**Central processing unit(CPU)**

The central processing unit (CPU) or processor, is the unit which performs most of the processing inside a computer. It processes all instructions received by software running on the PC and by other hardware components, and acts as a powerful calculator.

The CPU is placed into a specific square-shaped socket found on all motherboards by inserting its metallic connectors or pins found on the underside. Each socket is built with a specific pin layout to support only a specific type of processor.

Since modern CPUs produce a lot of heat and are prone to overheating, they must be kept cool with appropriate fans or ventilation systems, and covered with heat sinks and thermal paste.

To control instructions and data flow to and from other parts of the computer, the CPU relies heavily on a chipset, which is a group of microchips located on the motherboard.

This term is also known as a central processor, microprocessor or chip.

Techopedia Explains Central Processing Unit (CPU)

The central processing unit (CPU) has two components:

* Control Unit

The control unit extracts instructions from memory and decodes and executes them.

The control unit acts as an intermediary that decodes the instructions sent to the processor, tells the other units such as the Arithmetic Logic Unit (below) what to do by providing control signals, and then sends back the processed data back to memory.

* Arithmetic Logic Unit (ALU)

An arithmetic logic unit (ALU) is a digital circuit inside the processor that handles arithmetic and logical operations by loading data from input registers.

After the control unit provides the ALU with the instruction on the operations that must be performed, the ALU completes them by connecting multiple transistors, and then stores the results in an output register.

The control unit will then move this data to memory.

To function properly, the CPU relies on the system clock, memory, secondary storage, and data and address buses.

Smaller devices like mobile phones, calculators, held gaming systems, and tablets use smaller-sized processors known as ARM CPUs to accommodate their reduced size and space.

The CPU is the heart and brain of a computer. It receives data input, executes instructions, and processes information. It communicates with input/output (I/O) devices, which send and receive data to and from the CPU.

Additionally, the microprocessor has an internal bus for communication with the internal cache memory, called the backside bus. The main bus for data transfer to and from the CPU, memory, chipset, and AGP socket is called the front-side bus.

The CPU contains internal memory units, which are called registers. These registers contain data, instructions, counters and addresses used in the ALU's information processing.

Some computers utilize two or more processors. These consist of separate physical microprocessors located side by side on the same board or on separate boards. Each CPU has an independent interface, separate cache, and individual paths to the system front-side bus.

Multiple processors are ideal for intensive parallel tasks requiring multitasking. Multicore CPUs are also common, in which a single chip contains multiple CPUs.

Since the first microprocessor was released by Intel in November 1971, CPUs have increased their computing power severalfold.

The oldest Intel 4004 processor only performed 60,000 operations per second, while a modern Intel Pentium processor can perform about 188,000,000 instructions per second.