

THE CENTRAL PROCESSING UNIT

The Central Processing Unit (CPU) is the computer component that's responsible for interpreting and executing most of the commands from the computer's other hardware and software. All sorts of devices use a CPU, including desktop, laptop, tablet computers, and smartphones...even your flat-screen television set.

Intel and AMD are the two most popular CPU manufacturers for desktops, laptops, and servers, while NVIDIA and Qualcomm are big smartphone and tablet CPU makers.

CPU has different names including processor, microprocessor or the “brain of the computer”. A modern CPU is usually small and square, with short, rounded, metallic connectors on its underside. Some have pins instead of metallic connectors.

The CPU attaches directly to a CPU ‘socket’ (or sometimes a ‘slot’) on the motherboard. The CPU is inserted into the socket pin-side-down.

The clock speed of a processor is the number of instructions it can process in any given second, measured in hertz (Hz). A CPU with a clock speed of 3.0 GHz can process 3 billion instructions each /per second.

Some devices have a single-core processor while others may have a dual-core (or quad-core, etc.) processor.

Components of the CPU

The components of the CPU work together to achieve its functions. The three components are:

1. Arithmetic Logic Unit
2. Control Unit
3. Registers

Functions of Arithmetic Logic Unit (ALU)

- Executes all arithmetic operations such as ADD, SUBTRACT, DIVIDE etc.
- Executes logical operations (i.e. making comparison) such as AND, OR, XOR etc.

Functions of Control Unit (CU)

- It directs the flow of data and information in the computer.
- It oversees the operation of the input and output (I/O) devices.
- Interprets instructions

Registers: Register are temporary storage location used to quickly accept, store, and transfer data and instructions that are being used immediately by the CPU. They are special purpose memory which resides within the CPU.