ECE 375 PRELAB 7

Lab Time: Wednesday 10-12

Tu Lam

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.)*

   Answer: 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.*

   Answer: In R24, TCNT1L

   In R25, TCNT1L

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.*

   Answer: Delay = ((MAX + 1 – value) * prescale) / clk. So, if we plug it in this delay equation into the normal mode we get: ((255 + 1 – 128)) / 16 = 8. So, it will take **8** times to reach the TOV0.

REFERENCE

Computer Organization and Assembly Language Programming: Embedded Systems Perspective by Ben Lee