

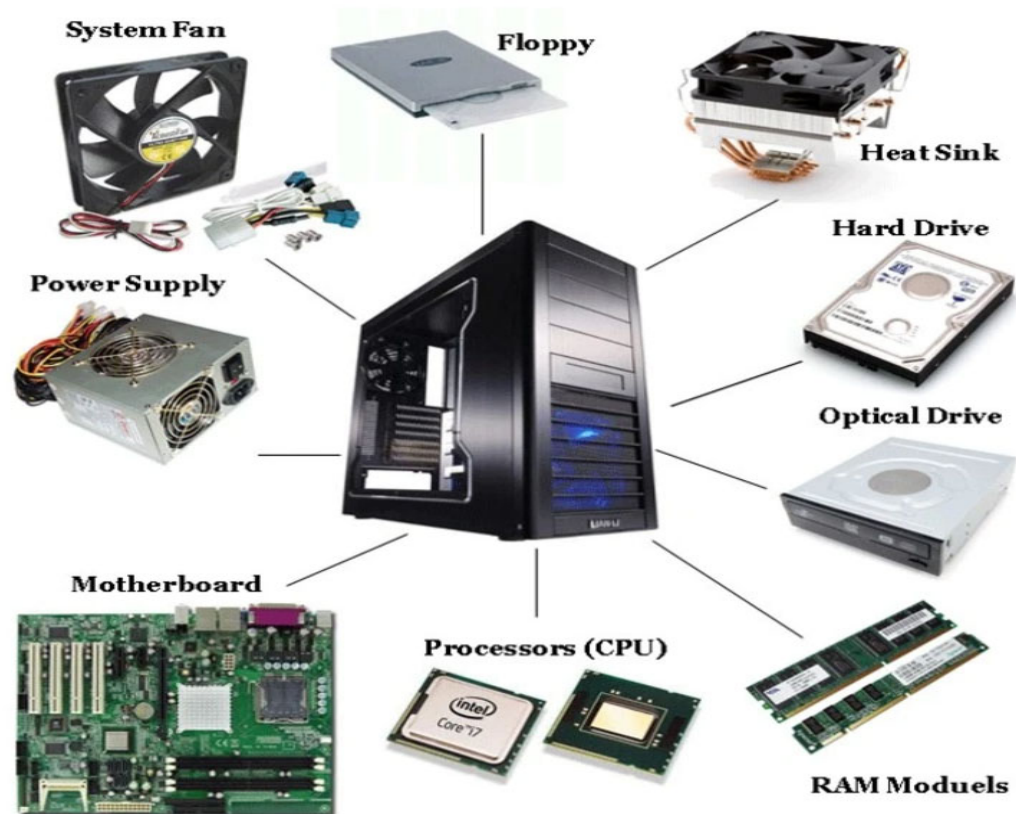


# COMPUTER COMPONENTS



**UQBA BN NAFAA MOHAMMED**  
**ASSISTANT LECTURER**

# Computer Portions





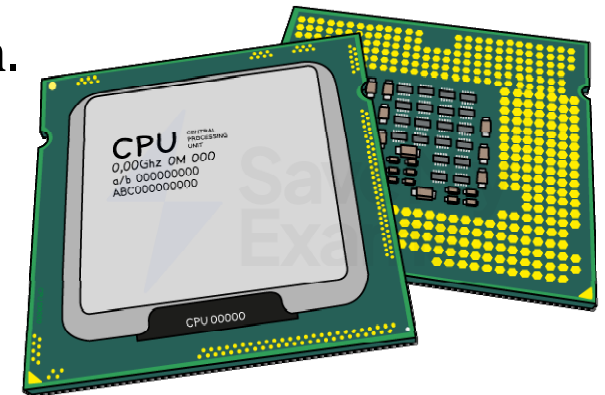
# Hardware Parts

- Processor.
- Memory.
- Motherboard.
- Power Supply.
- Optical Device.
- Cooling Fan and heatsink

# Processor

It is a small chip inside the computer. Called the Central Processing Unit (CPU).

- It is the brain of computer.
- It does all decisions, calculations.
- It executes the instruction contained in software program (process data inside computer).
- It determines how fast your computer will run.
- It is measured by MHz (Mega Hertz).





## CPU Parts

CPU have three basic parts.

