

By kumari priyadarshani

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Microprocessor Components

Compared to the first microprocessors, today's processors are very small but still they have basic parts right from the first model –

CPU

Bus

Memory

CPU

CPU is fabricated as a very large scale integrated circuit (VLSI) and has these parts –

Instruction register – It holds the instruction to be executed.

Decoder – It decodes (converts to machine level language) the instruction and sends to the ALU (Arithmetic Logic Unit).

ALU – It has necessary circuits to perform arithmetic, logical, memory, register and program sequencing operations.

Register – It holds intermediate results obtained during program processing.

Registers are used for holding such results

rather than RAM because accessing registers is almost 10 times faster than accessing RAM.

Bus

Connection lines used to connect the internal parts of the microprocessor chip is called bus.

There are three types of buses in a microprocessor –

Data Bus – Lines that carry data to and from memory are called data bus. It is a bidirectional bus .

Address Bus – It is a unidirectional responsible for carrying address of a memory location or I/O port from CPU to memory or I/O port.

Control Bus – Lines that carry control signals like clock signals, interrupt signal or ready signal are called control bus. They are bidirectional. Signal that denotes that a device is ready for processing is called ready signal. Signal that indicates to a

device to interrupt its process is called an interrupt signal.

Memory

Microprocessor has two types of memory

RAM – Random Access Memory is volatile memory that gets erased when power is switched off. All data and instructions are stored in RAM.

ROM – Read Only Memory is non-volatile memory whose data remains intact even after power is switched off.

Thank you😊