ECE 375 PRELAB 6

Lab Time: Tuesday 4-6

Alexander Uong

QUESTIONS

1. List the correct sequence of AVR assembly instructions needed to store the contents of registers R25:R24 into Timer/Counter1's 16-bit register, TCNT1. (You may assume that registers R25:R24 have already been initialized to contain some 16-bit value.)

   out TCNT1L, r24

   out TCNT1H, r25

2. List the correct sequence of AVR assembly instructions needed to load the contents of Timer/Counter1's 16-bit register, TCNT1, into registers R25:R24.

   in r24, TCNT1L

   in r25, TCNT1H

3. Suppose Timer/Counter0 (an 8-bit timer) has been configured to operate in Normal mode, and with no prescaling (i.e., clkT0 = clkI/O = 16 MHz). The decimal value "128" has just been written into Timer/Counter0's 8-bit register, TCNT0. How long will it take for the TOV0 flag to become set? Give your answer as an amount of time, not as a number of cycles.

$$Delay_{Normal} = \frac{(MAX + 1 - value) \cdot prescale}{clk_{I/O}}$$

= (256-128)*62.5 ns

= 8000 ns (nanoseconds)

REFERENCE

http://ww1.microchip.com/downloads/en/devicedoc/atmel-0856-avr-instruction-set-manual.pdf

http://ww1.microchip.com/downloads/en/devicedoc/doc2467.pdf