



**CIHAN UNIVERSITY - SULAIMANIYA**

*Computer Skills 2023-2024*  
*BA-ACC-GE-TRA-ENG Departments*

**MR. MUSTAFA ALSAIGH**

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## Computer

Computer is an electronic device has many parts that work together according to data and instructions prepared by human, this to solve problems or getting required results.



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## Computer Case

Contains the major components of the computer. It helps protect them.



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## System Box (Computer case)

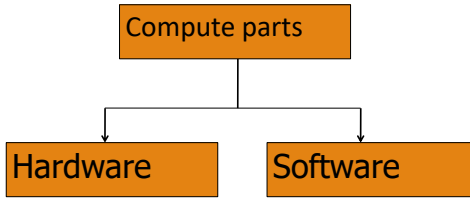


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## Compute contents



## Hardware

Physical parts of the computer (anything you could touch or see), like input/output devices, processor and memory chips, tapes, disks, modems, cable, etc.

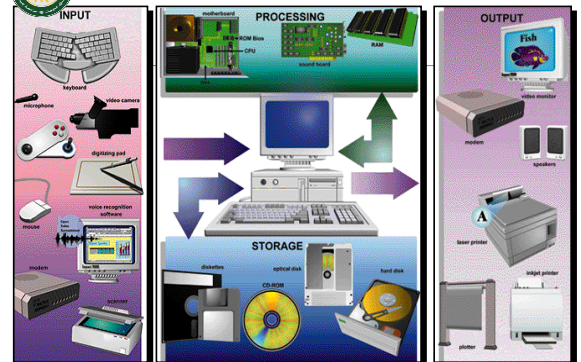


## Software

Programs that tell the computer what to do. It provides instructions that the CPU will need to carry out, like MS-Dos, Mac, Linux, Windows, etc ...



## Input / Output devices





## Input devices

Keyboard  
Mouse  
Scanner  
Joysticks  
Mobile  
Camera  
Microphone



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## Touchpad

A pressure-sensitive and motion sensitive device used in place of a mouse.



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## Output device

Monitor  
Printer  
Speaker



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## Storage devices

Are devices which you can use it to hold data and information inside it, then view it any time you want, examples:

Hard disk.  
USB flash memory card  
CD  
SD memory card

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## Storage capacity

Is amount of data or information which you can save it .

Storage unit called "Bit": Is smallest unit can be save and present in 0 or 1.

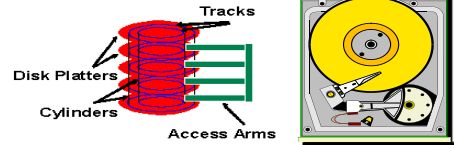
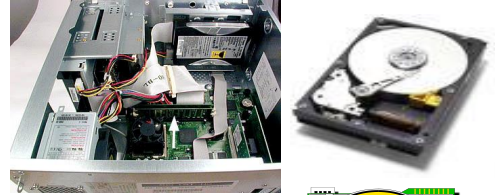
Byte = 8 Bit

Kilobyte = 1024 Byte

Megabyte = 1024 KB

Gigabyte = 1024 MB

Terabyte = 1024 GB



Drawing shows HD from inside

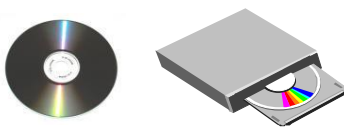
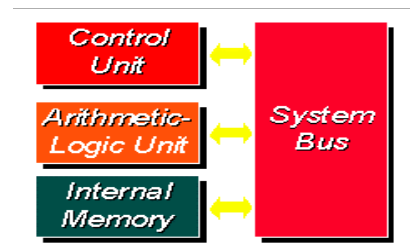


Photo disk



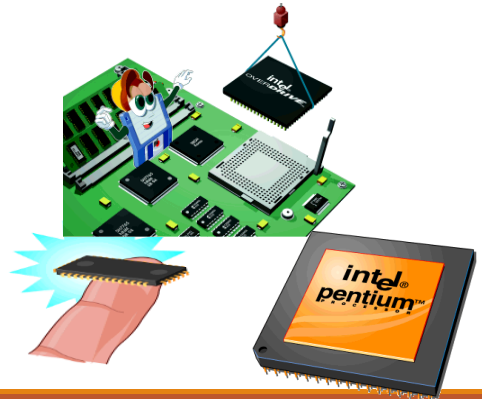
## Central Processing Unit (CPU)





## Processor

The CPU (central processing unit)– The chip or chips that interpret and execute program instructions and manage the functions of input, output, and storage devices.



