

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

- 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

Rotate instructions

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

Compare instructions

Opcod e	Operand	Meaning	Explanation	Addressing mode
CMP	R/M	Compare Accumulator with R/M	This instruction compares the contents of the Accumulator with contents of R/M. Flags are modified	Implicit 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.

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**

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

```
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. WAP to identify largest number from the series, and place it 2600H

LXI H,2501H

MVI C,05H

MVI B,00H

L1: MOV A,M

~~CMP B~~

JC AHEAD

MOV B,A

AHEAD: INX H

DCR C

JNZ L1

MOV A,B

STA 2600H

HLT