EE 308 – LAB 4

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

WEEK 2

Analog to Digital Converter

Pre-Lab

1. Calculate the expected 10-bit result when the voltage input to PAD7 is:

a) 0.0 V
b) 1.0 V
c) 2.0 V
d) 3.0 V
e) 4.0 V
f) 5.0 V

2. Write some C code to set up the A/D converter to channel PAD7, with a sequence of eight conversions, and scan continuously.

3. Write some C code to enable a Timer Overflow Interrupt with an overflow rate of about 174 ms. Write an interrupt service routine which will read the A/D value for PAD7, and save it in a global variable.

4. Put the above code into a program to read the output of the A/D converter and display the result on the seven-segment LEDs, using an RTI interrupt service routine similar to the one you used in the last two labs.