

Computers Inside & Out

Lesson 2: Hardware on the Inside

Computers are made of many electronic **components** or parts. These components each have a special job and they all work together to make your computer operate. Some components are hidden inside the computer, where you can't see them. Others can be seen partly from the outside.

Power It Up!

Every computer needs a **power supply**, to take electricity from your house and convert it into a current that works for your computer. The electrical cord that comes out of your computer, comes out of the power supply. When it is plugged into the wall, electricity travels from the electrical wires in your house into the computer's power supply. When your computer is turned on, the power supply allows the converted electricity to travel to other components inside the computer.

Circuits

The **motherboard** gets its name because it is like a mother to all of the other circuit boards. Found at the bottom of a desktop case or the side of a tower case, the motherboard is the largest circuit board and has many smaller boards plugged into it. It holds all of the most important parts of the computer.

On the motherboard, you will find several **expansion cards**. Each of these cards has a special purpose. The **sound card** contains special circuits for operating the computer's sound. The **video card** handles graphics that are displayed on the monitor. There are also expansion cards for other computer components including the drives and ports.



Motherboards hold it all together

The **modem** is an expansion card that allows computers to talk to each other. A modem plugs the computer in to a phone or cable line so that information can be transferred between computers. Current modems can run up to 96,000 bits per second and cable modems can run up to 40,000,000 bits per second. Don't know what a bit is? Don't worry, we'll get to that in a later lesson :)

The brain of a computer is the **CPU** or **Central Processing Unit**. Like a brain, it controls information and tells other parts what to do. The type of CPU in a



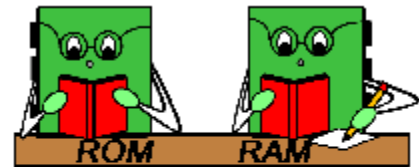
A CPU gets very hot

computer also determines how fast that computer can operate. A CPU generates lots of heat, so there is usually a small fan on top of it to cool it down.

A very important computer component is the **BIOS** chip. BIOS stands for **Basic Input Output System**. In very simple terms, the BIOS chip wakes up the computer when you turn it on and reminds it what parts it has and what they do.

RAM & ROM

Have you ever heard the terms **RAM** and **ROM**? These two terms sound very similar and can easily be confused by beginners. However, understanding what they mean and what they do can help you to remember.



ROM only reads
RAM reads *and* writes

RAM stands for **Random Access Memory**. RAM chips will remember what you tell them and can even change to remember new information. But, when the computer is turned off, RAM forgets everything you told it. This is why it is so important to **save** your work on a computer - if the computer gets turned off, RAM will lose all of your work!

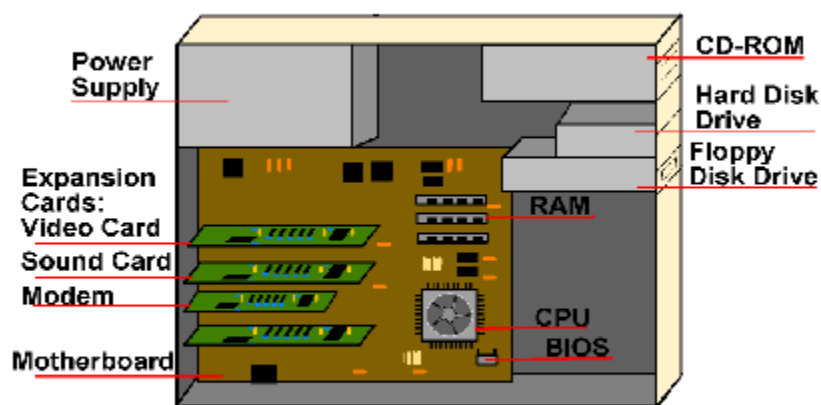
ROM stands for **Read Only Memory**. ROM is good at remembering, but cannot change its mind. It holds information that is built into it. ROM is like reading a library book - lots of information is there, but you can't change it (because you *never* write in a library book). RAM, on the other hand, is more like a journal - you can write information into the journal. But if you change your mind, you can erase and write in new information.

Ports

Ports are the places on the outside of the computer case where you plug in hardware. On the inside of the case, they are connected to expansion cards. The keyboard, mouse, monitor, and printer all plug into ports. There are also extra ports to plug in extra hardware like joysticks, gamepads, scanners, digital cameras and the like. The ports are controlled by their expansion cards which are plugged into the motherboard and are connected to other components by **cables** - long, flat bands that contain electrical wiring.

Disk Drives

Disk drives read information off of storage disks. The four most common disk drives are the hard drive, flash drive, CD-ROM and DVD-ROM. In lesson 1, you learned a bit about the latter two, which are usually installed inside the front of your computer case so that you can get to them from the outside to load the software. A flash drive or an external hard drive is connected to a USB port. The **hard drive**, however is hidden inside the computer because the disks are not meant to be removed. Information that you save on your computer is stored on these hard disks. You can learn more about storage disks in Lesson 4: Storage; but first, check out Lesson 3 to learn about bits and bytes.



Components Inside a Computer
(Wires not shown)

[What Am I? Worksheet](#)
[Labeling Worksheet](#)

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