

## 16-BIT ADDITION

**EXP NO: 5**

**AIM:** To write an assembly language program to implement 16-bit addition using 8085 processor.

**ALGORITHM:**

- 1) Start the program by loading a register pair with address of 1st number.
- 2) Copy the data to another register pair.
- 3) Load the second number to the first register pair.
- 4) Add the two register pair contents.
- 5) Check for carry.
- 6) Store the value of sum and carry in memory locations.
- 7) Terminate the program.

**PROGRAM:**

LDA 3050

MOV B,A

LDA 3051

ADD B

STA 3052

LDA 3053

MOV B,A

LDA 3054

ADC B

STA 3055

HLT

## INPUT:

Start 3050 OK

Address (Hex)	Address	Data
0BEA	3050	18
0BEB	3051	18
0BEC	3052	36
0BED	3053	17
0BEE	3054	17
0BEF	3055	34
0BF0	3056	0
0BF1	3057	0
0BF2	3058	0
0BF3	3059	0
0BF4	3060	0
0BF5	3061	0
0BF6	3062	0
0BF7	3063	0
0BF8	3064	0

Line No Assembler Message

0 Program assembled successfully

## OUTPUT:

GNUsim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers: A 22, BC 11 00, DE 00 00, HL 00 00, PSW 00 00, PC 42 17, SP FF FF, Int-Reg 00 00. Flag: S 0, Z 0, AC 0, P 1, C 0.

Decimal - Hex Conversion: Decimal 0, Hex 0. I/O Ports: 0. Memory: 0.

Load me at:

```
1 LDA 3050
2 MOV B,A
3 LDA 3051
4 ADD B
5 STA 3052
6 LDA 3053
7 MOV B,A
8 LDA 3054
9 ADC B
10 STA 3055
11 HLT
```

Start 3050 OK

Address (Hex)	Address	Data
0BEA	3050	18
0BEB	3051	18
0BEC	3052	36
0BED	3053	17
0BEE	3054	17
0BEF	3055	34
0BF0	3056	0
0BF1	3057	0
0BF2	3058	0
0BF3	3059	0
0BF4	3060	0
0BF5	3061	0
0BF6	3062	0
0BF7	3063	0
0BF8	3064	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

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