

Ministry of Higher Education and Scientific Research

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College of Education

Department of Physics



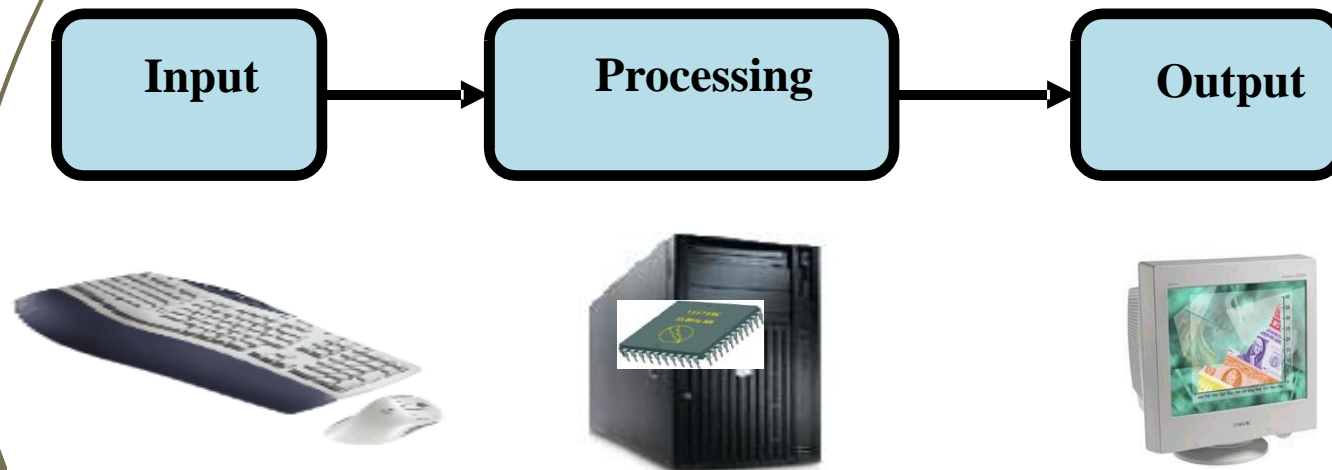
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Computer Skills
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What is a Computer?

Computer is a programmable usually electronic device that can store, retrieve, and process data. It is speeds millions and even billions of times faster than human.

- You probably already know that you can use a computer to **type documents, send email, play games, and browse the Web.**
- You can also use it to edit or create **Word, spreadsheets, presentations,** and even **videos.**



What is a Computer?

- All of the components of a computer system can be summarized with the simple equations.
- **Computer system = hardware + software**
 - **Hardware** :it refers to the physical components of a computer.
 - **Software**: it refers to the programs that control the computer and make it function.

What is a Computer?

Data: is a raw material and unorganized facts that need to be processed.

Information: When data is processed, organized, structured or presented in a given context so as to make them useful, it is called **information**.

CLASSIFICATIONS OF COMPUTERS

- **Desktop Computer**
- **Laptop Computer**
- **Tablet Computer**
- **Smartphone**
- **Mainframe Computer**
- **Supercomputer**

