

Union College

ECE352

Assignment 4

Due Date: Thursday May 15th

1. The ADC is to be configured to measure an input voltage which ranges from 0-0.3 volts. Give the registers which must be configured and the values which you will load into them to give an accurate measurement of voltages in this range.
2. The 8051 is configured to use the temperature sensor and the internal voltage reference of 2.4V. There is a gain of 4 used in the programmable gain. If the value in the registers ADC0H:ADC0L is 0xAF00 and the data is left aligned, what is the corresponding temperature?
3. If the measured room temperature is 10 degrees Celsius, the internal voltage reference of 2.4V is used, and the value in ADC0CF is 0x01, what is the voltage at the input of the ADC subsystem (i.e., before the MUX module) that would correspond to this temperature?
4. Write a C program in which you define an array of 32 chars. Write a program which finds the largest and the second largest elements in this array. Start with an algorithm and memory boxes.
5. Write a program in C that configures the ADC to measure an input voltage that ranges from 0 – 3 V. Write a function that collects 10 values and then write a function that will return the average of these 10 values.
6. Write a $\frac{3}{4}$ page or more summary of your project and progress to date.

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