Lab 7

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Objective-

The objective of this lab was to learn how to write a program to accept Vin from the slide bar of the analog to digital panel, and display Vout on the digital to analog panel.

Equipment used-

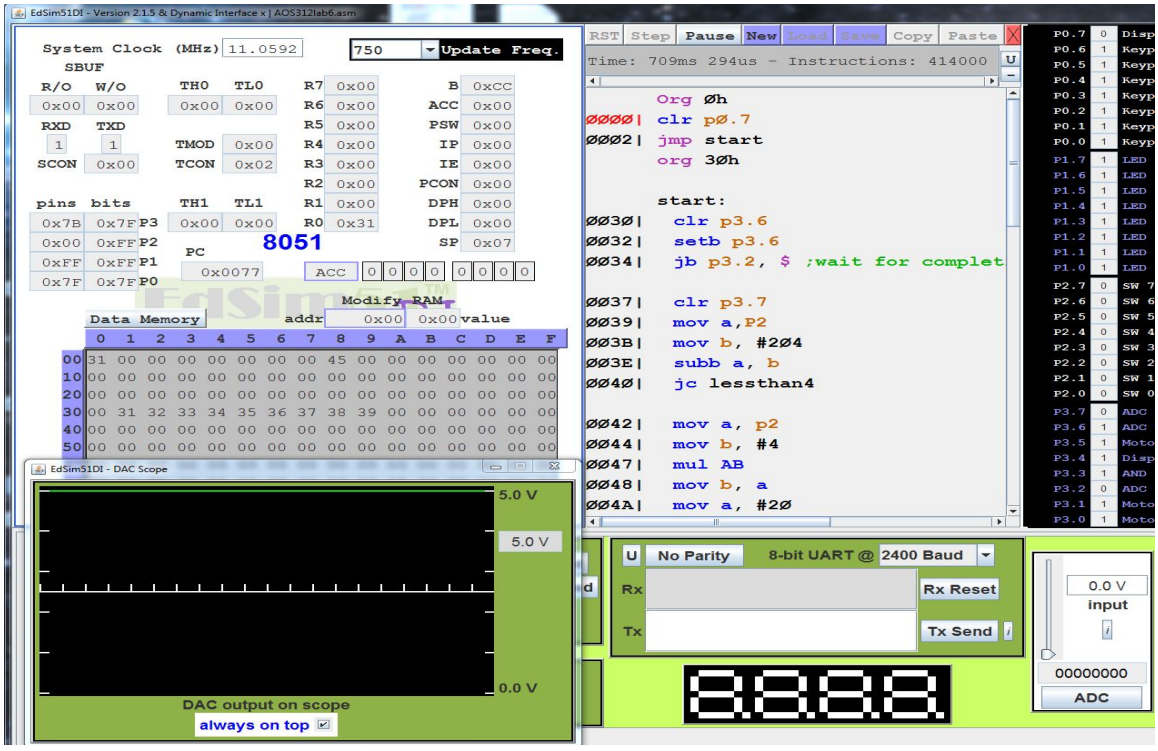
Software: a text editor and an 8051 ASM assembler

A step debugger that can be used to execute a program one step at a time

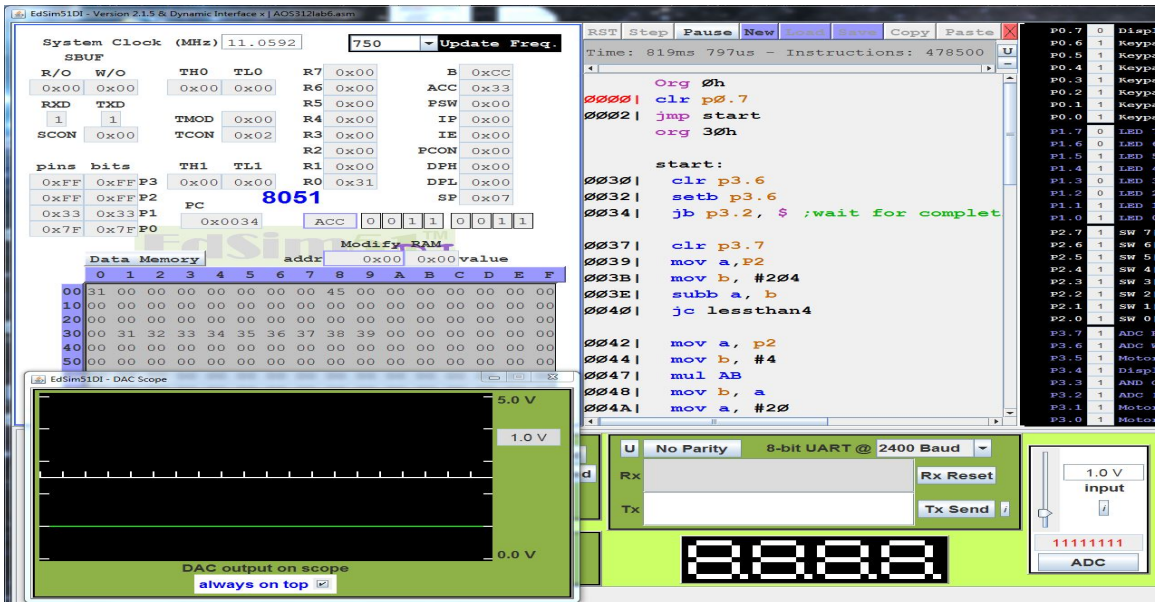
Register, code memory, data memory, and input/output port contents are displayed to aid debugging.