Computer

Software

Hardware

System software

Operating System

Windows
7,8,10,ME,98

Windows XP

DOS

MAC/OS X

Windows
Vista

Unix/Linux

Android

Application software

Office 2003 , 2017 ,
2010, 2013, 2016, 2019

MS Word , PowerPoint ,
Excel

Viber , Facebook ,
Browser

Input
device

Processing /
CPU

Types of
Storage Devices
Hard Disk
,CD,DVD,

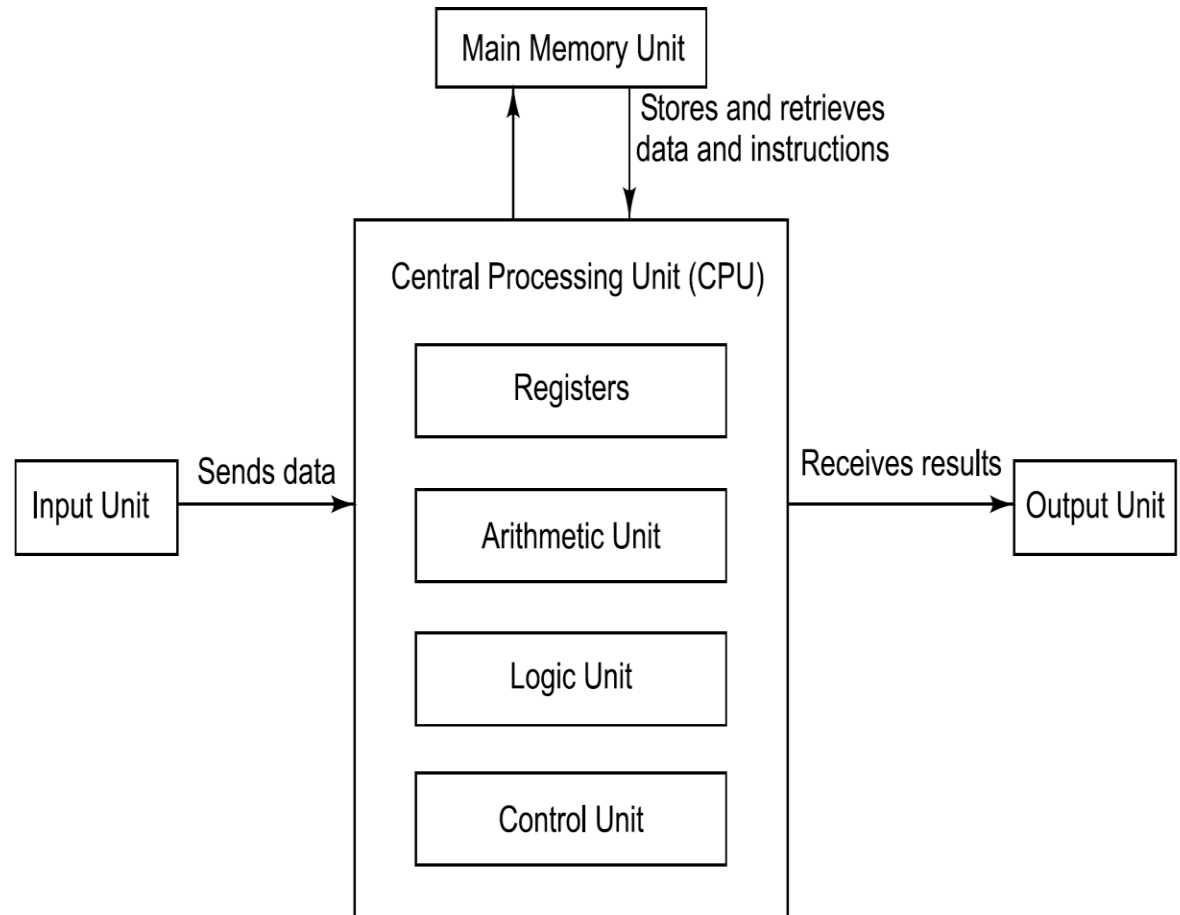
Types of
Memories /
RAM &
ROM

Internal
Component
s

Output
device

The block diagram of a computer system

1. Input Devices
2. Output Devices
3. CPU



Process(continual..)

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Three main components to the CPU:

- 1. Control unit:** it is responsible for loading and interpreting the individual instructions.
- 2. Arithmetic-Logic Unit(ALU):** It is responsible for the performance of calculations such as addition, subtraction, multiplication and division.
- 3. Memory:** is the faculty of the mind by which data or information is encoded, stored, and retrieved when needed..

A processor's speed **is measured in megahertz (MHz)**, or millions of instructions per second; and **gigahertz (GHz)**, or billions of instructions per second.