- ▶ **Arithmetic and Logic Unit (ALU).**

Performs arithmetic operations and logical operations.

- ▶ **Control Unit (CU).**

It reads and interprets instructions from memory and transforms them into a series of signals to activate other parts of the computer.

- ▶ **Registers.**

It is the part of the computer that holds data and instructions for processing.



# Memory

Hardware devices used to store data and information, this memory enables the user to get his data whenever he wants.

## **CLASSIFICATION OF MEMORY**

Broadly classified into two :

- Primary Memory ( Main Memory ).
- Secondary memory (secondary storage, mass storage).



# Primary Memory

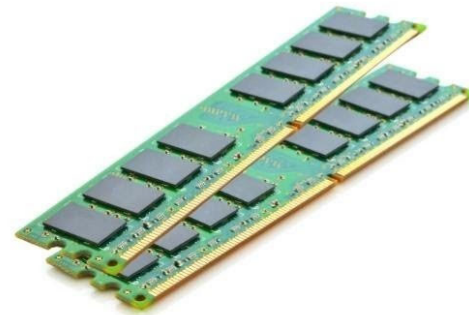
Primary memory is the memory internal to the computer. i.e. the memory generally placed on the Mother board of the computer.

It can be further divided into two parts:

- ▶ RAM ( Random Access Memory).
  - ▶ ROM ( Read Only Memory).
- 

# RAM VS ROM

**RANDOM ACCESS  
MEMORY**



**RAM**



**READ ONLY  
MEMORY**



**ROM**



# Primary Memory

## Difference between RAM and ROM

RAM	ROM
Random Access memory	Read Only Memory. Memory
Temporary memory	Permanent Memory
Volatile Memory i.e. contents are lost when power is switched Off.	Non-Volatile memory i.e. contents are not erased when the power is switched off.
Read and Write memory	Read only memory
It is used to store the data that is currently being processed by the CPU	It is used to store the startup instructions i.e. Booting instructions.



# Secondary Memory

Secondary memory is the memory external to the computer. Also called storage devices, external Storage.

- ▶ For large storage of data.
  - ▶ For permanent storage of data.
- 

# Secondary Memory Types

**Hard Disk**



**DVD or CD Disk**



**Floppy Disk**

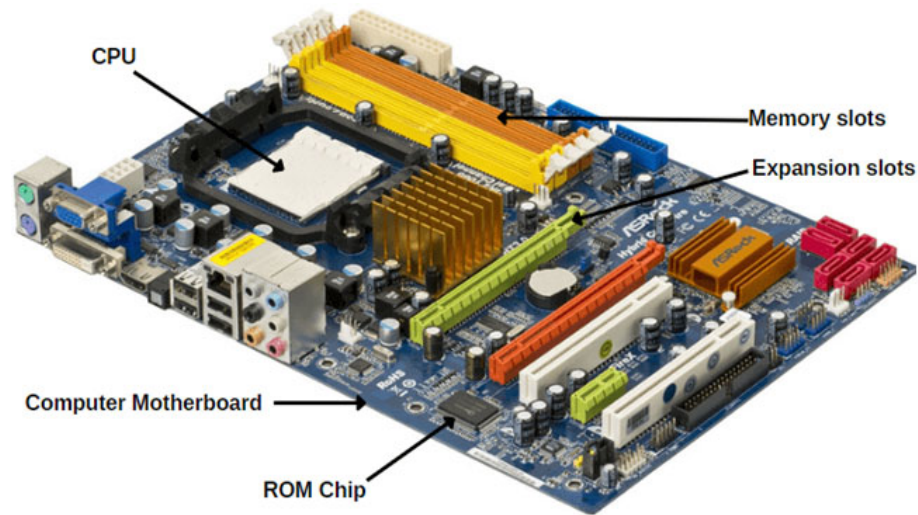


**Removable Hard Disk**



# Motherboard

Acts as a manager for everything on the computer, connects all the other components together. The components that directly attached to motherboard are Including the CPU, RAM, disk drives (CD, DVD, hard disk).



# Power Supply

Supplies power to all the circuitry and devices. Converts electric power (alternating current (AC)) to low-voltage (direct current (DC)) power needed by the computer.



