

- Microprocessor is a single chip integrated circuit. It is a digital device working with binary numbers "0" and "1". It contains arithmetic logic unit (ALU), control circuitry and the small amount of memory.
- The microprocessor works under the control of a program. It can fetch instructions from memory, decode and execute them. Microprocessor is fabricated by using VLSI Technology.
- Microprocessor has the ability to control of input/output devices and to transfer information to and from the memory. It acts as central processing unit (CPU) of micro computer system. Microprocessor with memory, input and output devices is called a microcomputer.

# Introduction to Microprocessor

## 8085 Microprocessor Definition:

It is a single integrated circuit

- As we know that all of this operation is performed Generally all of this operation is done by the ALU unit in Microprocessor.
- by the CPU in a large computer.
- So we can compare the CPU and ALU as the fig. given below.

## DEFINITIONS OF TERM USED IN MICROPROCESSOR

### Central Processing unit (CPU)

It works as the heart of the computer. It contains Arithmetic-logic unit, some registers and control circuits.

### Arithmetic and logic unit (ALU)

It performs arithmetic operations such as addition, subtraction, etc.. And logic operations like AND, OR, EX-OR etc,..

### Control unit

It produces necessary timing and control signals for doing all functions in computer

### Bit

Bit is Binary Digit '0' and '1'

### **Bytes**

Bytes is combination of '8' bits.

### **Nibble**

Nibble is a group of '4' bits

### **Word**

Word is a group of bits, the computer recognizes and the processor at a time.

### **Instruction**

Instruction is a command, recognized and executed by a microprocessor.

### **Program**

Program is set of instructions written for the computer to perform a task.

### **Bus**

Bus is a group of lines, used to transfer information (binary bits 0 and 1). There are three types of buses,.. Namely Address Bus, Data Bus and control bus.

# Evolution of Microprocessors

- The first microprocessor Intel 4004 introduced in 1971.
- The other 4-bit microprocessor were Intel's 4040, Toshiba's T3472, Rockwell's PPS4, etc..
- In 1973 Intel introduced its first 8-bit microprocessor of 8008.
- At present here number of ,microprocessors in 8-bit namely Intel 8085, Motorola's M6800, M6809, Zilog,s Z80 and Z800.
- Followed this the first 12-bit and 16-bit microprocessors from Intersils's IM6100 and Toshiba's T3190
- Examples of 16-bits namely Intel's 8086, 80186 and 80286, Motorola's MC68000, Zilog's Z8000 SERIES, Texas instruments TMS 99000, Fairchild 9440 and digital equipments LSI II

## **Peripherals**

I/O devices connected to microprocessor are known as peripherals. Sometimes memory may be treated as peripherals.

## **Mnemonics**

Mnemonic is a combination of alphabet, understand the operation by the users.

## **Compiler**

Compiler is a program used for converting high level language into machine language.

## **Assembler**

It is a program used for converting assembly language to machine language.

## **Software**

Software is a Combination of program.

## **Hardware**

The Physical components placed in the computer are called hardware.

# Arithmetic And Logic Unit

- This section is used for performing the arithmetic and logical operation in Microprocessor. Here A and B are the input pins where operands are put on which we want to perform arithmetic and logical operation. A and B section are operand section and it processes it according to the given instruction.
- Arithmetic operation:- Like addition, subtraction, multiplication, division etc.

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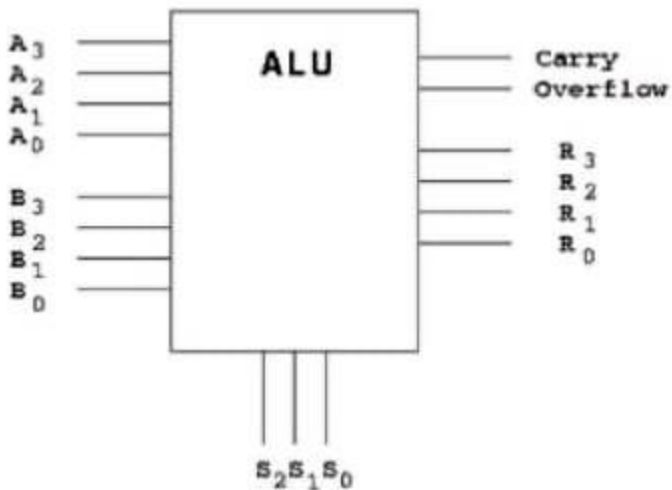
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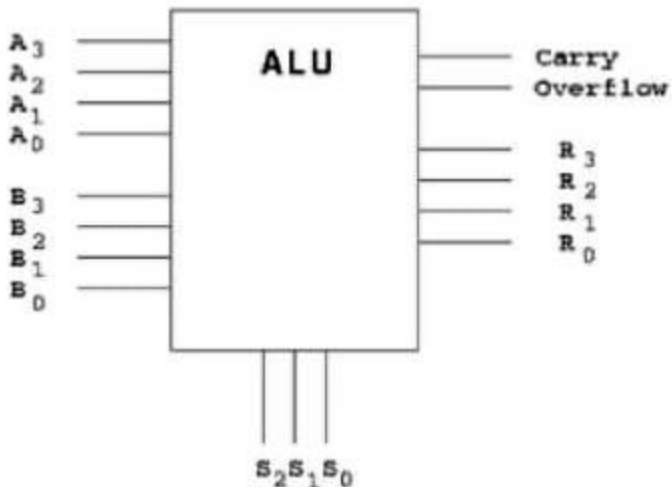
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# Block Diagram Of ALU



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## **Firmware**

The software stored in ROM, PROM and EPROM is called Firmware.

## **Buffer**

Buffer is a logic circuit used for increase current and power amount.

## **Tri-state buffer**

buffer with control terminal is called Tristate buffer. It contain three types of outputs, namely; low, high and high impedence.

## **Latch**

Latch is a temporary memory unit. It is used for controlling the signal flow.

## Architecture Diagram of 8085 Microprocessor

- Intel 8085 is an eight bit microprocessor. It is a 40 pin DIP IC. It operates in +5v DC supply. It consists of ALU, Timing and control unit, instruction register and decoder, register array, interrupt control unit and serial I/O Control Unit. The internal architecture of microprocessor 8085 is shown next..

