

**5. Write an assembly language program for multiplication of two 8-bit data A7 A6 A5 A4 A3 A2 A1 A0 and B7 B6 B5 B4 B3 B2 B1 B0 using 8085 processor.**

**AIM:** To perform the multiplication of two 8 bit numbers using 8085

**ALGORITHM:**

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

**PROGRAM:**

```
LDA 5001
MOV B,A
LDA 5002
MOV C,A
MVI A,00H
Loop: ADD B
DCR C
JNZ Loop
STA 5003
HLT
```

**GNUSim8085 - 8085 Microprocessor Simulator**

File Reset Assembler Debug Help

Registers

|         |       |
|---------|-------|
| A       | 32    |
| BC      | 0A 00 |
| DE      | 00 00 |
| HL      | 00 00 |
| PSW     | 00 00 |
| PC      | 42 13 |
| SP      | FF FF |
| Int-Reg | 00    |

Flag

|    |   |
|----|---|
| S  | 0 |
| Z  | 1 |
| AC | 0 |
| P  | 1 |
| C  | 0 |

Load me at

```

1 LDA 5001
2 MOV B,A
3 LDA 5002
4 MOV C,A
5 MVI A,00H
6 Loop: ADD B
7 DCR C
8 JNZ Loop
9 STA 5003
10 HLT

```

Data Stack Keypad **Memory** I/O Ports

Start 5001 OK

| Address (Hex) | Address | Data |
|---------------|---------|------|
| 1389          | 5001    | 10   |
| 138A          | 5002    | 5    |
| 138B          | 5003    | 50   |
| 138C          | 5004    | 0    |
| 138D          | 5005    | 0    |
| 138E          | 5006    | 0    |
| 138F          | 5007    | 0    |
| 1390          | 5008    | 0    |
| 1391          | 5009    | 0    |
| 1392          | 5010    | 0    |

Decimal - Hex Conversion

Decimal 0 Hex 0

→ To Hex ← To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

## OBSERVATION:

Input:

10 (5001)

5(5002)

Output:

50(5003)

## RESULT:

Thus the program to multiply two 8-bit numbers was executed.