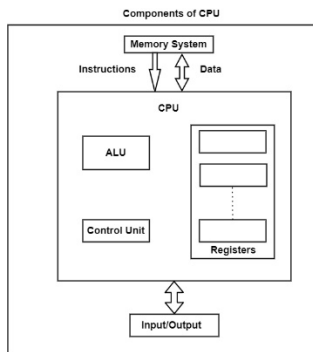


4.2: Computer hardware

Quick highlights

A **CPU** It contains the following parts:



- Control unit (CU). This is the unit that direct the flow of data and dictate how other components responds.
- Memory unit. This is the unit that provides space for data and instructions.
- Arithmetic logic unit. This is the unit that performs mathematical calculations and logical comparison.
- Register. This unit is located inside the CPU and hold data temporally.

A CPU performs the following functions:

- It helps to fetch or retrieve instructions from the main memory.
- The decode unit in the CPU interpret the fetched instructions to determine the required operations.
- It performs the operation using the appropriate hardware components.
- It helps the executed instructions to be written back to the memory of a register.
- Arithmetic Logic Unit helps perform all mathematical calculations and logical operations.
- The control unit direct the flow of data across the computer.
- It enables proper utilization of space within the computer.

There are various **types of CPU** as follows:

- Single -core CPU.** This is a CPU that only handles one task at a time. It is slow in operating and supporting modern app like games.

- ii. **Dual-core CPU.** This is a CPU that has two cores and therefore can handle two tasks at once.
- iii. **Quad-core CPU.** This is a four core CPU which makes it great for heavy tasks like video editing, playing modern games, as it is very fast and it's the most common in modern days computer.

A CPU have several types of memories. These include:

- i) **Random access memory (RAM).** This is a computer memory that enables reading and writing of data in a computer for a short period of time.
- ii) **Read only memory (ROM).** This is a computer memory that stores important data such as programs. It allows reading only but does not allow writing on it. It keeps data for a long time with no need for change.
- iii) The following are the differences between RAM and ROM:

RAM	ROM
It provides a short time storage for data. Ram losses data when computer is powered off.	It provides for a permanent data storage. Rom does not lose power when a computer is powered off.
It is volatile and it can change easily.	It is non-volatile and does not change easily.
It allows writing It is fast and keeps up with CPU processes.	It does not allow writing but reading only. It is slow and mostly used to boost the system.
It is used in normal operations of a computer.	It is used for the running of the computer.