

What is inside a desktop computer?

Introduction

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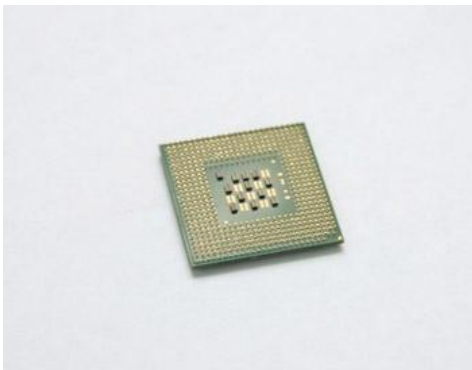


Watch the video (3:44). [Need help?](#)

Have you ever looked **inside a computer case** before? Or seen pictures of the inside of one? The small parts look very complicated, but the inside of a computer case really isn't that mysterious. This lesson will help you master some of the basic **terminology** and understand a little about what goes on inside the four walls of the computer casing.

Look Inside a Desktop Computer

Let's explore the inside of a computer tower.



Central Processing Unit (CPU)

CPU/Processor

The Central Processing Unit (CPU), also called a **processor**, is located inside the **computer case** 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.



CPU Socket

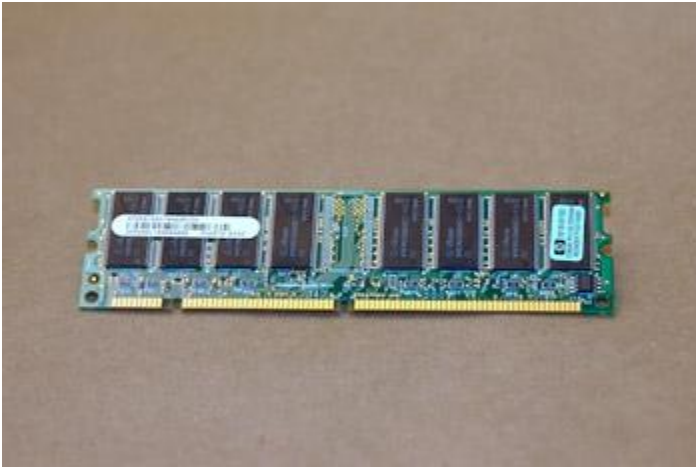
The CPU is generally a **2 inch ceramic square** with a **silicon chip** located inside. The chip usually about the size of a thumbnail.

The CPU fits into the **CPU socket**, which is covered by the heat sink, an object that absorbs heat from the CPU.

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 Desktop 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 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.



Expansion Slots Expansion Card

An **expansion card** is a card which you can install to expand a computer's capabilities. Expansion cards are inserted into **expansion slots** on the motherboard. For example, your computer's **video card** is an expansion card which plugs into the expansion slots.

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..

A Look Inside a Desktop Computer (cont.)



Network 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. Network cards used to be expansion cards that plugged into the motherboard; however, most newer computers have a network interface built into the motherboard.



Power Supply Unit

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 the cables to the motherboard and other components.