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UID- 20BCS2761

BRANCH – CSE

SUBJECT – MPI

SEC – 615 B

Aim:

Complement of a number 16 bit data **Task to be done:**

1. 1's Complement of a number 16 bit data.
2. 2's Complement of a number 16 bit data.

Apparatus / Simulator Used:

1. Jubin Application
2. 8085 Simulator
3. JDK

SCREENSHOTS OF CODE & OUTPUT:

1's Complement

8085 Simulator

File Edit Tools Settings Simulation Subroutine View Load Sample Program Help

Editor Assembler

8085 Assembly Language Editor

Assembler Disassembler

```
LXI H,C050
MOV A,M
CMA
STA C052
INX H
MOV A,M
CMA
STA C053
HLT
```

ORG C050
DB 85H,54H

Autocorrect Assemble

Registers Memory Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	AB	1	0	1	0	1	0	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)	54	0	1	0	1	0	1	0	0

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

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	C051
Program Status Word(PSW)	AB00
Program Counter(PC)	000E
Clock Cycle Counter	74
Instruction Counter	10

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

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

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27°C Haze

21:11 22-03-2022

8085 Simulator

File Edit Tools Settings Simulation Subroutine View Load Sample Program Help

Editor Assembler

8085 Assembly Language Editor

Assembler Disassembler

* 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		CMA	2F	1	1	4
✓ 0005		STA C052	32	3	4	13
0006			52			
0007			C0			
✓ 0008		INX H	23	1	1	6
✓ 0009		MOV A,M	7E	1	2	7
✓ 000A		CMA	2F	1	1	4
✓ 000B		STA C053	32	3	4	13
000C			53			
000D			C0			
✓ 000E		HLT	76	1	2	5

Simulate

Start From → 0000

Backward Stop Forward

Registers Memory Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	AB	1	0	1	0	1	0	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)	54	0	1	0	1	0	1	0	0

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

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	C051
Program Status Word(PSW)	AB00
Program Counter(PC)	000E
Clock Cycle Counter	69
Instruction Counter	9

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

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

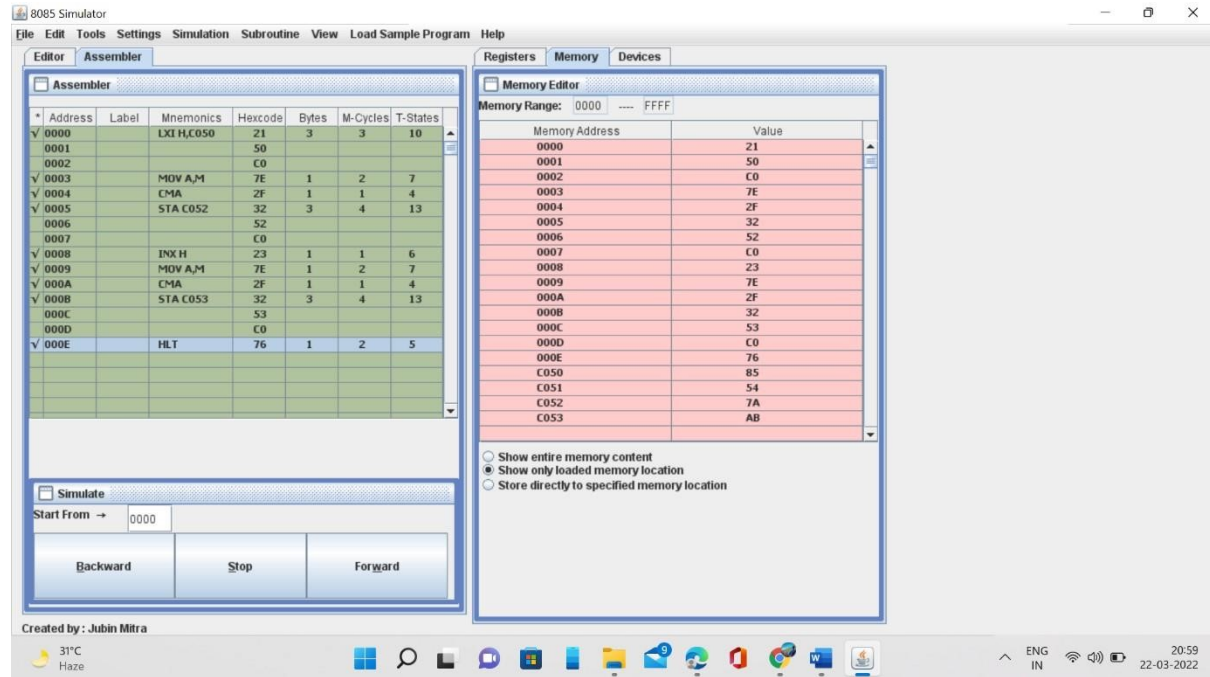
No. Converter Tool :

Hexadecimal Decimal Binary

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20:59 22-03-2022



8085 Simulator

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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		CMA	2F	1	1	4
0005		STA C052	32	3	4	13
0006			52			
0007			C0			
0008		INX H	23	1	1	6
0009		MOV A,M	7E	1	2	7
000A		CMA	2F	1	1	4
000B		STA C053	32	3	4	13
000C			53			
000D			C0			
000E		HLT	76	1	2	5

