

EXPERIMENT 2

Aim :

Write a program to find 1's and 2's Complement of a 16-bit Number.

Requirements :

8085 Simulator IDE Software.

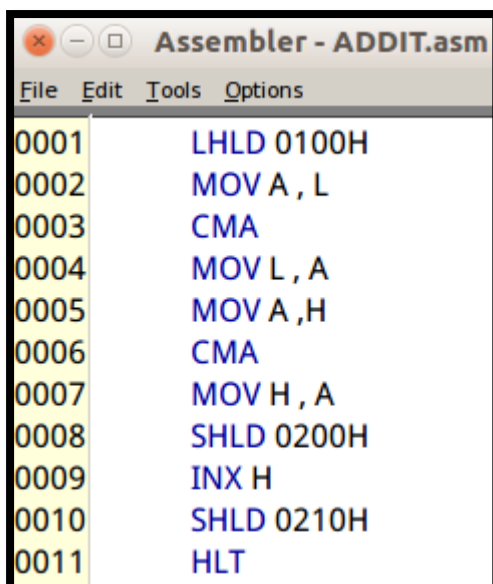
Procedure (Direct Addressing Mode) :

1. Go to the tools and select assembler.
2. Write the code in assembler window.
3. Go to the tools and select assemble & load in assembler window or press F8.
4. Check for errors and fix them.
5. Go to 8085 Simulator IDE and open simulation and start or press F1.
6. Open memory editor from tools option.
7. Enter the value at the memory location defined by LHLD command.
8. Again open simulation and start or press F1.
9. Again open memory editor to observe output.

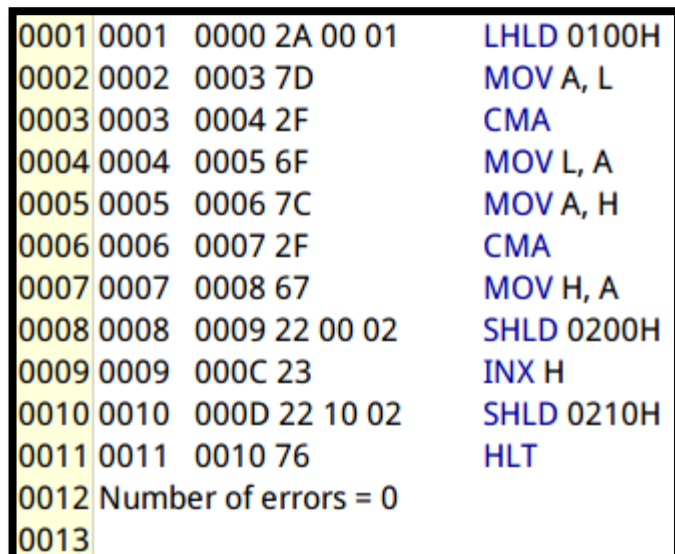
Program to find 1's and 2's Complement of a 16-bit Number (Direct Addressing Mode) :

<u>Address</u>	<u>Mnemonics</u>	<u>Operands</u>	<u>Comments</u>
0000H	LHLD	0100H	Load H-L pair with operands from memory location 0100H
0003H	MOV A , L		Move the content of register L to Accumulator
0004H	CMA		1's complement of A
0005H	MOV L , A		Move the content of A to L
0006H	MOV A , H		Move the content of H to A
0007H	CMA		1's complement of A
0008H	MOV H , A		Move the content of A to H
0009H	SHLD	0200H	Store the result from H-L pair to memory location 0200H
000CH	INX H		Increment H-L pair by 1
000DH	SHLD	0210H	Store the result from H-L pair to memory location 0210H
0010H	HLT		End of program

Screenshots (Direct Addressing Mode) :



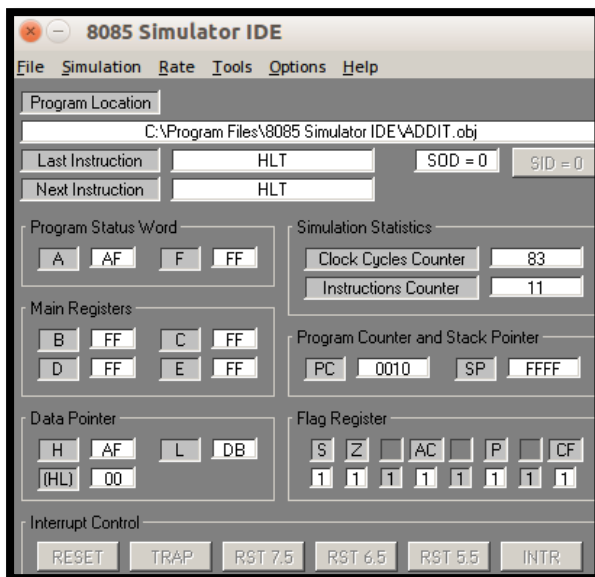
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Assembler - ADDIT.asm
File Edit Tools Options
0001 LHLD 0100H
0002 MOV A , L
0003 CMA
0004 MOV L , A
0005 MOV A , H
0006 CMA
0007 MOV H , A
0008 SHLD 0200H
0009 INX H
0010 SHLD 0210H
0011 HLT
```



