

# HARDWARE COMPONENTS – IMPORTANT ATTRIBUTES

## CENTRAL PROCESSING UNIT

1. If comparing a computer system to a human, the CPU would be the \_\_\_\_\_.
2. \_\_\_\_\_ and \_\_\_\_\_ are the two biggest CPU manufacturers. They have quite a history of competition including some impressive lawsuits.
3. The most important attribute in a CPU is the clock \_\_\_\_\_ or clock \_\_\_\_\_ or clock \_\_\_\_\_.
4. The CPU's frequency is measured in \_\_\_\_\_ which is short for \_\_\_\_\_. This is the amount of cycles per second. During each cycle (which is a tiny amount of time), the CPU generally executes a command. Note that some commands require a few cycles of time to be completed.
5. The short form for gigahertz is \_\_\_\_\_ and the short form for megahertz is \_\_\_\_\_.
6. The term hertz means \_\_\_\_\_ per second.
7. A CPU's job is to \_\_\_\_\_ the commands that it receives. The commands are lined up one after another waiting in line to get to the CPU.
8. Most advanced CPUs now contain multiple \_\_\_\_\_. Each one is able to run its own commands. Therefore, multiple commands can be executed at the same time (in parallel).

### CASE STUDY

Consider the two following CPUs and answer the questions below:

- a) A 4.0 GHz single-core CPU
- b) A 2.0 GHz two-core CPU

9. How many clock cycles are there in 1 second on the first CPU?
10. How many clock cycles are there in 1 second on the second CPU?
11. Which CPU has more clock cycles in 1 second?
12. Will both CPUs give the same performance?

## HARD DRIVES

1. When comparing a computer to a human, the hard drive would be the human's \_\_\_\_\_.
2. All \_\_\_\_\_ is stored on the hard drive in the form of \_\_\_\_\_. This includes your operating system files, your application files, music files, game files, photo files, etc...
3. If your hard drive fails, you lose all your \_\_\_\_\_. In this sense, it is the one truly irreplaceable part of your computer. You can order another identical hard drive, but it won't contain your files.
4. Traditionally, hard drives were called HDD, which stands for \_\_\_\_\_.
5. SSD, a new type of drive, stands for \_\_\_\_\_. SSDs are much faster than HDD but currently cost a lot more money.
6. In Windows, drives in computers are given a letter. The main hard drive in a computer is called the \_\_\_\_\_ drive. The letters A and B were reserved for floppy disk drives that are no longer in use.
7. The primary attribute of a hard drive is its \_\_\_\_\_.
8. A hard drive's capacity is measured in \_\_\_\_\_. The prefix mega means millions. The prefix giga means billions. The prefix tera means trillions. Mr. Campeau's first hard drive, in 1994, was 214 megabytes.
9. Here is a table showing the unit of measure and its abbreviation:

Unit	Abbreviation
Byte	_____
Megabyte	_____
Gigabyte	_____
Terabyte	_____

10. A characteristic of HDDs is its \_\_\_\_\_ measured in \_\_\_\_\_. There are common values for this characteristic including 5400 (slow), 7200 (a long time standard) and 10000. In the past, retailers would have special prices for slower 5400 units without advertising that attribute.
11. Inside the case, the hard drive sits inside a drive \_\_\_\_\_. This location can be identified from the front by a rectangular plastic cover. This cover could be removed if a CD or DVD or floppy drive were installed into that area instead.
12. A newer common trend is to buy an \_\_\_\_\_ hard drive for your personal files. It can then be plugged into any computer usually via USB connection and files can be accessed.
13. The container that holds an external hard drive is called an \_\_\_\_\_. Inside, you will find a normal hard drive that could be removed and installed inside a computer if one would want to.

## RAM

1. RAM stands for \_\_\_\_\_. The “RA” refers to the fact that any data on the chip can be accessed in the same amount of time. An example of the opposite of this would be a tape back-up where data at one end can be accessed quickly but data at the other end requires the tape to be forwarded to that end before accessing it.
2. Each piece of RAM is called a \_\_\_\_\_, or a \_\_\_\_\_, or a \_\_\_\_\_.
3. RAM, like the hard drive, is a form of \_\_\_\_\_. While the hard drive stores all of the computer’s data, RAM stores system information that is soon likely to be used by the CPU.
4. The reason that RAM stores a part of the hard drive’s information is that RAM is \_\_\_\_\_ memory. It would delay the CPU too much to constantly make requests to the hard drive for information. Of course, the more RAM a system has, the more likely that required information will be stored in the RAM.
5. So if RAM is faster than a hard drive, why do we even have a hard drive? There are two reasons:
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6. RAM is said to be \_\_\_\_\_ memory because it is erased if it stops being powered.
7. RAM plugs into a slot that is on the \_\_\_\_\_. There are usually 2 to 4 slots for different RAM sticks to be plugged into.
8. The most common computer upgrade is to increase the amount of \_\_\_\_\_ in a computer. This is often done by simply adding another stick into an empty slot.

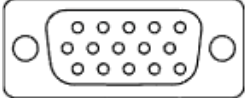
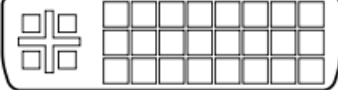

## MOTHERBOARD

1. The motherboard is the hardware component where all computer \_\_\_\_\_ connect.
2. PCB stands for \_\_\_\_\_. The motherboard is the largest PCB in your computer. Other PCBs connect to it via expansion slots.
3. The CPU, \_\_\_\_\_ slots (for extra cards) and \_\_\_\_\_ slots (for memory) are all on the motherboard.
4. Most motherboards have integrated \_\_\_\_\_ cards to send information directly to your monitor. The quality of this built-in card is usually good but not the best for high graphics uses such as gaming.
5. Most motherboards now have integrated \_\_\_\_\_ cards to play good quality sound. In the past, motherboards could only “beep”. 😊
6. Most motherboards have integrated \_\_\_\_\_ cards to connect directly to a network. This is often used simply to get internet access.

7. The term \_\_\_\_\_ refers to a group of integrated circuits that are designed to work together. In computers, this usually refers to the motherboard's specialized chips.
8. Best known and recognized motherboard manufacturers are:
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## VIDEO CARDS

1. Another name used for a video card is \_\_\_\_\_ card.
2. The video card plugs in a(n) \_\_\_\_\_ on the motherboard.
3. The video card \_\_\_\_\_ data from the CPU to a format that is understood by the monitor. It saves the CPU time by allowing it to pass off some of the work.
4. Many motherboards include an \_\_\_\_\_ video card. This card is generally of lower quality than separately purchased ones.
5. The video card has its own CPU called \_\_\_\_\_ which stands for \_\_\_\_\_.
6. Main manufacturers are \_\_\_\_\_ and \_\_\_\_\_ (which use to be ATI).
7. Here are common ports found on video cards:

Image	Name
	
	
	

8. VGA carries a(n) \_\_\_\_\_ signal while while DVI and HDMI carry a(n) \_\_\_\_\_ signal. VGA is an older port and doesn't appear on many video cards anymore.