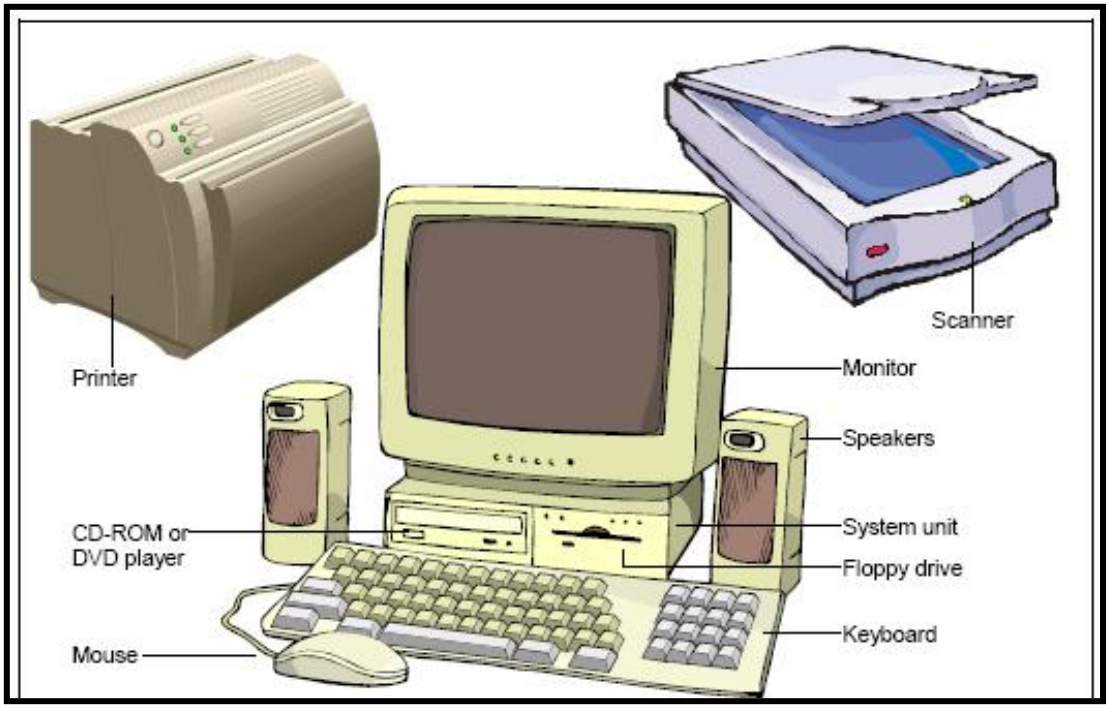
The Front of a Computer and Peripheral Devices



The computer system consists of a computer case that sits under your monitor or desk and is covered with slots, buttons, and lights. Everything outside of the computer and connected to the system unit is called *peripherals*. You can add dozens of peripherals and accessories to make it more useful and fun. Common peripherals include printers, scanners, external hard drives, CD/DVD drives, and digital cameras. Many peripherals are considered to be *input devices*, because they allow you to input information. Other peripherals are *output devices*, because they let your computer export information back to you, like printers USB drives or information copied to DC/DVD's. All peripherals are considered to be part of a computer's hardware.

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Floppy Drive Replaced by USB flash drives Reads and writes information to 3½-inch floppy disks or USB drives.

Hard Drive The computer's main, long-term storing device. Unlike USB, floppy disks and CDs and DVDs, you typically cannot remove a hard disk.

CD or DVD Drive CDs and DVDs for your computer can store lots of information and look exactly like CDs for your stereo and DVDs for your home DVD player. In fact, you can listen to audio CDs on a CD drive and even watch DVD movies on a DVD drive. The only real difference between a CD and a DVD is how much information they can store. A CD can store at least 700 MB (megabytes) of information, while a DVD can store much more—up to 4.7 GB (gigabytes) or 9.4 GB on a dual-layer DVD. Some CDs and DVD are *read-only (ROM)*, meaning you can't write information to them unless you have CD/DVD burner drives that *can* write or burn information to special CD-R, CD-RW, DVD-R, and DVD-RW discs.

