EXPERIMENT 6

Aim :

Write a Program to Perform Sorting of Numbers in Descending Order in 8086 Microprocessor.

Requirements :

8086 Emulator Software.

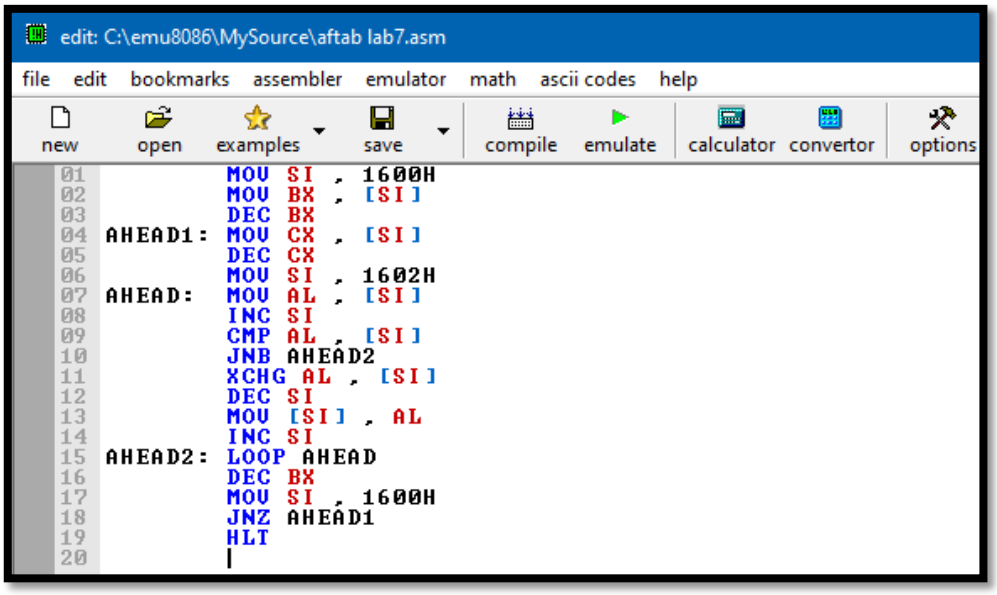
Procedure :

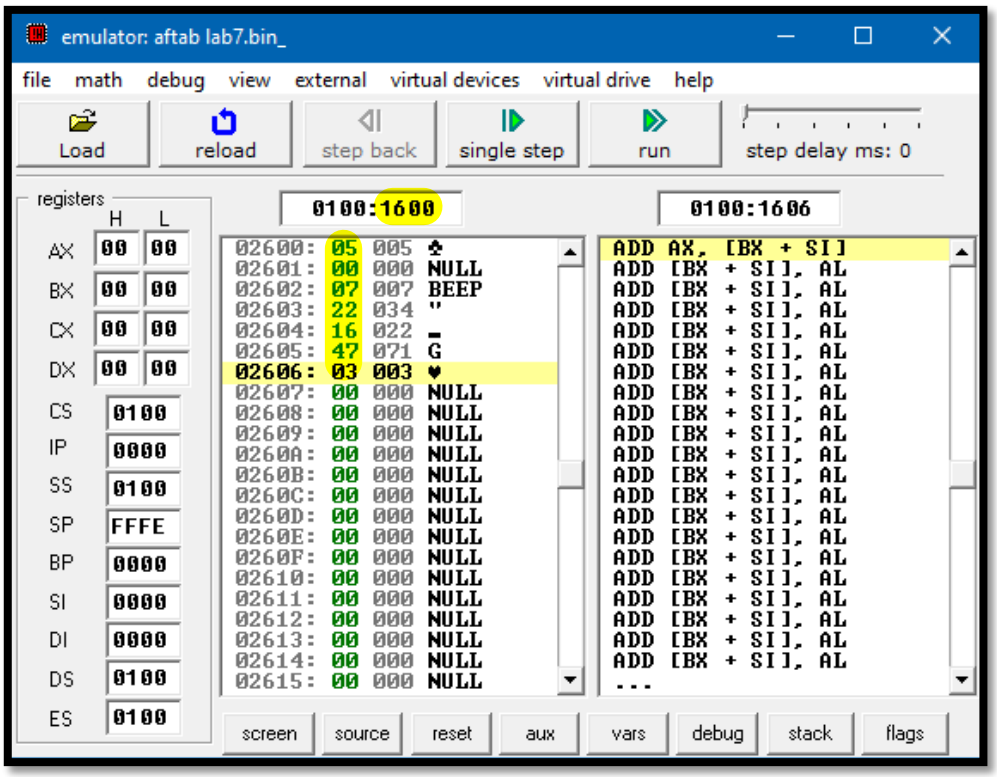
1. Open 8086 Emulator, click on new and select BIN template.
2. Write the code in assembler window.
3. After writing the code in window, click on the emulate button.
4. Check for errors and fix them.
5. If the code is correct, emulator window will popup where we have to input values at defined locations.
6. Input the values using extended value viewer and click on the run button.
7. Observe the result of sorting in descending order at defined location.