## RAM

Random Access Memory

RAM is a computer's temporary memory, which exists as chips on the motherboard near the CPU. It stores data or programs while they are being used and requires power.



# READ ONLY MEMORY





## DOS

### Disk Operating System

This software connects the hardware with the programs you want to run.

### MS-DOS:

Microsoft DOS (Disk Operating System) is a command line user interface. MS-DOS 1.0 was released in 1981 for IBM computers.

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## Example of MS-DOS

```
C:\WINDOWS>dir h:
Volume in drive H is USERS
Directory of H:\FILE FILES

<DIR>
<DIR>
HUMANRES SHW  217,952 09-14-01  8:12a Human Resources Activity 2 .shw
HUMANRES SHW  136,640 09-17-01  2:40p Human Resources Activity 5 .shw
HUMANRES SHW  175,680 09-18-01  1:40p Human Resources Job Application.shw
COSTITER SHW  126,576 09-26-01  9:40a Costing Lesson 1 .shw
THELDRUG WPD  3,862 08-29-01  7:56p TheLora.wpd
HEDRISA SHW  167,424 09-19-01 10:57a H.E. Disclosure.shw
KISS SHW  105,472 09-19-01  1:30p KISS.shw
ETHICS SHW  34,208 09-19-01  1:44p Ethics.shw
COSTITER SHW  200,192 09-28-01  3:20p Costing Lesson 2 .shw
COMPUTER SHW  140,800 09-21-01 11:05a computer basics.shw
  File(s)      1,403,174 bytes
  Dir(s)        12,355,44 MB free

C:\WINDOWS>
```

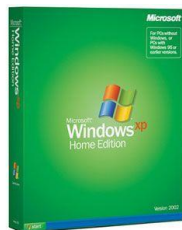
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## Windows

A family of operating systems developed and produced by Microsoft Corp. It provides a software graphical user interface (GUI) used on IBM and compatible computers.

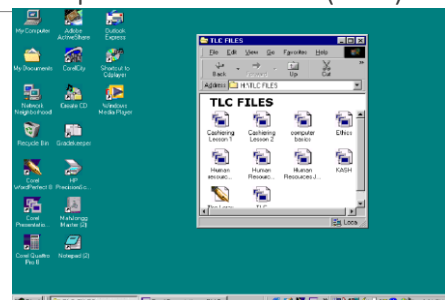


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## Example of Windows (GUI)



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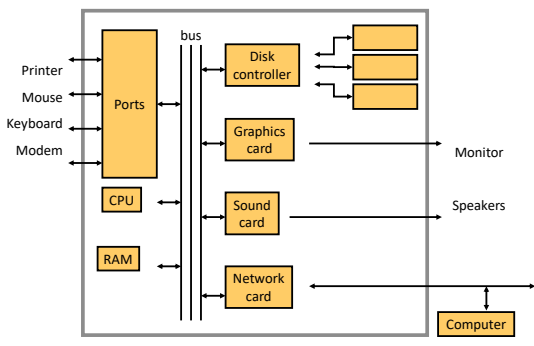
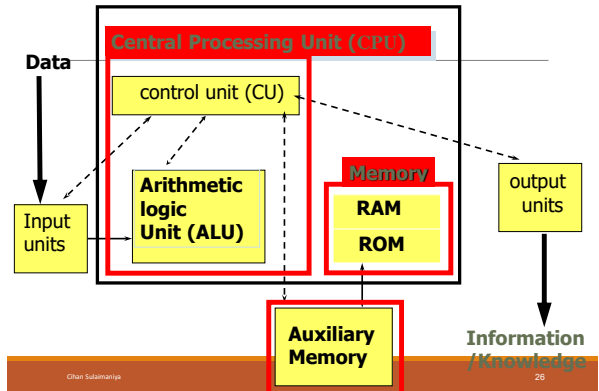
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# Hardware

The parts of computer itself (tangible objects ) including :

- CPU (or Processor) and Primary memory (or Main Memory)
- Input devices i.e the keyboard and mouse
- Output devices
- Storage devices

# Components of a Computer System



Just for understanding

# Input Devices

- Translate data from **form** that humans understand to one that the computer can work with
- Most common are keyboard and mouse



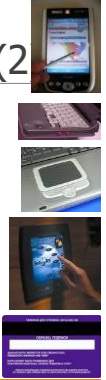
## Examples of Input Devices

1. Keyboard (QWERTY keyboard, ATMs keyboard)  
ATM: automatic teller machine
2. Mouse
3. Scanner
4. Pre-storage Device (Disk, CD's, ... etc.)
5. Optical mark recognition (Light Pin , Bar code scanners)
6. Microphone
7. Joystick .

