

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 8001
MOV C, A
CPI 00
JZ LOOP
XRA A
LOOP1: ADD E
DCR C
JZ LOOP
JMP LOOP1
LOOP: STA 8002
RST 1
```

INPUT:

Data
Stack
KeyPad
Memory
I/O Ports

Start
8500
OK

Address (Hex)	Address	Data
2134	8500	2
2135	8501	4
2136	8502	8
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
2140	8512	0
2141	8513	0
2142	8514	0

Line No	Assembler Message
0	Program assembled successfully

OUTPUT:

File
Reset
Assembler
Debug
Help

Registers
Flag

A
08
S
0

BC
02
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

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

Data
Stack
KeyPad
Memory
I/O Ports

Start
8500
OK

Address (Hex)	Address	Data
2134	8500	2
2135	8501	4
2136	8502	8
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
2140	8512	0
2141	8513	0
2142	8514	0

Line No	Assembler Message
0	Program assembled successfully

Simulator: Idle

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