Test Results-

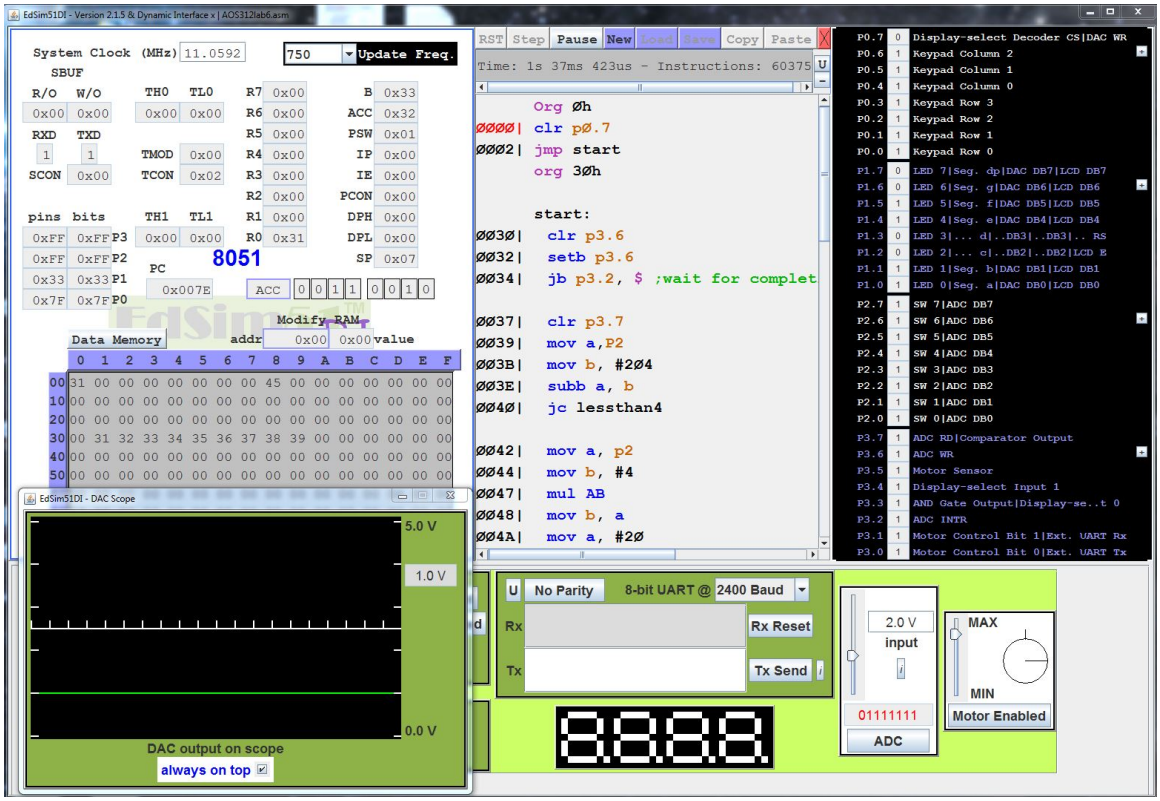
Vin = 0v, Vout =5v



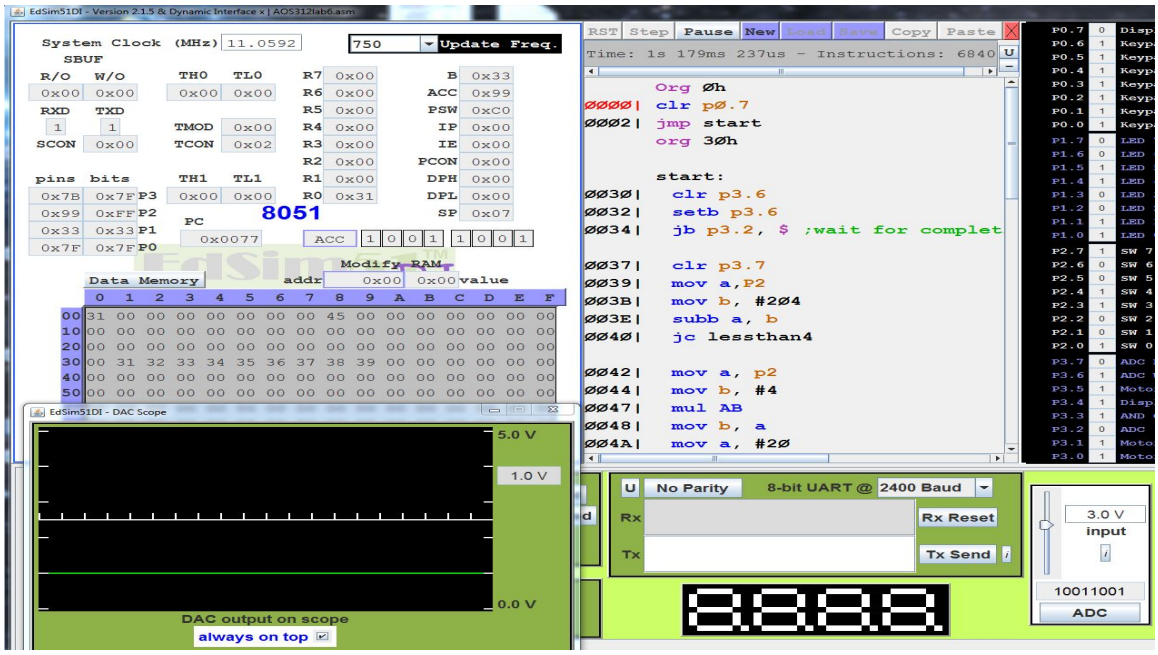
Vin = 1v, Vout = 1v



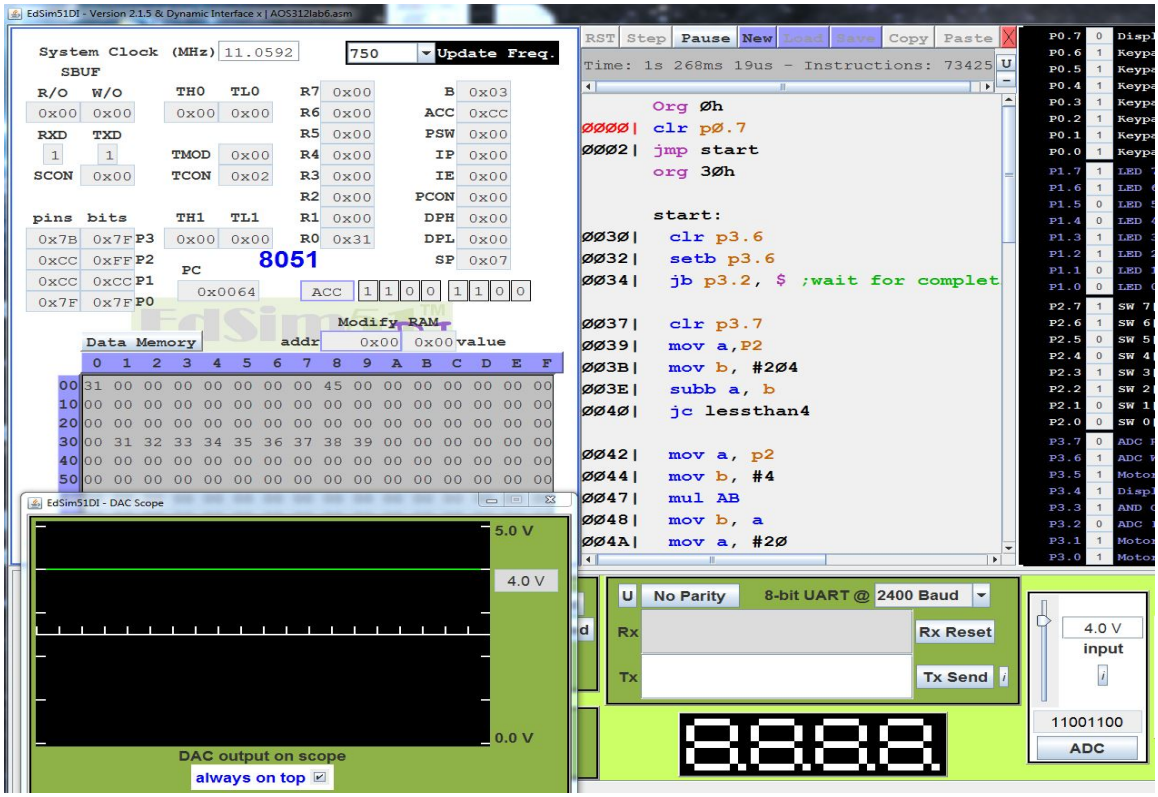
Vin = 2v, Vout = 1v



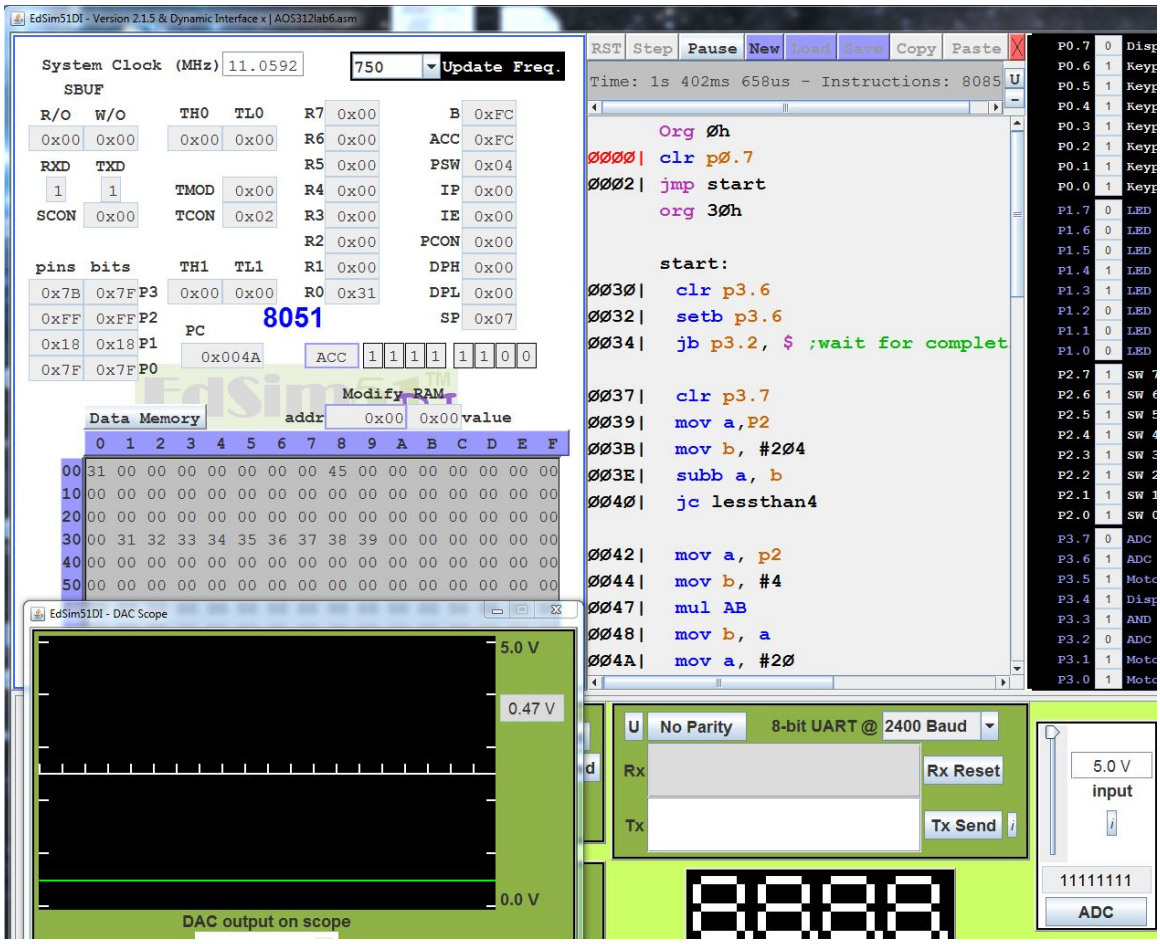
Vin = 3v, Vout = 1v



Vin = 4v, Vout = 4v



Vin = 5v, Vout = 0v



Flow Chart-

Conclusion-

This lab was effective in teaching me how to use the DAC and ADC parts of the 8051.

Program

```
Org 0h
clr p0.7
jmp start
org 30h
start:
        clr p3.6
        setb p3.6
        jb p3.2, $ ;wait for completion of current
conversion
        clr p3.7
        mov a,P2
        mov b, #204
        subb a, b
        jc lessthan4
        mov a, p2
        mov b, #4
        mul AB
        mov b, a
        mov a, #20
        subb a, b
        mov p1,a
setb p3.7
        jmp start
lessthan4:
        clr p3.7
        mov a,P2
        mov b, #153
        subb a, b
        jc lessthan3
mov a, p2
        mov b, #3
        mul AB
        mov b, #408
        subb a, b
        mov p1,a
        setb p3.7
jmp start
lessthan3:
        clr p3.7
        mov a,P2
        mov b, #51
        subb a, b
        jc lessthan1
        mov p1, #51
        setb p3.7
        jmp start
lessthan1:
        clr p3.7
        mov a,P2
        mov b, #4
        mul AB
        mov b, a
        mov a, #255
        subb a, b
        mov p1,a
        setb p3.7
        jmp start
end
```