## CPE301 - SPRING 2016

## Design Assignment 0

## **DO NOT REMOVE THIS PAGE DURING SUBMISSION:**

The student understands that all required components should be submitted in complete for grading of this assignment.

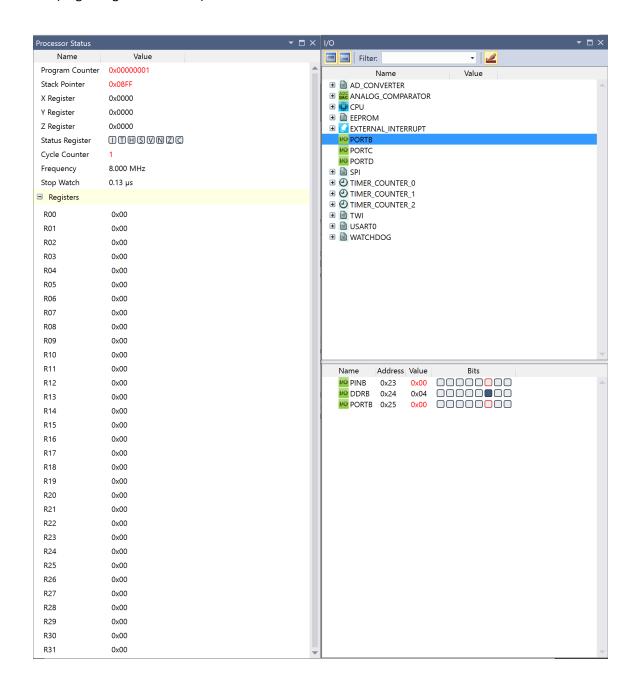
NO	SUBMISSION ITEM	COMPLETED (Y/N)	MARKS (/MAX)
0.	INITIAL CODE OF TASK A		
1	CALCULATION OF TASK B		
2.	SCREENSHOTS OF EACH TASK OUTPUT		

```
0
         INITIAL CODE OF TASK A
; sikorsk4_DA0_CpE301_S16.asm
; Created: 2/15/2016 5:21:48 PM
; Author : jmsikorski
; Replace with your application code
        .EQU a = 35
                         ; Using variables for code efficiency
        .EQUb = 37
        .EQU c = 42
        .EQU d = 48
        .EQU e = 59
        SBI
                         DDRB, 2
                                          ;Set Pin 2 of B register to output
                         R17, 0x04
                                           ;Set register 3 to 4
        LDI
        SUBI
                R16, -a
                                  ;Using SUBI for speed to not have to load
        BRVS
                OVER;
                                  ;If there is overflow, jump to OVER
        SUBI
                R16, -b
                                  Using SUBI for speed to not have to load
        BRVS
                OVER;
                                  ;If there is overflow, jump to OVER
        SUBI
                R16, -c
                                  ;Using SUBI for speed to not have to load
        BRVS
                                  ;If there is overflow, jump to OVER
                OVER;
        SUBI
                                  Using SUBI for speed to not have to load
                R16, -d
        BRVS
                                  ;If there is overflow, jump to OVER
                OVER;
        SUBI
                R16, -e
                                  Using SUBI for speed to not have to load
                                  ;If there is overflow, jump to OVER
        BRVS
                OVER
        RJMP
                DONE
                                  ;Jump to end
OVER:
        OUT
                         PORTB, R17
                                          ;Output pin2 high on PORTB
DONE:
        RJMP
                DONE
                                  ;Loop here forever
1
         CALCULATION OF TASK B
```

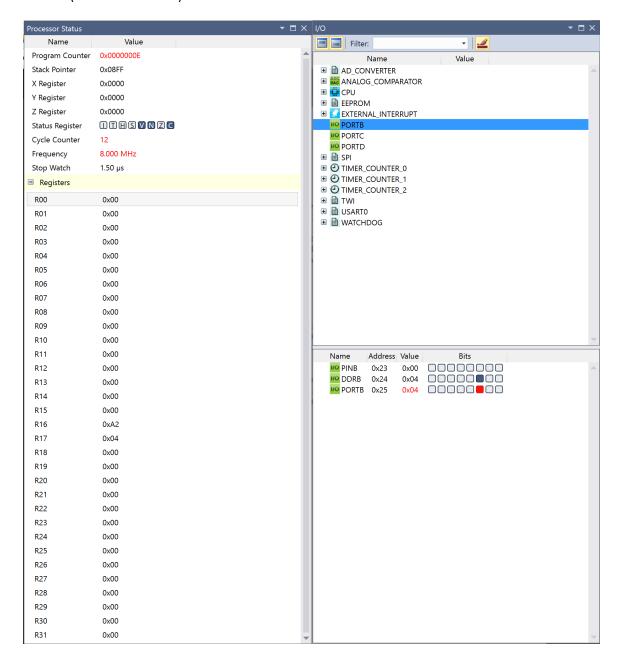
Execution time is calculated at  $1.50\mu$ S for the simulated with a maximum runtime of  $1.75\mu$ S. Calculated

number of cycles for the simulated code is 12 with a maximum of 14.

TASK 1: (Beginning of simulation)



TASK 1: (End of simulation)



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"This assignment submission is my own, original work".

JASON M. SIKORSKI