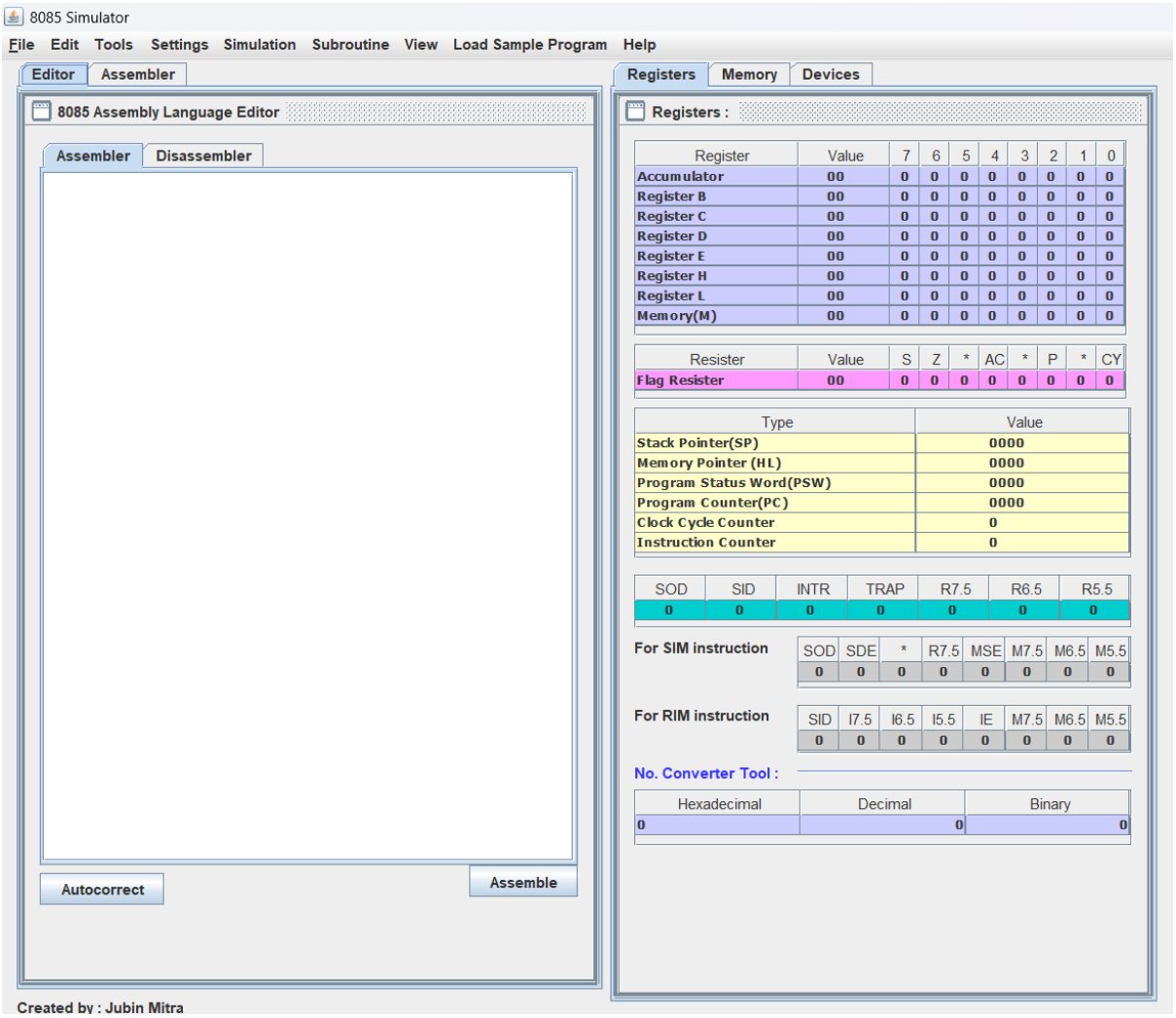
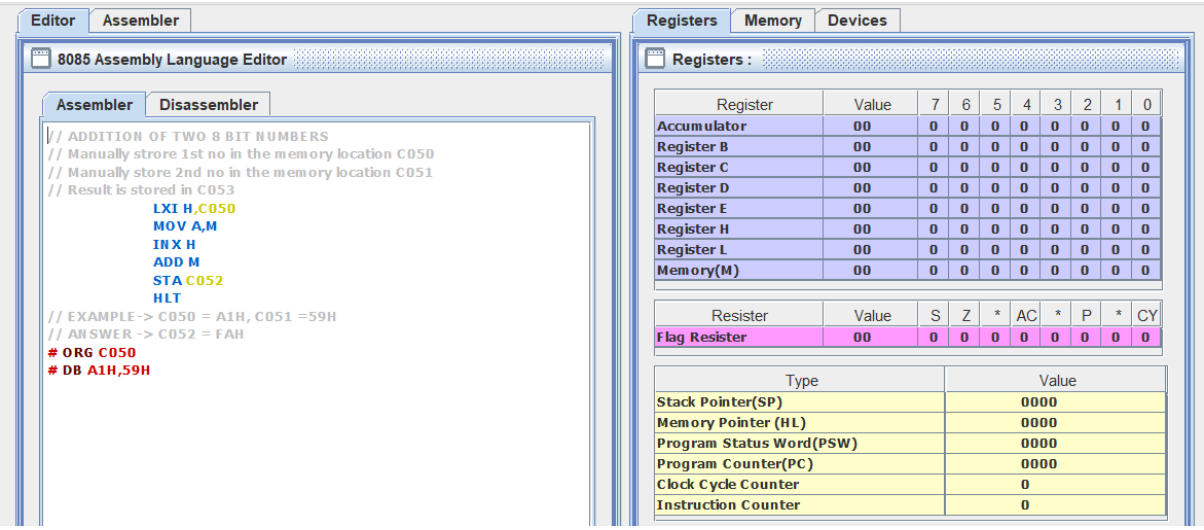
Table of Contents


8085 Simulator
File Edit Tools Settings Simulation Subroutine View Load Sample Program Help
Editor Assembler
8085 Assembly Language Editor
Assembler Disassembler
Autocorrect
Assemble
Created by : Jubin Mitra
Registers Memory Devices
Registers :
Register Value 7 6 5 4 3 2 1 0
Accumulator 00 0 0 0 0 0 0 0 0
Register B 00 0 0 0 0 0 0 0 0
Register C 00 0 0 0 0 0 0 0 0
Register D 00 0 0 0 0 0 0 0 0
Register E 00 0 0 0 0 0 0 0 0
Register H 00 0 0 0 0 0 0 0 0
Register L 00 0 0 0 0 0 0 0 0
Memory(M) 00 0 0 0 0 0 0 0 0
Resister Value S Z * AC * P * CY
Flag Resister 00 0 0 0 0 0 0 0 0
Type Value
Stack Pointer(SP) 0000
Memory Pointer (HL) 0000
Program Status Word(PSW) 0000
Program Counter(PC) 0000
Clock Cycle Counter 0
Instruction Counter 0
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 0

Laboratory Experiment:

Addition of 8 bit numbers.



Editor | Assembler

8085 Assembly Language Editor

Assembler | Disassembler

```
// ADDITION OF TWO 8 BIT NUMBERS
// Manually strore 1st no in the memory location C050
// Manually store 2nd no in the memory location C051
// Result is stored in C053
        LXI H,C050
        MOV A,M
        INX H
        ADD M
        STA C052
        HLT
// EXAMPLE-> C050 = A1H, C051 =59H
// ANSWER -> C052 = FAH
# ORG C050
# DB A1H,59H
```

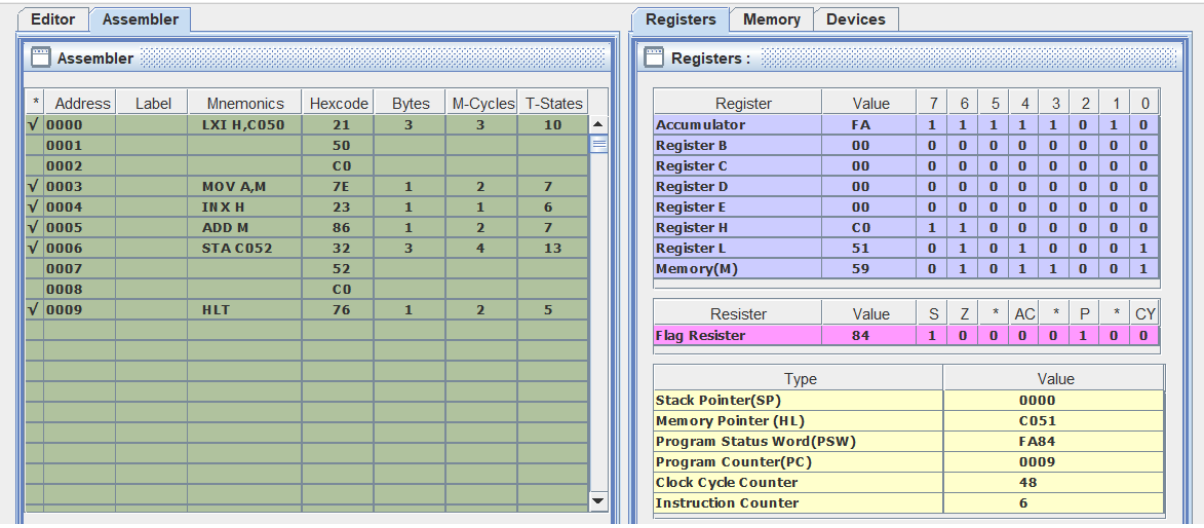
Registers | Memory | Devices

Registers :

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

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	00	0	0	0	0	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0000
Program Status Word(PSW)	0000
Program Counter(PC)	0000
Clock Cycle Counter	0
Instruction Counter	0



Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LXI H,C050	21	3	3	10
	0001			50			
	0002			C0			
√	0003		MOV A,M	7E	1	2	7
√	0004		INX H	23	1	1	6
√	0005		ADD M	86	1	2	7
√	0006		STA C052	32	3	4	13
	0007			52			
	0008			C0			
√	0009		HLT	76	1	2	5

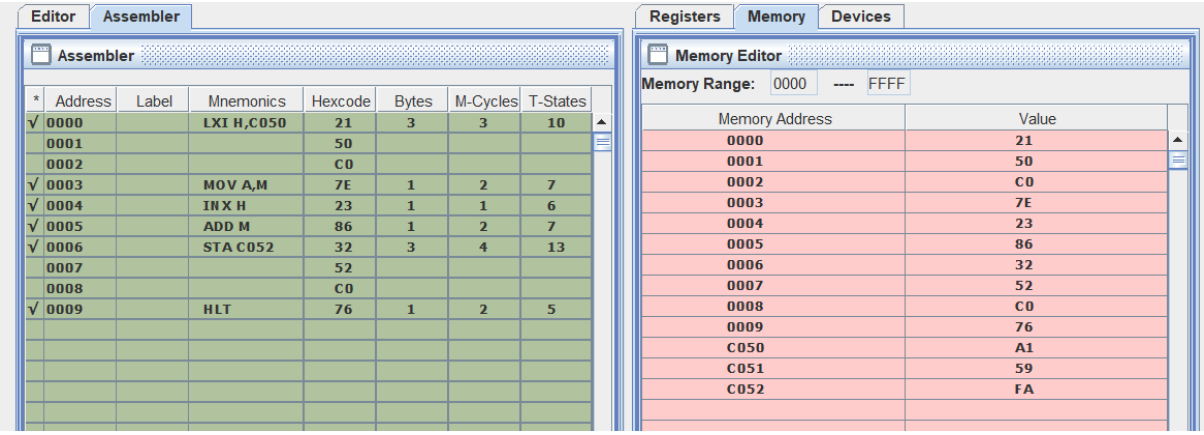
Registers | Memory | Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	FA	1	1	1	1	1	0	1	0
Register B	00	0	0	0	0	0	0	0	0
Register C	00	0	0	0	0	0	0	0	0
Register D	00	0	0	0	0	0	0	0	0
Register E	00	0	0	0	0	0	0	0	0
Register H	C0	1	1	0	0	0	0	0	0
Register L	51	0	1	0	1	0	0	0	1
Memory(M)	59	0	1	0	1	1	0	0	1

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	84	1	0	0	0	0	1	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	C051
Program Status Word(PSW)	FA84
Program Counter(PC)	0009
Clock Cycle Counter	48
Instruction Counter	6



Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LXI H,C050	21	3	3	10
	0001			50			
	0002			C0			
√	0003		MOV A,M	7E	1	2	7
√	0004		INX H	23	1	1	6
√	0005		ADD M	86	1	2	7
√	0006		STA C052	32	3	4	13
	0007			52			
	0008			C0			
√	0009		HLT	76	1	2	5

Registers | Memory | Devices

Memory Editor

Memory Range: 0000 ---- FFFF

Memory Address	Value
0000	21
0001	50
0002	C0
0003	7E
0004	23
0005	86
0006	32
0007	52
0008	C0
0009	76
C050	A1
C051	59
C052	FA

Laboratory Experiment:

Addition of 8 bit numbers having 16 bit sum.

Editor | Assembler

8085 Assembly Language Editor

Assembler | Disassembler

```
// ADDITION OF TWO 8 BIT NUMBERS HAVING 16 BIT SUM
// Manually strore 1st no in the memory location C050
// Manually store 2nd no in the memory location C051
// Result is stored in C052, & C053
                LXI H,C050
                MVI C,00
                MOV A,M
                INX H
                ADD M
                JNC AHEAD
                INR C

AHEAD:          STA C053
                MOV A,C
                STA C052
                HLT
// EXAMPLE -> C050 = A1H, C051 = 69H
// ANSWER-> C052 = 01H, C053 = 1AH
# ORG C050
# DB A1H,79H
```

Registers | Memory | Devices

Registers :

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

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	00	0	0	0	0	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0000
Program Status Word(PSW)	0000
Program Counter(PC)	0000
Clock Cycle Counter	0
Instruction Counter	0

Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LXI H,C050	21	3	3	10
	0001			50			
	0002			C0			
√	0003		MVI C,00	0E	2	2	7
	0004			00			
√	0005		MOV A,M	7E	1	2	7
√	0006		INX H	23	1	1	6
√	0007		ADD M	86	1	2	7
√	0008		JNC AHEAD	D2	3	3	10
	0009			0C			
	000A			00			
√	000B		INR C	0C	1	1	4
√	000C	AHEAD	STA C053	32	3	4	13
	000D			53			
	000E			C0			
√	000F		MOV A,C	79	1	1	4
√	0010		STA C052	32	3	4	13
	0011			52			
	0012			C0			

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	00	0	0	0	0	0	0	0	0
Register E	00	0	0	0	0	0	0	0	0
Register H	C0	1	1	0	0	0	0	0	0
Register L	51	0	1	0	1	0	0	0	1
Memory(M)	79	0	1	1	1	1	0	0	1

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

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	C051
Program Status Word(PSW)	0101
Program Counter(PC)	0013
Clock Cycle Counter	83
Instruction Counter	11

Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0003		MVI C,00	0E	2	2	7
	0004			00			
√	0005		MOV A,M	7E	1	2	7
√	0006		INX H	23	1	1	6
√	0007		ADD M	86	1	2	7
√	0008		JNC AHEAD	D2	3	3	10
	0009			0C			
	000A			00			
√	000B		INR C	0C	1	1	4
√	000C	AHEAD	STA C053	32	3	4	13
	000D			53			
	000E			C0			
√	000F		MOV A,C	79	1	1	4
√	0010		STA C052	32	3	4	13
	0011			52			
	0012			C0			
√	0013		HLT	76	1	2	5

