

EXPERIMENT 5

Aim :

Write a Program to Perform Addition of 2 Strings 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 addition at defined location.

Program to Add 2 Strings :

<u>Address</u>	<u>Mnemonics</u>	<u>Operands</u>	<u>Comments</u>
0000H	CLC		Clear Carry Flag that is CF = 0
0001H	MOV CX	0004H	Move 0004H to CX (Counter)
0004H	MOV SI	1300H	Move the value from 1300H to SI
0007H	MOV DI	130AH	Move the value from 130AH to DI
000AH	AHEAD MOV AX , [SI]		Give effective address of SI to AX
000CH	ADC [DI] , AX		Perform Addition with Carry
000EH	INC SI		Increment SI register by 1
000FH	INC SI		Increment SI register by 1
0010H	INC DI		Increment DI register by 1
0011H	INC DI		Increment DI register by 1
0012H	DEC CX		Decrement CX by 1 (Counter)
0013H	JNZ AHEAD		Jump to AHEAD (000AH) if ZF = 0
0015H	HLT		End of program

Screenshots :

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edit: C:\emu8086\MySource\aftab lab6.asm
file  edit  bookmarks  assembler  emulator  math  ascii codes  help
new  open  examples  save  compile  emulate  calculator  converter  options

01
02      CLC
03      MOV CX, 0004H
04      MOV SI, 1300H
05      MOV DI, 130AH
06  AHEAD: MOV AX, [SI]
07      ADC [DI], AX
08      INC SI
09      INC SI
10      INC DI
11      DEC CX