# Optical Drive

An optical drive is a device that reads or writes data on an optical disc. They can be internal optical drives installed inside the computer or external optical drives connected to the computer using a cable.

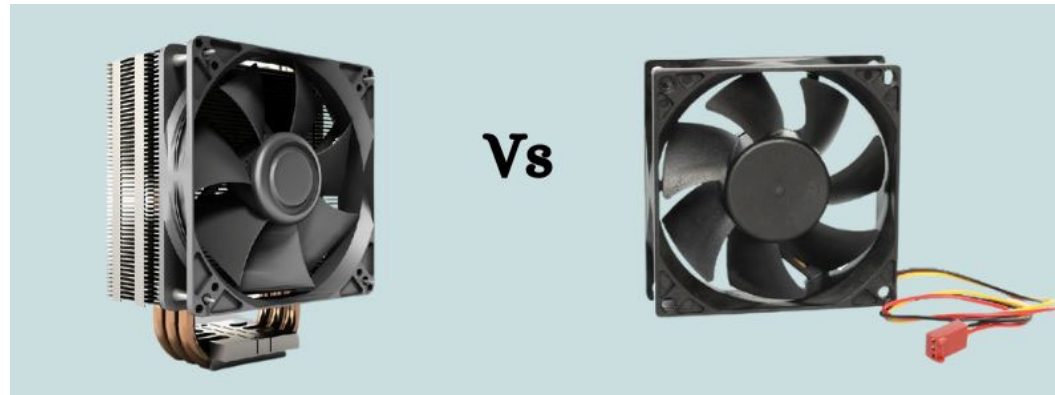
What are the three types of optical drives?

The three most common types of optical drives are CD, DVD, and Blu-ray. In terms of storage capacity CDs store the least amount of data, DVDs store more than CDs, and Blu-Rays store the most.



## Cooling Fan and heatsink

Cooling fans and heatsinks are essential components of any PC that generate a lot of heat, such as the CPU or power supply. They work together to dissipate the heat from the hot parts to the surrounding air, preventing overheating and damage. A cooling fan is a device that spins and creates airflow, while a heatsink is a metal block with pipes that transfer the heat from the source to the fan. The more efficient the cooling fan and heatsink are, the lower the temperature and noise of your PC.



## Video Card

The video card is an expansion card that allows the computer to send graphical information to a video display device such as a monitor, TV, or projector in high resolution.








# Computer Ports






The computer ports are physical docking points of a computer that facilitate users to connect required external devices to the computer or computer network. A connection point that acts as an interface between the computer and external devices like a mouse, printer, modem, etc. is called a port. Ports are of two types:-

- ▶ **Internal port** :- It connects the motherboard to internal devices like hard disk drives, CD drives, internal modems, etc.
- ▶ **External port** :- It connects the motherboard to external devices like modem, mouse, printer, flash drives, etc.



# Types of ports

Serial Port.	<ul style="list-style-type: none"><li>• Used for external modems.</li><li>• Two versions: 9-pin, 25 pin model.</li><li>• Data travels at 115 kilobits per second</li></ul>	
Parallel Ports.	<ul style="list-style-type: none"><li>• Used for scanners and printers</li><li>• Also called a printer port.</li><li>• 25 pin model.</li></ul>	
PS/2 Port (Personal System/2)	<ul style="list-style-type: none"><li>• Used for old computer keyboard and mouse</li><li>• Also called the mouse port.</li><li>• Most of the old computers provide two PS/2 ports, each for the mouse and keyboard.</li></ul>	











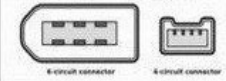

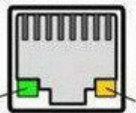

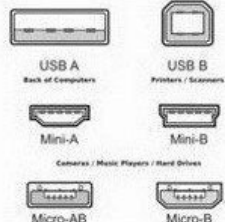


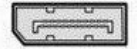

# Types of ports

<p>Universal Serial Bus (or USB) Port</p>	<ul style="list-style-type: none"><li>• It can connect all kinds of external USB devices such as external hard disks, printers, scanners, mice, keyboards, etc.</li><li>• Data travels at 12 megabits per second.</li><li>• USB-compliant devices can get power from a USB port.</li></ul>	
<p>VGA (Video Graphics Array) Port</p>	<ul style="list-style-type: none"><li>• Connects monitor to a computer's video card.</li><li>• It has 15 holes.</li><li>• Similar to the serial port connector. However, the serial port connector has pins, VGA port has holes.</li></ul>	  <p>VGA Cable</p> <p>VGA Connector</p>
<p>Firewire Port</p>	<ul style="list-style-type: none"><li>• Transfers large amounts of data at a very fast speed.</li><li>• Data travels at 400 to 800 megabits per second.</li><li>• It has three variants: 4-Pin, 6-Pin and 9-Pin FireWire</li></ul>	  <p>FireWire Connector</p> <p>FireWire Port</p>