Registers | Memory | Devices

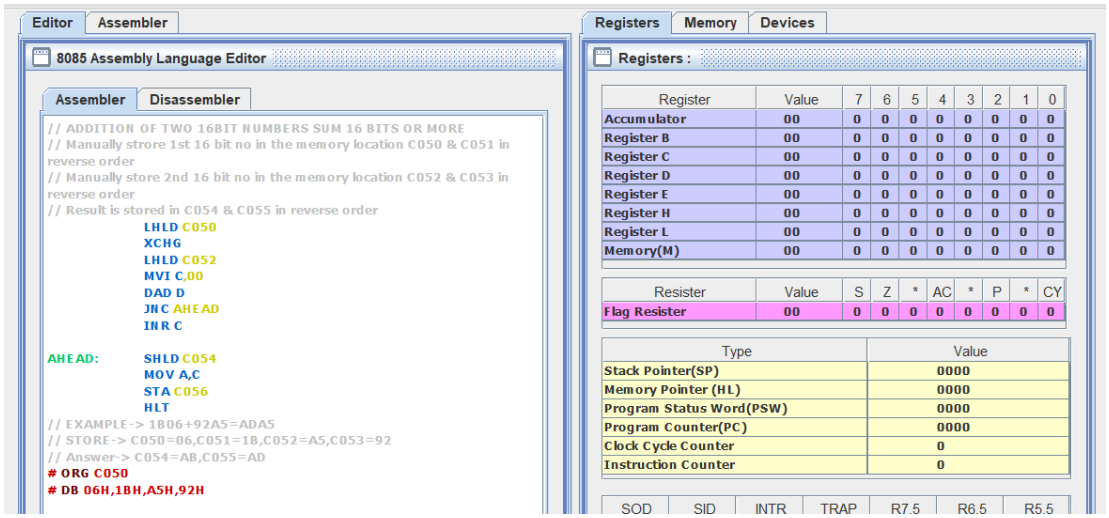
Memory Editor

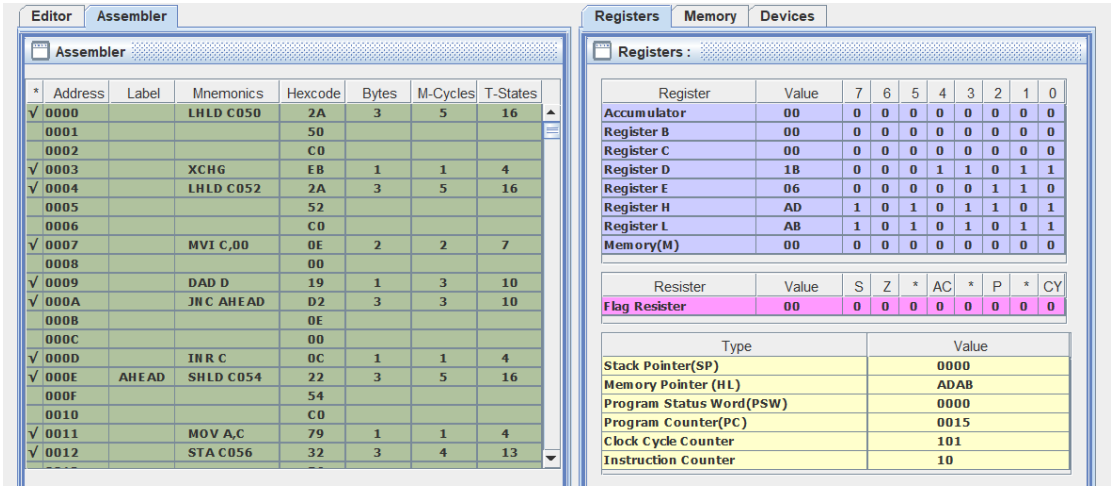
Memory Range: 0000 ---- FFFF

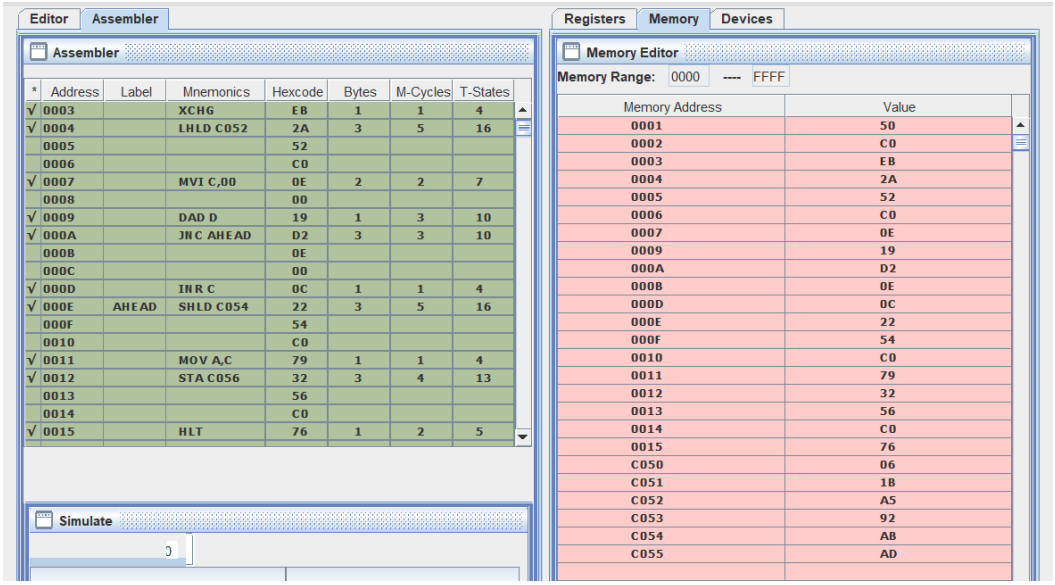
Memory Address	Value
0001	50
0002	C0
0003	0E
0005	7E
0006	23
0007	86
0008	D2
0009	0C
000B	0C
000C	32
000D	53
000E	C0
000F	79
0010	32
0011	52
0012	C0
0013	76
C050	A1
C051	79
C052	01
C053	1A

Laboratory Experiment:

Addition of 16 bit numbers having sum 16 bits or more.

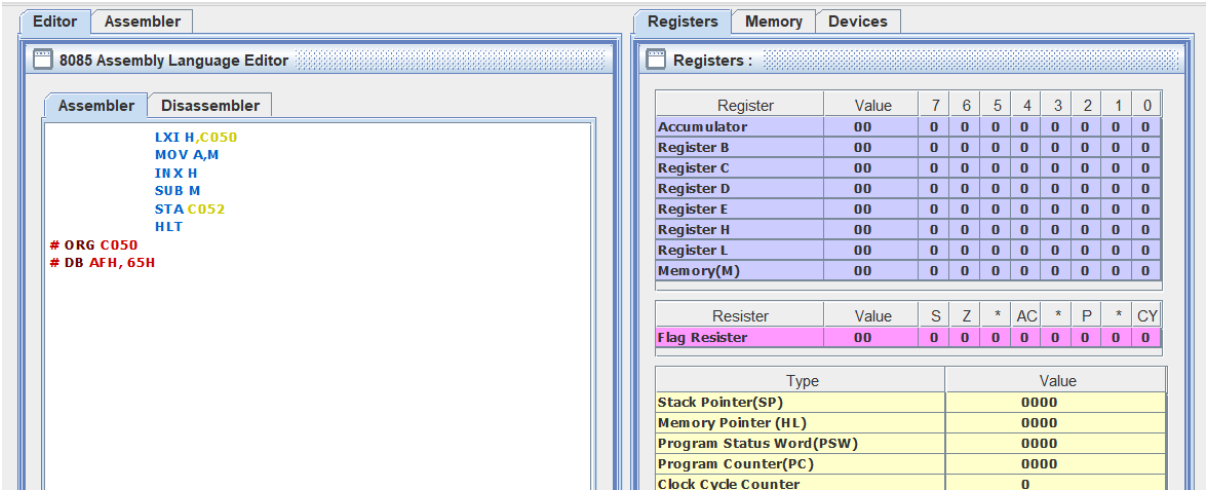


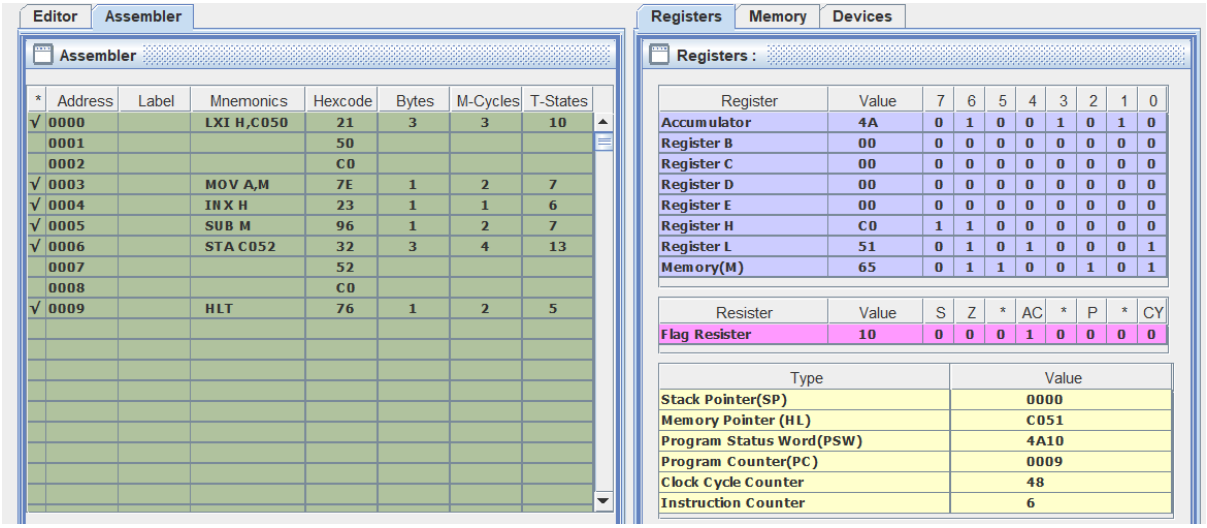


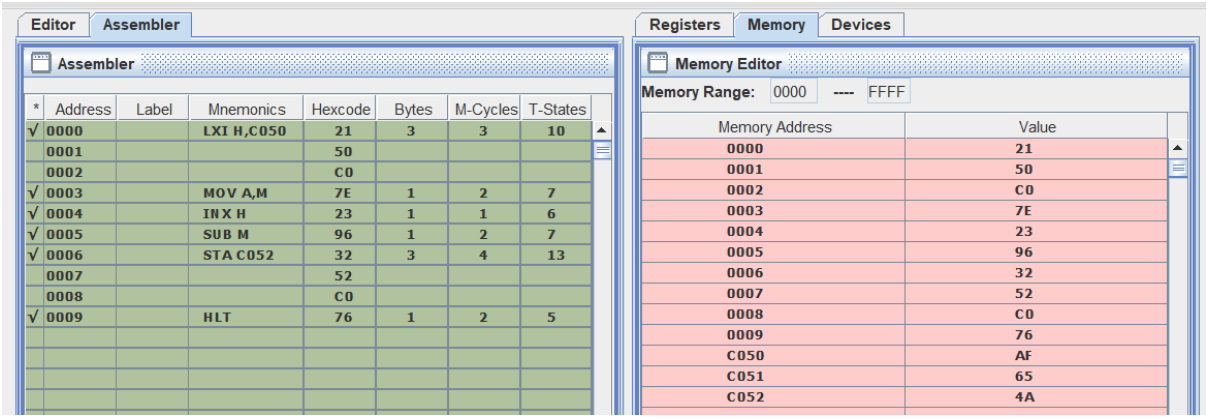


Laboratory Experiment:

Subtraction of 8 bit numbers.

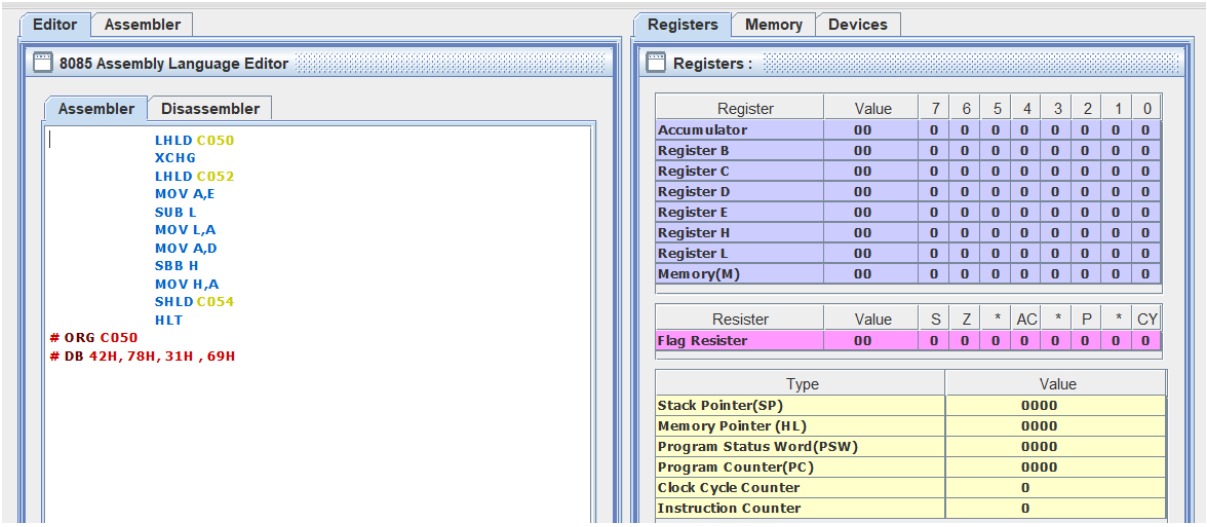


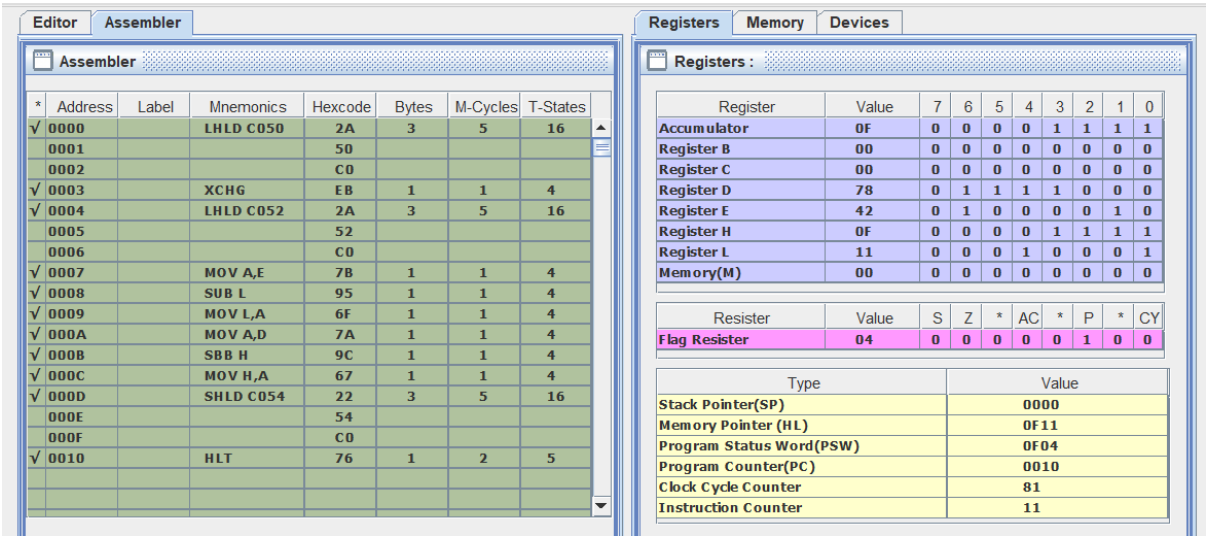


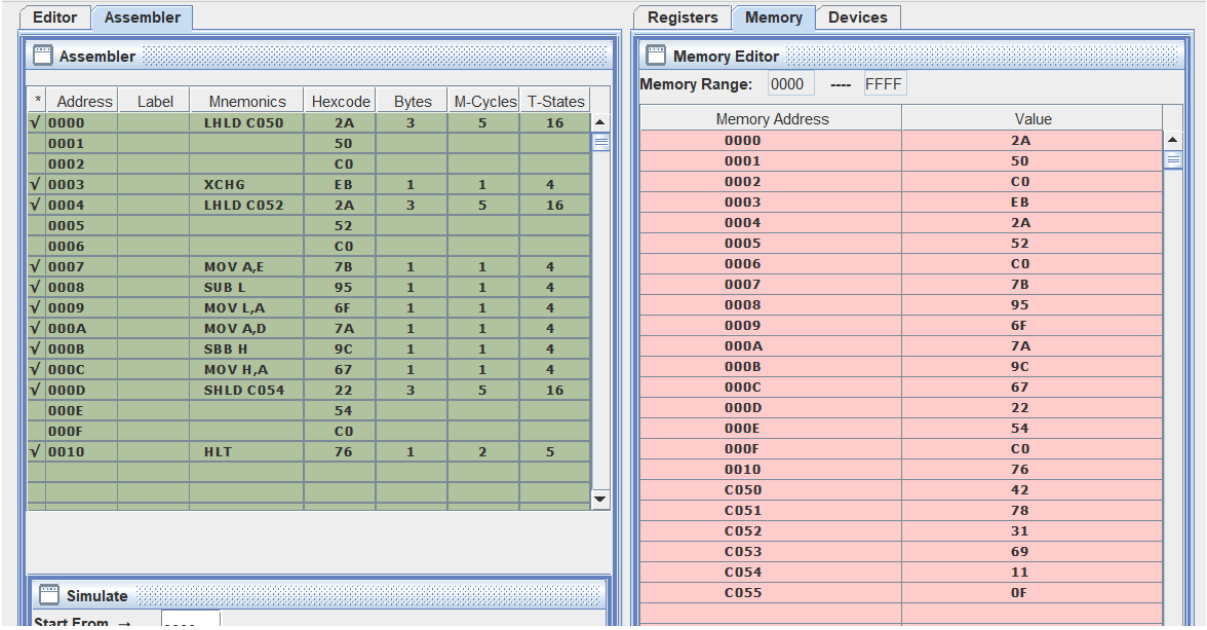


Laboratory Experiment:

Subtraction of 16 bit numbers.