12      JNZ AHEAD
13      HLT
14

```

emulator: aftab lab6.bin_

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers

	H	L
AX	00	00
BX	00	00
CX	00	00
DX	00	00
CS	0100	
IP	0000	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

0100:1300 0100:1307

02300:	17	023	↑	AND AL, 00h
02301:	18	024	↑	ADD [BX + SI], AL
02302:	19	025	↓	ADD [BX + SI], AL
02303:	20	032	SPA	ADD [BX + SI], AL
02304:	21	033	?	ADD [BX + SI], AL
02305:	22	034	"	ADD [BX + SI], AL
02306:	23	035	#	ADD [BX + SI], AL
02307:	24	036	\$	ADD [BX + SI], AL
02308:	00	000	NULL	ADD [BX + SI], AL
02309:	00	000	NULL	ADD [BX + SI], AL
0230A:	00	000	NULL	ADD [BX + SI], AL
0230B:	00	000	NULL	ADD [BX + SI], AL
0230C:	00	000	NULL	ADD [BX + SI], AL
0230D:	00	000	NULL	ADD [BX + SI], AL
0230E:	00	000	NULL	ADD [BX + SI], AL
0230F:	00	000	NULL	ADD [BX + SI], AL
02310:	00	000	NULL	ADD [BX + SI], AL
02311:	00	000	NULL	ADD [BX + SI], AL
02312:	00	000	NULL	ADD [BX + SI], AL
02313:	00	000	NULL	ADD [BX + SI], AL
02314:	00	000	NULL	ADD [BX + SI], AL
02315:	00	000	NULL	ADD [BX + SI], AL
...				...

screen source reset aux vars debug stack flags

emulator: aftab lab6.bin_

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers

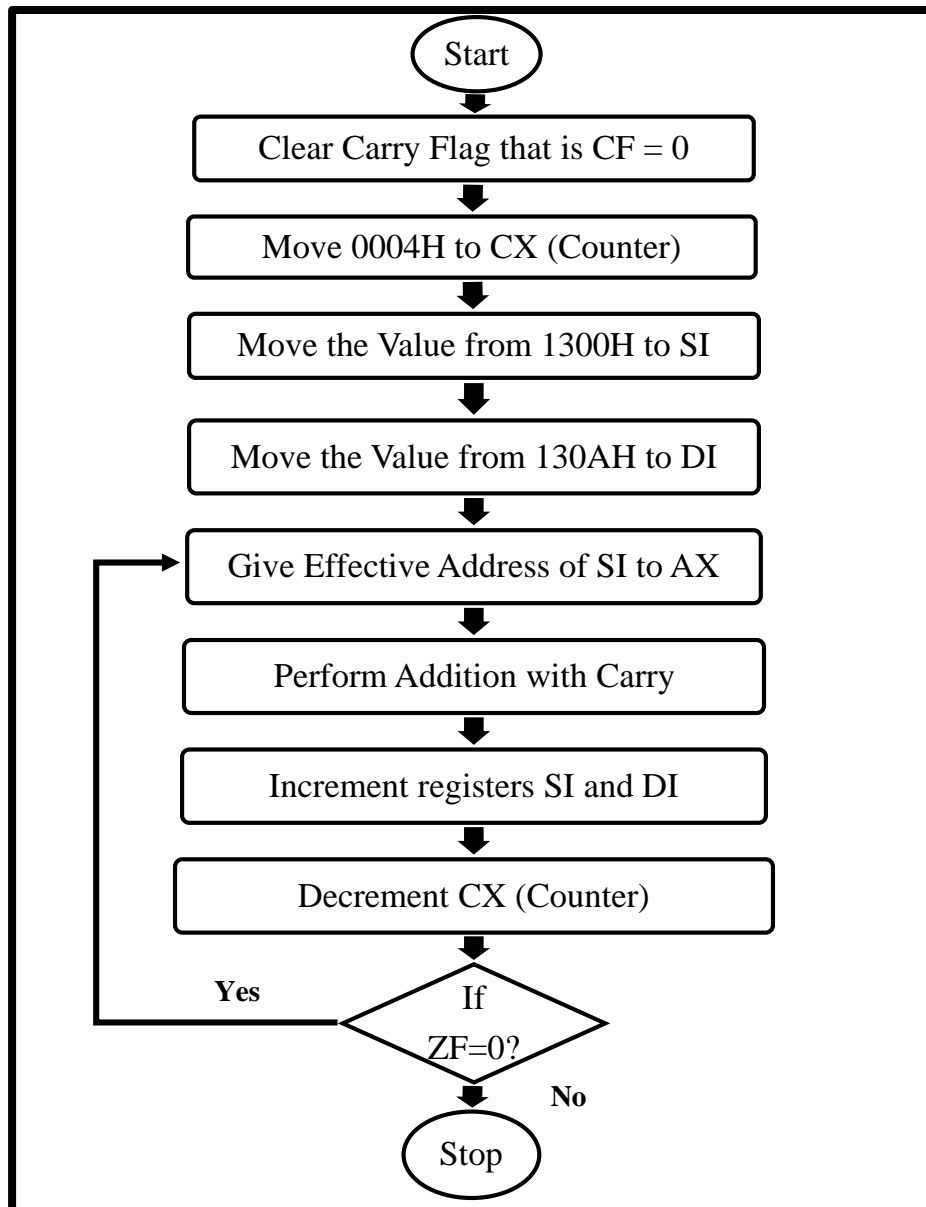
	H	L
AX	00	00
BX	00	00
CX	00	00
DX	00	00
CS	0100	
