

06 Inside a Computer

Have you ever looked **inside a computer case**, or seen pictures of the inside of one? The small parts may look complicated, but the inside of a computer case isn't really all that mysterious. This lesson will help you master some of the basic **terminology** and understand a bit more about what goes on inside a computer.

Play the video by going to page 1 and clicking the link below: (Ctrl + click)

[Inside a Computer](#)

- Scroll down the webpage until you see the video.
Click the **Play icon** on the web page to play the video
Use the video controls to adjust the volume and screen size.



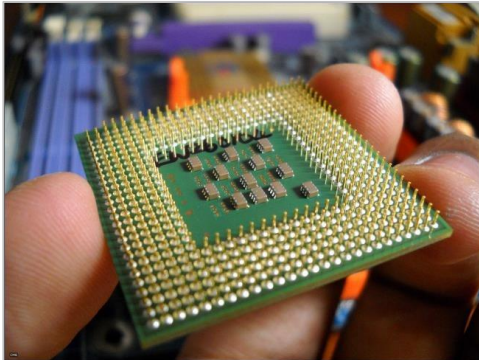
- After you watch the video, **read** the rest of the section on the following pages and **answer the quiz questions**.



Motherboard

The **motherboard** is the computer's **main circuit board**. It's a thin plate that holds the CPU, memory, connectors for the hard drive and optical drives, expansion cards to control the video and audio, and connections to your computer's ports (such as USB ports). The motherboard connects directly or indirectly to every part of the computer.

CPU (Central Processing Unit)

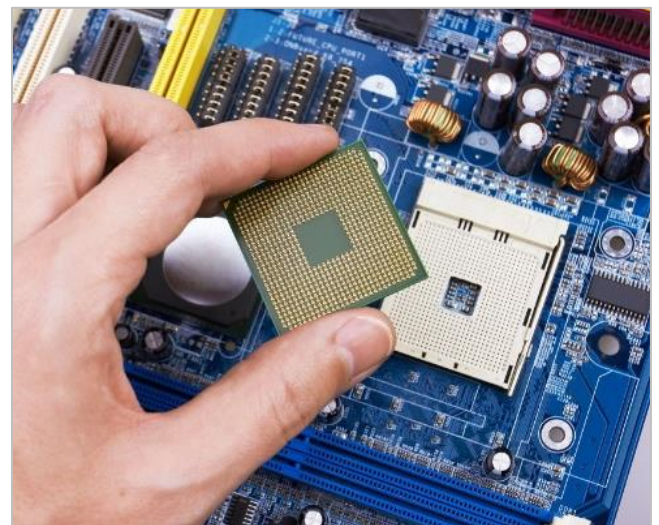


Imagine trying to solve a math problem in your head. If your brain was a computer, the CPU would determine how fast you could solve the problem.

The central processing unit (CPU), also called a **processor**, is located inside the **computer case** on the motherboard. It is sometimes called the brain of the computer, and its job is to carry out commands. Whenever you press a key, click the mouse, or start an application, you're sending instructions to the CPU.

The CPU is usually a **two-inch ceramic square** with a **silicon chip** located inside. The chip is usually about the size of a thumbnail. The CPU fits into the motherboard's **CPU socket**, which is covered by the **heat sink**, an object that absorbs heat from the CPU.

A processor's **speed** is measured in **megahertz (MHz)**, or millions of instructions per second; and **gigahertz (GHz)**, or billions of instructions per second. A faster processor can execute instructions more quickly. However, the actual speed of the computer depends on the speed of many different components—not just the processor.



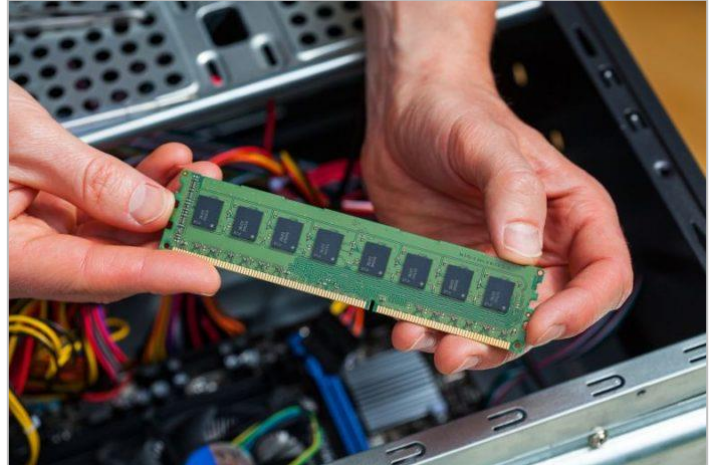
RAM (Random Access Memory)

The RAM is like the desk space on an office desk. The more desk space you have, the more you can place on your desk and do at any given time.

