
Experiment 1.2

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Subject Name: MPI Lab

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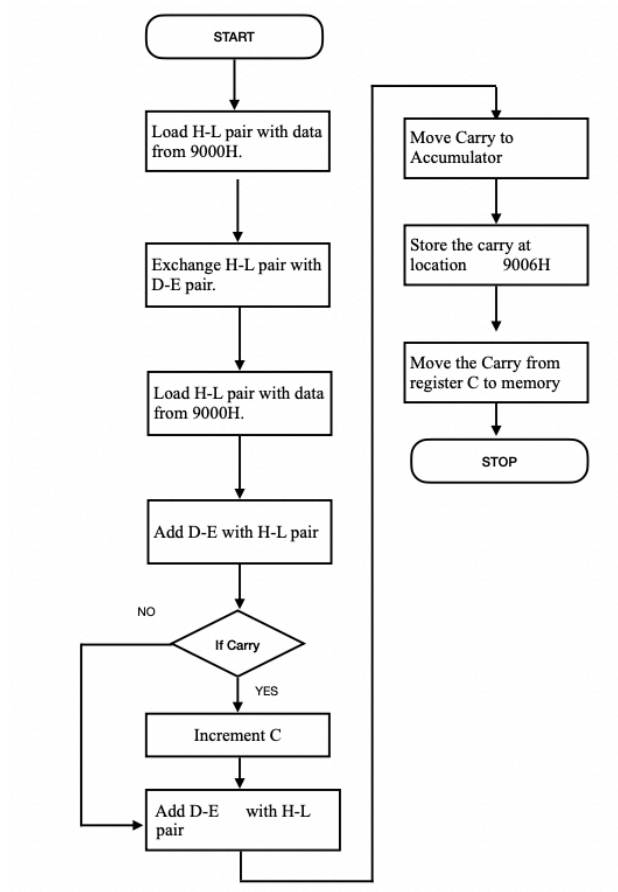
Subject Code: 22E-20CSP-253

1) Aim/Overview of the practical:

Addition of two 16bit numbers, sum 16 bit.

Apparatus/Simulator used: 8085 simulator

Flowchart:



Algorithm:

- 1. LHLD 9000 loads the 1st operand from location 9000H into L register and from 9001H into H register**
- 2. XCHG exchanged the content of DE and HL pair.**
- 3. LHLD 9002 loads 2nd operand from location 9002H into L register and from 9003H into H register.**
- 4. MVI C,00 initialised reg. C with 00H.**
- 5. DAD D added HL and DE.**
- 6. JNC JUMP jumps if no carry.**
- 7. INR C incremented reg. C if carry generated.**
- 8. JUMP: SHLD 9004H stored result in 9004H and 9005H**
- 9. MOV A,C moves carry in accumulator.**
- 10. STA 9006 stored carry in 9006H**
- 11. HLT end of the execution.**

Steps for experiment/practical/Code:

BEGIN 0000H

LHLD 9000

XCHG

LHLD 9002

MVI C,00

DAD D

JNC JUMP

INR C

JUMP: SHLD 9004

MOV A,C

STA 9006


HLT

ORG 9000H

DB 07H,7B,A2,9C

Simulation:

