

## Chapter 2

### Computer Parts Defined

#### Key Terms

**Hardware:** This is a term that means any physical part of a computer. Included in the category of hardware is the **Central Processing Unit (CPU)**, the **motherboard**, the **fan heat-sync**, **Random Access Memory (RAM)**, the **power supply**, **Compact Disk Read Only Memory (CD ROM)**, the **hard drive**, **computer case and case fans**, **keyboard**, **mouse**, **monitor**, **speakers**, and another other device that connects to the computer. This sounds difficult, but the reality is that computers are simple machines made of parts, that do many things for us.

**Computer:** A machine made of many parts, using an operating system (OS) such as Windows, and programs that allow you to write documents, talk to friends, do math, art, music, and play games. There are many other things that can be done, depending on the programs that are on the computer.

**Motherboard:** The **motherboard** is where items such as the **CPU**, **RAM**, **heat-sync fan**, and other items (**i.e. video and sound cards**) are installed. Think of the motherboard as the part of the computer where all hardware is organized and attached. There are connecting points for cables leading to the hard drive and CD ROM drives. Generally, **two (2) power supply connectors are found on the motherboard**. There are many *transistors* on the motherboard to prevent too much electricity from going to various parts of the board. There is a socket where the CPU is placed. On the side of the motherboard are connectors for sound, internet (called an **Ethernet connection**), monitor, mouse and keyboard. The motherboard is screwed into risers that are screwed inside the computer case.

**CPU (Central Processing Unit):** Considered the “brain” of the computer. This is a square or slightly rectangular metal part with many pins on the bottom. This metal casing is approximately one inch from side-to-side for both the length and width. Inside the metal container is a silicon chip with many lines through it. The **CPU** sits in a socket on the **motherboard**. As electricity passes from line to line, the computer chip works

with what is called **binary code (0's and 1's)**. The more lines on the silicon the faster the computer chip works. With faster speeds the chip gets hotter.

**Heat-Sync Fan:** The heat-sync is made of aluminum and has a fan connected to the top or side of it. After a CPU chip has been set and locked in the socket on the motherboard, **thermo grease** is applied to the top of the CPU chip (a light, even coating), and the heat-sync fan locked on top of it. There are generally brackets or pins that lock down the heat-sync fan.

**RAM (Random Access Memory):** While the CPU is the “brain” or place where the computer determines what the operating system (OS) and programs will do based on what you are telling it to do, the **RAM is the memory that helps the computer remember what is going on**. Without RAM the computer would not be able to work. This set up is much like a person’s brain. The brain has areas where tasks such as math, reading, writing and common sense occur. The brain needs to be able to remember what math, reading, writing, or plain thinking is going on. Without memory the brain is much like the computer—it cannot function in a way that lets you do the things you do. Without any memory you would not be able to understand what you hear, feel or see. The computer without memory cannot remember the last thing that it or you did, making the use of programs impossible.

**Computer Case:** This is a large rectangular box that is empty of all computer parts. Inside this box are areas for the power supply, motherboard, CD ROM drive and hard drive. There are small wires running from the front inside of the case that connect to the motherboard for the power, reset and lighting. Think of the computer case as a permanent storage place for all of the internal parts of a computer.

**Power Supply:** The power supply is screwed inside the computer case. It has two (2) connectors for the motherboard, and other connectors for the CD ROM and hard drives. It has extra connectors for any other internal device you chose to attach directly to your motherboard. Wattage ranges from 300 to 1600 watts of power. Generally, a 450 to 600 watt power supply meets basic everyday needs. The general rule is that you need more wattage if you have more power and items inside your computer

**Hard Drive:** The computer has to have a place where it can store the operating system (OS), programs such as the Internet Explorer and Microsoft Office, and documents that you create. Without a place to store these items the computer cannot operate. The hard drive feels like a rectangular box with a circuit board on the bottom. At one end of it is a power supply connector, and a connector for a cable that connects to the motherboard. On the inside of some hard drives is a metal disk that spins. Newer hard drives have a basic memory chip called Solid State. Most modern hard drives spin at

7200 rotations per minute, or higher. The hard drive is screwed into a bracket inside the computer case.

**CD ROM (Compact Disk: Read Only Memory):** The CD ROM is a drive that feels like a larger rectangular box. On one end it has a connector for the power supply and a connector for a cable that connects to the motherboard. At the other end of the CD ROM drive is a small button and a slide out drawer. It is in this drawer that you place your CD. A CD can contain music, a game, files that you have written to it, or a program that you want to install. The CD ROM is screwed into a bracket inside the computer case. There are some external CD ROM drives that connect to the back of the computer case through the USB or “fire wire” ports.

**Video Graphics Array (VGA):** This is the monitor of the computer. There is a connector on the back of the computer monitor and a connector on the back of the computer that has a VGA cable to link them together. On each end of the VGA cable is a connector that has a rectangular shape with one side slightly shorter than the other. Within the connector are three rows of pins. The VGA connector on the back of the monitor and on the back of the computer have a rectangular shape with one side slightly shorter than the other, and three rows of holes. **When you align the cable connector of the monitor or computer connector, try to line up the sides, then press gently down. If this does not work, turn the connector around a try again. Do not force this cable or you will bend the pins.** It is important to know that several other newer type cables are coming on some computers. These are more digital in nature. Each of these have very specific connectors and do not feel like the VGA connector..

## **Chapter 2 Review**

### **Test Your Knowledge**

1. Name the item that is the “brain” of the computer.
2. Name the part that lets the computer remember what it is doing.
3. Name the part of the computer where programs and files are stored.
4. Name the part of the computer where all hardware is organized and attached.
5. Name the part of the computer that gives it the power to run.
6. Name the part of the computer that is the “storage place” for the motherboard, hard drive and CD ROM drive.