


جامعة المستقبل
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Computer Organization and Application

Lecture 8
INSTRUCTION SET OF 8085

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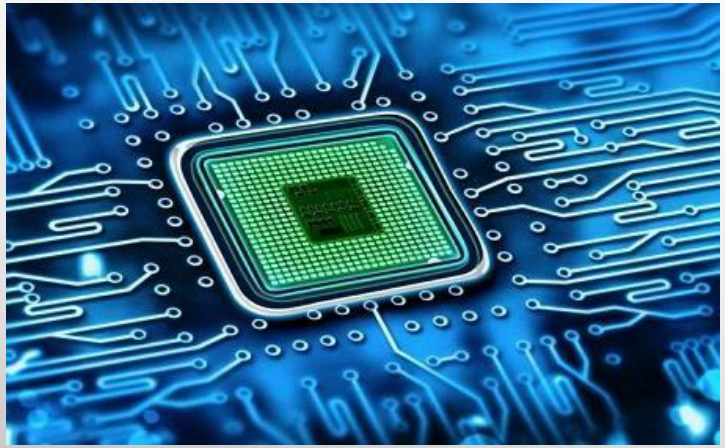
INSTRUCTION SET OF 8085



An instruction is a binary pattern designed inside a microprocessor to perform a specific function.

- The entire group of instructions that a microprocessor supports is called Instruction Set.
- 8085 has 246 instructions.
- Each instruction is represented by an 8-bit binary value.
- These 8-bits of binary value is called Op-Code or Instruction Byte.

CLASSIFICATION OF INSTRUCTION SET

- Data Transfer Instruction
- Arithmetic Instructions
- Logical Instructions
- Branching Instructions
- Control Instructions

DATA TRANSFER INSTRUCTIONS

- These instructions move data between registers, or between memory and registers.
- These instructions copy data from source to destination.
- While copying, the contents of source are not modified.

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
MOV	Rd, RS Rd, M M, RS	Copy from source to destination.

- This instruction copies the contents of the source register into the destination register.
- The contents of the source register are not altered.
- If one of the operands is a memory location, its location is specified by the contents of the HL registers.
- Example: MOV B, C

MOV B, M
MOV M, C

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
MVI	Rd, Data M, Data	Move immediate 8-bit

The 8-bit data is stored in the destination register or memory.

- If the operand is a memory location, its location is specified by the contents of the H-L registers.
- Example: MVI A, 57H
- MVI M, 57H

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
LXI	Reg . pair , 16 bit data	Load register pair immediate

This instruction loads 16-bit data in the register pair.
Example: LXI H, 2034 H

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
LDA	16-bit address	Load Accumulator

The contents of a memory location, specified by a 16- bit address in the operand, are copied to the accumulator. The contents of the source are not altered.
Example: LDA 2034H

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
LDAX	B/D Register Pair	Load accumulator indirect

The contents of the designated register pair point to a memory location.

This instruction copies the contents of that memory location into the accumulator.

The contents of either the register pair or the memory location are not altered.

Example: LDAX B

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
LHLD	16-bit address	Load H-L registers direct

This instruction copies the contents of memory location pointed out by 16-bit address into register L.
It copies the contents of next memory location into register H.
Example: LHLD 2040 H

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
STA	16-bit address	Store accumulator direct

The contents of accumulator are copied into the memory location specified by the operand.

Example: STA 2500 H

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
STAX	Reg. pair	Store accumulator indirect

The contents of accumulator are copied into the memory location specified by the contents of the register pair
Example: STAX B

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
SHLD	16-bit address	Store H-L registers direct

The contents of register L are stored into memory location specified by the 16-bit address.
The contents of register H are stored into the next memory location
Example: SHLD 2550 H

DATA TRANSFER INSTRUCTIONS

OPCODE	OPERAND	Description
XCHG	None	Exchange H-L with D-E

The contents of register H are exchanged with the contents of register D.
The contents of register L are exchanged with the contents of register E
Example: XCHG