

7. Write an assembly language program for multiplying two 16-bit data using 8086 processor.

AIM:

To perform multiplication of two 16 bit numbers using 8086 processor.

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:

```
LHLD 2050
SPHL
LHLD 2052
XCHG
LXI H,0000H
LXI B,0000H
DAD SP
JNC 2013
INX B
DCX D
MOV A,E
ORA D
JNZ 200
SHLD 2054
MOV L,C
MOV H,B
SHLD 2056
HLT
```

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

A	00
BC	00 00
DE	00 00
HL	00 00
PSW	00 00
PC	07 DD
SP	00 00
Int-Reg	00

Flag

S	0
Z	1
AC	0
P	1
C	0

Load me at

1 LHLD 2050
 2 SPHL
 3 LHLD 2052
 4 XCHG
 5 LXI H, 0000H
 6 LXI B, 0000H
 7 DAD SP
 8 JNC 2013
 9 INX B
 10 DCX D
 11 MOV A, E
 12 ORA D
 13 JNZ 200
 14 SHLD 2054
 15 MOV L, C
 16 MOV H, B
 17 SHLD 2056
 18 HLT

Start 2500 OK

Address (Hex)	Address	Data
09C4	2500	10
09C5	2501	0
09C6	2502	20
09C7	2503	0
09C8	2504	200
09C9	2505	0
09CA	2506	0
09CB	2507	0
09CC	2508	0
09CD	2509	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

OBSERVATION:

Input:

10 (2500)

20(2502)

Output:

200(2504)

RESULT:

Thus the program to multiply two 16-bit numbers was executed successfully.