



# Lecture Three: Computer Hardware

---

## *What is Computer Hardware?*

Computer hardware refers to the physical parts or components which constitute the computer system. The hardware is tangible that can be seen by our eyes and we can touch these physical parts.

The computer system is analogous to the human body. In the human body, there are different organs like brain, kidney, liver, etc. which has their own specific functions to help our body work properly. Similarly different computer hardware performs a specific task and constitute together to make the system run properly.

## *Different Hardware Components of a Computer*

The main hardware components of a computer are as under:

1. Central Processing Unit (CPU)
2. Motherboard
3. Main memory (RAM)
4. BIOS (ROM)
5. Secondary storage device (hard disk, floppies, optical disks)
6. Input devices (keyboard, mouse, touchpad)
7. Output devices (monitor)
8. SMPS (Switch Mode Power Supply)

## CPU



The central processing unit or the processor is the brain of the Computer. It is the main think tank where all the calculations and logical decisions are made. The modern processor consists of millions of semiconductor transistors. The processor comes in many variants depending on their processing speed. The example of CPU is Intel Pentium, Intel Celeron, Dual-Core processor, etc.

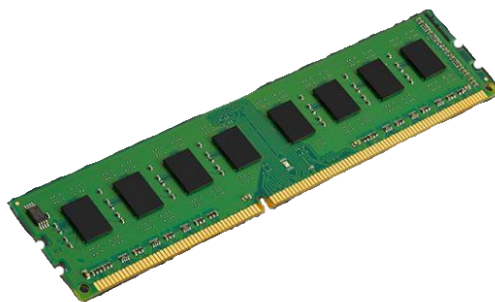


### MOTHERBOARD



The motherboard is the primary printed multilayered circuit board. It holds all the associated components of a computer system such as processor, memory, SMPS, input-output ports, etc. Motherboards come with different form factors that define their size and the components on the motherboard.

### MAIN MEMORY (RAM)



The purpose of the main memory also called RAM in a computer system is to store information. RAM is volatile and cannot retain its memory when the system is powered off. RAM stores all the files and programs that are currently running. Dynamic RAM is used for the main memory. The different variants of main memory available in the modern computer systems are DDR, DDR2, DDR3 SDRAM, etc.



Islamic University of Najaf  
College of Medical Technique  
Department of Radiology Technique

## BIOS ( ROM)



BIOS stands for Basic Input Output System. It is a ROM which stores firmware to start up the computer system. It performs a POST (Power On Self Test )initially to test all the hardware and then performs booting processing with the help of bootstrap code stored in the ROM.

## SECONDARY STORAGE DEVICE



The secondary storage device such as hard disk, optical disk, floppy disk, etc is used to stored data in large quantities for long term use. the secondary memory can store an enormous amount of data and cheaper as compared to the main memory. however, the secondary storage is much slower than the main memory.

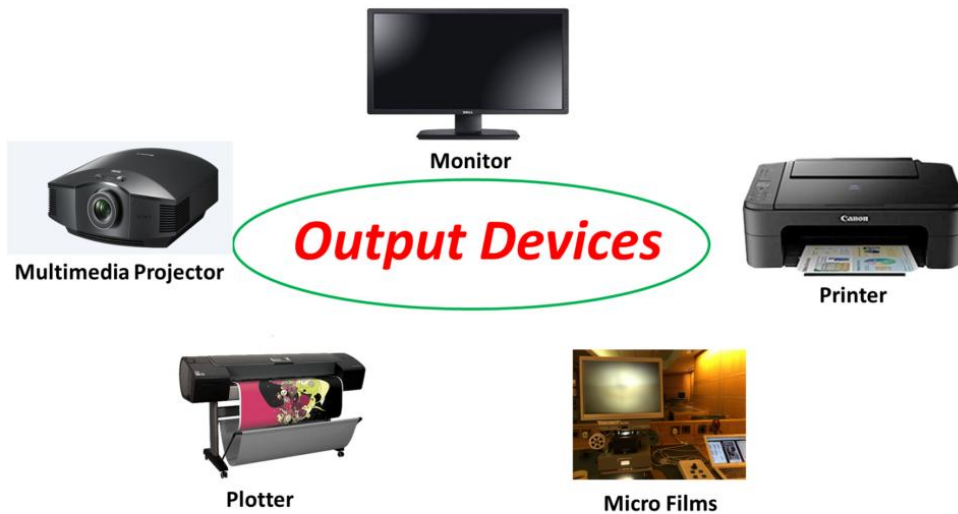


INPUT DEVICES



The primary function of an input device is to receive the raw data from the user for processing. The different input devices used in the computer system are keyboard, mouse, microphone, scanner, etc.

OUTPUT DEVICES



The job of the output device is to display meaningful results after processing is done. The different output devices used in the computer are monitor printer, multimedia projector, speakers, etc.



**Islamic University of Najaf**  
**College of Medical Technique**  
**Department of Radiology Technique**

## SMPS



SMPS stands for Switched Mode Power Supply. It provides a regulated power supply to the sensitive parts of the computer. The different voltages are supplied to the computer motherboard by the SMPS. The main DC regulated voltages generated by SMPS are: 5 volt DC, 12 volt DC, 3 volt DC, power good signal, etc.



Islamic University of Najaf  
College of Medical Technique  
Department of Radiology Technique

Optional 

---

What Is a Computed Tomography CT Scan?  
<https://www.healthline.com/health/ct-scan#procedure>.

How can we process CT scans using AI?