IP	0000	
SS	0100	
SP	FFFE	
BP	0000	
SI	0000	
DI	0000	
DS	0100	
ES	0100	

0100:130A 0100:1311

0230A:	33	051	3	INC AX
0230B:	34	052	4	ADD [BX + SI], AL
0230C:	35	053	5	ADD [BX + SI], AL
0230D:	36	054	6	ADD [BX + SI], AL
0230E:	37	055	7	ADD [BX + SI], AL
0230F:	38	056	8	ADD [BX + SI], AL
02310:	39	057	9	ADD [BX + SI], AL
02311:	40	064	e	ADD [BX + SI], AL
02312:	00	000	NULL	ADD [BX + SI], AL
02313:	00	000	NULL	ADD [BX + SI], AL
02314:	00	000	NULL	ADD [BX + SI], AL
02315:	00	000	NULL	ADD [BX + SI], AL
02316:	00	000	NULL	ADD [BX + SI], AL
02317:	00	000	NULL	ADD [BX + SI], AL
02318:	00	000	NULL	ADD [BX + SI], AL
02319:	00	000	NULL	ADD [BX + SI], AL
0231A:	00	000	NULL	ADD [BX + SI], AL
0231B:	00	000	NULL	ADD [BX + SI], AL
0231C:	00	000	NULL	ADD [BX + SI], AL
0231D:	00	000	NULL	ADD [BX + SI], AL
0231E:	00	000	NULL	ADD [BX + SI], AL
0231F:	00	000	NULL	ADD [BX + SI], AL
...				...

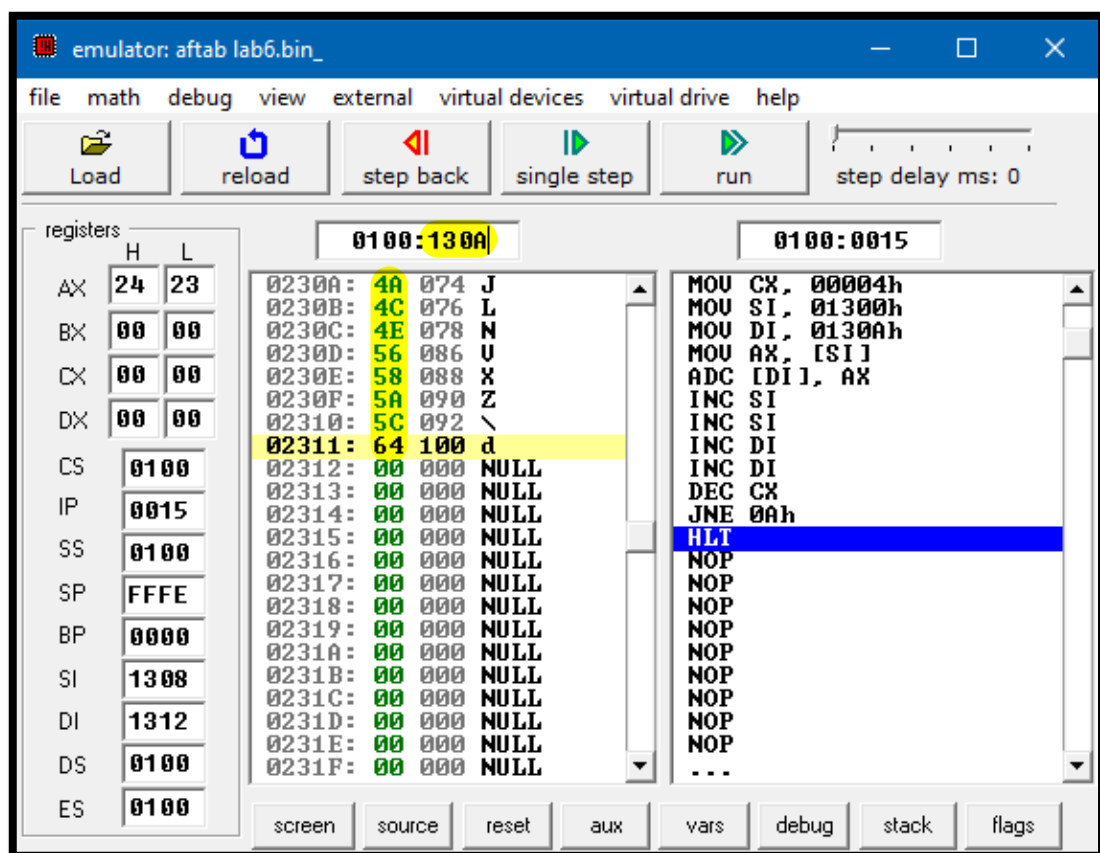
screen source reset aux vars debug stack flags

Flow Chart :



Output :

Before Execution	String 1 : SI (1300H)	17	18	19	20	21	22	23	24
Before Execution	String 2 : DI (130AH)	33	34	35	36	37	38	39	40
After Execution	Addition Result (130AH)	4A	4C	4E	56	58	5A	5C	64



Result :

Program to Add 2 Strings in 8086 Microprocessor was implemented successfully.