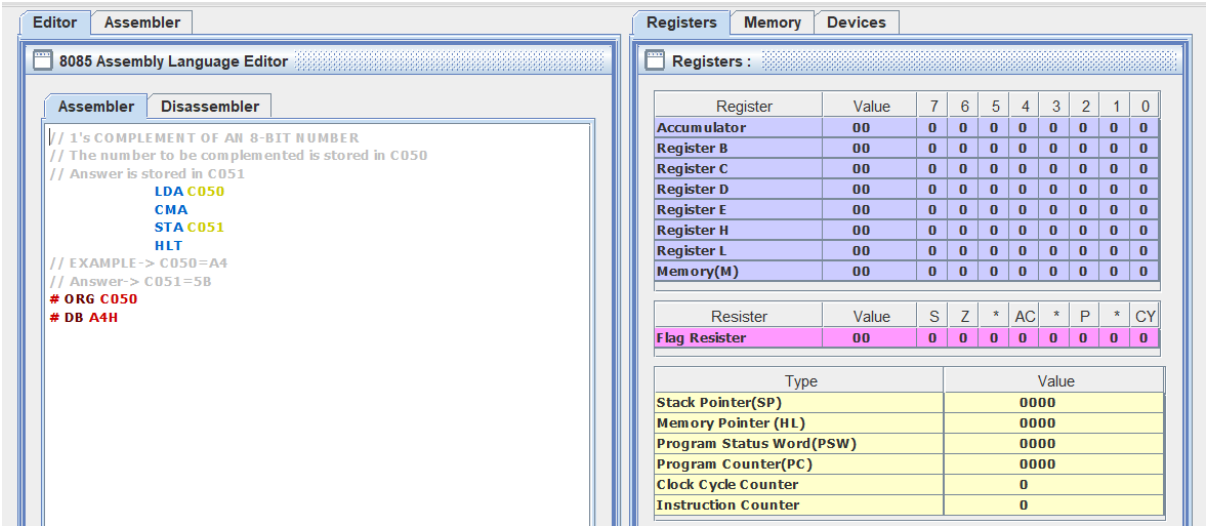


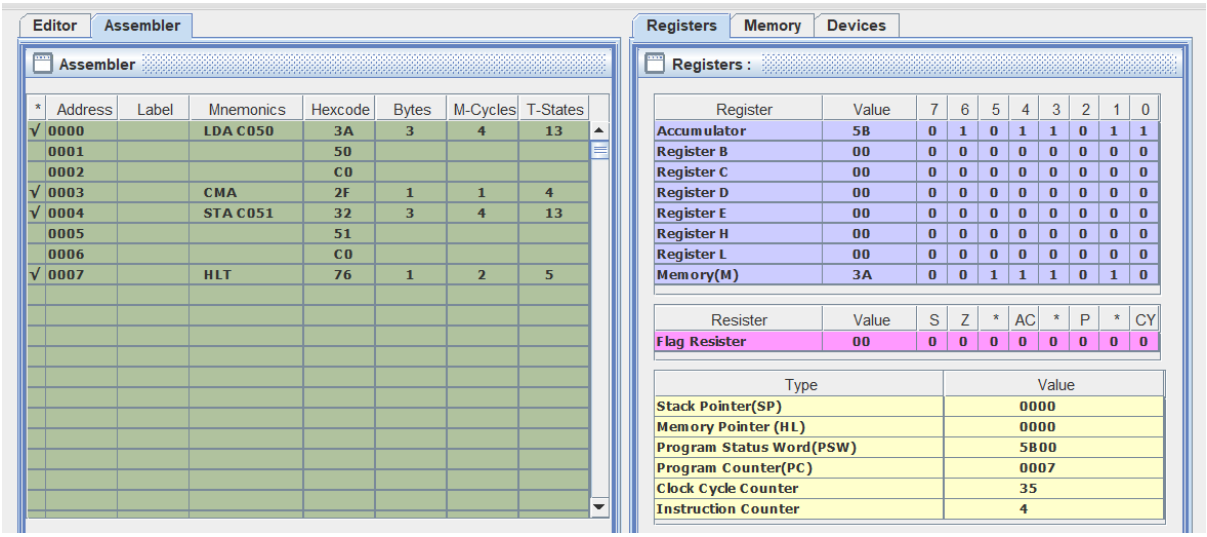


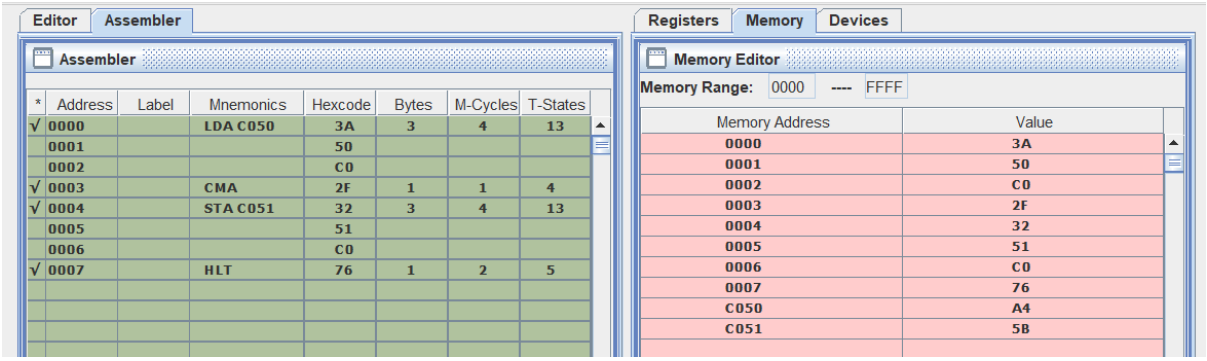


Laboratory Experiment:

1's complement of 8 bit number.

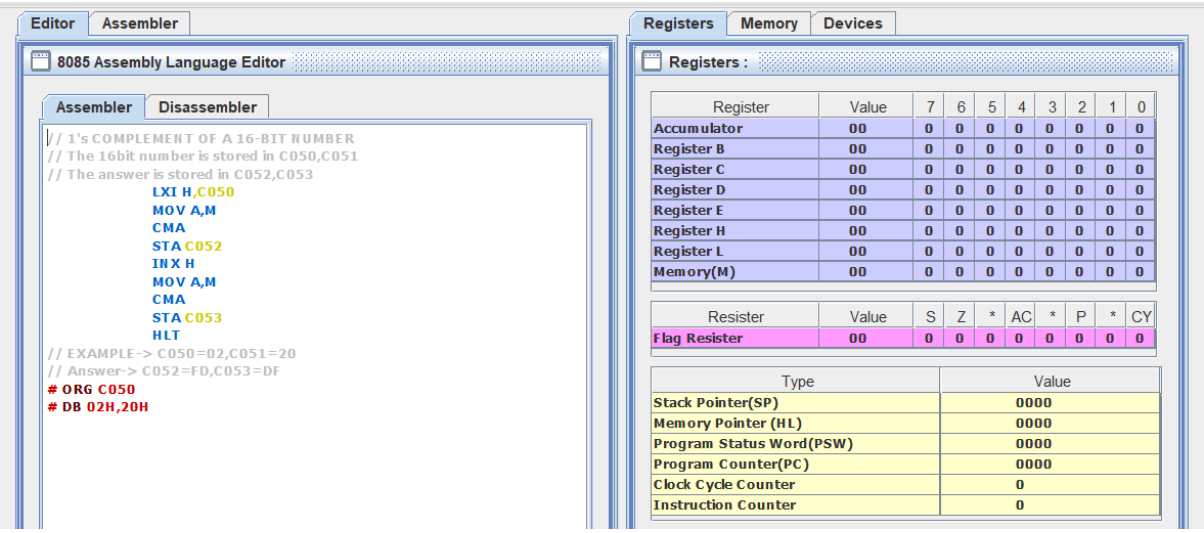


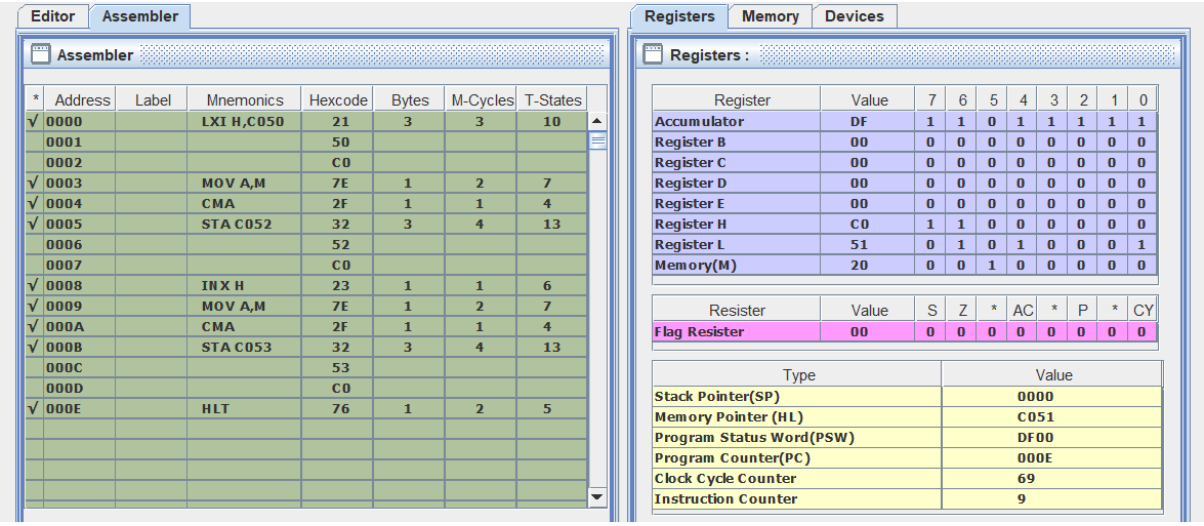


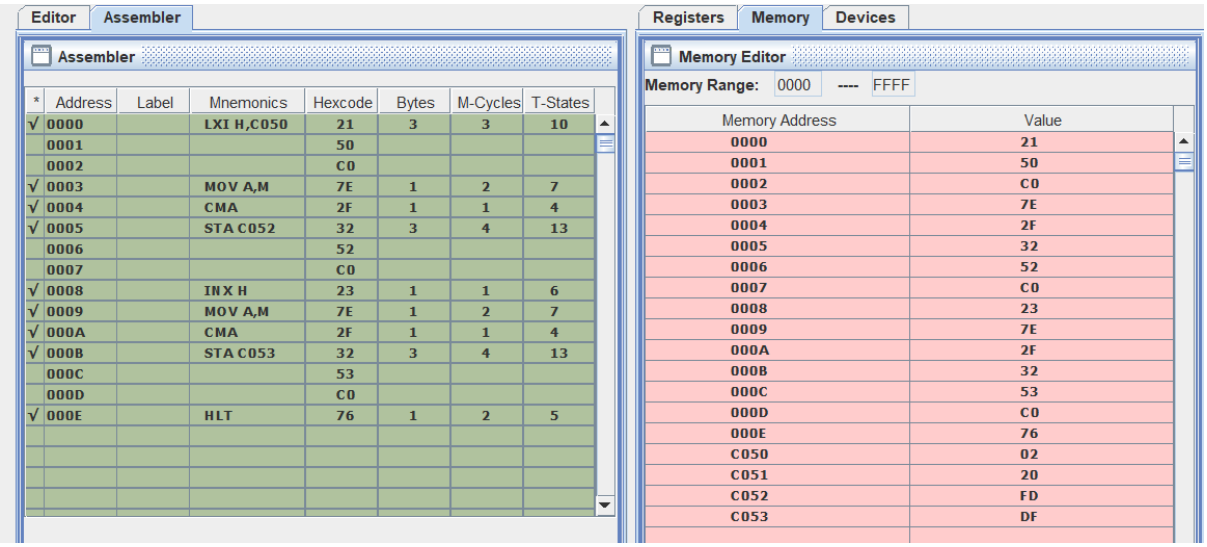


Laboratory Experiment:

1's complement of 16 bit number.