Keyboard The keyboard is an input device that you enter data or commands.

Mouse is another *input device* that you left click to open programs or right click to view a menu of other options.

Monitor The monitor resembles a television set, and is where the computer displays information.

Speakers your computer speakers are similar to those on a stereo system. They allow you to hear sounds generated by the computer.

Printer A printer is a device that allows you to print *output*, onto paper, or a *hardcopy*.

Scanner allows you to input paper documents to convert to digital format.

The Inside of computer

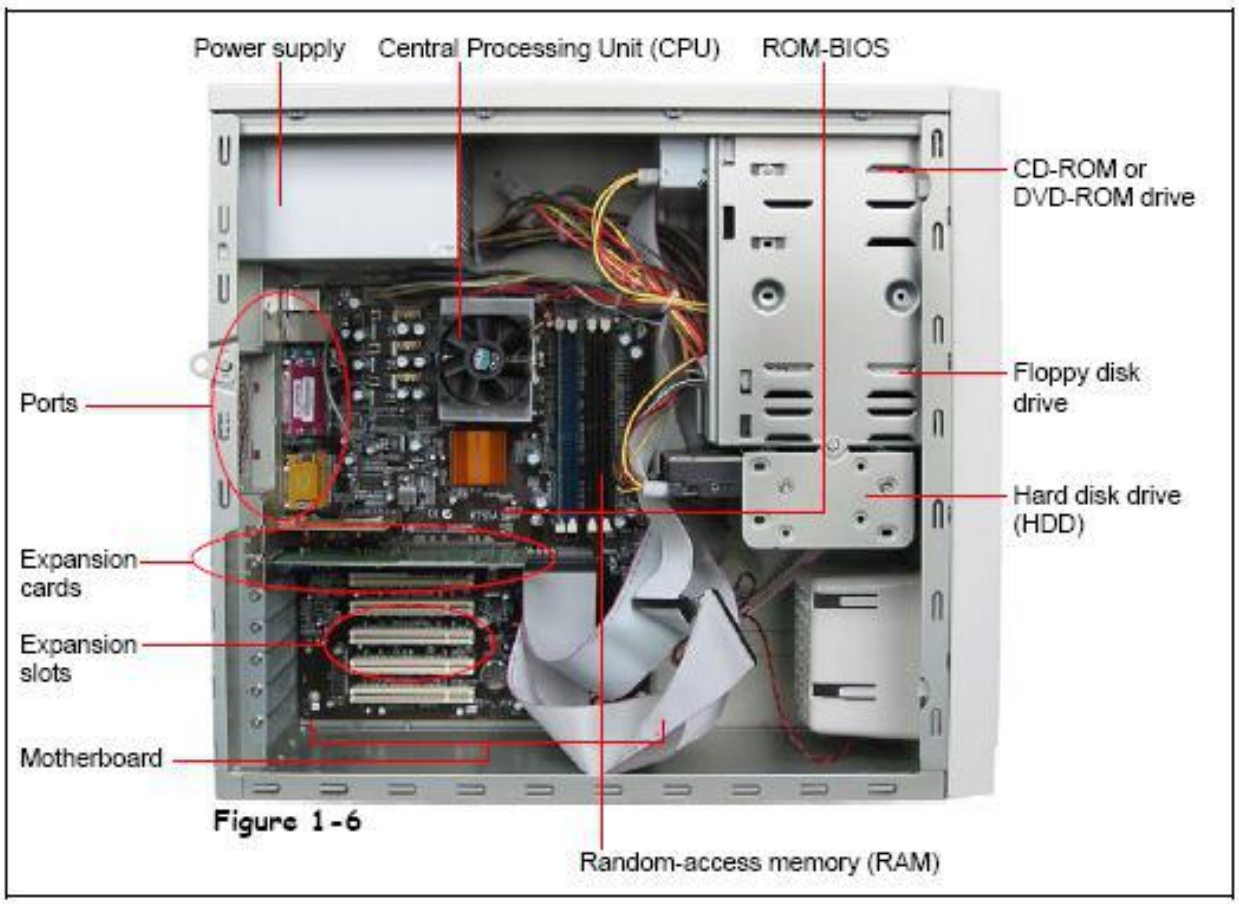

Figure 1-6

Motherboard is the main piece of circuitry in a computer. Everything connects to or is wired to the motherboard.