```
0001 0001 0000 2A 00 01 LHLD 0100H
0002 0002 0003 7D MOV A, L
0003 0003 0004 2F CMA
0004 0004 0005 6F MOV L, A
0005 0005 0006 7C MOV A, H
0006 0006 0007 2F CMA
0007 0007 0008 67 MOV H, A
0008 0008 0009 22 00 02 SHLD 0200H
0009 0009 000C 23 INX H
0010 0010 000D 22 10 02 SHLD 0210H
0011 0011 0010 76 HLT
0012 Number of errors = 0
0013
```

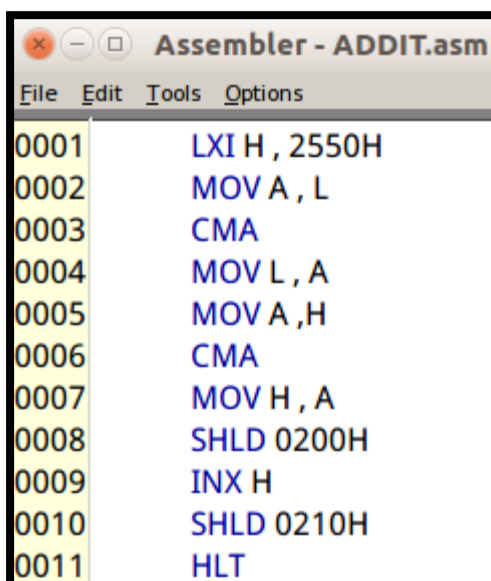
Output (Direct Addressing Mode) :

<u>Before Execution</u>		<u>After Execution</u>	
16-bit data (at 0100H) :		1's Complement (at 0200H)	DAH AFH
H	L	2's Complement (at 0210H)	DBH AFH
50H	25H		



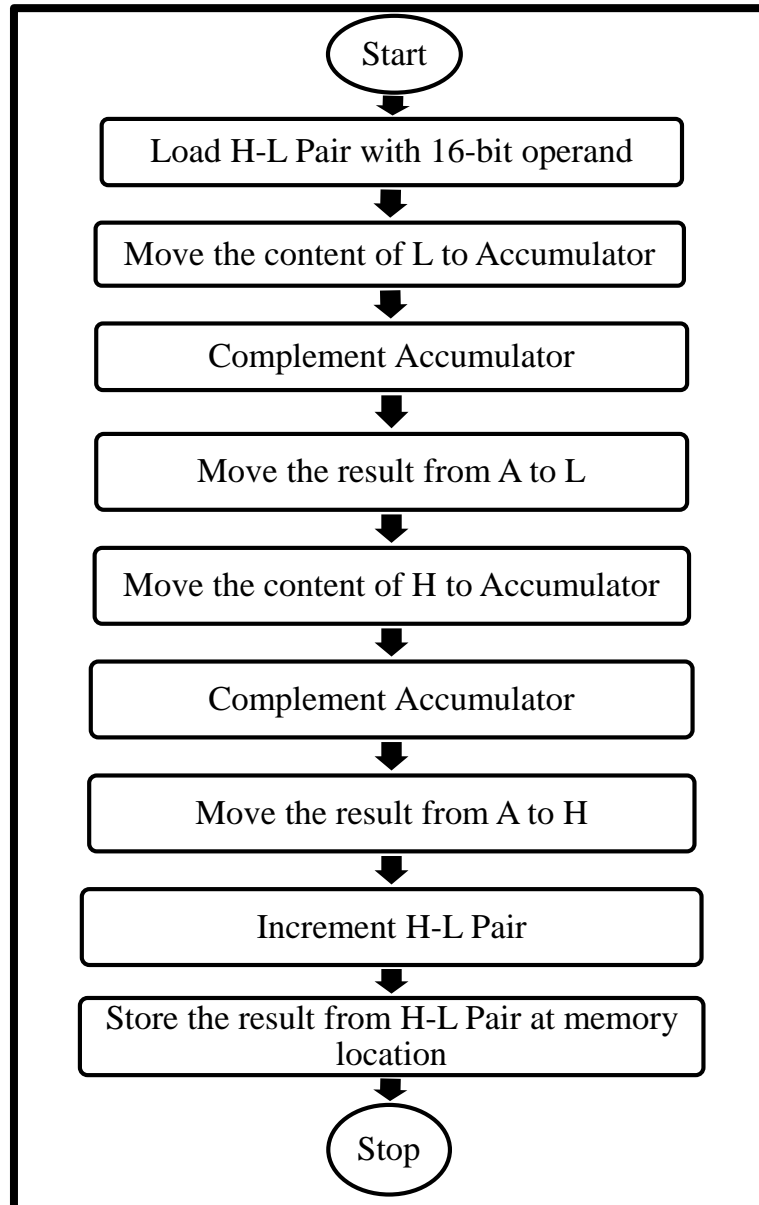
Memory Editor															
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0190:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
01A0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
01B0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
01C0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
01D0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
01E0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
01F0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0200:	DA	AF	00	00	00	00	00	00	00	00	00	00	00	00	00
0210:	DB	AF	00	00	00	00	00	00	00	00	00	00	00	00	00
0220:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0230:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0240:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0250:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0260:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0270:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0280:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Screenshots (Immediate Addressing Mode) :



0004	0004	0005 6F	MOV L , A
0005	0005	0006 7C	MOV A , H
0006	0006	0007 2F	CMA
0007	0007	0008 67	MOV H , A
0008	0008	0009 22 00 02	SHLD 0200H
0009	0009	000C 23	INX H
0010	0010	000D 22 10 02	SHLD 0210H
0011	0011	0010 76	HLT
0012	Number of errors = 0		
0013			

Flow Chart (Direct Addressing Mode) :



Result :

Program to find 1's and 2's Complement of a 16-bit Number was implemented successfully.