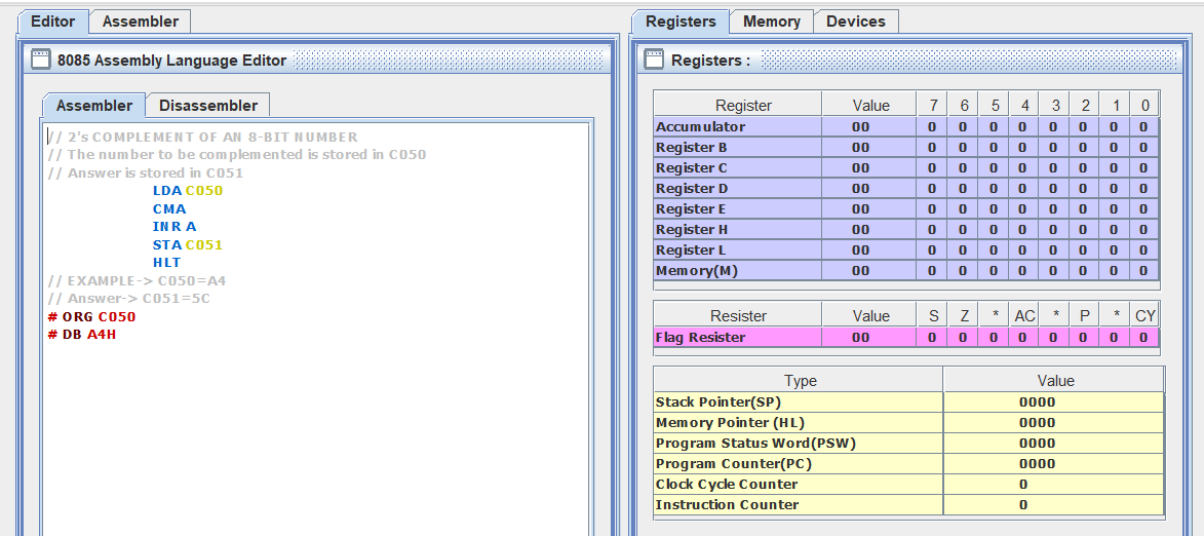


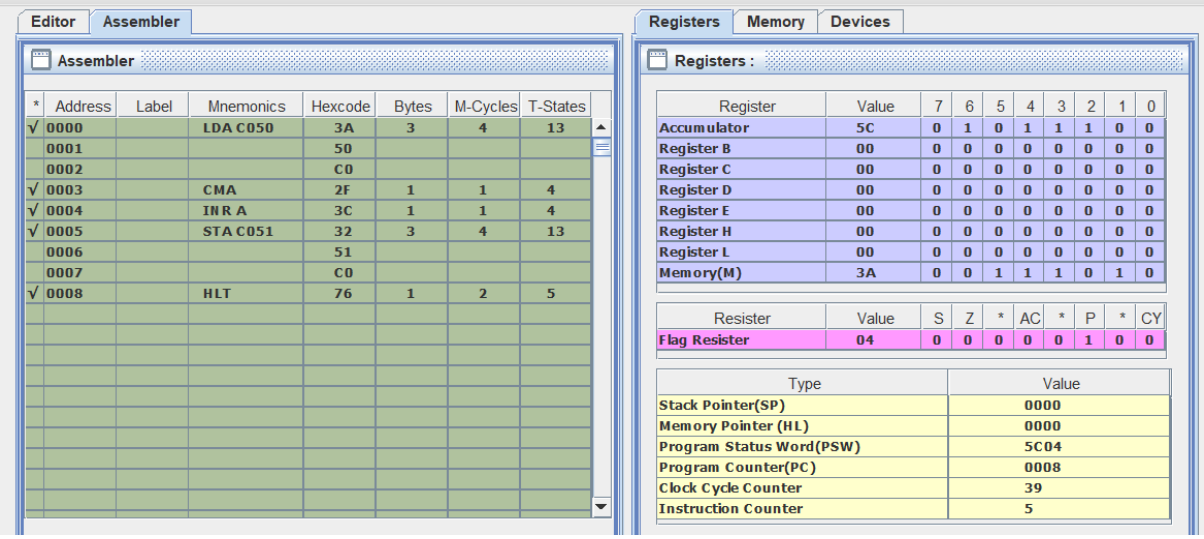


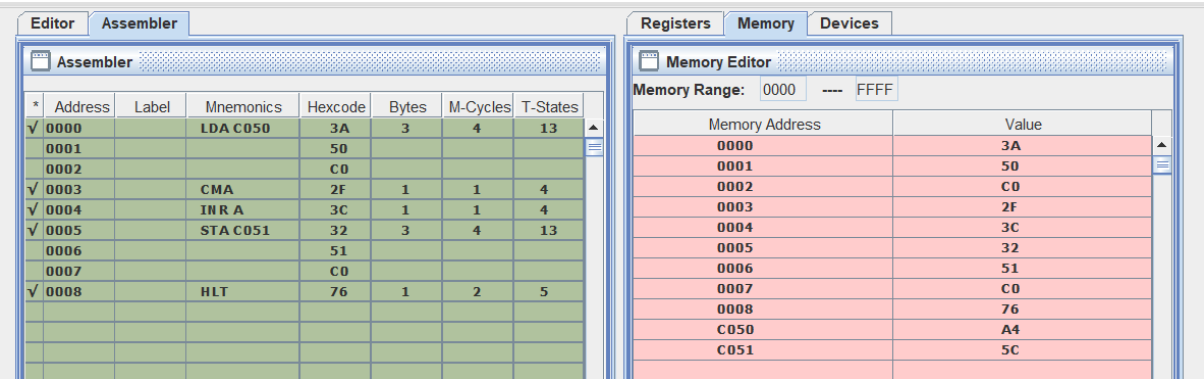


Laboratory Experiment:

2's complement of 8 bit number.







Laboratory Experiment:

2's complement of 16 bit number.

Editor | Assembler

8085 Assembly Language Editor

Assembler | Disassembler

```
// 2's COMPLEMENT OF A 16-BIT NUMBER
// The 16bit number is stored in C050,C051
// The answer is stored in C052,C053
            LXI H,C050
            MVI B,00
            MOV A,M
            CMA
            ADI 01
            STA C052
            JNC GO
            INR B

GO:         INX H
            MOV A,M
            CMA
            STA C053
            HLT
// EXAMPLE-> C050=02,C051=20
// Answer-> C052=FE,C053=DF
# ORG C050
# DB 02H,20H
```

Registers | Memory | Devices

Registers :

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

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	00	0	0	0	0	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0000
Program Status Word(PSW)	0000
Program Counter(PC)	0000
Clock Cycle Counter	0
Instruction Counter	0

Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LXI H,C050	21	3	3	10
	0001			50			
	0002			C0			
√	0003		MVI B,00	06	2	2	7
	0004			00			
√	0005		MOV A,M	7E	1	2	7
√	0006		CMA	2F	1	1	4
√	0007		ADI 01	C6	2	2	7
	0008			01			
√	0009		STA C052	32	3	4	13
	000A			52			
	000B			C0			
√	000C		JNC GO	D2	3	3	10
	000D			10			
	000E			00			
√	000F		INR B	04	1	1	4
√	0010	GO	INX H	23	1	1	6
√	0011		MOV A,M	7E	1	2	7
√	0012		CMA	2F	1	1	4

Registers | Memory | Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	DF	1	1	0	1	1	1	1	1
Register B	00	0	0	0	0	0	0	0	0
Register C	00	0	0	0	0	0	0	0	0
Register D	00	0	0	0	0	0	0	0	0
Register E	00	0	0	0	0	0	0	0	0
Register H	C0	1	1	0	0	0	0	0	0
Register L	51	0	1	0	1	0	0	0	1
Memory(M)	20	0	0	1	0	0	0	0	0

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	80	1	0	0	0	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	C051
Program Status Word(PSW)	DF80
Program Counter(PC)	0016
Clock Cycle Counter	93
Instruction Counter	12

Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0006		CMA	2F	1	1	4
√	0007		ADI 01	C6	2	2	7
	0008			01			
√	0009		STA C052	32	3	4	13
	000A			52			
	000B			C0			
√	000C		JNC GO	D2	3	3	10
	000D			10			
	000E			00			
√	000F		INR B	04	1	1	4
√	0010	GO	INX H	23	1	1	6
√	0011		MOV A,M	7E	1	2	7
√	0012		CMA	2F	1	1	4
√	0013		STA C053	32	3	4	13
	0014			53			
	0015			C0			
√	0016		HLT	76	1	2	5

Simulate

Start From → 0000

Registers | Memory | Devices

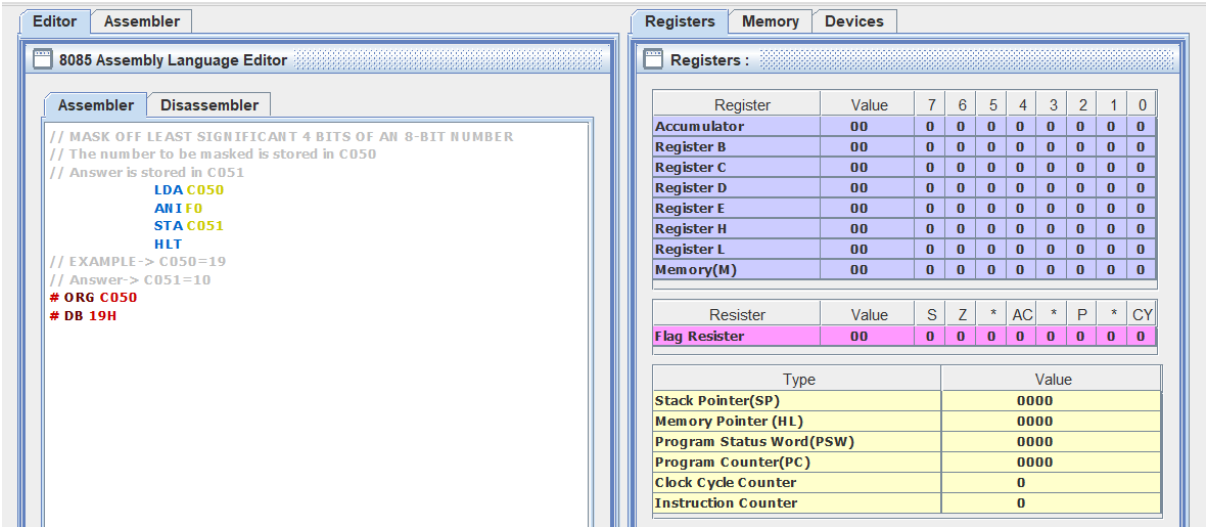
Memory Editor

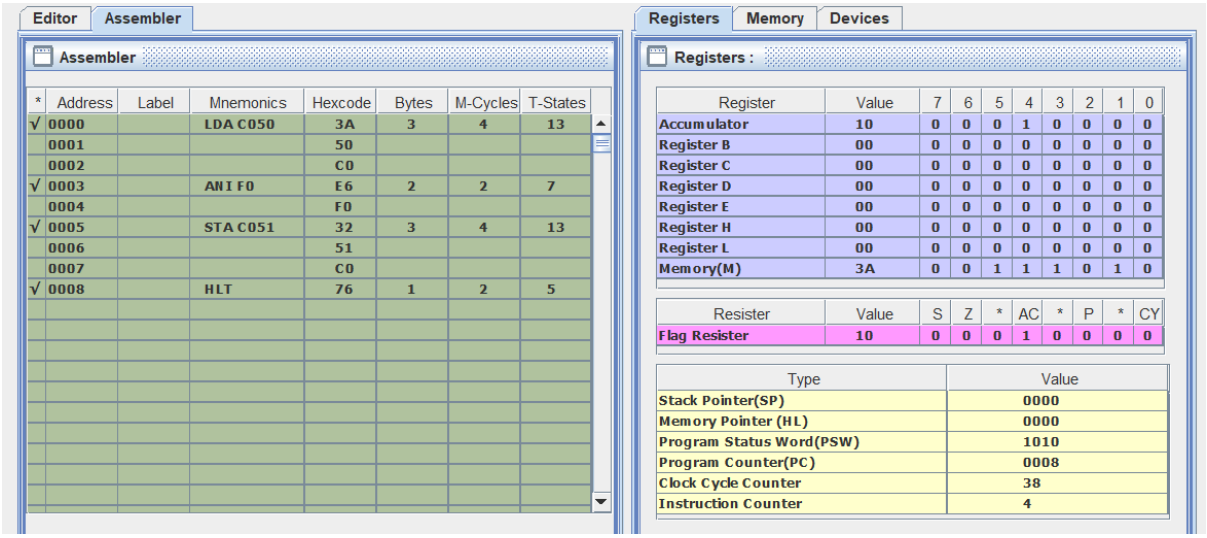
Memory Range: 0000 ---- FFFF

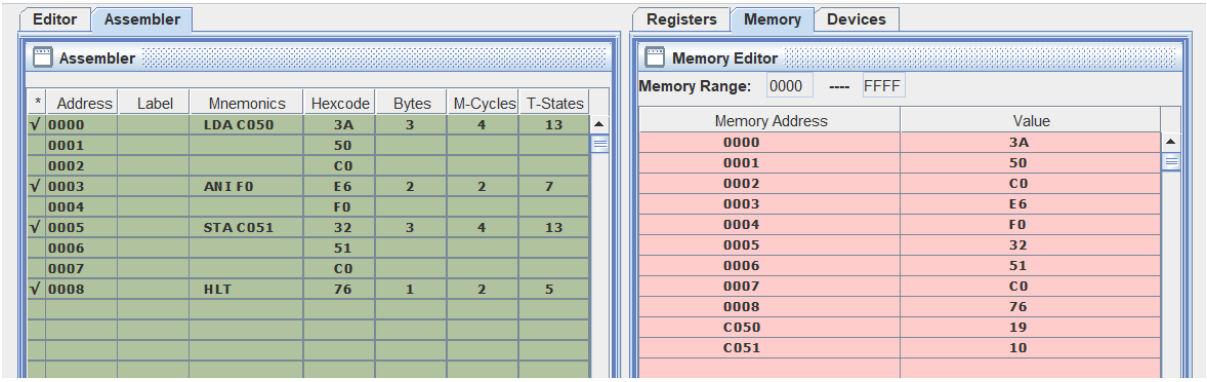
Memory Address	Value
0001	50
0002	C0
0003	06
0005	7E
0006	2F
0007	C6
0008	01
0009	32
000A	52
000B	C0
000C	D2
000D	10
000F	04
0010	23
0011	7E
0012	2F
0013	32
0014	53
0015	C0
0016	76
C050	02
C051	20
C052	FE
C053	DF

Laboratory Experiment:

Mask off the least significant 4 bits of an 8 bit number.







Laboratory Experiment:

Mask off the most significant 4 bits of an 8 bit number.

Editor | Assembler

8085 Assembly Language Editor

Assembler | Disassembler

```
// MASK OFF MOST SIGNIFICANT 4 BITS OF AN 8-BIT NUMBER
// The number to be masked is stored in C050
// Answer is stored in C051
        LDA C050
        ANI 0F
        STA C051
        HLT
// EXAMPLE-> C050=19
// Answer-> C051=09
# ORG C050
# DB 19H
```

Registers | Memory | Devices

Registers :

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

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	00	0	0	0	0	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0000
Program Status Word(PSW)	0000
Program Counter(PC)	0000
Clock Cycle Counter	0
Instruction Counter	0

Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LDA C050	3A	3	4	13
	0001			50			
	0002			C0			
√	0003		ANI 0F	E6	2	2	7
	0004			0F			
√	0005		STA C051	32	3	4	13
	0006			51			
	0007			C0			
√	0008		HLT	76	1	2	5

Registers | Memory | Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	09	0	0	0	0	1	0	0	1
Register B	00	0	0	0	0	0	0	0	0
Register C	00	0	0	0	0	0	0	0	0
Register D	00	0	0	0	0	0	0	0	0
Register E	00	0	0	0	0	0	0	0	0
Register H	00	0	0	0	0	0	0	0	0
Register L	00	0	0	0	0	0	0	0	0
Memory(M)	3A	0	0	1	1	1	0	1	0

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	14	0	0	0	1	0	1	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0000
Program Status Word(PSW)	0914
Program Counter(PC)	0008
Clock Cycle Counter	38
Instruction Counter	4

Editor | Assembler

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LDA C050	3A	3	4	13
	0001			50			
	0002			C0			
√	0003		ANI 0F	E6	2	2	7
	0004			0F			
√	0005		STA C051	32	3	4	13
	0006			51			
	0007			C0			
√	0008		HLT	76	1	2	5