# Types of ports

Ethernet Port	<ul style="list-style-type: none"><li>• Connects to a network and high-speed Internet.</li><li>• This port resides on an Ethernet Card.</li><li>• Data travels at 10 megabits to 1000 megabits per second depending upon the network bandwidth.</li></ul>	 <p data-bbox="1675 767 1895 794">Ethernet cable and port</p>
SD Card Slot	<ul style="list-style-type: none"><li>• Seen on desktop computers and laptops.</li><li>• These slots enable users to insert SD memory cards, which are typically utilized in digital cameras and other portable devices.</li></ul>	

# Types of ports

<p><b>Serial Port</b> Used for PDAs and serial devices.</p>  <p><b>Parallel Port</b> Used for printers and data.</p>  <p><i>All Replaced by USB!</i></p>	<p><b>PS/2 Port</b> Mouse Keyboard</p>  <p><b>Games Port</b> Joysticks and Midi Input</p>  <p><b>VGA Port</b> For External Monitor</p>  <p><b>S-Video</b> For Video in/out</p>  <p><b>HDMI</b> For High End TVs</p>  <p><b>Digital Video Interface</b></p> <p>DVI      Mini-DVI      Micro-DVI</p> 	<p><b>Audio Mini-Jacks Sockets</b></p> <ul style="list-style-type: none"> <li>Microphone</li> <li>Stereo Line-In</li> <li>Stereo Line-Out</li> <li>Right-to-Left</li> <li>Center / Subwoofer</li> </ul> <p><b>S/PDIF Digital Audio</b></p> 	<p><b>Firewire / i.Link IEEE1394</b> Video Cameras (DV) and Hard Drives</p>  <p><b>Firewire 400Mb/s - IEEE1394a</b></p>  <p><b>Firewire 800Mb/s - IEEE1394b</b></p> 
<p><b>Ethernet / RJ45</b> 10Mb/s, 100Mb/s and 1Gb/s</p>  <p>Link Light      Activity Light</p> <p>Used to connect to internet and intranet networks at high speed.</p> <p><b>Modem / RJ14</b> 56Kb/s</p>  <p>Used to connect to internet via phone line, very slow.</p>	<p><b>Universal Serial Bus (USB)</b></p> <p>USB 1.1 - 12Mb/s USB 2.0 - 480Mb/s USB 3.0 - 5Gb/s</p> <p>USB A (Back of Computers)      USB B (Printers / Scanners)</p> <p>Mini-A      Mini-B</p> <p>Micro-AB      Micro-B</p> <p>Cameras / Music Players / Hard Drives</p> 	<p><b>IEC Power Connectors</b></p> <p>C5 / C6 Cloverleaf 2.5 Amps</p> <p>C7 / C8 Figure of 8 2.5 Amps</p> <p>C13 / C14 IEC Cord 10 Amps</p> 	<p><b>eSata</b> External Hard Drive Port</p>  <p><b>DisplayPort</b> Video and Audio Port for Home Theater Systems</p>  <p>MiniDP</p> <p><b>PCMCIA / Cardbus</b> WiFi, Networking and Expansion Cards</p> 



# Types of Computers

- **Mainframes.**

- Room-sized, expensive, high speed, very powerful, large storage capacities.
- It is used in large organizations like Banks and government departments.

- **Minicomputers.**

- Do the same jobs as a mainframe, but on a smaller scale.

- **Super Computers.**

- High capacity, very expensive. Usually used for research.

- **Personal Computers (PCs).**

- It is small, not expensive and very popular, can be set on a disk.

# Types of Computers

**Mainframe**



**Minicomputer**



**Supercomputer**



**Personal computer**





Thank  
You

FOR  
LISTENING