Addressing modes in 8085 microprocessor

Difficulty Level : Easy   ●   Last Updated : 28 Oct, 2020

Prerequiste – [Addressing modes](#)

The way of specifying data to be operated by an instruction is called addressing mode.

Types of addressing modes –

In 8085 microprocessor there are 5 types of addressing modes:

1. **Immediate Addressing Mode –**
   In immediate addressing mode the source operand is always data. If the data is 8-bit, then the instruction will be of 2 bytes, if the data is of 16-bit then the instruction will be of 3 bytes.
   Examples:
   MVI B 45 (move the data 45H immediately to register B)
   LXI H 3050 (load the H-L pair with the operand 3050H immediately)
   JMP address (jump to the operand address immediately)

2. **Register Addressing Mode −**

In register addressing mode, the data to be operated is available inside the register(s) and register(s) is(are) operands. Therefore the operation is performed within various registers of the microprocessor.

Examples:

MOV A, B (move the contents of register B to register A)

ADD B (add contents of registers A and B and store the result in register A)

INR A (increment the contents of register A by one)

3. **Direct Addressing Mode −**

In direct addressing mode, the data to be operated is available inside a memory location and that memory location is directly specified as an operand. The operand is directly available in the instruction itself.

Examples:

LDA 2050 (load the contents of memory location into accumulator A)

LHLD address (load contents of 16-bit memory location into H-L register pair)

IN 35 (read the data from port whose address is 35)

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In register indirect addressing mode, the data to be operated is available inside a memory location and that memory location is indirectly specified by a register pair.

Examples:

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LDAX B (move contents of B-C register to the accumulator)

LXIH 9570 (load immediate the H-L pair with the address of the location 9570)

5. **Implied/Implicit Addressing Mode –**

In implied/implicit addressing mode the operand is hidden and the data to be operated is available in the instruction itself.

Examples:

CMA (finds and stores the 1's complement of the contains of accumulator A in A)

RRC (rotate accumulator A right by one bit)

RLC (rotate accumulator A left by one bit)

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