Registers | Memory | Devices

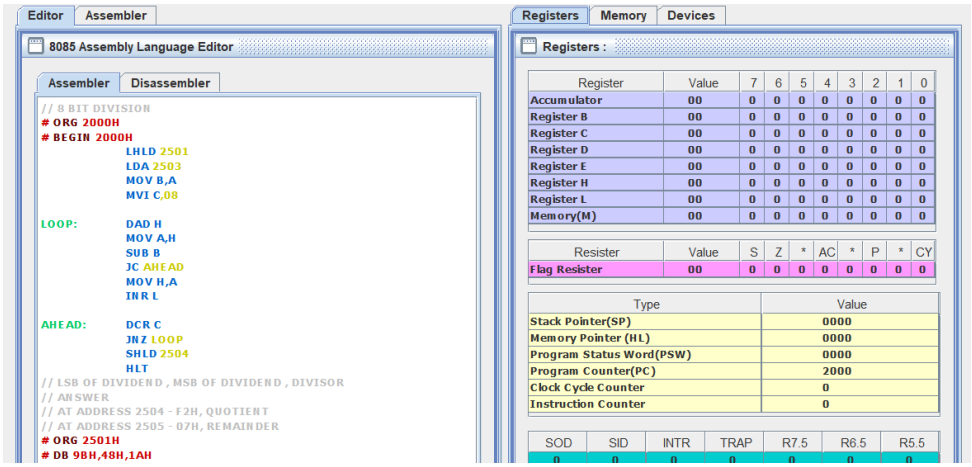
Memory Editor

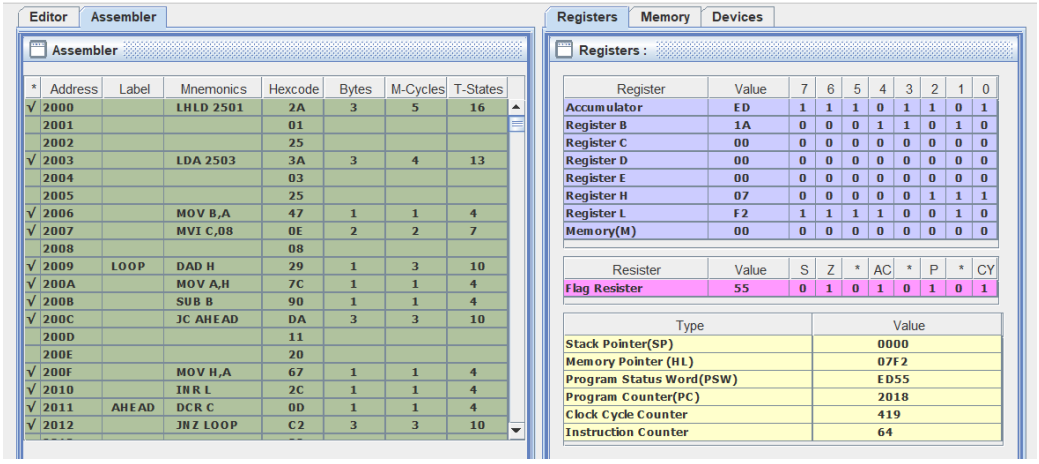
Memory Range: 0000 ---- FFFF

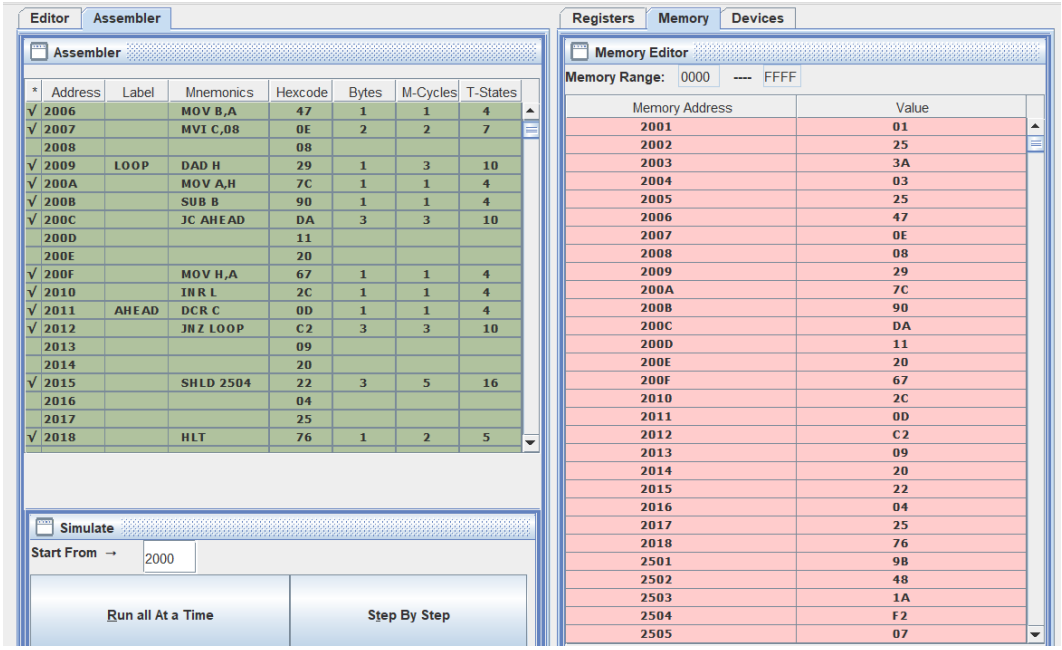
Memory Address	Value
0000	3A
0001	50
0002	C0
0003	E6
0004	0F
0005	32
0006	51
0007	C0
0008	76
C050	19
C051	09

Laboratory Experiment:

8 bit number division

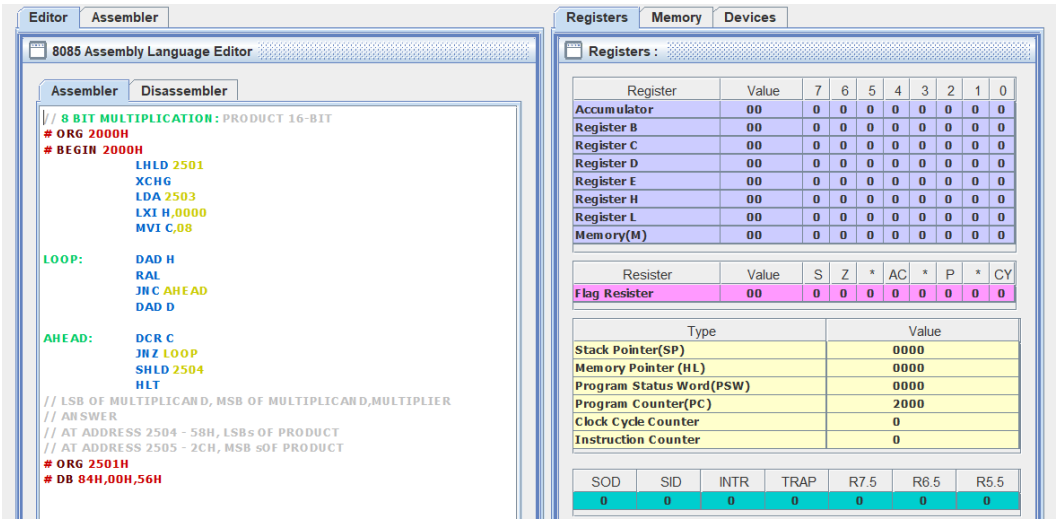


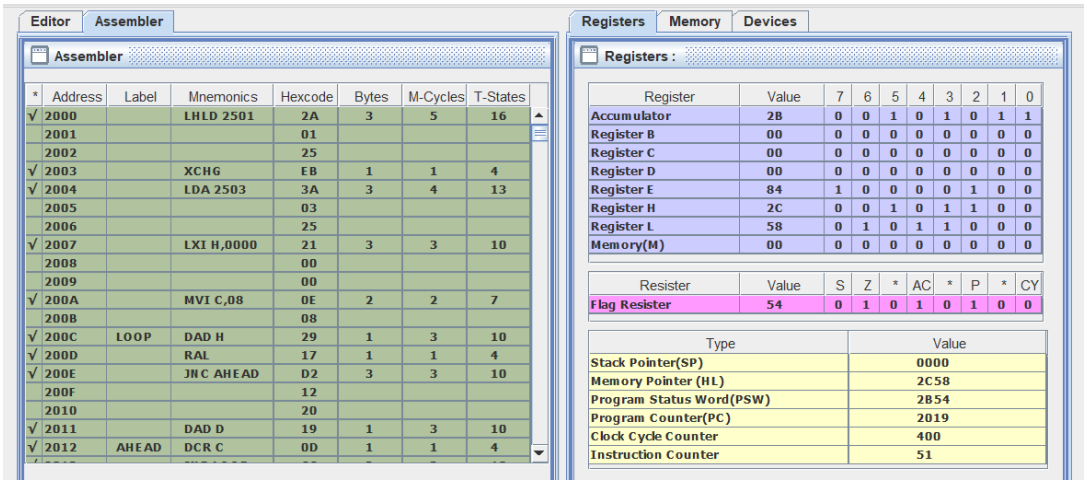


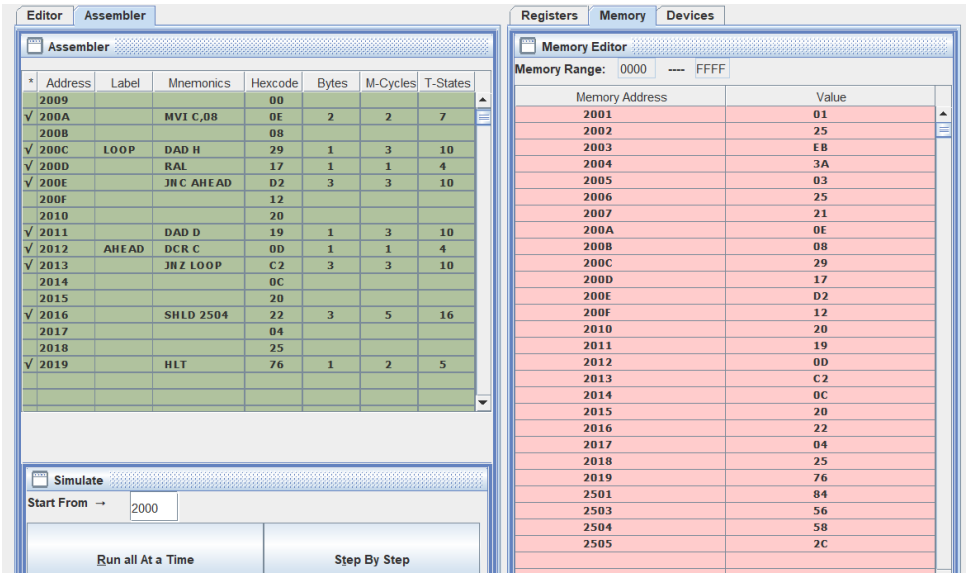


Laboratory Experiment:

8 bit number multiplication having 16 bit product

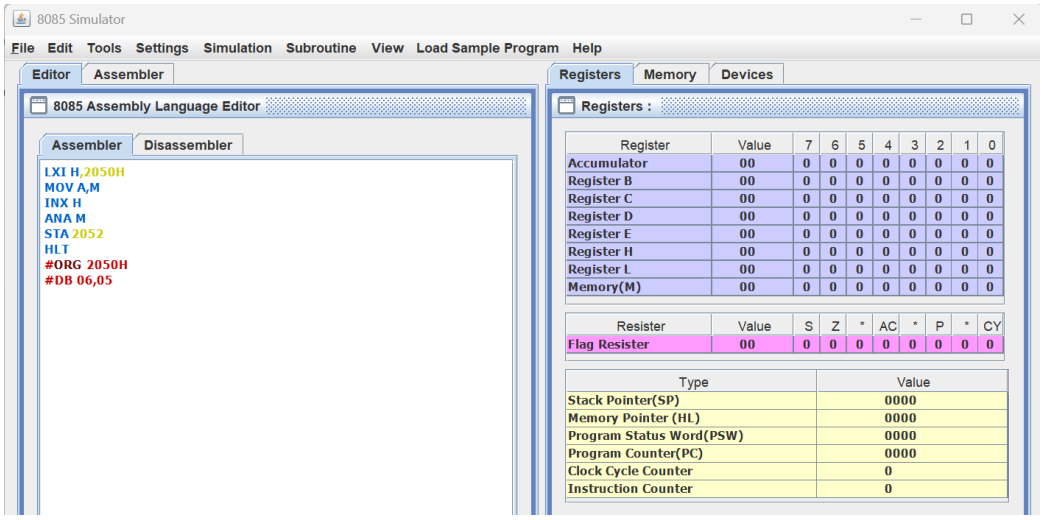


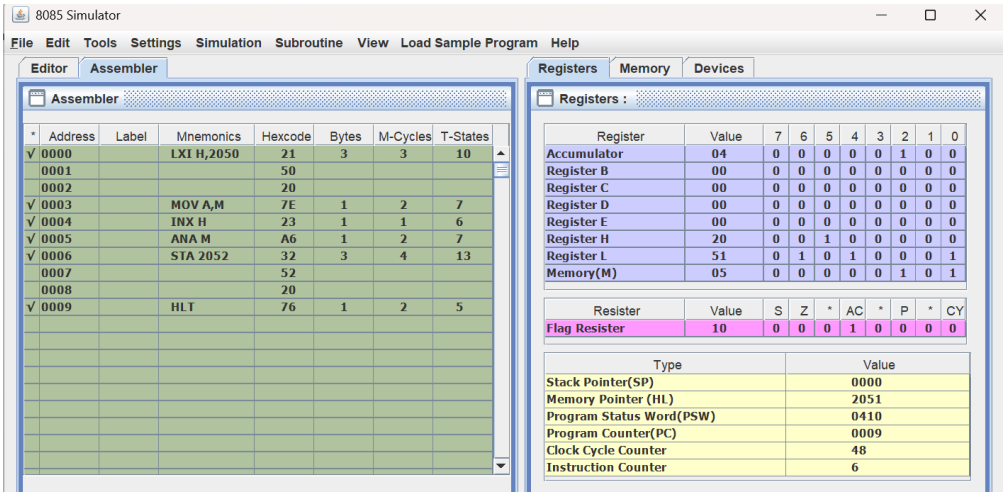


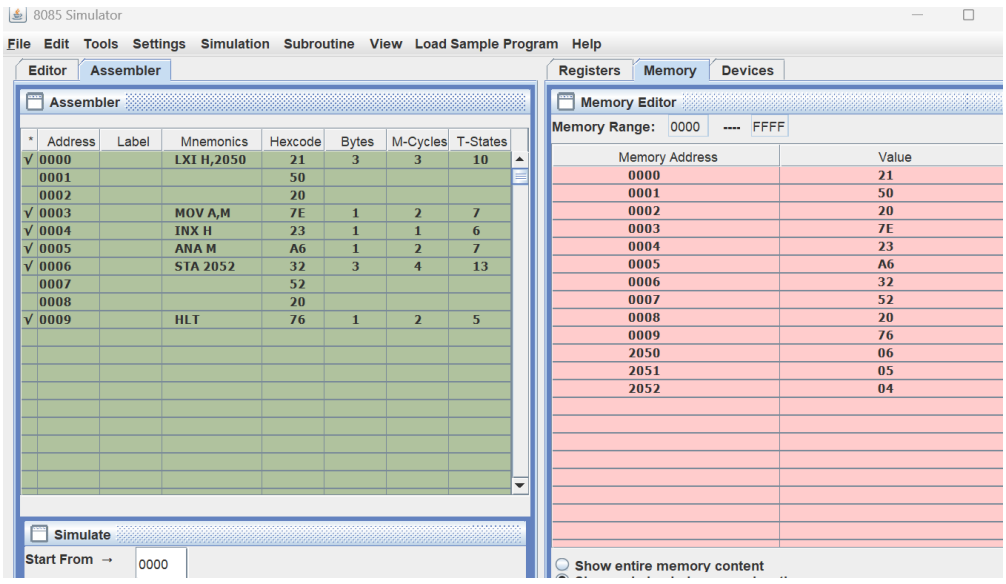


Laboratory Experiment:

