desktop*, used to display information and graphically represent things inside the computer.
- ✔ **Manage the computer's hardware.** This chore is pretty much automatic, although Windows lets you manipulate certain hardware settings, such as the monitor's resolution or whether your stuff is printed longways or tallways on the printer. But most of the mundane things — keeping the time, fetching information from disk, performing minor maintenance — are done in the background automatically.
- ✔ **Manage software.** The applications you install rely on Windows as a bridge between what they do and the hardware inside the PC that makes all that stuff possible. Windows also prevents programs from running amok and, when they do, keeps them contained as best it can so that the system doesn't come crashing down.
- ✔ **Manage the files and stuff you create.** Windows helps you store information on your computer so that you can find it again later when you need it. It helps you keep track of files and provides tools to help you organize and order all your stuff.

As the program in charge, Windows is merely the overseer. When you use your computer, you use application software (“programs”) to get work done. For example, you use a program such as Microsoft Word to do your word processing, Internet Explorer to surf the Web, or Windows Mail to read your e-mail. You use Windows occasionally to set up or reconfigure your computer's hardware, add new software, or work with the files you create. Beyond that, Windows is simply the program in charge. **See also** Part V, which tells you where important things are located in Windows.

The Basics: The Internet

Once upon a time, the Internet was considered a minor part of the PC's existence. Today, PCs and the Internet walk hand in hand. Using the Internet, particularly e-mail, is the number-one reason that most people buy a new PC. Because of this, all new PCs come equipped with all the hardware you need in order to access the Internet. All the software (or most of the important programs) also comes with the operating system, Windows.

The Internet itself isn't a computer. The Internet is not a program or any software you can own. Instead, the Internet is hundreds of thousands of computers all over the world. They're connected together, and they share, store, and swap information.

You can use your PC to access the Internet, where your computer joins the thousands of others already on the Internet. After your PC is connected, you use various software programs to access information on the Internet. These items are the most common programs or things accessed on the Internet:

- ✔ **The World Wide Web:** The Web is a convenient way to view information stored on computers all over the world. It displays information the same as you would read text in a newspaper or magazine: very friendly with pictures. The various Web *pages* also contain links to other, related information or similar Web pages. Visiting those pages is as easy as clicking the links.
- ✔ **E-mail:** Everyone using the Internet can send or receive messages by using electronic mail, or *e-mail*. Accounts are available all over, and many at no charge. By using e-mail, you can send messages to other Internet users as well as send files, photos, music, videos, and just about any type of information imaginable.
- ✔ **File transfer:** The *Internet* is a vast library of stored files and information. You can access those files by transferring them from the Internet into your computer. Some files are free programs you can use to further expand the abilities of your PC.

You use a modem — either a dialup modem or a high-speed cable, DSL, or satellite modem — to gain access to the Internet. You can also get on the Internet through a local-area network, as long as the network is connected to the Internet. (This is how you get on the Internet at large companies or at school.)

Most individuals and home users need to sign up for Internet service with an *ISP*, or *Internet service provider*. These are local or national companies whose purpose is to connect folks to the Internet — like a cable company offers you cable TV. (In fact, most cable TV companies also offer Internet access.) ISPs are listed in the Yellow Pages.

The only other thing you need in order to access the Internet is money; ISPs, like cable companies, require monthly fees. (You can use the Internet for free at a public library, but that's not this book's subject.)

The Basics: Your Stuff

Having a PC is about Windows, the Internet, and software, but all that really boils down to you and the stuff you create or collect. That information is stored

on the computer in the form of *files*. Understanding the concept of files is central to getting along well with your computer, *so pay attention!*

Knowing about files

A *file* is an information container. Think of it as an electronic jar, like a Mason jar your grandmother might have used to store jams and jellies, although not as tasty. The type of information the computer file contains is electronic — all those bits and bytes you read about in *Time* magazine or hear in those songs people sing in cybercafés.

Although the contents of a file are digital, the information the file holds can represent a variety of things: text, graphics, music, video, a computer program, a database, or just about any type of information can be stored in a computer file. Indeed, this part of the book is stored as a file on my own computer's hard drive.

All files are born in the computer's memory. That's where they're created. The computer's memory, or RAM, is only temporary storage. RAM is fast and flexible, which is needed to create stuff, but the contents of RAM disappear when the power is off. Therefore, the computer's permanent storage is used to keep files long-term: From memory, files are *saved* to permanent storage — primarily, the PC's hard drive. That's the best location for the safe, long-term storage of computer information.

From the hard drive's permanent storage, files can be *opened* and their contents viewed, modified, printed, or sent over the Internet to another computer for storage or editing. But, all told, it's the file that contains the information, not the computer and especially not the program that created the file.

Working with files in Windows

Obviously, these files are important; they represent the stuff you create or save on your computer. One of the operating system's primary duties is to assist you with maintaining and organizing all the files you collect and create.

Windows Vista helps you keep track of your files in several ways:

Filename: You give a file a name when the file is saved to disk. The name helps you to remember the file's contents as well as to tell the difference between one file and the next.

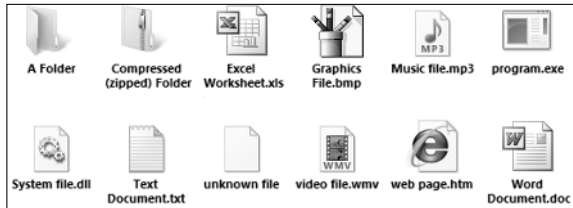
Icon: Windows gives the file an *icon*, or tiny picture, that helps you remember which type of file you created. Special icons exist for documents, music files, videos, and other types. Each application also uses its own icons so that you can tell the difference between a document created in Microsoft Word and a spreadsheet you made using Microsoft Excel.

Date and time: The date and time the file was saved to disk are also included with the file information.

Size: The amount of disk space the file occupies is tracked.

Windows keeps all this information associated with each file. You can use the information as necessary, but most important is the file's name and its icon, which is your primary clue to the file's contents and purpose (see Figure 1-7).

Figure 1-7



Windows also comes with tools you can use to rename, delete, and duplicate files. You can also send files over the Internet, attach them to e-mail messages, copy them to CD-Rs or DVD-Rs, or share them with other users on a network.

Organizing files in Windows

Files, files everywhere, but who knows which is which?

To help keep files organized, Windows uses special file containers called *folders*. Folders contain files, so files relating to the same project or files of a similar type can be kept together. That way, you can keep all your video files in one place, music in another, and graphics in another folder. Or, you can organize your documents by project. Because folders can be named just like files, you can easily find things by looking in the proper folder. And folder organization helps avoid the ten-thousand-files-all-over-the-place mess that most computer users suffer from. **See also** Part VIII.