Central Processing Unit (CPU) the computers brain is a computer's main chip. The CPU is really nothing more than an incredibly fast and powerful calculator.

Random Access Memory (RAM) A computer's temporary storage place, where it gets its work done. For example, when you use a word processor to type a letter, the letter is stored in the computer's RAM volatile memory.

ROM-BIOS A computer's ROM-BIOS (stands for Read Only Memory – Basic Input/output System) is a special chip with instructions for the computer to communicate with other hardware parts.

Expansion Slot An expansion slot lets you add more features and capabilities to a computer by plugging in additional cards.

Expansion Card A card that allows you to expand your computer's capabilities, such as a network card, a video card, or a sound card.

PCMCIA Cards/Express Card/USB Notebook computers are too small to use expansion cards, so they use special credit-card sized cards instead. You plug in a PCMCIA card, or Express Card, into a notebook computer to give it more features and capabilities. PCMCIA stands for Personal Computer Memory Card International Association.

THE BACK OF A COMPUTER

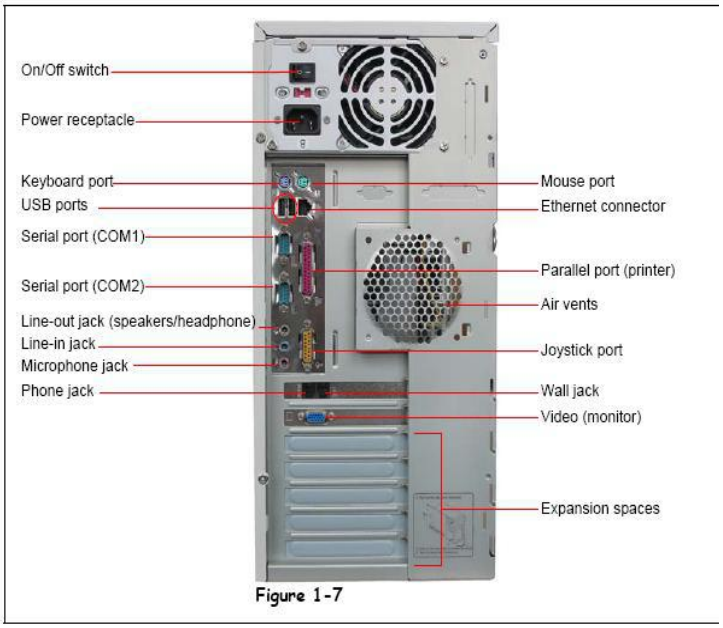

Figure 1-7

Port	Icon	Description
Keyboard & Mouse		The keyboard and mouse jacks look identical on most PCs, so look for colors and icons to help you with plugging in these devices. Some mice and keyboards use USB ports. Older mice may use a serial port.
Serial or COM		Serial (or COM) ports are a very versatile type of port. Some of the things you can plug into a serial port include: a mouse, modem, scanner, or digital camera. Most computers have two serial ports: COM1 and COM2.
Parallel or Printer		You plug your printer into the parallel, or printer, port. Many newer printers may use a USB port.
USB		Designed to replace older Serial and Parallel ports, the USB (Universal Serial Bus) can connect computers with a number of devices, such as printers, keyboards, mice, scanners, digital cameras, PDAs, and more. Better yet, the USB port supports *plug-and-play*, so you can simply plug in a USB device and start using it. USB 1 ports can transfer information at a speed up to 12 Mbps (Megabytes per Second). Newer USB 2 ports can transfer information at a speed up to 480 Mbps. Most computers come with two USB ports.
Video or Monitor		You plug your monitor into the video port.
Line Out		Plug in your speakers or headphone into the Line Out jack.
Line In		The Line In jack allows you to listen to your computer using a stereo system.
Microphone		You can plug a microphone into this jack to record sounds on your computer.
Joystick or Game		If you have a joystick, musical (MIDI) keyboard, or other gaming device, this is where you plug it in.
Phone or Modem		The phone or modem jack is where you plug your computer into a phone line.
Network or Ethernet		You can connect your computer to a network by plugging in an Ethernet cable in this port.
SCSI		An SCSI port is one of the fastest ways to connect a hard drive, CD-ROM drive, or other device to a computer.
