

Assignment-1

This is an individual assignment, and not a group assignment. Complete this assignment and bring it with you on the next lab. For completion of this assignment, find a suitable free time and use the toolkits available in the microprocessor lab. You will have to attend to a viva on the next lab, where you will need to demonstrate the loading and execution of a given program on the MDA-8086 toolkit in-front of a teacher.

Statement: On week-1 you were introduced to 8086 and MDA-8086. You were also taught how to load a program on 8086 RAM and execute it instruction by instruction.

For this assignment, you are given some short assembly programs. For each of these programs, you need to write the steps required to load the program onto RAM, and to execute it. Since the 'STP' key starts executing instructions from the address [CS=0000, IP=1000], you should load the programs starting from address [0000:1000].

In the table below, you are given some sample conversions from assembly code to machine code. Use this table whenever you need to identify the 'Opcode' of any instruction.

MOV AL, 12	B0 12
ADD AX, BX	03 C3
ADD AX, CX	03 C1
ADD AX, DX	03 C2
SUB AL, 12	2C 12
NEG AL	F6 D8
INC BX	43
SBB AL, 01	1C 01
MOV AX, 1234	BB 34 12
DEC AX	48
MUL BL	F6 E3
HLT	F4
MOV BX, 1234	BB 34 12
MOV BL, 12	B3 12

Fig: Sample assembly to machine code conversions

Following are the programs for which you need to write down the steps required to load them on 8086 RAM and .

1. MOV AL, 6H
MOV AL, 5H
HLT
2. ADD AX, BX
ADD AX, CX
ADD AX, DX
HLT

3. MOV AL, 8H
SUB AL, 4H
HLT
4. MOV AL, 8H
NEG AL
SUB AL, 4H
HLT
5. MOV BX, 2B4H
INC BX
INC BX
HLT
6. MOV AL, 8H
SBB AL, 1H
HLT
7. MOV AX, 3H
DEC AX
DEC AX
DEC AX
HLT
8. MOV AL, 4H
MOV BL, 1AH
MUL BL
HLT

For any query, contact me at jsnmahmud@gmail.com.