

23VLS1401: Microcontroller and Computer architecture

Unit 2 - Lecture 1

**Microprocessor 8085: Compare and  
Rotate instructions and programming**

A presentation by

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# Session objectives

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- To learn various software instructions related to the process of data transfer
- To learn various addressing modes related to the process of data transfer
- To develop the programming technique in assembly language for given problem statement, store the source data, execute the program and observe the result in destination register or memory location.



# Compare instructions

- **CMP R/M**
  - **CPI 8 bit data**
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# Rotate instructions

- **RAL**
- **RAR**
- **RLC**
- **RRC**

# Compare instructions

Opcode	Operand	Meaning	Explanation	Addressing mode
<b>CMP</b>	<b>R/M</b>	<b>Compare Accumulator with R/M</b>	<b>This instruction compares the contents of the Accumulator with contents of R/M. Flags are modified</b>	<b>Implicit addressing mode</b>

If A less than (R/M), the CY flag is set.

If A equals to (R/M), the Zero flag is set

If A greater than (R/M), the CY flag is reset.

# Compare instructions

Opcode	Operand	Meaning	Explanation	Addressing mode
CPI	8 bit data	Compare Accumulator with 8 bit data	This instruction compares the contents of the Accumulator with 8 bit data. Flags are modified	Immediate addressing mode

If A less than (R/M), the CY flag is set.

If A equals to (R/M), the Zero flag is set

If A greater than (R/M), the CY flag is reset.



**Problem Statement: Compare the numbers stored in memory locations 2501H and 2502H. Place the smaller number in 2503H**

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```
LXI H,2501H
MOV A,M
INX H
MOV B,M
CMP B
JC AHEAD
MOV A,B
AHEAD: INX H
MOV M,A
HLT
```

**Problem Statement: Compare the numbers stored in memory locations 2501H and 2502H. Place the larger number in 2503H**

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**Problem Statement: Compare the numbers stored in memory locations 2501H and 2502H. Place the larger number in 2503H**

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```
1  LXI  H,2501H
2  MOV  A,M
3  INX  H
4  MOV  B,M
5  CMP  B
6  JNC  AHEAD
7      MOV  A,B
8  AHEAD: INX  H
9      MOV  M,A
10     HLT
```

**Problem Statement:** A series of 10 data bytes is stored in RAM locations starting at 2501H. Write a program to identify the largest number from the series, and place it at 2600H

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LXI H,2501H

MVI C,05H

MVI B,00H

L1: MOV A,M

~~CMP B~~

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JC AHEAD

MOV B,A

AHEAD: INX H

DCR C

JNZ L1

MOV A,B

STA 2600H

HLT