See Page 4 in text book

## Examples of Input Devices(2)

8. Point and Draw devices
9. Trackball
10. Touchpad
11. Touch screen
12. Magnetic stripes and smart cars.
13. Digital Cameras



Trackball



Trackpoint



Digitizer Tablet and Pen



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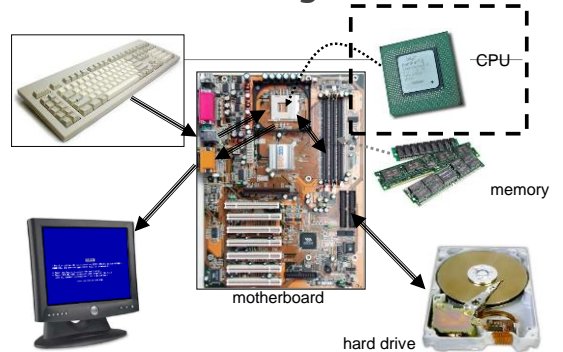
Joystick



Trackpad



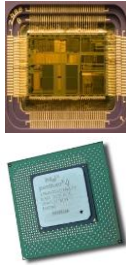
## Hardware Organization





## Central Processing Unit (CPU)

- A specific chip or the processor  
a CPU's performance is determined by the rest of the computers circuitry and chips.
- The Central Processing Unit (CPU) performs the actual processing of data
- The speed (clock speed) of CPU measured by Hertz (MHz)



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## The CPU consists of :

- Control Unit (CU)
- Arithmetic and Logical Unit (ALU)
- Some Registers

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## The Control Unit (CU) :

coordinates all activities of the computer by:

Determining which operations to perform and in what order to carry them out.

The CU transmits coordinating control signals to other computer components.

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## The ALU :

consists of electronic circuitry to perform:

Arithmetic operations (addition, subtraction, multiplication and division)

Logical operations (and, or, not, ...) and to make some comparisons (less-than, equal, ... etc.)

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## Primary Memory

Memory (fast, expensive, short-term memory): Enables a computer to store, at least temporarily, data, programs, and intermediate results.

Two general parts:

1. RAM
2. ROM

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## RAM (Main Memory)



It's a **primary storage** or **random access memory (RAM)**. It temporarily holds data and programs for use during processing (volatile)

Any information stored in RAM is lost when the computer is turned off.

RAM is the memory that the computer uses to temporarily store the information as it is being processed. The more information being processed the more RAM the computer needs.

RAM consists of locations or cells. Each cell has a unique address which distinguishes it from other cells.

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## ROM: Read Only Memory

ROM is part of memory

- Programmed at manufacturing time
- Its contents cannot be changed by users
- It is a permanent store

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## Secondary Storage

□ Stores data and programs permanently: its retained after the power is turned off

□ Examples

- Hard Drive (Hard Disk)  
Located outside the CPU, but most often contained in the system cabinet
- Floppy Disk
- Optical Laser Discs  
❖ CD-ROM, CD-RW, and DVD



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## Kinds of Disk **Drives**



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## Common Secondary Media

- **Diskettes**

- Data represented as magnetic spots on removable flexible plastic disks
- Most common size is 3 1/2 inches, in a rigid plastic case
- Disk drive holds the diskette, reads or retrieves the data and writes or stores data



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## Common Secondary Media

- **Hard drive**

- Data is represented magnetically as with diskettes
- Normally more than one rigid platter in a sealed unit
- These disks are not removable
- Significantly more capacity and faster operating than diskettes



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## Common Secondary Media....Reached here

- **Optical Laser Discs**

- CD ROM & DVD's

- Data is represented as pits and lands
    - Some kinds are read only (CD-ROM) and some Kinds are rewritable (CD-RW)
    - Significantly more capacity and faster operating than diskettes



DVD: Digital Video Disk

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## Output Devices

Pieces of equipment that translate the processed information from the CPU into a form that humans can understand.