Program to Sort Numbers in Descending Order :

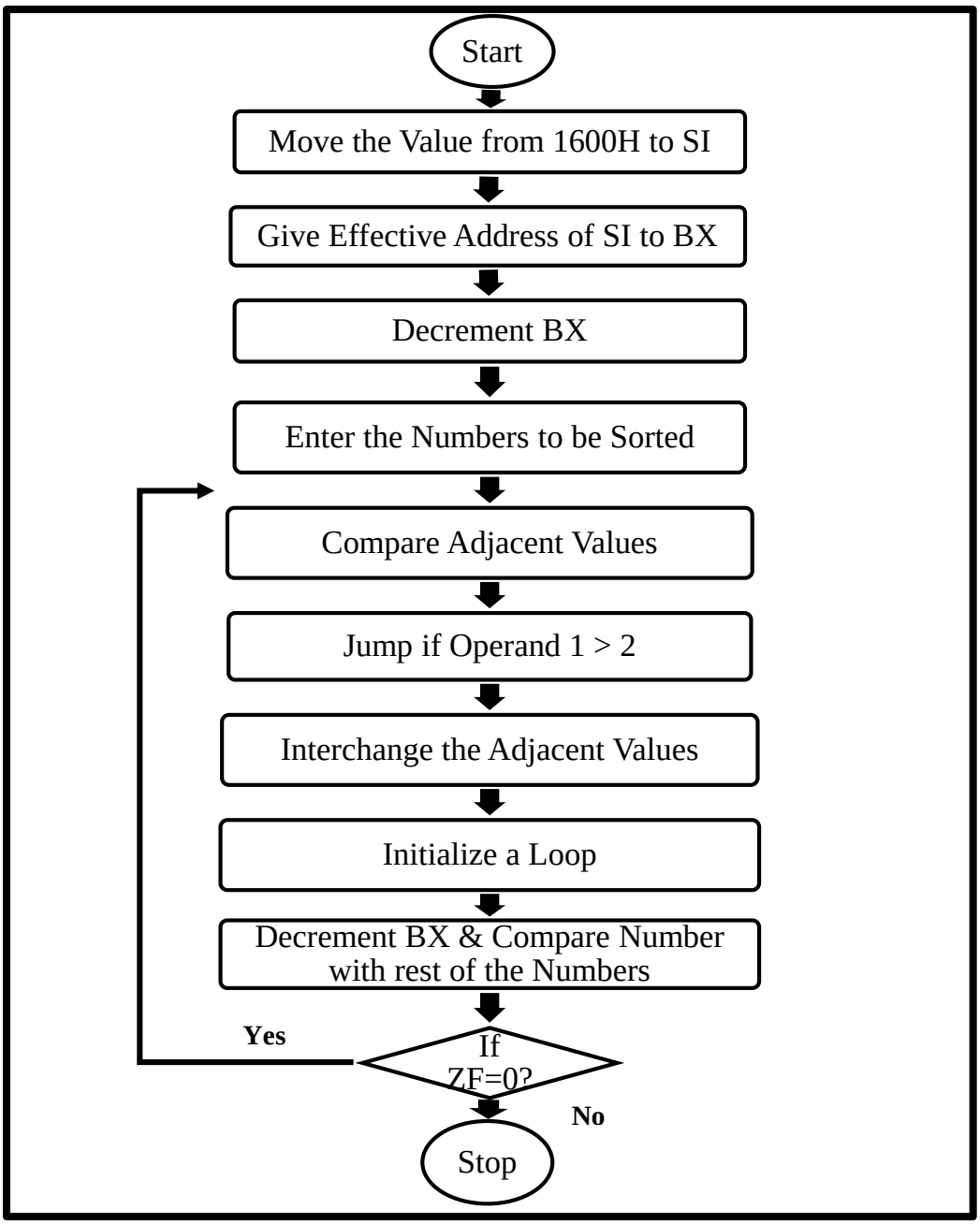
Address	Mnemonics	Operands	Comments
0000H	MOV SI	1600H	Move the value from 1600H to SI (Counter)
0003H	MOV BX , [SI]		Give effective address of SI to BX
0005H	DEC BX		Decrement BX by 1
0006H	AHEAD1 | MOV CX , [SI]		Give effective address of SI to CX
0008H	DEC CX		Decrement CX by 1
0009H	MOV SI	1602H	Move the value from 1602H to SI
000CH	AHEAD | MOV AL , [SI]		Give effective address of SI to AL
000EH	INC SI		Increment SI register by 1
000FH	CMP AL , [SI]		Compare the contents of Al and SI
0011H	JNB AHEAD2		Jump to AHEAD2 (0019H) if operand 1 > 2
0013H	XCHG AL , [SI]		Exchange the contents of AL and SI
0015H	DEC SI		Decrement SI register by 1
0016H	MOV [SI] , AL		Move AL content to effective address of SI
0018H	INC SI		Increment SI register by 1
0019H	AHEAD2 | LOOP AHEAD		LOOP if CX ≠ 0
001BH	DEC BX		Decrement BX by 1
001CH	MOV SI	1600H	Move the value from 1600H to SI
001FH	JNZ AHEAD1		Jump to AHEAD1 (0006H) if ZF = 0
0021H	HLT		End of program