Logical AND Operation

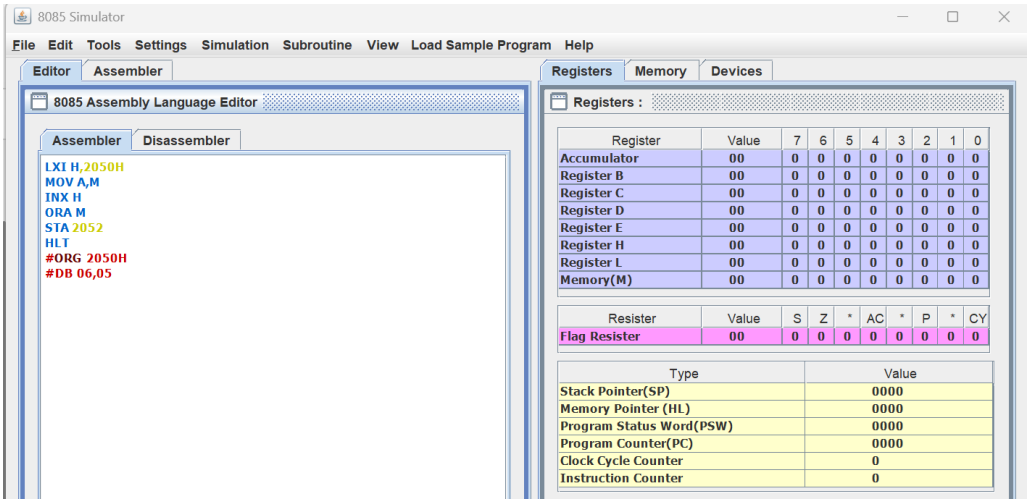


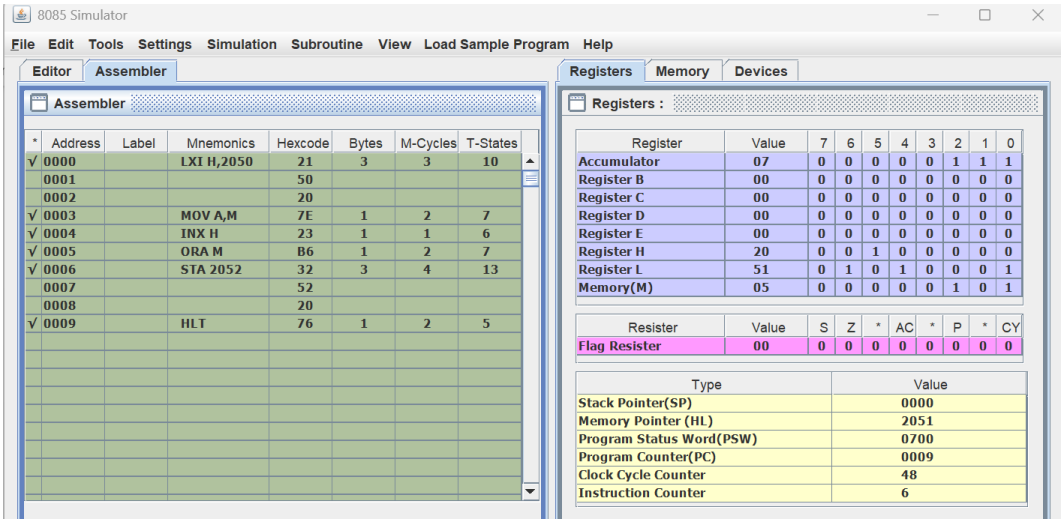


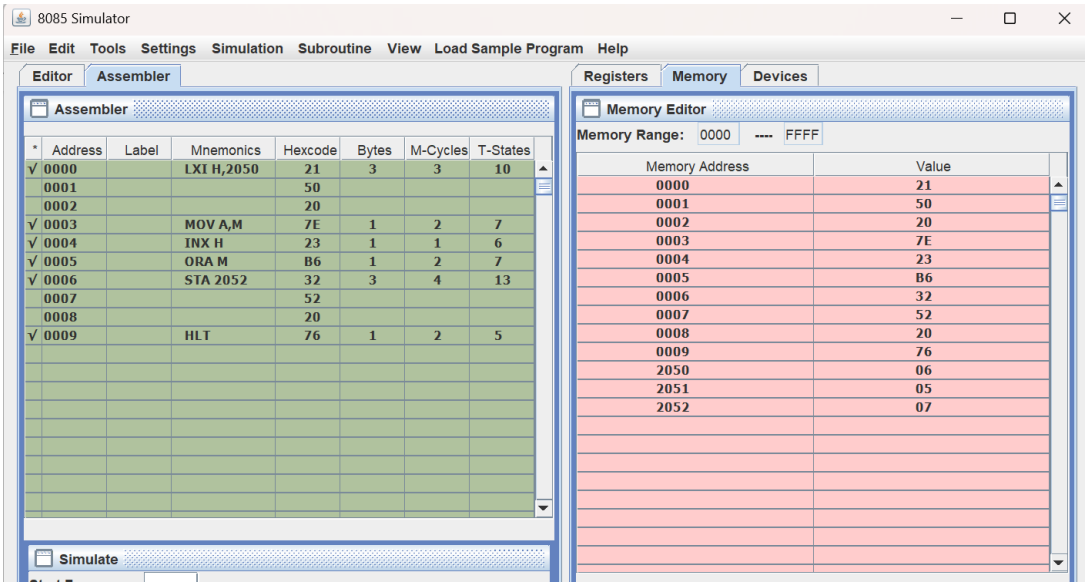


Laboratory Experiment:

Logical OR Operation

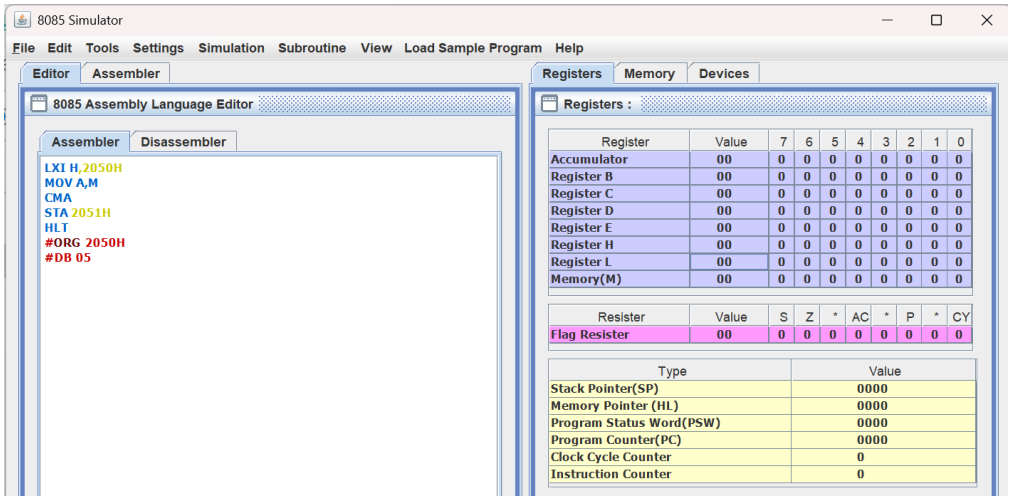


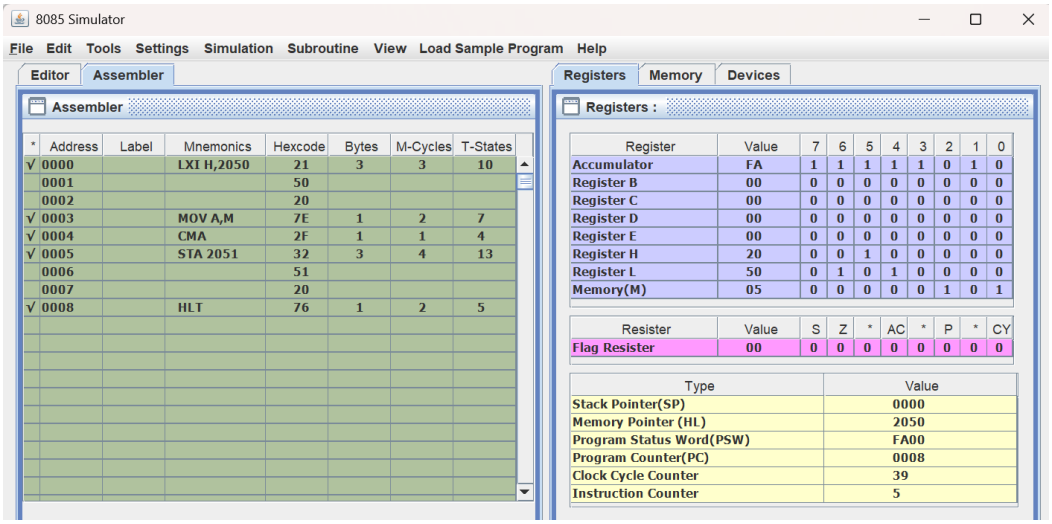


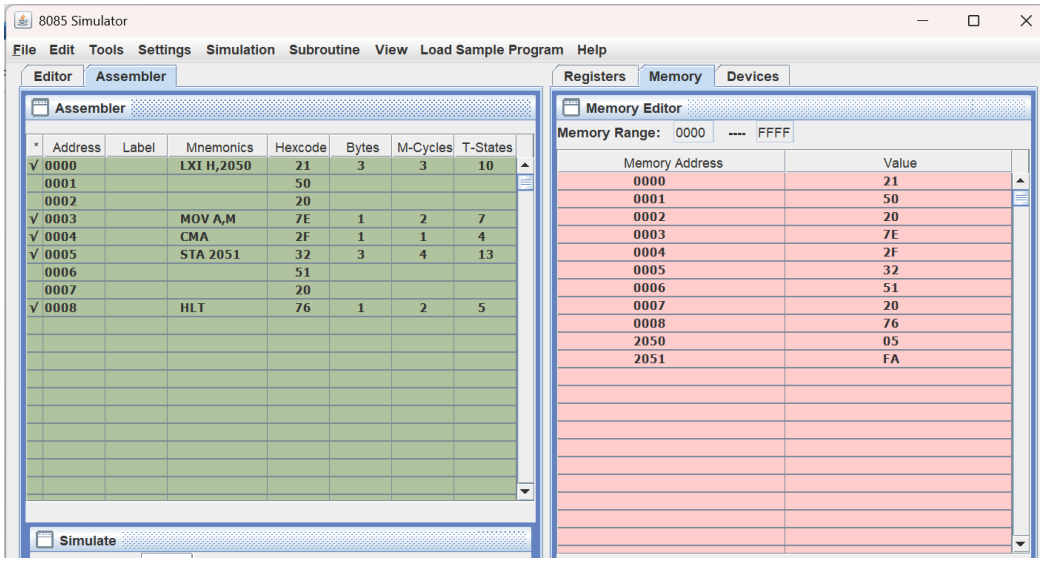


Laboratory Experiment:

Logical NOT Operation

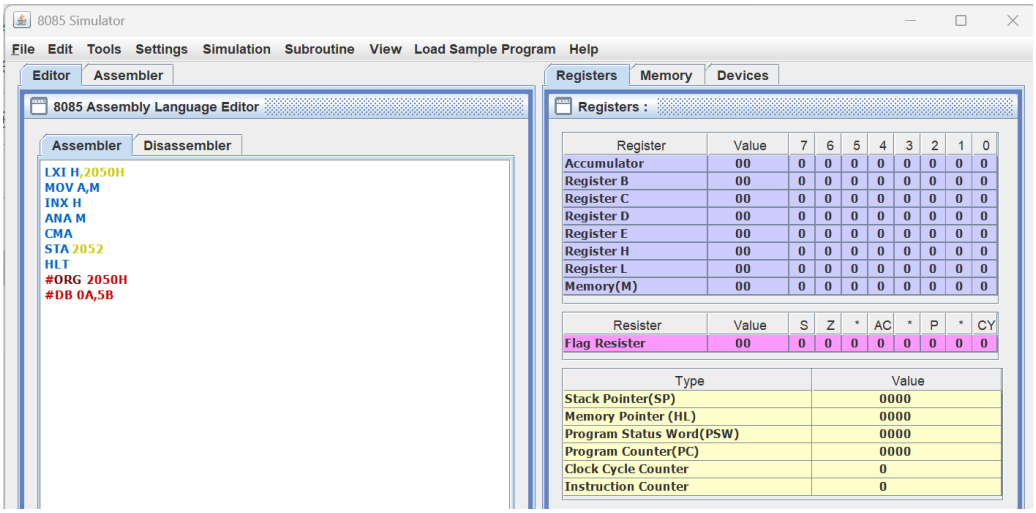


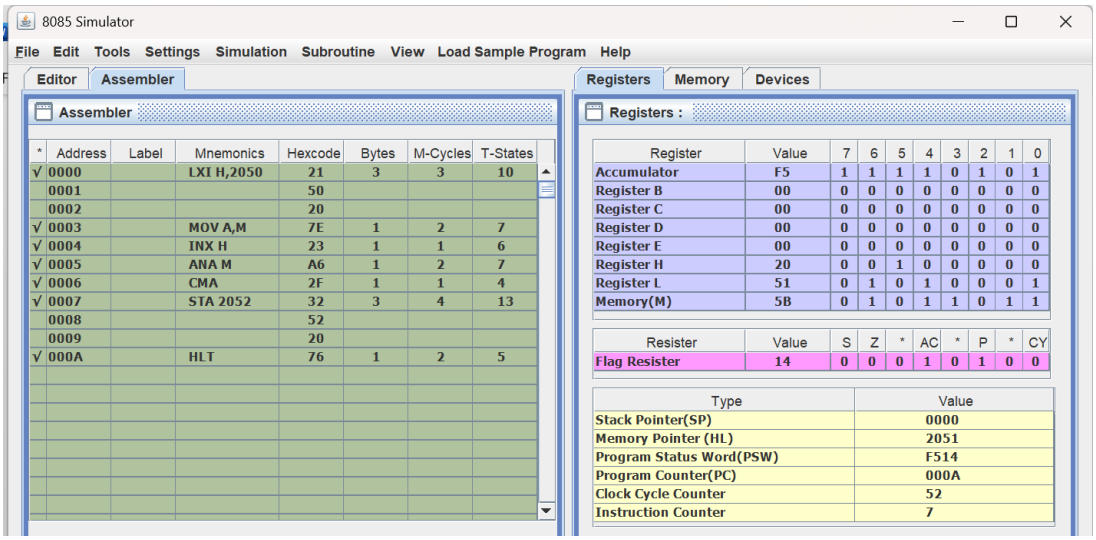


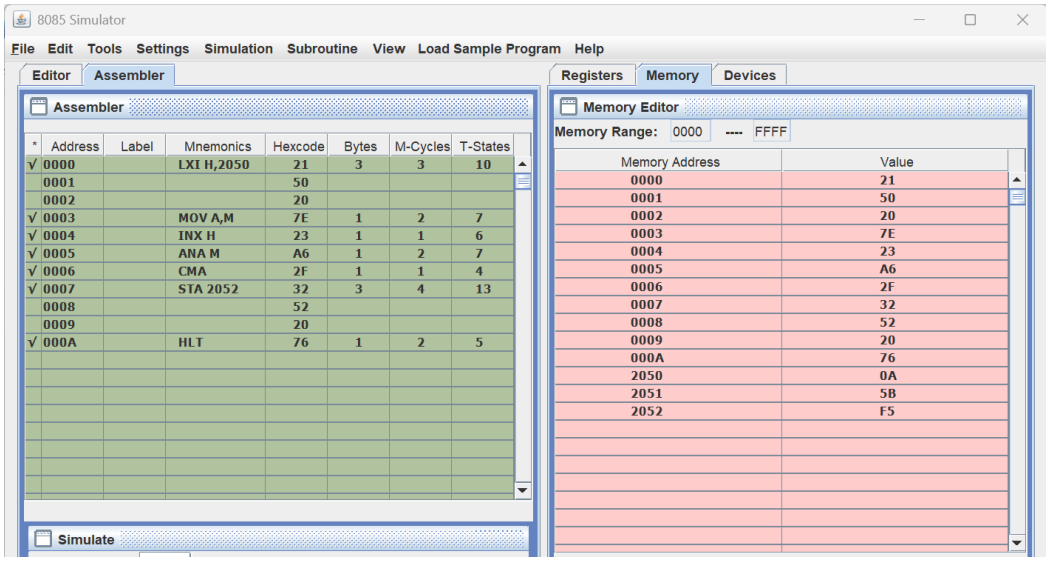


Laboratory Experiment:

