

16-BIT SUBTRACTION

EXP6:

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:

Start: 2050

Address (Hex)	Address	Data
0802	2050	78
0803	2051	98
0804	2052	19
0805	2053	78
0806	2054	59
0807	2055	20
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0
0810	2064	0

Line No Assembler Message

0 Program assembled successfully

OUTPUT:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers: A 14, BC 11 00, DE 62 4E, HL 4E 13, PSW 00 00, PC 42 14, SP FF FF. Flag: S 0, Z 0, AC 0, P 1, C 0.

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

I/O Ports: 0, Update Port Value.

Memory: 0, Update Memory.

Load me at: 1. LALD 2050, 2. XCHG, 3. LALD 2051, 4. MOV C, D, 5. MOV A, B, 6. SUB L, 7. STA 2054, 8. MOV A, D, 9. SUB H, 10. STA 2055, 11. HLR, 12.

Start: 2050

Address (Hex)	Address	Data
0802	2050	78
0803	2051	98
0804	2052	19
0805	2053	78
0806	2054	59
0807	2055	20
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0
0810	2064	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

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