

Introduction To Computer System

جامعة أم القرى
قسم السنة التحضيرية
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Computer Skills

- Presence 8 %
- Lab assignments 12%
- Lab examinations 40%
- Final exam 40%

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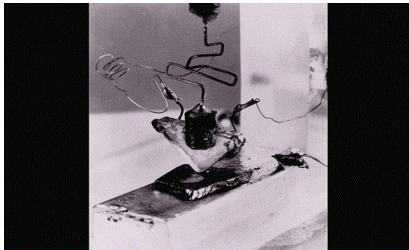
Computer Generations

- First
- Second
- Third
- Fourth

Computer Generations

	First	Second	Third	Fourth
Years	1951-1958	1959-1964	1965-1970	1971-
Technology	Vacuum Tubes	Transistor	Integrated Circuits	Large Scale Integrated Circuits
I/O	Cards	Tape	Disks	Variety
Size	Room	Closet	Desk	Small
\$ per million	\$10	\$1	\$0.10	\$0.0001 or less

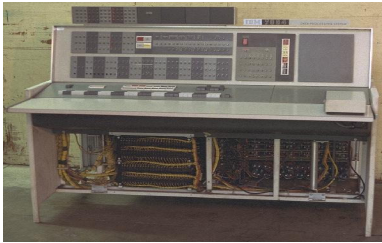
The First Transistor (1948)



IBM 360 Computer System



IBM 704



Used discrete transistors

IBM 709 Mainframe



Last of the vacuum tube computers, c. 1959

Digital Equipment Corp



Left: DEC PDP-8, c. 1965



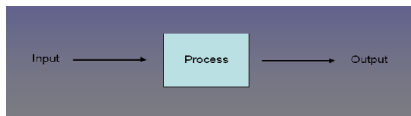
Right: DEC PDP-11, c. 1970

Computer

What is the Computer ?

The Computer is a set of independent physical components and devices (Hardware), which have a specific job to do for each one and working together by Software to make up the computer system.

Computer perform three main operations:



Computer Classifications (types)

- Microcomputer
- Minicomputer
- Mainframe
- Supercomputer

Microcomputer

- *Users:* One
- *Speed:* Slow
- *Price:* \$500 - \$3,000
- *Size:* desktop or smaller
- *Examples:* IBM PC, Apple][, Apple Macintosh, Imac
- "personal computers"

Minicomputer

- **Users:** 2 - 50
- **Speed:** Faster
- **Price:** \$10,000 - \$250,000
- **Size:** file cabinet
- **Examples:** HP 9000
DEC VAX
- *"departmental computers"*



Mainframe Computer

- **Users:** 50 +
- **Speed:** Fast
- **Price:** \$500,000 - millions
- **Size:** refrigerator-sized on up
- **Examples:** IBM 3090, Unisys 2200
- *company-wide ("enterprise")*

Supercomputer

- **Users:** a few
- **Speed:** very, very fast
- **Price:** \$ millions
- **Size:** room
- **Examples:** Cray, Fujitsu
- *scientific uses*

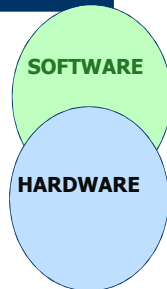


Understand the Terms Intelligent and Dumb Terminal.

- An intelligent terminal, for example a PC: -
 - Performs a lot of the processing locally
 - You could use a PC, linked to a mainframe
- A dumb terminal: -
 - Has very limited processing capabilities itself, but allows you to connect to a large powerful computer such as a mainframe.
 - When you process your data from the dumb terminal, it is the mainframe at the other end of the network that is performing all the calculations.



Look inside the computer



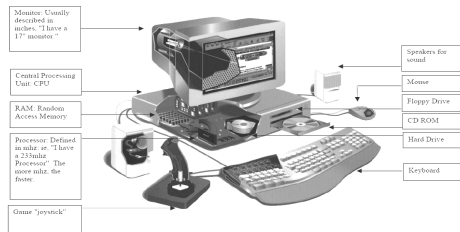
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Computers are made of

1. HARDWARE
2. SOFTWARE

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Hardware



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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

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The Case (System Unit or System Cabinet)



