

SYSTEM UNIT

The system unit is the core of a computer system; it thinks and tells the computer what to do. The most important of this components is the motherboard that contents Central Processing Unit (CPU) or microprocessor , which acts as the "brain" of your computer. Another computer is Random Access Memory (RAM), which temporarily stores information that CPU uses while the computer is on. Information stored in RAM is erased when the computer is turned off.

Two parts of the system Unit

a- External Parts: these are the parts that are found outside the system unit.

- Power Switch – used to turn the computer on and off.
- Disk Drive – where diskettes are inserted.
- Casing – a metal cover that protects all the parts inside the unit.
- Reset Switch- used to restart the computer.
- LED- the lights found in front of the system unit.
- UBS

b- Internal Parts : these are the parts that are found inside the system unit.

- Motherboard – a large printed circuit board where the processors, cards, and memory chips are placed.



- Micro processing- known as the **CPU**. It is the brain of the computer. Many computers making cup, such that **Intel, AMD and IBM**.



- **ROM and RAM.**



- Power Supply- it gives the system unit power to process commands.



- Fan – it cools the microprocessor inside the system unit to avoid overheating.
- Hard Disk- disk that can store a lot of information.
- Video Card- it generates the visual output from your system to the monitor.



- Slots- for card are inserted.
- System Clock- controls the timing within a computer, and help determine the speed of the implementation of computer operations are measured in HZ, which represents one pulse per second, so measured in Megahertz measured by the fact that the computer result in millions of pulses per second .
- System clock battery- it keeps the computer clock accurate even if it is turned off.

Central Processing Unit (CPU)

This unit consists of the following parts

- 1- Control Unit- controls all the operation that are performed by the CPU..
- 2- Arithmetic Logic Unit (ALU) – is mainly used to perform arithmetic and logical operations.
- 3- Main Memory Unit (MMU) - is used to store data and information.
 - RAM (Random Access Memory).
 - ROM (Read only Memory)
 - Secondary Memory.

Type of Memory:

- 1- Main Memory Unit (MMU)
- 2- Secondary Memory.

1- Main Memory Unit (MMU):- This is where all the important commands and instructions are placed.

Kinds of Main Memory:-

- + **RAM (Random Access Memory):** It is a place where all programs and data in current use are kept for easy access. It is also known as "temporary memory". All information stored here will be erased when you turn off the computer. Its speed to computer a command is called computer access time (CAS) and is measured in nanoseconds (one billionth).



There are different areas where RAM may be used:

- System RAM.
- Video Sound Cards.
- Cache RAM.

- + **ROM (Read Only Memory) :** ROM stands for **Read Only Memory**. The memory from which we can only read but cannot write on it. This type of **memory** is non-volatile. The information is **stored** permanently in such **memories** during manufacture. A **ROM** stores such instructions that are required to start a computer.



Read Only Memory

- 2- Secondary Memory

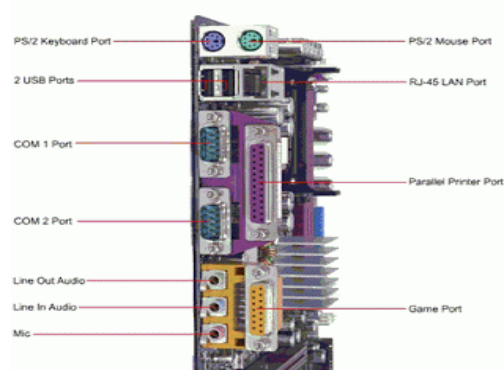
This supports the main memory. It also stores data and information for future use.