Screenshots :





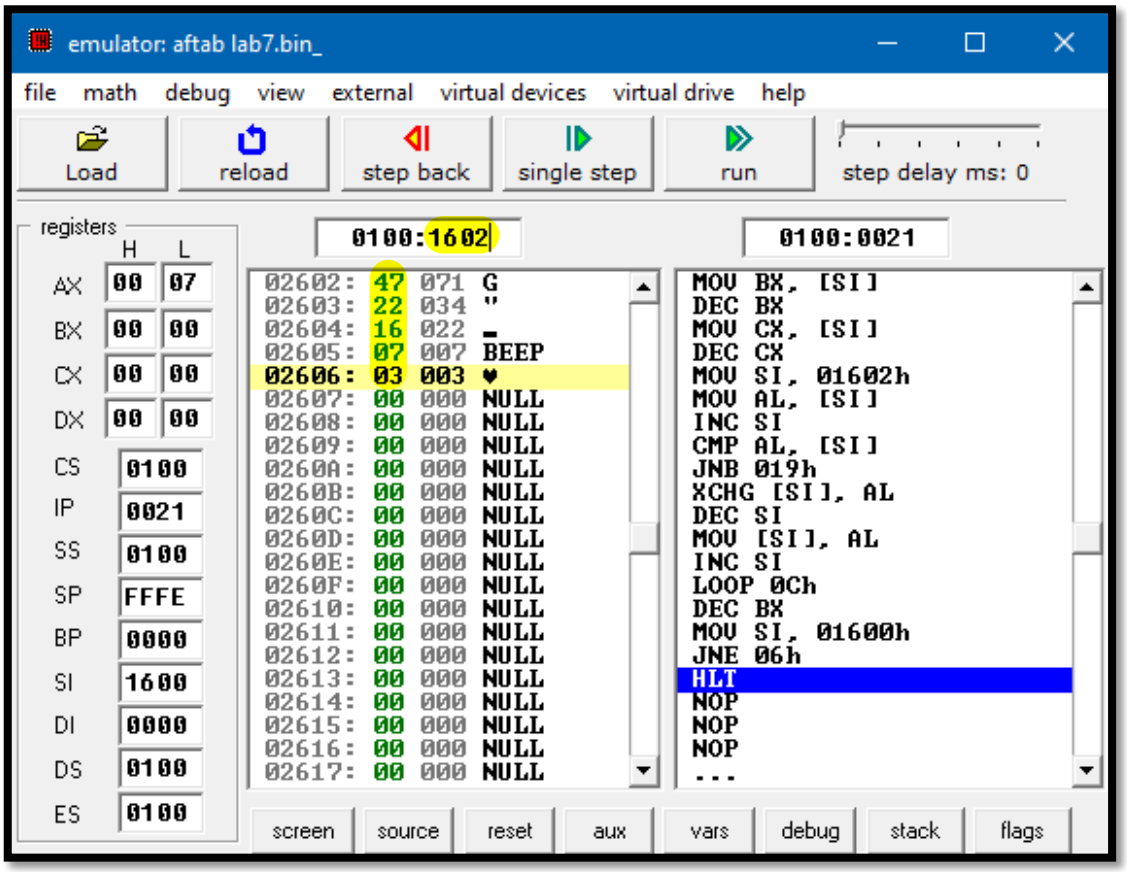
Flow Chart :


Start
Move the Value from 1600H to SI
Give Effective Address of SI to BX
Decrement BX
Enter the Numbers to be Sorted
Compare Adjacent Values
Jump if Operand 1 > 2
Interchange the Adjacent Values
Initialize a Loop
Decrement BX & Compare Number with rest of the Numbers
Yes
If ZF=0?
No
Stop

Output :

Input Values	
1600H (Counter)	05
1601H (no change)	00
1602H	07
1603H	22
1604H	16
1605H	47
1606H	03

Output Values (Result)	
1602H	47
1603H	22
1604H	16
1605H	07
1606H	03



Result :

Program to Sort Numbers in Descending Order in 8086 Microprocessor was implemented successfully.