Hardware

Input



Joystick



Scanner



Webcam



Barcode Reader



Keyboard



Optical Pen

Both



CD, DVD, Blu-Ray



Touchscreen



Modem



Camera



Headset



Pen Drive

Output



Monitor



Headphones



Plotter



Speakers



Inkjet Printer

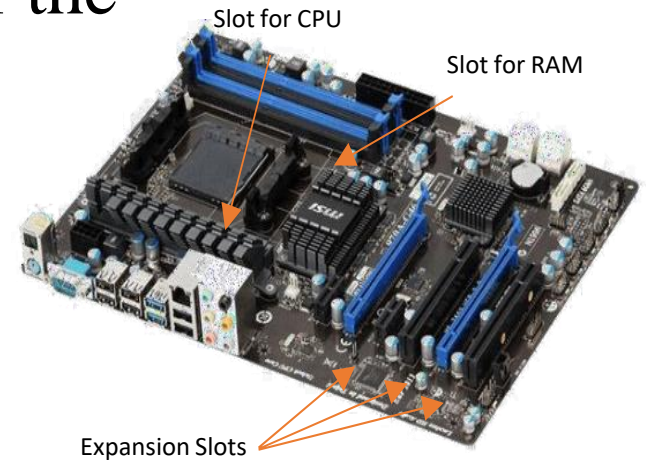


Laser Printer

Hardware components

Motherboard is the main circuit board of your computer. It is where most of the parts and peripherals are connected.

Central Processing Unit (CPU) is the central component of the computer system; it is called as microprocessor or processor. It is the brain of the computer.



Memory

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1. Primary memory (main memory):

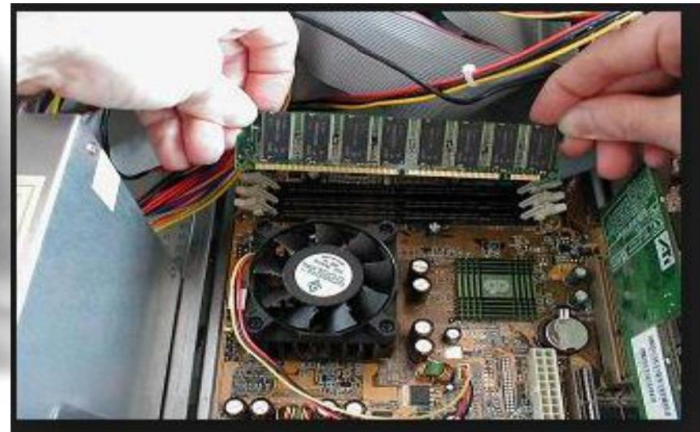
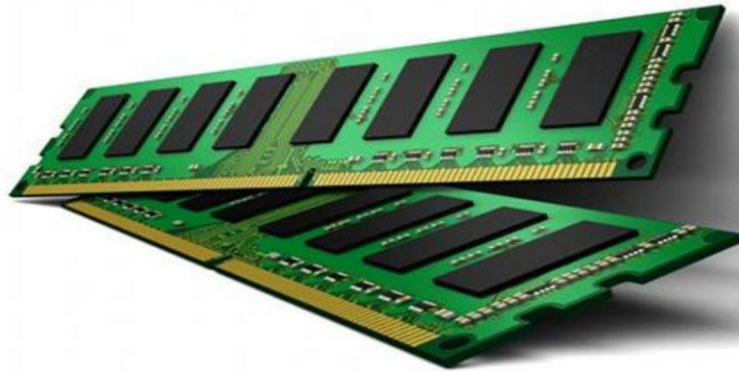
- **RAM** (Random Access Memory/Read-Write Memory)
- **ROM** (Read-only-memory)

2. Secondary memory (storage devices):

- Hard Disk (Local Disk)
- Optical Disks: CD-R, CD-RW, DVD-R, DVD-RW
- Pen Drive
- Zip Drive
- Floppy Disks
- Memory Cards
- External Hard Disk



Random Access Memory (RAM). It is temporary electronic storage, which is used to hold software and data when the software is running.



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.

➤ **Read Only Memory (ROM)**. It is permanent storage, and data stored in these chips is nonvolatile



Memory

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What is different RAM and ROM ?

