

What is inside a laptop computer?

## Introduction

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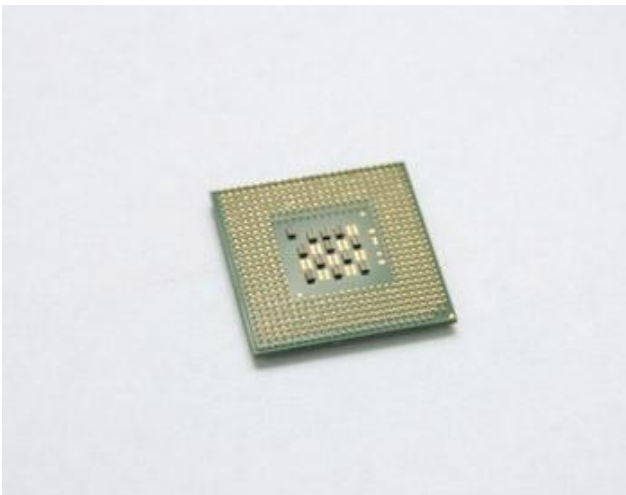


Watch the video (3:44). [Need help?](#)

Have you ever looked inside a desktop computer case before? There is a lot of extra room in there. That is not true with laptops. **Laptops are smaller**, so there is less room for parts. Everything is smaller and grouped tightly together so it fits into the notebook-sized case.

Laptop parts are basically the same as desktops, often just smaller. Let's take a look.

## A Look Inside a Laptop Computer



*Central Processing Unit (CPU)*

## CPU/Processor

The Central Processing Unit (CPU), also called a **processor**, is located inside the **laptop** on the motherboard. It is often called the brain of the computer, or the computer's engine. 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 processor determines **how fast** a computer can execute instructions. A processor's speed is measured in **megahertz (MHZ)**, or millions of instructions per second, and **gigahertz (GHZ)**, or billions of instructions per second. So, the higher the hertz, the faster the computer can process instructions. The **power** of the processor is measured in **bits**. The **more bits** a processor can handle, the more data it can handle, and therefore, the **more powerful** the processor. The CPU is generally a **2 inch ceramic square** with a **silicon chip** located inside. The chip usually about the size of a thumbnail.

There are many processor manufacturers for personal computers including Intel, Cyrix, VIA, and AMD.

Many processor chip designers include funny or interesting **hidden artwork**, such as images, phrases, initials, and logos on the chips. This artwork is only visible when the chip is open and **magnified**, so it's really a joke among the chip developers, rather than something intended for everyone to see.

## A Look Inside a Laptop Computer (cont.)



### *Random Access Memory (RAM)*RAM

**RAM (Random Access Memory)** is your system's **short-term memory**. Data is temporarily stored here until you save your work to the hard disk. RAM is used by the

system to store data that is processed by a computer's CPU.

The computer's work takes place in RAM. This is where programs run when you are using Word to create a letter, or Excel to produce a company spreadsheet.

This **short-term memory disappears** when the computer is turned off, so always save your file before turning off the machine. When you save a file, you are saving it to long-term storage that does not disappear when the computer is turned off.



*RAM on motherboard*

The **more RAM** you have, the more things your computer can do at the same time, and the **faster** your computer performs certain tasks. RAM is measured in **megabytes (MB)** or **gigabytes (GB)**.

To understand megabytes and gigabytes, you need to know about **bits** and **bytes**. A bit is the smallest unit of data in computer processing. A byte is a group of eight bits. A megabyte is about one million bytes. A gigabyte is 1,024 megabytes.

To put this into perspective, consider that a printed page of single-spaced text contains about 3,000 characters. One MB holds about 400 pages of single-spaced text.

## **Motherboard**

The **motherboard** is the computer's **main circuit board**. It's a thin plate that holds the CPU (Central Processing Unit), memory, connectors for the hard drive and optical drives, expansion cards to control the video and audio, as well as various external

ports and peripherals. The motherboard connects directly or indirectly to every part of the computer.

If you decide to open the computer case and take a look, be sure to touch a grounded metal object to discharge any static buildup. Static electricity can be transmitted through the computer circuits and ruin them.

## A Look Inside a Laptop Computer (cont.)



### *Hard Disk Drive*

#### **Hard Disk Drive**

The **hard disk drive** is the **data center** of the computer. All of your programs are stored here. The hard disk drive is **long-term storage** where information is **stored permanently**. When you use a word processing program, the computer loads the instructions from long-term storage (your hard disk) into short-term memory.

Hard disk **speed** determines how fast your computer starts up and loads programs. The hard disk is called the C drive on most computers.

#### **Optical Disc Drive**

An **optical disc drive** is a peripheral device that reads data stored on optical discs. Some drives can only read from discs, but often drives are both readers and burners.

CD and DVD drives are common optical drives. From inside the computer, optical drives look very similar to hard disk drives.

### **Video card**

The **video card** is responsible for **what you see** on the monitor. If you like playing graphic-intense games on the computer, a good video card is important to you. The main function of the video card is to generate and output images to the computer screen. Better graphics card equals better performance when playing games or working on a high resolution monitor.

### **Sound Card**

The **sound card**, also called an audio card, is another type of expansion card. It lets the computer play sounds through speakers. Some motherboards feature integrated sound, and do not require a separate sound card..

### **Network card**

The **network card** allows your computer to **communicate** over a network. With the network card you can set up a home network with a few computers and connect them by via Ethernet cords or wirelessly.

### **Expansion Card**

An **expansion card** is a card which you can install to expand a computer's capabilities. For example, your computer's **sound card** is an expansion card which plugs into the motherboard.