RAM is your system's **short-term memory**. Whenever your computer performs calculations, it temporarily stores the data in the RAM until it is needed.

This **short-term memory disappears** when the computer is turned off. If you're working on a document, spreadsheet, or other type of file, you'll need to **save** it to avoid losing it. When you save a file, the data is written to the **hard drive**, which acts as **long-term storage**.

RAM is measured in **megabytes (MB)** or **gigabytes (GB)**. The **more RAM** you have, the more things your computer can do at the same time. If you don't have enough RAM, you may notice that your computer is sluggish when you have several programs open. Because of this, many people add **extra RAM** to their computers to improve performance.



Hard Drive



The hard drive is like opening a filing cabinet and pulling out a file. Once the file is open, it goes into your RAM which is like putting the file on your desk. The file remains in RAM (on your desk) until you close it.

The **hard drive** is where your software, documents, and other files are stored. The hard drive is **long-term storage**, which means the data is still saved even if you turn the computer off or unplug it.

When you run a program or open a file, the computer copies some of the data from the **hard drive** onto the **RAM**. When you **save** a file, the data is copied back to the **hard drive**. The faster the hard drive, the faster your computer can **start up** and **load programs**.

Power Supply Unit

The power supply unit in a computer **converts the power** from the wall outlet to the type of power needed by the computer. It sends power through cables to the motherboard and other components.

If you decide to open the computer case and take a look, make sure to **unplug** the computer first. Before touching the inside of the computer, you should touch a grounded metal object—or a metal part of the computer casing—to discharge any static buildup.



Static electricity can be transmitted through the computer circuits, which can seriously damage your machine.

Expansion Cards

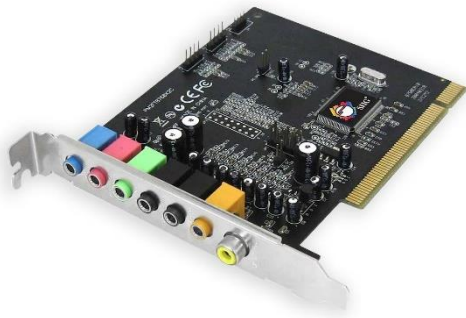
Most computers have **expansion slots** on the motherboard that allow you to add various types of **expansion cards**. These are sometimes called **PCI (peripheral component interconnect) cards**. You may never have to add any PCI cards because most motherboards have built-in video, sound, network, and other capabilities.

However, if you want to boost the performance of your computer or update the capabilities of an older computer, you can always add one or more cards. Below are some of the most common types of expansion cards.



Video card

The **video card** is responsible for **what you see** on the monitor. If you like playing graphics-intensive games on the computer, you can add a faster video card to one of the **expansion slots** to get better performance.



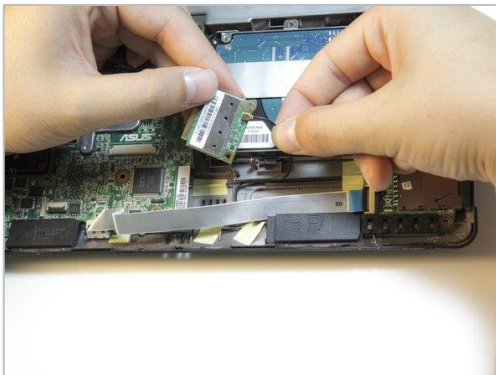
Sound Card

The **sound card**, also called an audio card, is responsible for **what you hear** in the speakers or headphones. Most motherboards have integrated sound, but you can upgrade to a dedicated sound card for higher quality sound.



Network Card

The **network card** allows your computer to access the internet. If you have an older computer, you may want to add a wireless, often called **Wi-Fi**, network card so you can connect to a wireless router.



Bluetooth Card (or adapter)

Bluetooth is a technology for wireless communication over short distances. It's often used in computers to communicate with wireless **keyboards**, **mice**, and **printers**. It's often built into the motherboard or included in a **wireless network card**.

For computers that don't have Bluetooth, you can purchase a USB adapter, often called a **dongle**.