	RAM	ROM
Volatility	RAM is volatile: When the computer is switched off, the contents are lost.	ROM is non-volatile: When the computer is switched off, the contents are not lost.
Changeable	The contents of RAM can be changed or deleted.	The contents of ROM cannot be changed or deleted.

Memory

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Computer memory measurements:

- a) **Bit:** In all the components of a computer, data and instructions are stored as patterns of ones and zeros. These individual ones and zeros are called bits.
- a) **Bytes:** A set of eight Bits is called a Byte.

Units of Measurements

- **Bit** (Binary Digit)(takes two values: **1** or **0**)
- **Byte** = 8 bits
- **KB (Kilo-byte)** = 1024 bytes
- **MB (mega-byte)** = 1024 KB
- **GB (giga-byte)** = 1024 MB
- **TB (Tera-byte)** = 1024 GB

Data Storage

1 Bit	=	0 or 1
8 Bits	=	1 Byte
1024 Bytes	=	1 KB
1024 KBs	=	1 MB
1024 MBs	=	1 GB
1024 GBs	=	1 TB
1024 TBs	=	1 PB
1024 PBs	=	1 EB
1024 EBs	=	1 ZB
1024 ZBs	=	1 YB

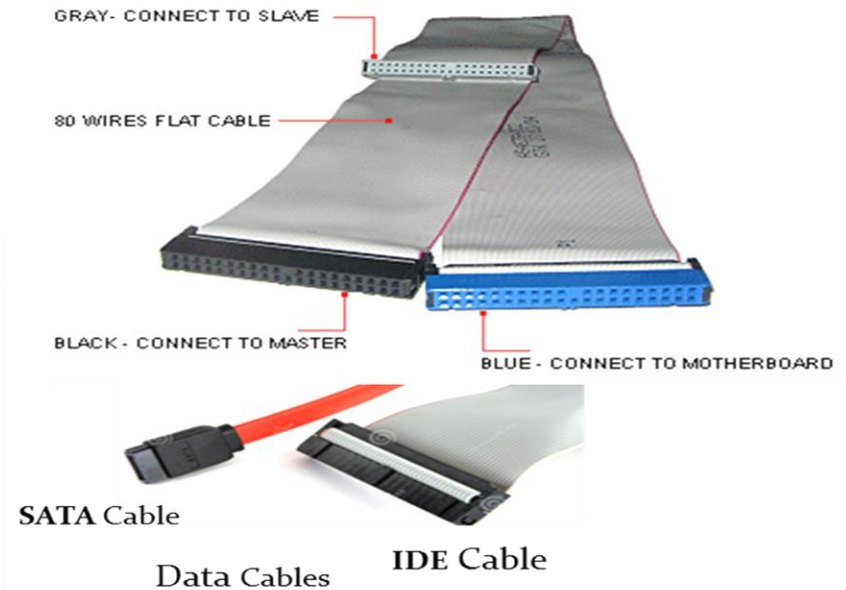
- Data can be stored on many different types of technology, name some?



Storage devices

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- **Hard disk** : It is the computer's main storage media device that permanently stores all data on the computer. It can be internal or external.



Storage devices

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➤ DVD-ROM:

A read-only DVD disc used to permanently store data files. DVD-ROM discs are widely used to distribute large software applications.