Simulate

Start From → 0000

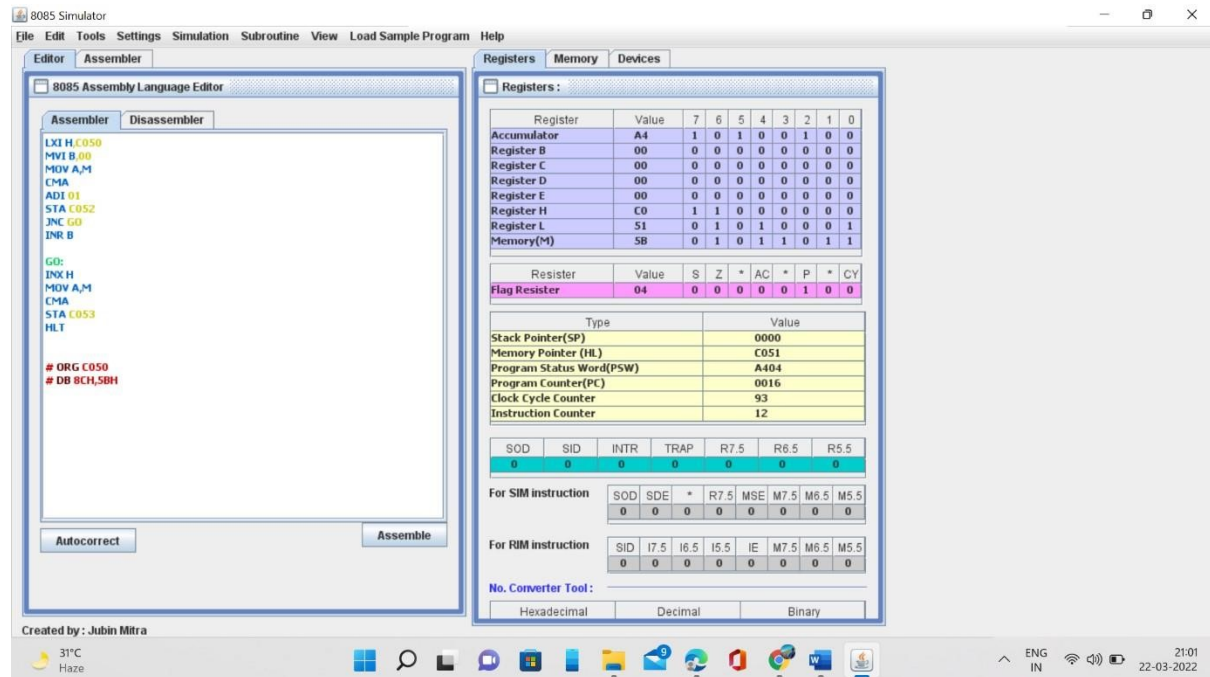
Backward Stop Forward

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ENG IN 22-03-2022

2's Complement



8085 Simulator

File Edit Tools Settings Simulation Subroutine View Load Sample Program Help

Editor Assembler

8085 Assembly Language Editor

Assembler Disassembler

```

LXI H,C050
MVI B,00
MOV A,M
CMA
ADI 01
STA C052
JNC G0
INR B

G0:
INX H
MOV A,M
CMA
STA C053
HLT

# ORG C050
# DB 8CH,5BH
    
```

Autocorrect Assemble

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ENG IN 22-03-2022

Registers

Register	Value	7	6	5	4	3	2	1	0
Accumulator	A4	1	0	1	0	0	1	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	C0	1	1	0	0	0	0	0	0
Register L	51	0	1	0	1	0	0	0	1
Memory(M)	5B	0	1	0	1	1	0	1	1

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	04	0	0	0	0	0	1	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer(HL)	C051
Program Status Word(PSW)	A404
Program Counter(PC)	0016
Clock Cycle Counter	93
Instruction Counter	12

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

8085 Simulator

File Edit Tools Settings Simulation Subroutine View Load Sample Program Help

Editor Assembler

Assembler

* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
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
✓ 0013		STA C053	32	3	4	13
0014			53			
0015			C0			
✓ 0016		HLT	76	1	2	5

Simulate

Start From → 0000

Backward Stop Forward

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Registers Memory Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	A4	1	0	1	0	0	1	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	C0	1	1	0	0	0	0	0	0
Register L	51	0	1	0	1	0	0	0	1
Memory(M)	5B	0	1	0	1	1	0	1	1

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	04	0	0	0	0	0	1	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	C051
Program Status Word(PSW)	A404
Program Counter(PC)	0016
Clock Cycle Counter	93
Instruction Counter	12

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

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21:01 22-03-2022

8085 Simulator

File Edit Tools Settings Simulation Subroutine View Load Sample Program Help

Editor Assembler

Assembler

* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
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
✓ 0013		STA C053	32	3	4	13
0014			53			
0015			C0			
✓ 0016		HLT	76	1	2	5

Simulate

Start From → 0000

Backward Stop Forward

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Registers Memory Devices

Memory Editor

Memory Range: 0000 ---- FFFF

Memory Address	Value
0000	21
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

☐ Show entire memory content

☒ Show only loaded memory location

☐ Store directly to specified memory location

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21:01 22-03-2022