Firewire		A FireWire (IEEE 1394 or i.LINK) port lets you connect such devices as hard disks and digital camcorders to a computer. A FireWire port can transfer information at a speed up to 400 Mbps (Megabytes per Second).

Keyboard & Mouse The keyboard and mouse jacks look identical on most PCs, so look for colors and icons to help you with plugging in these devices. (Green for Mouse, Purple Keyboard) Some mice and keyboards use USB ports.

Serial or COM Serial (or COM) ports are a very versatile type of port. Some of the things you can plug into a serial port include: a mouse, modem, scanner, or digital camera. Most computers have two serial ports: COM1 and COM2.

Parallel or Printer You plug your printer into this port. Many newer printers may use a USB port.

USB Designed to replace older Serial and Parallel ports, the USB (Universal Serial Bus) can connect computers with a number of devices, such as printers, keyboards, mice, scanners, digital cameras, and more. The USB port supports *plug-and-play*, so you can simply plug in a USB device and start using it. USB 1 ports are slow and can transfer information at a speed up to 12 Mbps (Megabytes per Second). Newer USB 2 ports can transfer information at a speed up to 480 Mbps. USB 3 ports transfer at 10 times faster than USB 2 or 48 GBS.
Video or Monitor You plug your monitor into the video port.

Line Out / Plug in your speakers or headphone into the Line Out jack.

Line In The Line In jack allows you to listen to your computer using a stereo system.

Microphone You can plug a microphone into this jack to record sounds on your computer. Most laptops have a built in microphone.

Joystick or Game
If you have a joystick, musical (MIDI) keyboard, or other gaming device, this is where you plug it in.

Phone or Modem The phone or modem jack is where you plug your computer into a phone line.

Network or Ethernet connects your computer to a network by plugging in an Ethernet cable (also called RG 45 cabl) in this port.

SCSI An SCSI port is one of the fastest ways to connect a hard drive, CD-ROM drive, or other device to a computer.

Firewire A FireWire (IEEE 1394 or i.LINK) port lets you connect such devices as hard disks and digital camcorders to a computer. A FireWire port can transfer information at a speed up to 400 Mbps (Megabytes per Second). This port also allows you to connect apple devices to you PC.

Expansion Card	*Description*
 Modem	A modem allows computers to exchange information through ordinary telephone lines. Almost all computers already come with built-in modems, so you would probably only want to add a modem expansion card if the original modem in a computer breaks.
 Network	A network interface card (NIC) is an expansion card that connects a computer to other computers on a network.
 Video or Graphics	A video card or adapter is what generates the images and text displayed on a monitor. Computers come with a built-in video card, but some people like to upgrade their original video card with faster, more powerful video cards.
 Sound	A sound card lets a computer play and record sounds, just like a home stereo system.
 Additional Port(s)	You can use expansion cards to add additional ports to a computer, such as the newer Firewire or USB 2 ports.