Logical NAND Operation

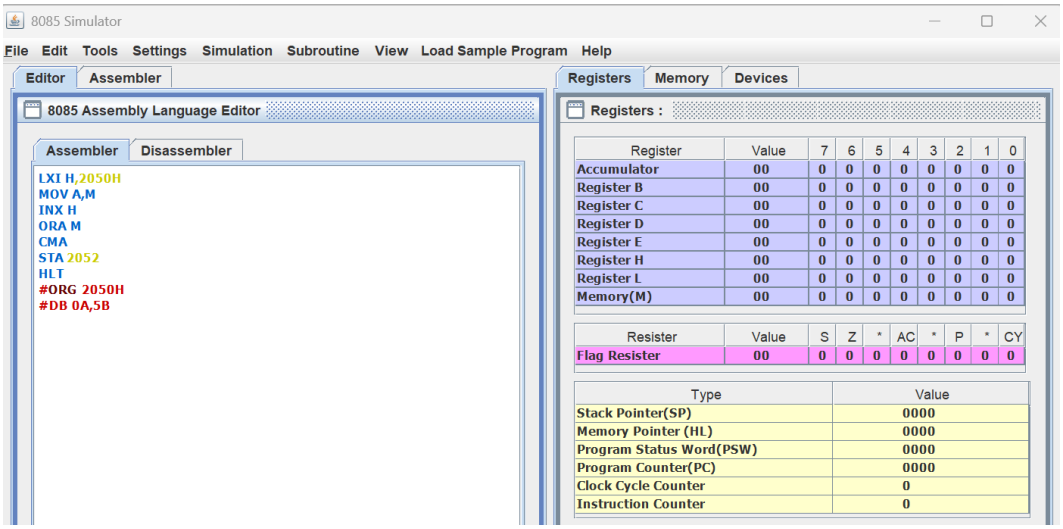


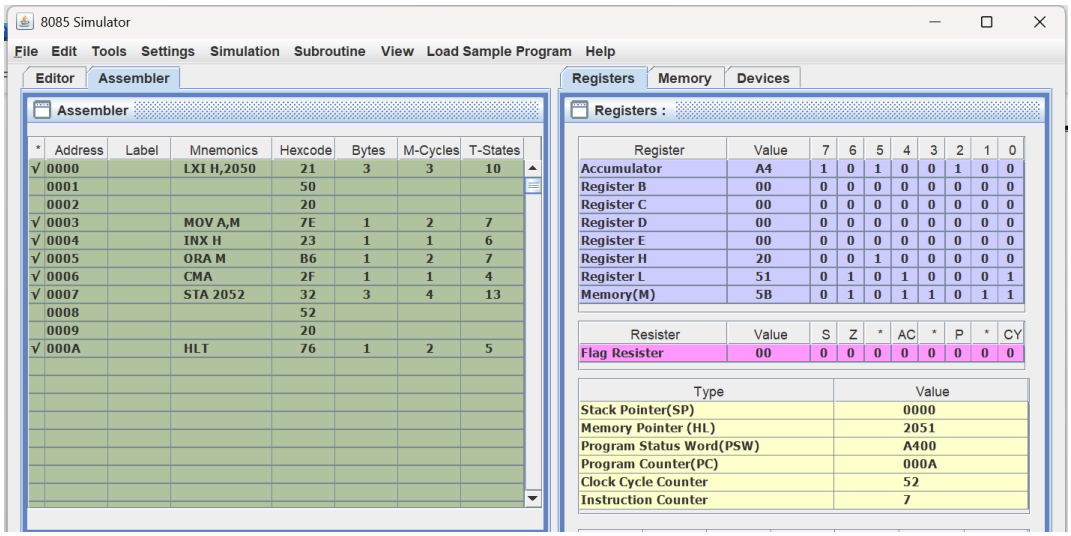


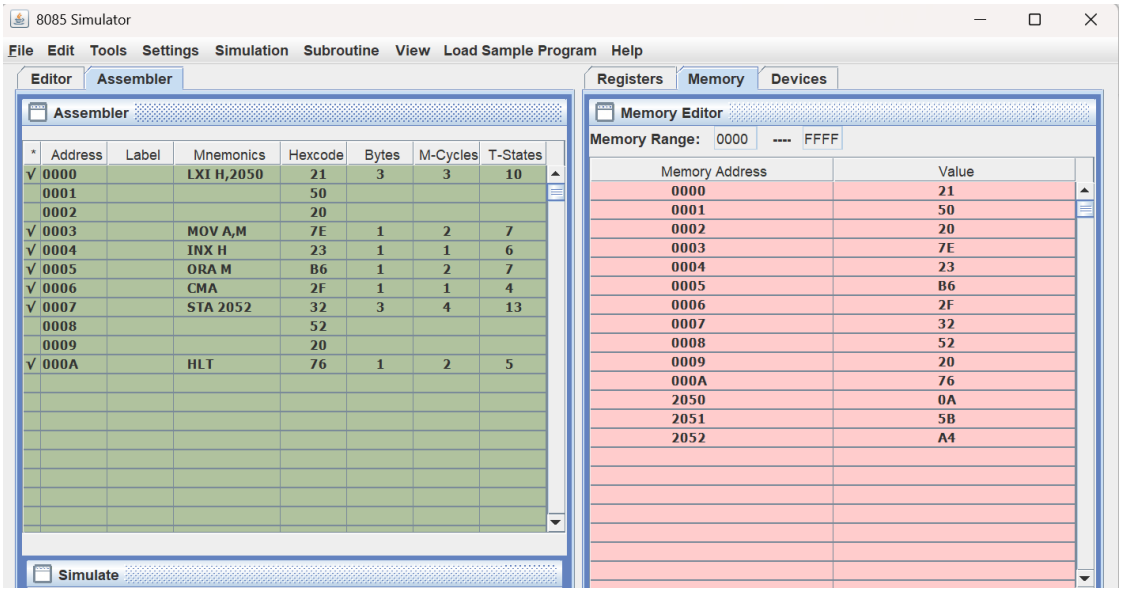


Laboratory Experiment:

Logical NOR Operation

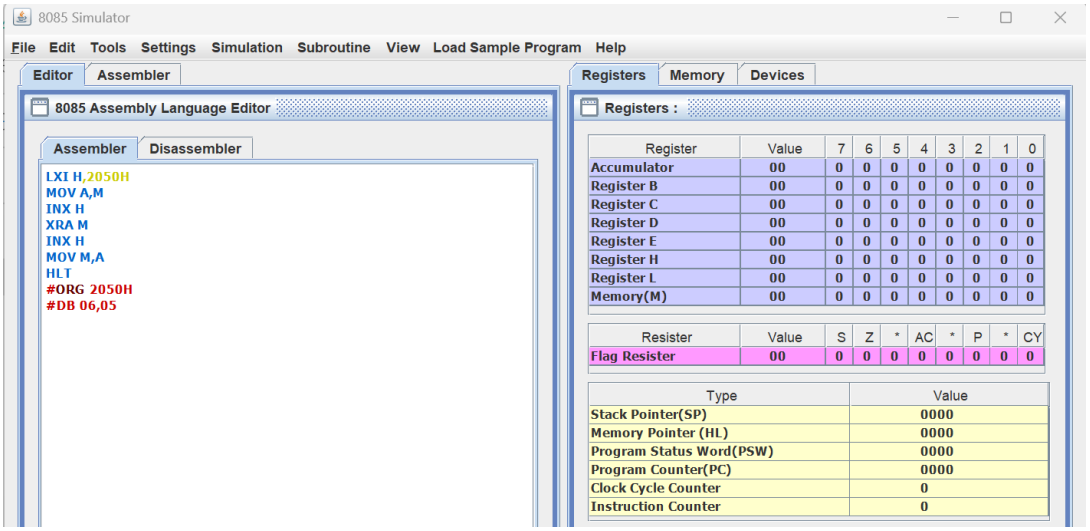


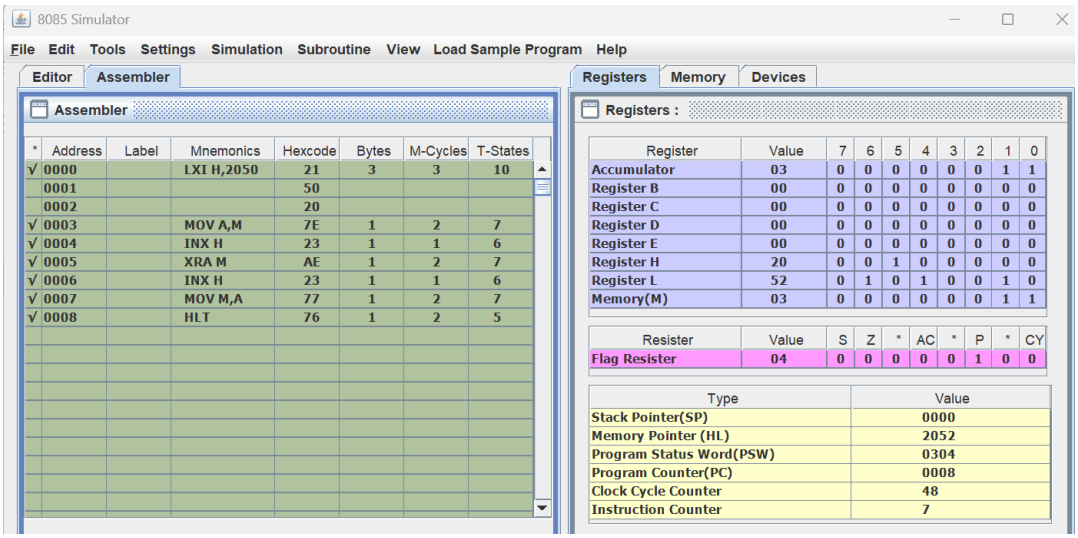


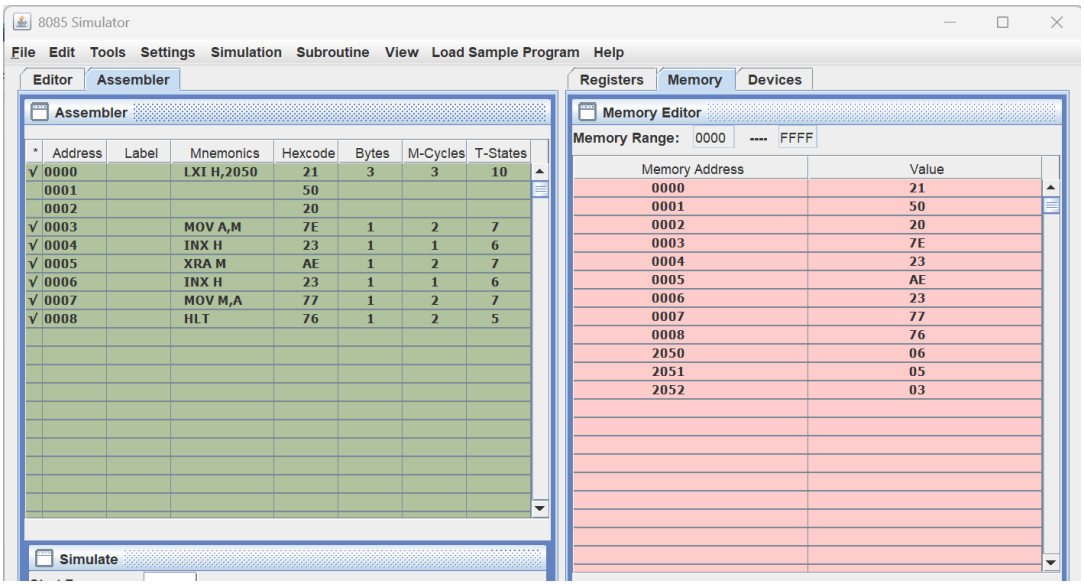


Laboratory Experiment:

Logical XOR Operation

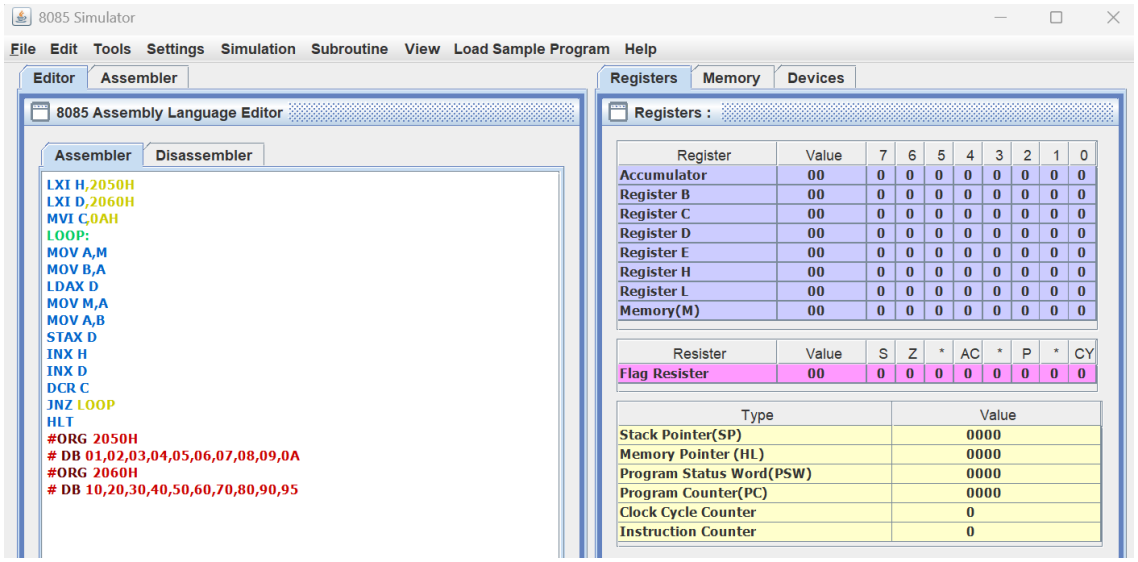


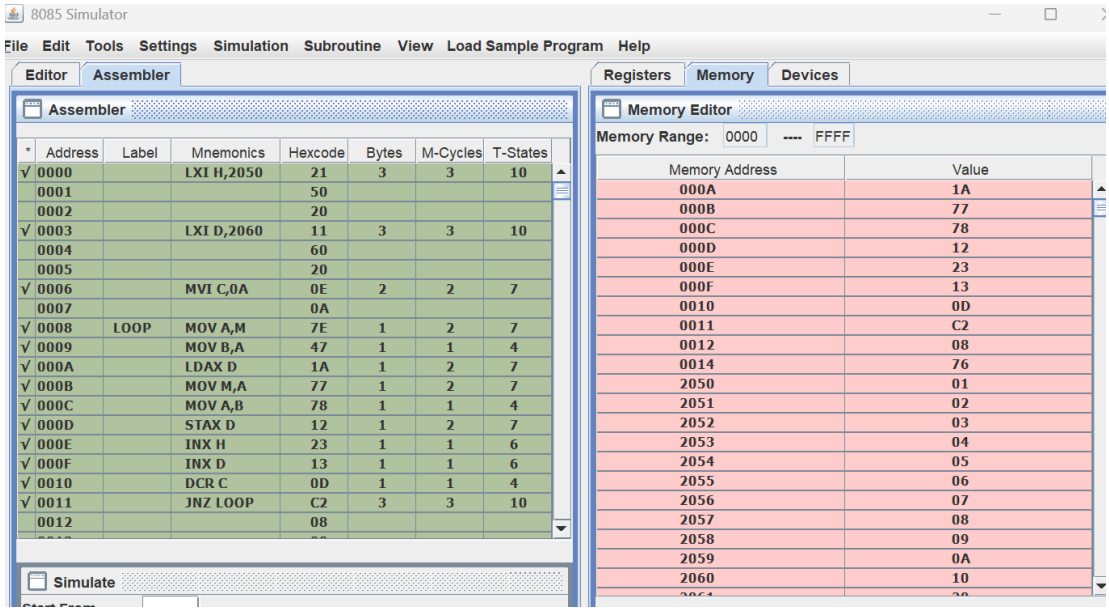


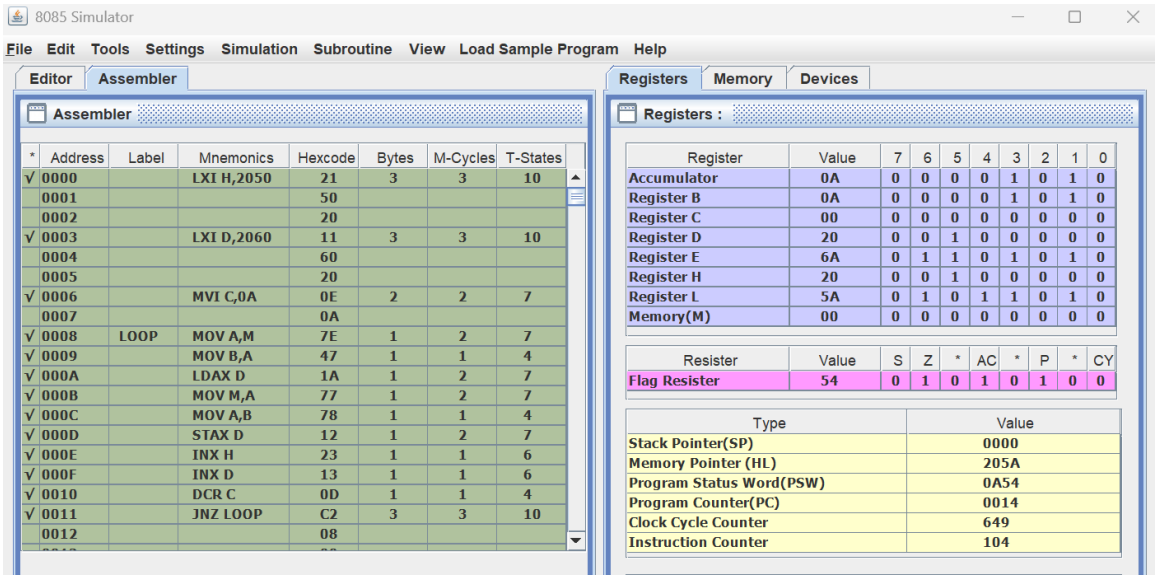


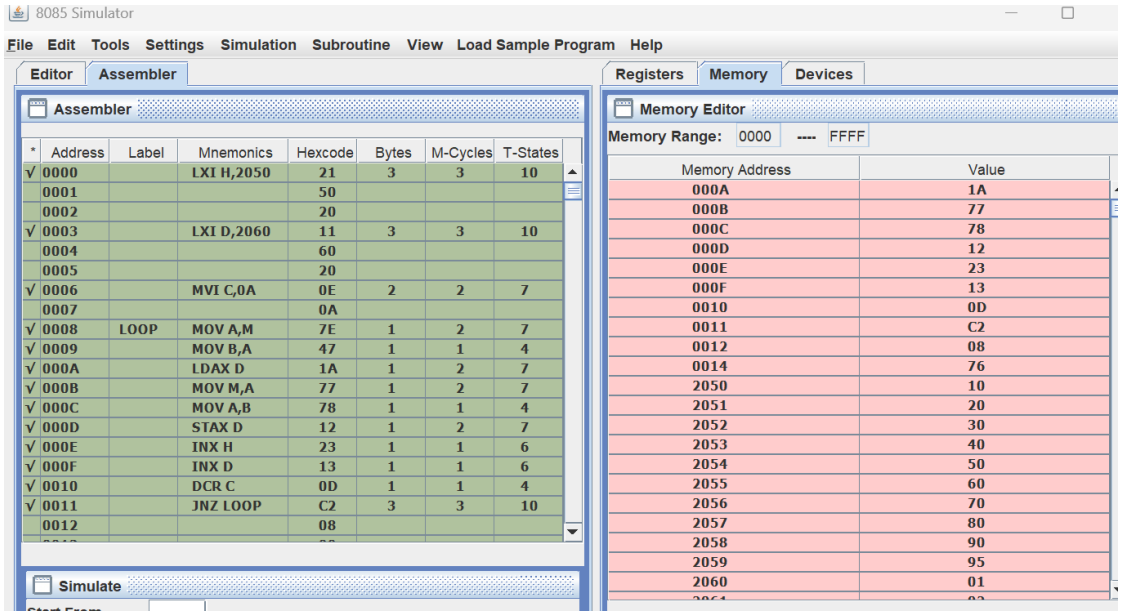
Laboratory Experiment:

Exchange 10 Bytes of Data from 2050H to 2060H.





