

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:

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

INPUT\OUTPUT:

The screenshot displays the GNUSim8085 - 8085 Microprocessor Simulator interface. The main window shows the assembly program being executed, with the following instructions visible in the assembly window:

```
1 LHLD 2050
2 XCHG
3 LHLD 2052
4 MVI C,00
5 MOV A, E
6 SUB L
7 STA 2054
8 MOV A, D
9 SUB H
10 STA 2055
11 HLT
```

The registers window shows the current state of the 8085 registers:

Register	Value
A	2A
BC	00 00
DE	4A 55
HL	20 30
PSW	00 00
PC	42 14
SP	FF FF
Int-Reg	00

The memory dump window shows the memory locations and their contents:

Address (Hex)	Address	Data
0802	2050	85
0803	2051	74
0804	2052	48
0805	2053	32
0806	2054	37
0807	2055	42
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0

The I/O Ports window shows the current state of the I/O ports:

Port	Value
0	00

The Memory window shows the current state of the memory:

Address	Value
0	00

The Assembler Message window shows the following message:

```
Line No Assembler Message
0 Program assembled successfully
```

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