

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:

Start	8500	OK
Address (Hex)	Address	Data
2134	8500	31
2135	8501	22
2136	8502	170
2137	8503	0
2138	8504	0
2139	8505	0
213A	8506	0
213B	8507	0
213C	8508	0
213D	8509	0
213E	8510	0
213F	8511	0

FileResetAssemblerDebugHelp

Registers

A	AA	S	0
BC	1F 00	Z	1
DE	00 00	AC	0
HL	00 00	P	1
PSW	00 00	C	0
PC	42 1A		
SP	FF FF		
Int-Reg	00		

Flag

S	0
Z	1
AC	0
P	1
C	0

Decimal - Hex Conversion

Decimal	Hex
0	0

→To Hex

←To Dec

I/O Ports

0	-	+	00
---	---	---	----

Update Port Value

Memory

0	-	+	00
---	---	---	----

Update Memory

Load me at

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

DataStackKeyPadMemoryI/O Ports

Start 8500 OK

Address (Hex)	Address	Data
2134	8500	31
2135	8501	22
2136	8502	170
2137	8503	0
2138	8504	0
2139	8505	0
213A	8506	0
213B	8507	0
213C	8508	0
213D	8509	0
213E	8510	0
213F	8511	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

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