Factor	*Description*
 CPU Speed	Arguably the single most important factor that determines a computer's performance is the speed of its CPU. The speed of the CPU is measured in megahertz (MHz) and gigahertz (GHz). The faster the CPU, the faster the computer. The first PC in 1981 ran at 4.77 MHz, while today's computers can run at speeds exceeding 3,000 MHz, or 3 GHz.
 Amount of RAM	The amount of RAM, or memory, is another very important factor in a computer's performance. Generally, the more RAM a computer has the better its performance. However, you usually won't see much of an improvement after 1 GB of RAM.

A SHORT FLOPPY DISK HISTORY LESSON

What is a floppy disk is. I think most people in the world who have ever used a computer, have some idea of what it is. The soon to be extinct media, was immensely popular in its various forms from the 70's, to the late 90's. So even though most people know what a floppy disk is, I thought you might like a little history about it.

Here is a specimen of an 8" and a 5.25" floppy disk.

The floppy disk was first introduced **in 1971 by IBM** as a means to store computer data. It was not in the form that most people know it yet, as the first floppy disk was **8 inches** which held 100 kb of data. But in 1**976** came the first of the two most popular formats, the **5.25" floppy disk** that held 360 kb of data and the HD version that could hold up to 1.2 MB of data. It quickly replaced the 8" disk. And in **1981, Sony** introduced its **3.5" disk** which held 740 kb of data and the HD version that had a storage capacity of 1.44 MB.

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Although other disk formats have been made, and released, the immense popularity of these two formats, made sure every other attempt at developing a new disk format have just become a parenthesis in the computer history (Notable the Iomega zip drive).

Even though the CD-R was introduced by Sony and Phillips with its much larger capacity (650 to 600 MB), the floppy disk stood its ground. Mainly because floppies were easy to copy files to, and then transfer them to another machine (what is known as a Sneakernet, as you have to walk between the machines you are copying the files to). And because of this, it was also easy to make illegal copies of commercial computer games, by just making a copying the disk. Because of the software piracy, many games started to get released with some form of copy protection.

This is an example of the 3.5" floppy disk.

But in the 90's, a revolution happened. The internet and the World Wide Web. There had been other networks before it, like the bbs, but the World Wide Web become vastly popular. The internet allowed people to swap files between computers without the hassle with a floppy disk. Also, the files were growing bigger, as digital cameras gained the public's attention. Other small storage devices was coming as well, such as USB flash drives and SD cards, which had a much larger capacity, and higher transfer speeds.

The floppy disk was doomed, and today it is an obscurity. But the floppy disk had a long life, and you may find them in a computer stores still today. The last few years the floppy disks are disappearing from stores stock. And the companies who make them are getting fewer. Today, the floppy disk has joined ranks with vinyl records, cassettes and laserdiscs, as a retro format.

A SHORT COMPACT DISK HISTORY LESSON

Compact CD-4 (Recordable):

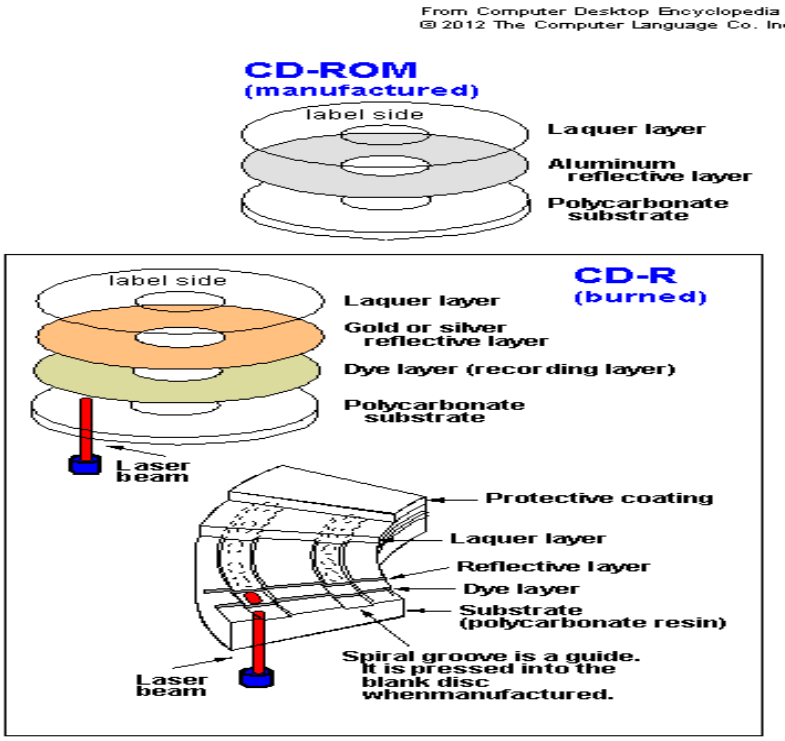
A type of CD disc that can be recorded, but not erased. Used to back up and transfer data and to master CD-ROMs, CD-R discs can be written ("burned") and read by most CD/DVD drives. The phrase "burn a CD" really means "burn a CD-R."

