

# #Basic Design of a Computer

## 1. Central Processing Unit (CPU)

The CPU, or Central Processing Unit, is the brain of the computer. It carries out instructions of computer programs by performing basic arithmetic, logical, control, and input/output (I/O) operations specified by the instructions. The CPU consists of the following component

### 1.1. Control Unit (CU)

The Control Unit directs the operation of the other units by sending control signals. It manages the movement of data and instructions in and out of the CPU.

### 1.2. Arithmetic Logic Unit (ALU)

The ALU performs arithmetic and logical operations, such as addition, subtraction, multiplication, division, and comparison of numbers.

### 1.3. Registers

Registers are small storage locations within the CPU used to store data temporarily during processing. Common types include the accumulator, program counter, and general-purpose registers.

## 2. Memory

Computer memory is used to store data and instructions that are currently being processed by the CPU. Memory can be categorized into primary and secondary memory:

### 2.1. Primary Memory (RAM)

Random Access Memory (RAM) is volatile memory used by the CPU to store data and instructions temporarily. It allows for fast read and write operations but loses its content when the power is turned off.

### 2.2. Secondary Memory (Storage)

Secondary memory includes storage devices like hard disk drives (HDD), solid-state drives (SSD), and optical drives (e.g., DVD-ROM). It provides non-volatile storage for data and programs.

## 3. Input/Output (I/O) Devices

Input and output devices allow users to interact with the computer system. These devices facilitate the input of data and commands and the output of processed information:

### **3.1. Input Devices**

Input devices capture and enter data into the computer system. Examples include keyboards, mice, scanners, and microphones.

### **3.2. Output Devices**

Output devices present data processed by the computer system to the user in human-readable form. Examples include monitors, printers, speakers, and projectors.

**SAAD ABDULLAH**