➤ Flash memory

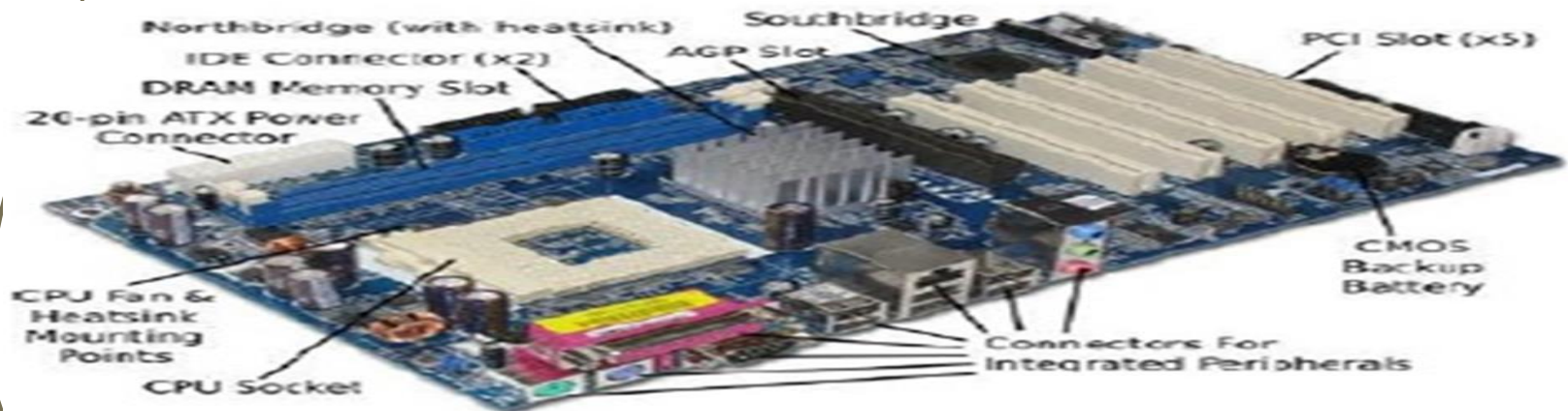


Internal Components

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Motherboard : It holds many of the important components of the system

- a) CPU
- b) Storage
- c) Card slots and other connectors



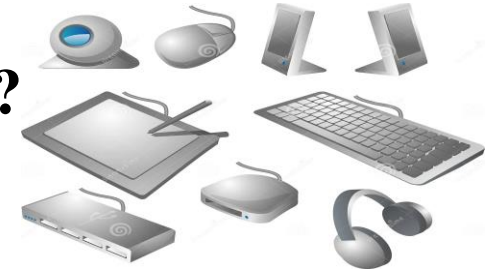
Internal Components

Fan: it Keeps your computer cool. If the inside of your computer becomes too hot, then the computer can overheat and damage parts



Connecting Peripherals

- **What is considered a peripherals devices?**
- **What is the most popular way to connect peripheral devices?**



- **What other methods are used to connect peripherals devices?**

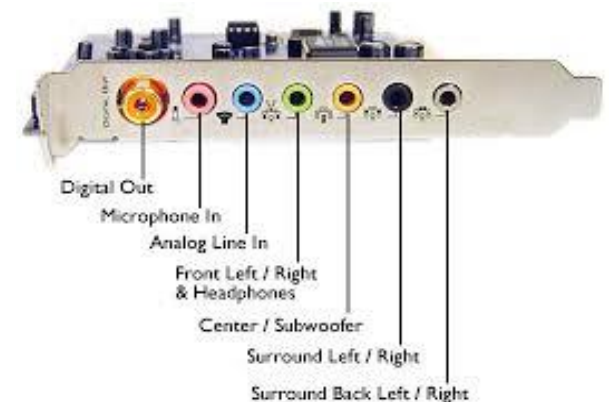


Internal Components

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Cards:

- I. Sound card :** It is an expansion card that allows the computer to send audio information to an audio.
- II. Graphics Card:** It can be used as input for a monitor.
- III. Network Card:** It is used to provide a computer connection over a network. Transmit data at 10/100/1000 Mb/s.



Internal Components

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Ports

A-Monitor Ports :it Uses to connect a monitor to the computer.

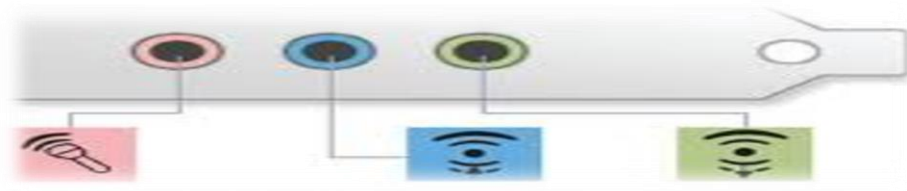


B-Universal Serial Bus(USB) Port : Now used to connect almost all peripheral devices to the computer.

