

### **3. Write an assembly language program for adding two 16-bit data using 8086 processor.**

#### **AIM:**

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

#### **ALGORITHM:**

- 1) Start the program by loading the first data into Accumulator.
- 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) Store the value of sum and carry in memory location.
- 7) Terminate the program

#### **PROGRAM:**

```
LHLD 2500
XCHG
LHLD 2502
MOV A,E
ADD L
MOV L,A
MOV A,D
ADC H
MOV H,A
SHLD 2504
HLT
```

**GNUSim8085 - 8085 Microprocessor Simulator**

File Reset Assembler Debug Help

Registers: A 00, BC 00 00, DE 00 0A, HL 00 1E, PSW 00 00, PC 42 11, SP FF FF, Int-Reg 00

Flag: S 0, Z 1, AC 0, P 1, C 0

Load me at:

1 LHLD 2500  
2 XCHG  
3 LHLD 2502  
4 MOV A, E  
5 ADD L  
6 MOV L, A  
7 MOV A, D  
8 ADC H  
9 MOV H, A  
10 SHLD 2504  
11 HLT  
12

Decimal - Hex Conversion  
Decimal:  0, Hex:  0  
To Hex To Dec

I/O Ports  
0 - + 00  
Update Port Value

Memory  
0 - + 00  
Update Memory

Data Stack KeyPad Memory I/O Ports

Start:  250 OK

Address (Hex)	Address	Data
09C4	2500	10
09C5	2501	0
09C6	2502	20
09C7	2503	0
09C8	2504	30
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(2052)  
Output: 30(2054)

### RESULT:

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