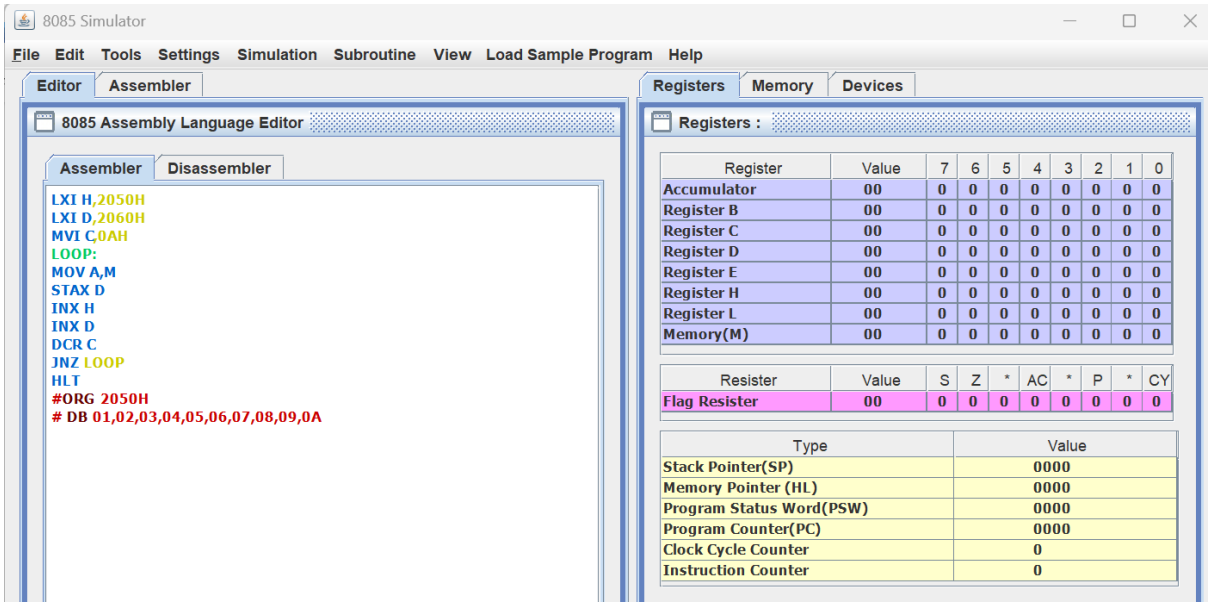


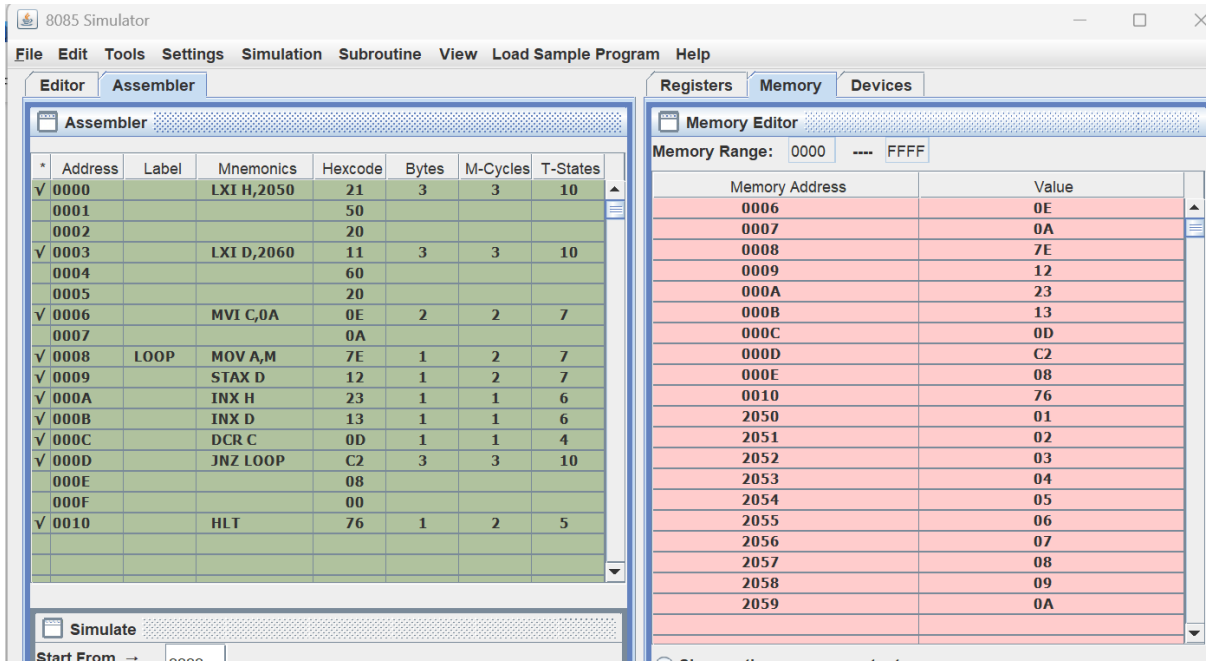


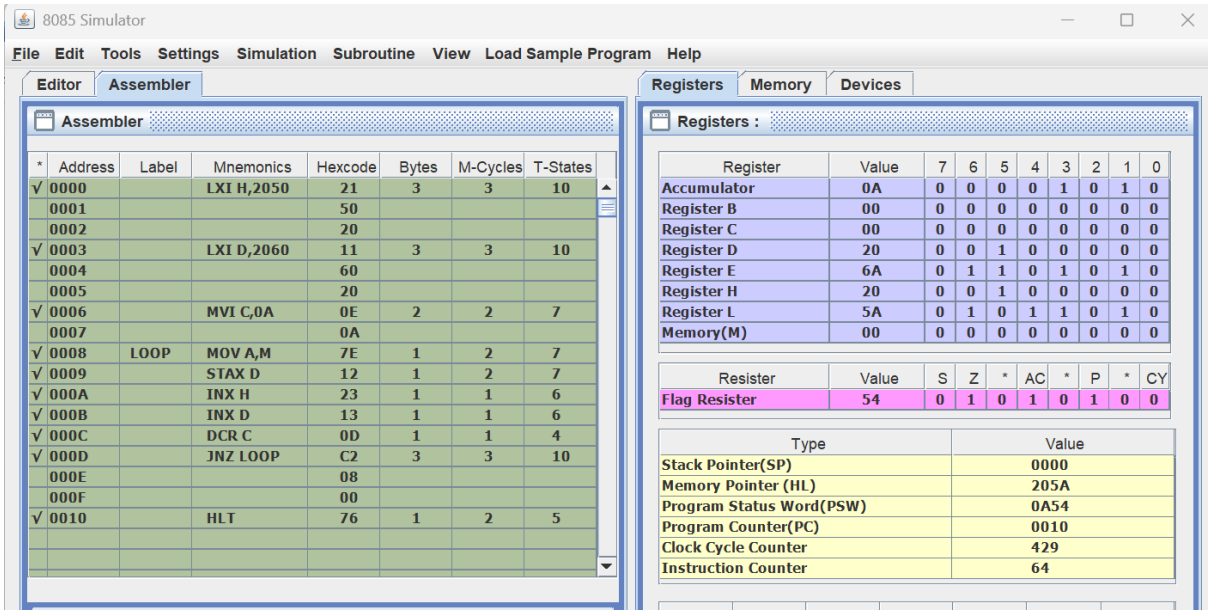
Exchanged Data from 2050H to 2060H

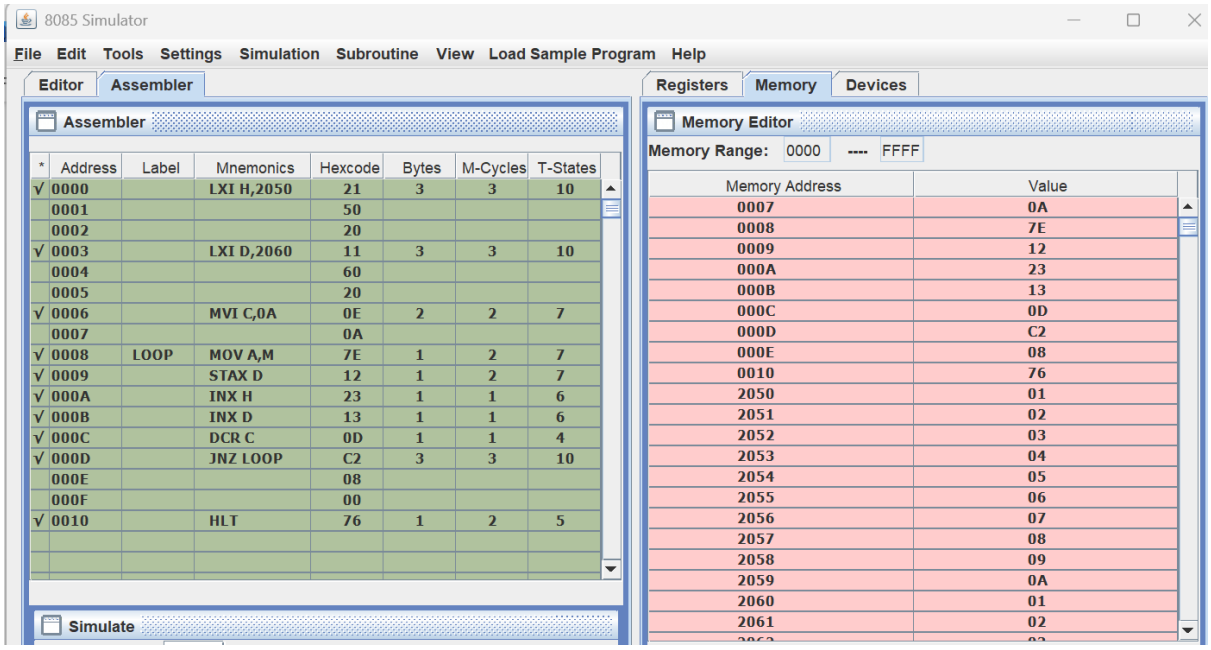
Laboratory Experiment:

Transfer 10 Bytes of Data from 2050H to 2060H.

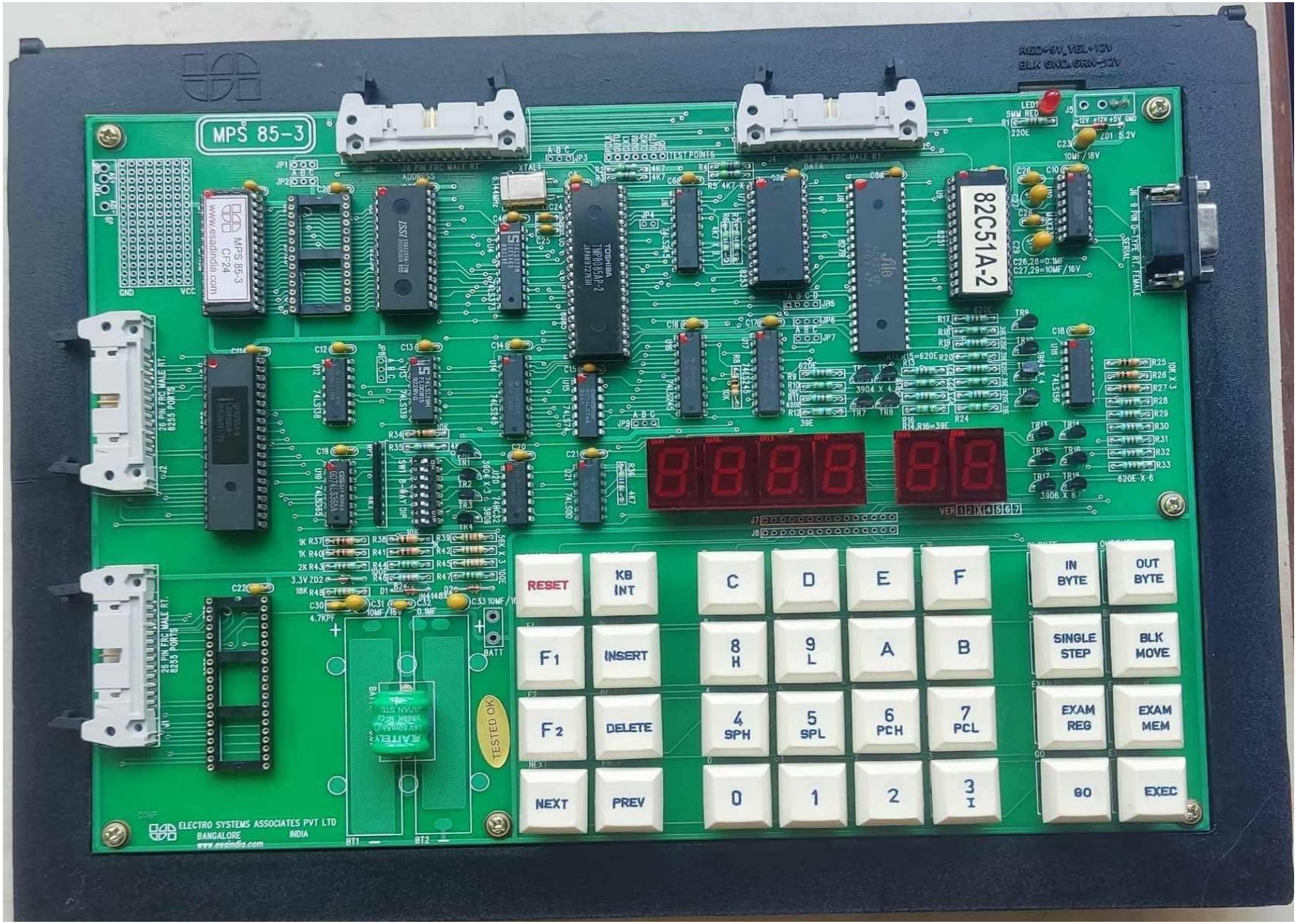








Transferred Data from 2050H to 2060H


MPS 85-3
82C51A-2
RESET
KB INT
C
D
E
F
IN BYTE
OUT BYTE
F1
INSERT
8 H
9 L
A
B
SINGLE STEP
BLK MOVE
F2
DELETE
4 SPH
5 SPL
6 PCH
7 PCL
EXAM REG
EXAM MEM
NEXT
PREV
0
1
2
3 I
GO
EXEC
TESTED OK
ELECTRO SYSTEMS ASSOCIATES PVT LTD
BANGALORE
INDIA
www.esaindia.com