

8-BIT MULTIPLICATION

EXP NO: 3

AIM: To write an assembly language program to implement 8-bit multiplication using 8085 processor.

ALGORITHM:

- 1) Start the program by loading a register pair with the address of memory location.
- 2) Move the data to a register.
- 3) Get the second data and load it into the accumulator.
- 4) Add the two register contents.
- 5) Increment the value of the carry.
- 6) Check whether the repeated addition is over.
- 7) Store the value of product and the carry in the memory location.
- 8) Halt.

PROGRAM:

```
LDA 8500
MOV B, A
LDA 8501
MOV C, A
CPI 00
JZ LOOP
XRA A
LOOP1: ADD B
DCR C
JZ LOOP
JMP LOOP1
LOOP: STA 8502
RST 1
```

INPUT & OUTPUT

The screenshot displays the GNUSim8085 - 8085 Microprocessor Simulator interface. The main window shows the assembly program being executed, with the following code:

```
1 LDA 8500
2 MOV B, A
3 LDA 8501
4 MOV C, A
5 CPI 00
6 JZ LOOP
7 XRA A
8 LOOP1: ADD B
9 DCR C
10 JZ LOOP
11 JMP LOOP1
12 LOOP: STA 8502
13 RST 1
```

The left panel shows the registers and flags. The right panel shows the memory contents, with the following data:

Address (Hex)	Address	Data
1F41	8001	3
1F42	8002	15
1F43	8003	0
1F44	8004	0
1F45	8005	0
1F46	8006	0
1F47	8007	0
1F48	8008	0
1F49	8009	0
1F4A	8010	0
1F4B	8011	0
1F4C	8012	0

The bottom panel shows the I/O Ports and Memory sections. The I/O Ports section displays the current port value as 0. The Memory section displays the current memory address as 8001 and the value as 03.

The bottom status bar indicates the simulator is in the 'Idle' state.

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