Type of Secondary Memory

- + **Hard disk drive:-** It acts as a giant disk inside the system unit. It has a bigger storage capacity compared to a floppy disk. It can provide long-term data storage inside the computer.
- + **Disks:-** these are round and flat disks used for saving and entering data during processing.
- + **Compact disk:-** It can be carried anywhere. It is less expensive than the hard disk. It can store more information than the floppy disk.
- + **DVD:-** (digital versatile disk or digital video disk).
- + **CD- ROM:-** (Compact Disc- Read- Memory)
 - ✓ **Types of compact Disk**
 - ❖ **CD-ROM:- (Compact Disk Read Only Memory):** Read CD-ROM and CD-R.
 - ❖ **CD-ROM multi- read:** Read CD-ROM, CD-R.
 - ❖ **CD-R (Compact Disk Recordable):** read CD-ROM and CD-R Write once on special disks named CD-R.
 - ❖ **CD-RW (Compact Disk Rewritable):-** Read CD-ROMs and CD-R write and re-write on special disks (CD-RW).
 - ❖ **DVD-RAM (Digital Versatile Disk Random Access Memory):-** Reads all CD formats. Reads DVD ROM. Read and writes DVD disks, ex. DVD-R, DVD-RW.
- + **Floppy disk (A):-** (or diskette) it is a small (1.43MB. 3.5 inch), removable storage device. It is less expensive compared to a hard disk drive and the compact disk.
- + **ZIP disks :-** are similar to floppy disks, except that they are much faster, and have greater capacity.
- + **Network Storage:-** is secondary or tertiary storage attached directly to a network which another computer can open copy or read files from.
- + **Memory Card and Flash Memory:-** that can be used in digital cameras and laptop.



Ports: - The slots into which you plug the cable. The fissure shows different ports at the back of the system unit below.



Bit and Byte:

The information stored in the computer is information or digital signals composed of the symbols are *zero and one* , which reflected the two cases (case on / off , or the presence or absence of an electric charge or electrical signal is high and an electrical signal low). The place is capable of storing either the number 0 or 1, we say that he was unable to store and check one or two (1bit) (1 **Binary Digit**).

- Reflected in the call to take action is called "Binary Digit".
- Each code system called the check bilateral Binary Digit.
- "**Bit**" is the smallest volume derived from **Binary Digit**.
- The **Bit** clustered in a group composed of **8 cells**, called the Byte.
- **Byte** of a group of eight binary digits which can be stored by a group of zeros and ones in number eight, the one group called **Word** , and count the number of bits in a single word on the type of computer, and it has the smallest types of computer word length **8-bit** and the largest **128-bit**. And lengths of words most commonly used in computers are **32-bit and 64-bit**.

Note: the **speed of microprocessor** mainly on the **clock speed** and the **word size**.



Units transform

Bit (b) = (0 or 1)

Byte (B) = 8 bit

Kilobyte (KB) =1024 bytes

Megabyte (MB) = 1,048,576 byte or 1024 KB

Gigabyte (GB) = 1,073,741,824 byte or 1024 MB

Terabyte (TB) = 1,099,511,627,726 byte or 1024 GB

BIOS:

Short for **B**asic **I**nput /**O**utput **S**ystem, **BIOS** is a chip located on all computer motherboards that contains instructions and setup for how your system should boot and how it operates. To the right is a picture of what a BIOS chip may look like in your computer. The BIOS includes instructions on how to load basic computer hardware and includes a test referred to as a **POST (Power On Self-Test)** that helps verify the computer meets requirements to boot up properly. If the computer does not pass the POST, you will receive a combination of beeps indicating what is malfunctioning within the computer. In most PCs, the BIOS have 4 main functions.

POST- test computer hardware, ensuring hardware is properly functioning before starting process of loading operating system.

Additional information on the POST can be found on our **POST / Beep Codes page** .

- **Bootstrap Loader:** Process of locating the operating system. If capable operating system located, BIOS will pass the control to it.
- **BIOS:** Software / Drivers that interface between the operating system and your hardware. When running DOS or Windows you are using complete BIOS support.
- **BIOS/CMOS Setup:**

Configuration program that allows you to configure hardware settings including system settings such as computer password, time, and data.