Ports(continual....)

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F- Microphone, Headphone, and Speakers ports.

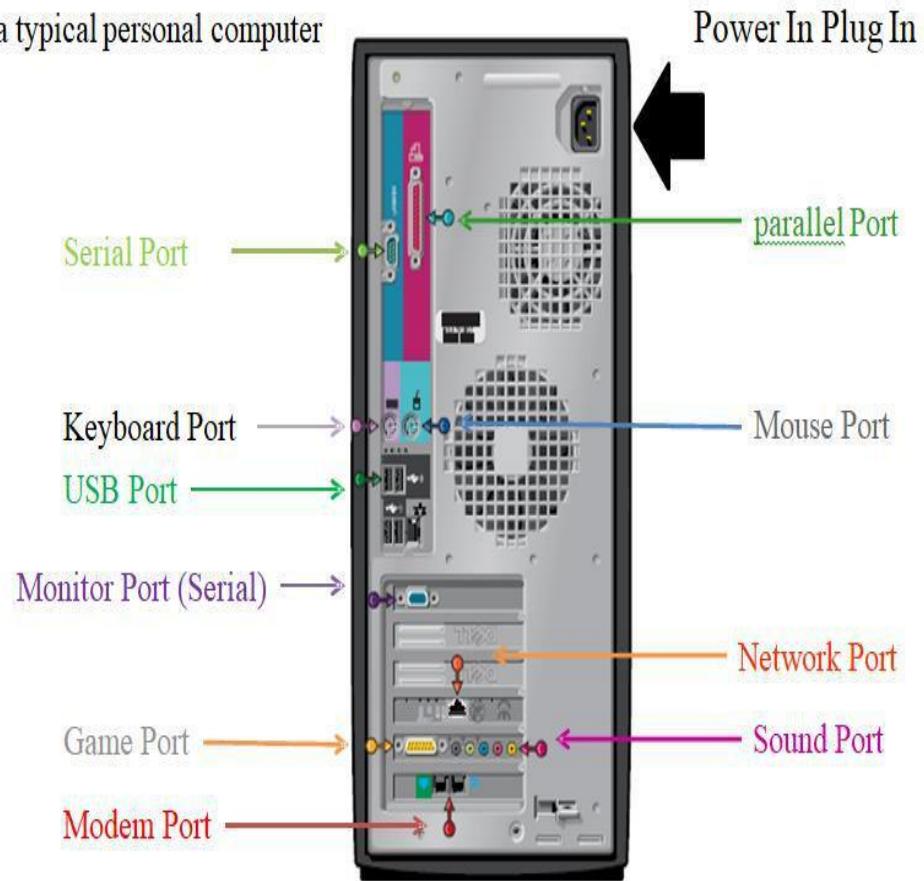


Serial Port

All these ports replaced by USBs ports.

Input/output ports

➤ On a typical personal computer



Computing Software

ProprietaryA licence to use software must be paid for before you are allowed to use the program.
Sharewaresoftware allows you to try out a program for a limited time (or with limited functionality). If you like it, you must pay for a licence to use the “full version”.
Trialproducts can be given to others and trialled initially for free, but if you like and use it, you must pay for a licence.
FreewareSometimes referred to as..... , you can freely use and give away copies of free software.
Open Sourcesoftware is the same as free software. However, the program’s code is also available so programmers can make changes to it.

Computer Viruses

- A computer virus is an application program designed and written to destroy other programs.
- It has the ability to:
 - Link itself to other programs
 - Copy itself (it looks as if it repeats itself)

Viruses and Virus Protection

- A virus program
 - Infects programs, documents, databases and more ...
 - It is man-made
 - It can hide and reproduce
 - It can lay dormant (inactive) and then activate



Anti-virus programs can help