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## Output Devices

- Monitors
- Printers
  - Dot matrix printers
  - Ink jet printers
  - Laser printers
- Sound Blasters (Sound Card By Creative Lab)
- Controlling other devices

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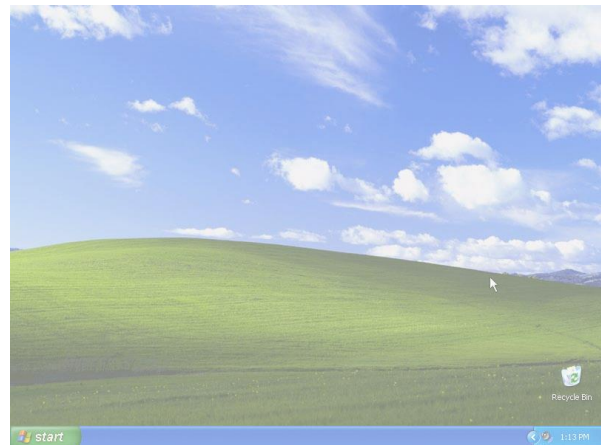
## Software

The instructions that tell the computer what to do

1. Application Software - helps end-users perform general purpose tasks
2. System Software - enables application software to interact with the computer

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## System Software

- The software that controls everything that happens in a computer.
- Background software, manages the computer's internal resources

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## Application Software – Basic Tools

- **Word processors**-- example: **Microsoft word**
- **Spreadsheets**-- example: **Microsoft Excel**
- **Database managers**-- example: **Microsoft Access**
- **Graphics**-- example: **Photoshop**

**Spreadsheets:** Computer software that allows the user to enter columns and rows of numbers in a accounting book like format.



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Microcomputer =>Personal Computer  
=> PC

There are **3** types of the  
Microcomputers :

- 1.Laptop
- 2.Desktop
- 3.Workstation



**Personal Computer:** A small, single-user computer based on a microprocessor.

**Workstation:** A powerful, single-user computer. A workstation is like a personal computer, but it has :

- a more powerful microprocessor and,
- in general, a higher-quality monitor.

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## Minicomputer, Mainframe, and Supercomputer

**Minicomputer:** A multi-user computer capable of supporting up to hundreds of users **simultaneously**.

**Mainframe:** A powerful multi-user computer capable of supporting many hundreds or thousands of users **simultaneously**.

**Supercomputer:** An extremely fast computer that can perform hundreds of millions of instructions per second.

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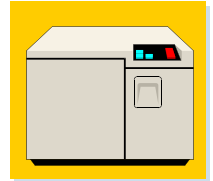
## Minicomputers

Desk-sized

More processing speed and storage capacity than microcomputers

General data processing needs at small companies

Larger companies use them for specific purposes



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## Mainframe Computers



Larger machines with special wiring and environmental controls

Faster processing and greater storage than minicomputers

Typical machine in large organizations

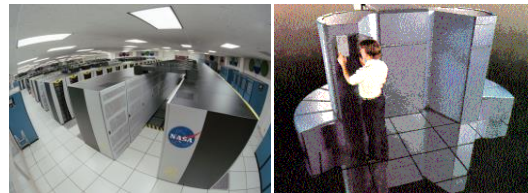
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## Supercomputers

The most powerful of the four categories

Used by very large organizations, particularly for very math-intensive types of tasks



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## Supercomputers



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## Characteristics of Computers



- 1- Store a large amount of data and information for a long period of time.
- 2- process data and information in high accuracy level .
- 3- Speed in processing data information.
- 4- Sharing of information / network.

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### Understanding the difference between Data, Information and Knowledge:



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- ✓ **Data:** is the name given to basic facts such as names and numbers.
- ✓ **Information:** is data that has been converted into a more useful or intelligible form.
- ✓ **Knowledge:** arrangement of information and classifying information of the same type or the same topic.

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Processing **data** produces **information**, and processing **information** produces **knowledge**.

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## Computer Viruses



## 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)

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## Examples of Viruses

- ◻ Monkes
- ◻ ABC
- ◻ Crabs
- ◻ CIH

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## 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

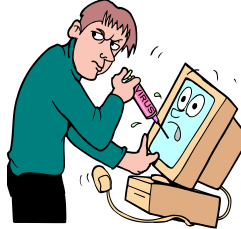
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## Sources of Computer Viruses

Three primary sources

- The Internet
  - Via downloads and exchanges
- Diskettes
  - Exchanging disks
- Computer networks
  - Can spread from one network to another



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## How do you know if you have a virus?

Lack of storage capability

Decrease in the speed of executing programs

Unexpected error messages

Halting the system

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## Virus Protection

- The software package distributed with new PCs always includes an **antiviral program**. The best way to cope with viruses is to recognize their existence and use an antiviral, or antivirus program.

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