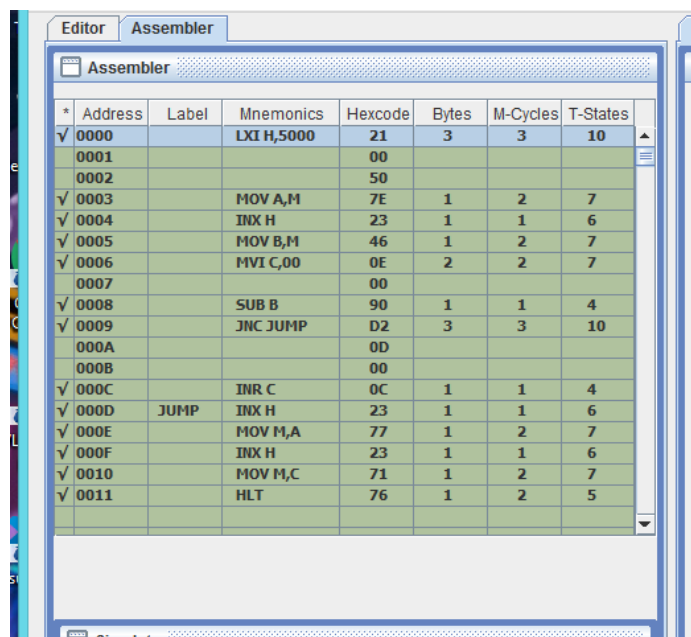
1. CODE IN EDITOR WINDOW:



```

# BEGIN 0000H
LXI H,5000
MOV A,M
INX H
MOV B,M
MVI C,00
SUB B
JNC JUMP
INR C
JUMP: INX H
MOV M,A
INX H
MOV M,C
HLT
#ORG 5000
#DB 90,A5
  
```

2. ASSEMBLER WINDOW:



* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
✓ 0000		LXI H,5000	21	3	3	10
0001			00			
0002			50			
✓ 0003		MOV A,M	7E	1	2	7
✓ 0004		INX H	23	1	1	6
✓ 0005		MOV B,M	46	1	2	7
✓ 0006		MVI C,00	0E	2	2	7
0007			00			
✓ 0008		SUB B	90	1	1	4
✓ 0009		JNC JUMP	D2	3	3	10
000A			0D			
000B			00			
✓ 000C		INR C	0C	1	1	4
✓ 000D	JUMP	INX H	23	1	1	6
✓ 000E		MOV M,A	77	1	2	7
✓ 000F		INX H	23	1	1	6
✓ 0010		MOV M,C	71	1	2	7
✓ 0011		HLT	76	1	2	5

3. REGISTERS:

Registers Memory Devices

☐ Registers:

Register	Value	7	6	5	4	3	2	1	0
Accumulator	01	0	0	0	0	0	0	0	1
Register B	00	0	0	0	0	0	0	0	0
Register C	01	0	0	0	0	0	0	0	1
Register D	7B	0	1	1	1	1	0	1	1
Register E	07	0	0	0	0	0	1	1	1
Register H	7B	0	1	1	1	1	0	1	1
Register L	07	0	0	0	0	0	1	1	1
Memory(H)	00	0	0	0	0	0	0	0	0

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	01	0	0	0	0	0	0	0	1

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	7B07
Program Status Word(PSW)	0101
Program Counter(PC)	0004
Clock Cycle Counter	127
Instruction Counter	14

SOD	SID	INTR	TRAP	R7.5	R6.5	R5.5
0	0	0	0	0	0	0

For SIM instruction

SOD	SDE	*	R7.5	MSE	M7.5	M6.5	M5.5
0	0	0	0	0	0	0	0

For RIM instruction

SID	I7.5	I6.5	I5.5	IE	M7.5	M6.5	M5.5
0	0	0	0	0	0	0	0

No. Converter Tool:

Hexadecimal	Decimal	Binary
0		0

4. MEMORY:

Registers Memory Devices

☐ Memory Editor

Memory Range: 0000 ---- FFFF

Memory Address	Value
0009	19
000A	D2
000B	0E
000D	0C
000E	22
000F	04
0010	90
0011	79
0012	32
0013	06
0014	90
0015	76
9000	07
9001	7B
9002	A2
9003	9C
9004	A9
9005	17
9006	01

☐ Show entire memory content
☒ Show only loaded memory location
☐ Store directly to specified memory location

RESULT

BEFORE EXECUTION:

9000H: 07

9001H: 7B

9002H: A2

9003H: 9C

AFTER EXECUTION:

9004H: A9

9005H: 17

9006H: 01

Learning outcomes (What I have learnt):

- 1.Learnt about 8085 simulator**
- 2. Learnt how to perform 16 bits addition.**
- 3.**
- 4.**
- 5.**

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			