Capacities:

The most common CD-R formats hold 650MB (74 minutes) of data or 700MB (80 min.). To record a full 650MB disc takes only a couple minutes using 40x recorders. For speed ratings of drives, see CD-ROM drives.

Change the Reflectivity:

The binary 0s and 1s in CDs and CD-ROMs are actual pits (or lack thereof called "lands") stamped into the media. CD-Rs create the equivalent of pits and lands by altering the reflectivity of a dye layer. Different dyes are used, including cyanine (green), pthalo-cyanine (yellow-gold) and metal-azo (blue).



CD-R Layers:

Fresh out of the box, a CD-R disc is entirely reflective, because the dye layer is transparent. In order to create the equivalent of a CD or CD-ROM pit, the laser deforms the dye, making it darker and less reflective.

CD-RW (ReWritable):

CD-RW discs look like other CD media, but with close inspection, they have a more polished surface with a very dark blue-gray cast. Unlike a hard disk platter, which can be rewritten millions of times, CD-RWs have a maximum limit of 1,000 rewrites. In practice, the term "CD" refers to all CD formats. The phrase "rewrite the data on the CD" really means "rewrite the data on the CD-RW."

The **CD-RW drive** is the most versatile CD drive, and most new CD drives are CD-RWs. Not only can a CD-RW drive read all CD formats and write CD-RWs, it can be used to burn "write once" CD-R media. CD-RW uses phase change technology to alter the reflectivity of the disc surface, but this reflectivity is lower than other CD formats, and old CD-ROM drives that lack MultiRead capability cannot read them.

USB Flash drives have been around for more than a decade, but they were not as popular or as powerful as they are today. Like every piece of technology, USBs had to be built form the ground up and went through several changes before they caught the eye of the awaiting public.

In 1995 companies were scrambling to create the first universal connector for emerging electronics. Companies such as IBM, Intel, Microsoft, and Compaq banded together came up with the idea for a Universal Serial Port (USB). The first version of USB would be named USB 1.0 and would not be officially introduced to nearly a year later in 1996. The 1.0 specifications are trivial by today's standards, only topping out at 12Mbit/s.

The next evolution in USBs would not come until 1998 when USB 1.1 was released. 1.1 was a almost identical to 1.0 except it allowed for slower devices such a joysticks, keyboards, mice, etc. to be plugged in at a lower speed. It allowed these devices to obtain speeds up to 1.5Mbit/s

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It would take another two years of research and development before the next generation of USB drives would arrive in 2000. The new generation would be named USB 2.0 and was a vast improvement over the earlier editions. 2.0 pushed the bounds of what we thought was possible and was able to achieve speeds reaching 480Mbit/s. However. From 2002-2007 USBs remained pretty much the same

In 2008 a growing concern for faster transfer rates would spark the next generation of flash drives. The wheels started turning but their result would not be revealed to the world until 2009 with the announcement of USB 3.0. These new flash drives were up to 10X faster than 2.0, conserved energy, are backwards compatible, as well as allowed for bi-directional data transferring. The first consumer ready products would be released in late 2009/beginning of 2010.