

SMALLEST NUMBER IN AN ARRAY

EXP NO: 11

AIM: To find the smallest number from an array using 8085 processor.

ALGORITHM:

- 1) Load the address of the first element of the array in HL pair.
- 2) Move the count to B register.
- 3) Increment the pointer.
- 4) Get the first data in A register.
- 5) Decrement the count.
- 6) Increment the pointer.
- 7) Compare the content of memory addressed by HL pair with that of A register.
- 8) If carry=1, go to step 10 or if carry=0 go to step 9
- 9) Move the content of memory addressed by HL to A register.
- 10) Decrement the count.

PROGRAM:

LXI H,2050

MOV C,M

DCR C

INX H

MOV A,M

LOOP1: INX H

CMP M

JC LOOP

MOV A,M

LOOP: DCR C

JNZ LOOP1

STA 2058

HLT

INPUT & OUTPUT

The screenshot displays the 8085 Microprocessor Simulator interface. The main window shows the assembly code being executed, with the following instructions:

```
1 LXI H,2500
2 MOV C,M
3 DCR C
4 INX H
5 MOV A,M
6 LOOP1: INX H
7 CMP M
8 JC LOOP
9 MOV A,M
10 LOOP: DCR C
11 JNZ LOOP1
12 STA 2508
13 HLT
```

The Registers window shows the current state of the processor registers:

Register	Value
A	00
BC	00 00
DE	00 00
HL	09 CD
PSW	00 00
PC	42 15
SP	FF FF
Int-Reg	00

The Flag window shows the status of the flags:

Flag	Value
S	0
Z	1
AC	0
P	1
C	0

The Memory window shows the contents of memory locations:

Address (Hex)	Address	Data
09C4	2500	9
09C5	2501	5
09C6	2502	7
09C7	2503	8
09C8	2504	12
09C9	2505	15
09CA	2506	47
09CB	2507	23
09CC	2508	0
09CD	2509	0
09CE	2510	0
09CF	2511	0
09D0	2512	0
09D1	2513	0

The I/O Ports window shows the current state of the ports:

Port	Value
0	00

The Memory window also shows the current state of the memory:

Address (Hex)	Address	Data
09C4	2500	9
09C5	2501	5
09C6	2502	7
09C7	2503	8
09C8	2504	12
09C9	2505	15
09CA	2506	47
09CB	2507	23
09CC	2508	0
09CD	2509	0
09CE	2510	0
09CF	2511	0
09D0	2512	0
09D1	2513	0

The Assembler Message window shows the following message:

```
0 Program assembled successfully
```

RESULT: Thus the program was executed successfully using 8085 processor simulator.