SAGARMATHA ENGINEERING COLLEGE

(TU Affiliated)

Sanepa, Lalitpur

LAB NO: 4

A LAB REPORT ON

SIMULATION OF 8085 PROGRAM USING VIRTUAL SIMULATOR KIT WITH TIMING WAVEFORM GENERATOR.

Submitted By

Name: …….

Faculty/Year: ……...……

Roll No.: …….

Date: …….

Submitted To

Department of Electronics and Computer Engineering

Signature: ……...

Date: ……...

MICROPROCESSOR LAB-04

TITLE

SIMULATION OF 8085 PROGRAM USING VIRTUAL SIMULATOR KIT WITH TIMING WAVEFORM GENERATOR

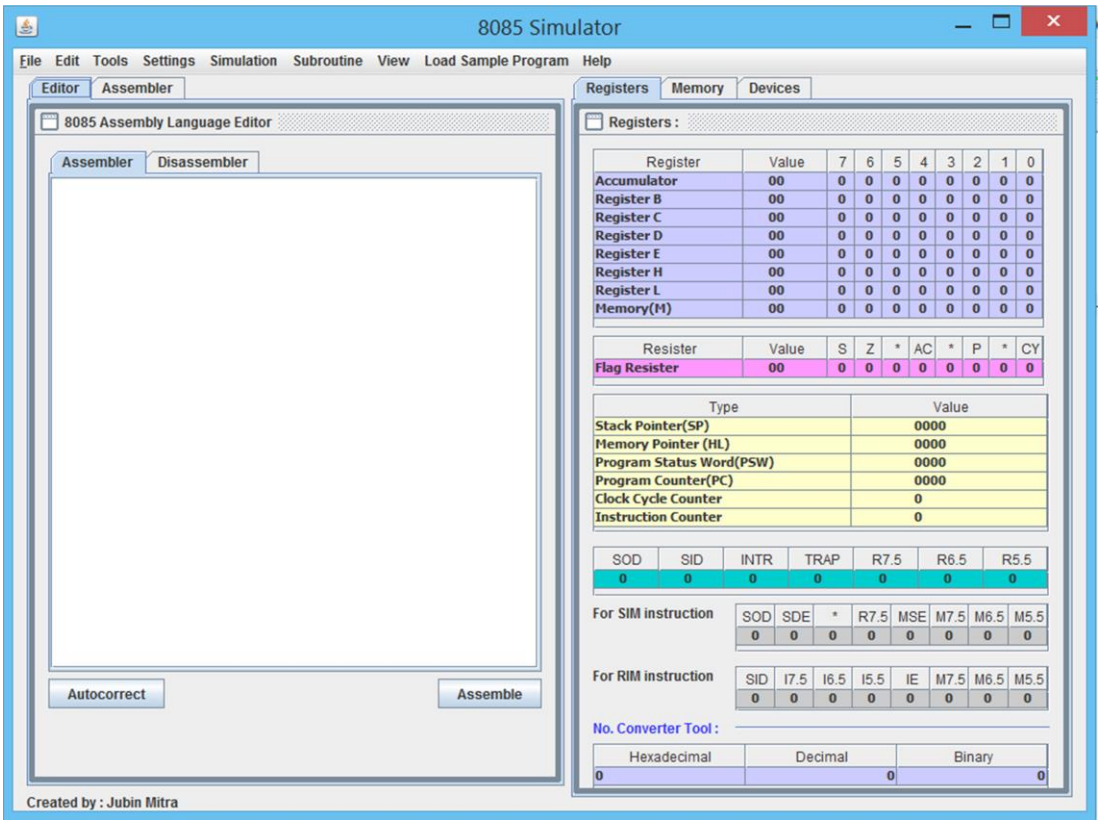
Objective

- ✓ To be able to simulate simple programs in 8085 virtual simulator kit.
- ✓ To be able to generate timing diagrams using the virtual simulator software.

