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EE 308 – LAB 4

9S12 Subsystems: Pulse Width Modulation, A/D Converter, and
Synchronous Serial Interface

WEEK 1

Pulse Width Modulation

Pre-Lab

1. Calculate the times asked for in Part 3.

2. Determine values you need to write to the PWM registers (except for the Duty Cycle register) to control the motor.

3. Calculate the values needed for the Duty Cycle Register to give the duty cycles needed for Part 4.

4. Write a C program to set up the PWM Channel 4 for a 5 kHz frequency.

5. To the C program from Part 4, add code to set up Channel 0 of Port T an input capture, with an interrupt generated on the rising edge. In the interrupt service routine, set a global variable to number of cycles between the last two rising edges. (This is basically the code from Week 3 of Lab 3.)

6. Add to the program the code from Lab 3 to display a 16-bit number of the seven-segment LEDs. In the main program, have an infinite loop which displays the difference between the two most recent.