

Computer System Architecture

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Roll No : CE013

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Lab No : 02

1. WAP to perform the addition of two 8-bit numbers.

8085 Simulator

File Edit Tools Settings Simulation Subroutine View Load Sample Program Help

Editor Assembler Registers Memory Devices

Assembler

* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
✓ 0000		LDA C050	3A	3	4	13
0001			50			
0002			C0			
✓ 0003		MOV B,A	47	1	1	4
✓ 0004		LDA C051	3A	3	4	13
0005			51			
0006			C0			
✓ 0007		ADD B	80	1	1	4
✓ 0008		STA C052	32	3	4	13
0009			52			
000A			C0			
✓ 000B		HLT	76	1	2	5

Simulate

Start From → 0000

Run all At a Time Step By Step

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	03	0	0	0	0	0	0	1	1
Register B	01	0	0	0	0	0	0	0	1
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

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)	0000
Program Status Word(PSW)	0304
Program Counter(PC)	000B
Clock Cycle Counter	109
Instruction Counter	13

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

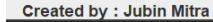
For RIM instruction

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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2. WAP to perform the subtraction of two 8-bit numbers.

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
✓ 0000		LDA C050	3A	3	4	13
0001			50			
0002			C0			
✓ 0003		MOV B,A	47	1	1	4
✓ 0004		LDA C051	3A	3	4	13
0005			51			
0006			C0			
✓ 0007		SUB B	90	1	1	4
✓ 0008		STA C052	32	3	4	13
0009			52			
000A			C0			
✓ 000B		HLT	76	1	2	5

Simulate

Start From → 0000

Run all At a Time Step By Step

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	02	0	0	0	0	0	0	1	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

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	10	0	0	0	1	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer(HL)	0000
Program Status Word(PSW)	0110
Program Counter(PC)	000B
Clock Cycle Counter	109
Instruction Counter	13

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

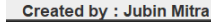
For RIM instruction

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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3. WAP to perform multiplication of two numbers using the 8085 arithmetic instruction set.

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
✓ 0000		LHLD C050	2A	3	5	16
0001			50			
0002			C0			
✓ 0003		MOV B,H	44	1	1	4
✓ 0004		MOV C,L	4D	1	1	4
✓ 0005		MVI A,00	3E	2	2	7
0006			00			
✓ 0007	LOOP	ADD B	80	1	1	4
✓ 0008		DCR C	0D	1	1	4
✓ 0009		JNZ LOOP	C2	3	3	10
000A			07			
000B			00			
✓ 000C		STA C052	32	3	4	13
000D			52			
000E			C0			
✓ 000F		HLT	76	1	2	5

Simulate

Start From → 0000

Run all At a Time Step By Step

Registers Memory Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	06	0	0	0	0	0	1	1	0
Register B	03	0	0	0	0	0	0	1	1
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	03	0	0	0	0	0	0	1	1
Register L	02	0	0	0	0	0	0	1	0
Memory(M)	00	0	0	0	0	0	0	0	0

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	54	0	1	0	1	0	1	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0302
Program Status Word(PSW)	0654
Program Counter(PC)	000F
Clock Cycle Counter	87
Instruction Counter	13

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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Editor Assembler

Assembler

* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
✓ 0000		LHLD C050	2A	3	5	16
0001			50			
0002			C0			
✓ 0003		MOV B,H	44	1	1	4
✓ 0004		MOV C,L	4D	1	1	4
✓ 0005		MVI A,00	3E	2	2	7
0006			00			
✓ 0007	LOOP	ADD B	80	1	1	4
✓ 0008		DCR C	0D	1	1	4
✓ 0009		JNZ LOOP	C2	3	3	10
000A			07			
000B			00			
✓ 000C		STA C052	32	3	4	13
000D			52			
000E			C0			
✓ 000F		HLT	76	1	2	5

Simulate

Start From → 0000

Run all At a Time

Step By Step

Registers Memory Devices

Memory Editor

Memory Range: 0000 --- FFFF

Memory Address	Value
0000	2A
0001	50
0002	C0
0003	44
0004	4D
0005	3E
0006	00
0007	80
0008	0D
0009	C2
000A	07
000B	00
000C	32
000D	52
000E	C0
000F	76
C050	02
C051	03
C052	06

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

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4. Move a block of 8-byte data stored from DF10H to DF17H to DF70H to DF77H.

8085 Simulator

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Editor Assembler

Assembler

* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
✓ 0000		LXI H,DF10	21	3	3	10
0001			10			
0002			DF			
✓ 0003		LXI D,DF70	11	3	3	10
0004			70			
0005			DF			
✓ 0006		MVI C,08	0E	2	2	7
0007			08			
✓ 0008	LOOP	MOV A,M	7E	1	2	7
✓ 0009		STAX D	12	1	2	7
✓ 000A		INX H	23	1	1	6
✓ 000B		INX D	13	1	1	6
✓ 000C		DCR C	0D	1	1	4
✓ 000D		JNZ LOOP	C2	3	3	10
000E			08			
000F			00			
✓ 0010		HLT	76	1	2	5

Simulate

Start From → 0000

Run all At a Time Step By Step

Registers Memory Devices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	07	0	0	0	0	0	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	DF	1	1	0	1	1	1	1	1
Register E	78	0	1	1	1	1	0	0	0
Register H	DF	1	1	0	1	1	1	1	1
Register L	18	0	0	0	1	1	0	0	0
Memory(M)	00	0	0	0	0	0	0	0	0

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	54	0	1	0	1	0	1	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	DF18
Program Status Word(PSW)	0754
Program Counter(PC)	0010
Clock Cycle Counter	703
Instruction Counter	105

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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