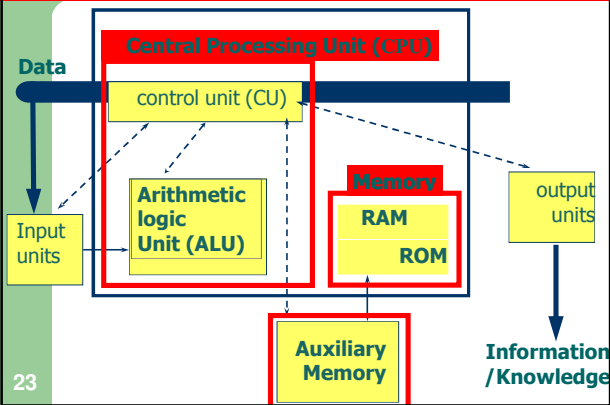
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Hardware

1. Central Processing Unit (CPU)
2. Input units
3. Output units
4. Memory (Main or Primary Memory & Secondary or Auxiliary Memory)

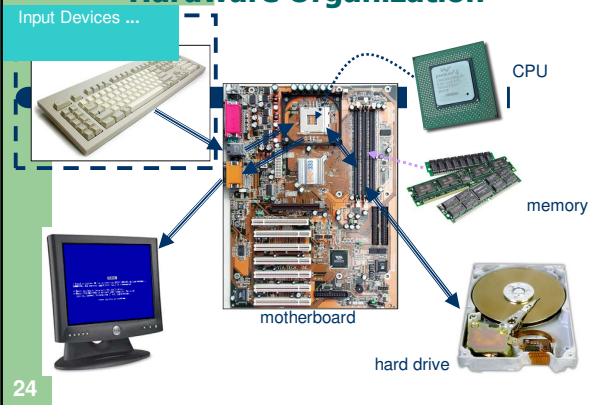
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Components of a Computer System



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Hardware Organization



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Input Devices

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



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Examples of Input Devices

1. Keyboard
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 .

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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

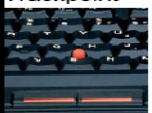


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Trackball




Trackpoint




Digitizer Tablet and Pen



Joystick



Trackpad



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Hardware Organization



Diagram illustrating the hardware organization of a computer system. A central computer monitor and keyboard are connected to various components: CPU, memory, and hard drive. Arrows indicate the flow of data and control between these components.

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غير مطلوبة فقط للفهم

Mother-Board (or Main Board)

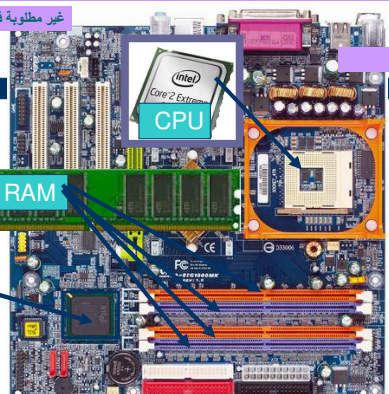
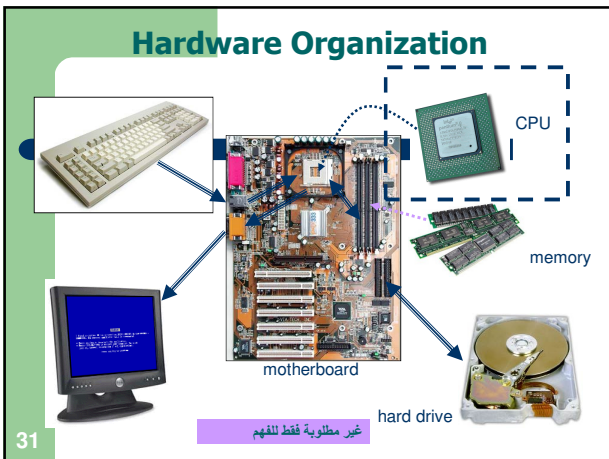


Diagram illustrating the components of a Mother-Board (or Main Board). Key components are labeled: CPU, RAM, and ROM. Arrows point to the respective components on the board.

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غير مطلوبة فقط للفهم

غير مطلوبة فقط للفهم



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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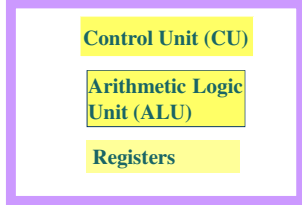
The CPU consists of :

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

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Central Processing Unit (CPU)

Central Processing Unit (CPU)



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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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