

## **16-BIT SUBTRACTION**

**EXP NO: 6**

**AIM:** To

write an assembly language program to implement 16-bit subtraction 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 first register pair.
- 4) Subtract the two register pair contents.
- 5) Check for borrow.
- 6) Store the value of difference and borrow in memory locations.
- 7) End.

### **PROGRAM:**

2050	LHLD
	XCHG
2052	LHLD
	MVI C,00
	MOV A, E
	SUB L
	STA 2054
	MOV A, D
	SUB H
	STA 2055
	HLT

**INPUT:**

Data Stack Keypad Memory I/O Ports			
Start	2050		OK
Address (Hex)	Address	Data	
0802	2050	0	
0803	2051	8	
0804	2052	0	
0805	2053	3	

OUTPUT:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers: A 05, BC 0F 00, DE 08 00, HL 03 00, PSW 00 00, PC 42 16, SP FF FF, Int-Reg 00

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

Decimal - Hex Conversion: Decimal 0, Hex 0

I/O Ports: 0, Update Port Value

Memory: 0, Update Memory

Load me at: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36

Program code:

```

1: <Program title>
2: jmp start
3: ;data
4: ;code
5: start: nop
6: LLD 2050
7: XCHG
8: LLD 2052
9: MOV A, E
10: SUB L
11: STA 2054
12: MOV A, D
13: SUB H
14: STA 2055
15: hlt

```

Memory dump:

Address (Hex)	Address	Data
0802	2050	0
0803	2051	8
0804	2052	0
0805	2053	3
0806	2054	0
0807	2055	5
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

Windows taskbar: Type here to search, Docum..., Speed ..., Untitle..., CSA12..., GNUSt..., Snip &..., ENG IN, 1:13:08 PM, 10/16/2023

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