Hardware/Software Required

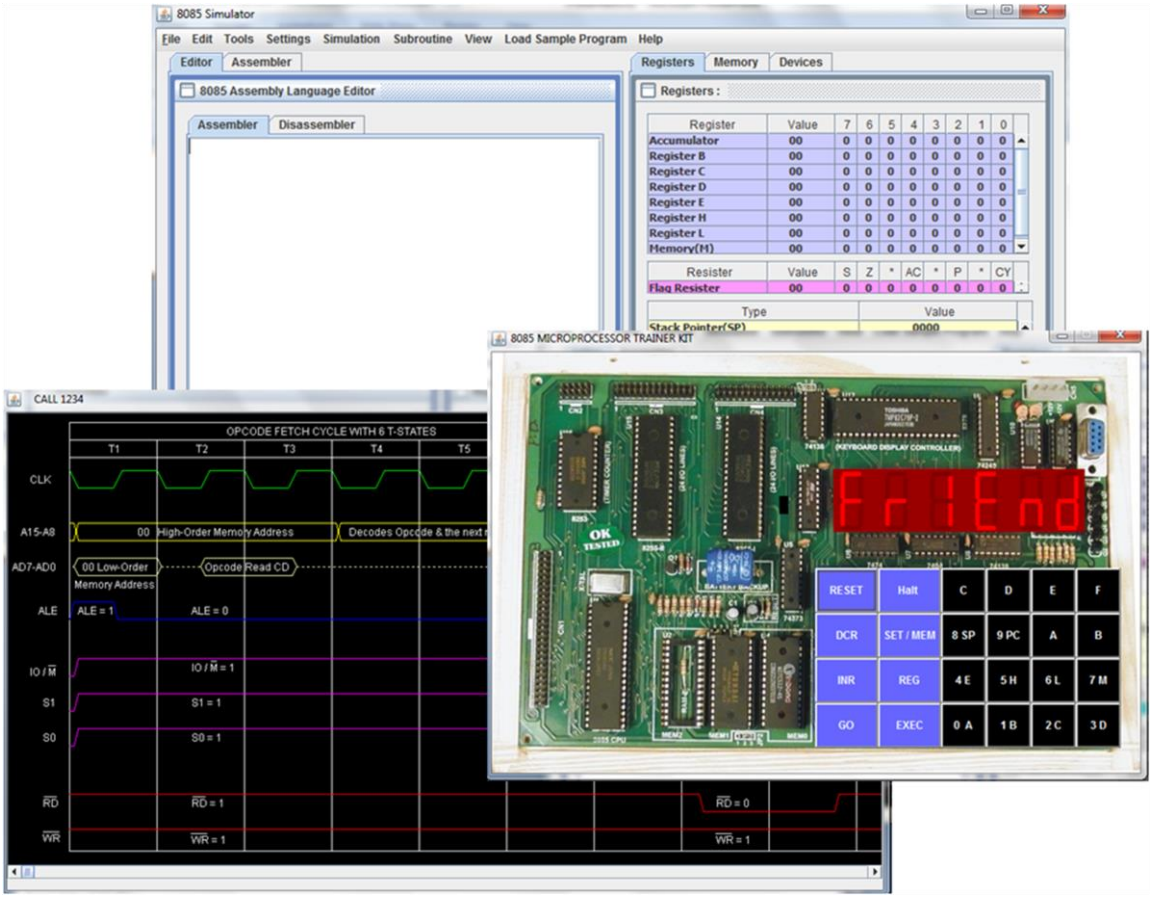
- Computer with internet
- 8085 virtual simulator

Software Interface



MICROPROCESSOR LAB-04

Hardware/Software Required



Simulation using Kit

;Assume [C050H]=96H **LDA** C050H	PC
CMA	
STA C051H	
HLT	

Address	Value	Remarks
C050H		*Manually loaded content*
C000H		*Op-code of **LDA** instruction*
C001H		
C002H		
C003H		
C004H		
C005H		
C006H		
C007H		
C051H		

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Procedure

Table 7.1: Showing the buttons to be pressed sequentially to load the program in the memory

To load the Program	
STEP 1:	[RESET]
STEP 2:	[SET/MEM]
STEP 3:	[C] [0] [0] [0]
STEP 4:	[INR]
STEP 5:	[3] [A]
STEP 6:	[INR]
STEP 7:	[5] [0]
STEP 8:	[INR]
STEP 9:	[C] [0]
STEP 10:	[INR]
STEP 11:	[2] [F]
STEP 12:	[INR]
STEP 13:	[3] [2]
STEP 14:	[INR]
STEP 15:	[5] [1]
STEP 16:	[INR]
STEP 17:	[C] [0]
STEP 18:	[INR]
STEP 19:	[7] [6]
To load a value in C050	
STEP 20:	[SET/MEM]
STEP 21:	[C] [0] [5] [0]
STEP 22:	[INR]
STEP 23:	[9] [6]

Table 7.2: Showing the buttons to be pressed for proper execution of the code

To begin execution	
STEP 1:	[RESET]
STEP 2:	[GO]
STEP 3:	[C] [0] [0] [0]
STEP 4:	[EXEC]

Dynamic Timing Diagram Generation

You need to click on the column named "T-states" of the currently highlighted row to generate timing diagram of that operation code (instruction).

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Problems

Q1. Assemble the following program and observe the output.

```
        LXI SP,08FFH
        CALL L1
        MOV B, A
        HLT
L1:     INR A
        RET
```

Address	Value	Remarks
08FEH		
08FDH		
A		
B		

Also, generate the timing diagram of instruction `LXI SP,08FFH` and attach the freehand drawing of the timing diagram along with the sheet.

Q2. There are 12 bytes of data starting from 9000H. Transfer by complementing those data to location starting from 9010H.

Q3. WAP to add upper and lower nibble of a data stored at 9000H, and store the final result at 9010H.

Q4. WAP to transfer 8-bit data from one table to another by setting bit D_5 and resetting D_6.

Q5. Write a program to transfer 8-bit data from one table to another if there is even number of one else store zero.

Q6. Sixteen-bit data are stored in two tables starting at 9000H and 9020H having ten data each. WAP to store the sum in the corresponding index of the third table starting at 9040H. Assume the sum will not exceed 16 bits.

Result

Hence, all the given programs are executed and the results are verified.