UNC Charlotte, Department of Electrical and Computer Engineering
ECGR 4101/5101, Fall 2009, Homework #5
Due: 10/14/2009, at the beginning of class (20 points)

Assignment should be typed, a hard copy turned in to instructor

You will need to refer to the M16 Software Manual, the M16 Hardware Manual and M16 C Language Programming Manual to complete this assignment. They are available online through the Documentation contained in the SKP16C26 directories link on the course home page.

0. (1 point) How long did this homework take you?

1. (2 points)What is the output code (in decimal) of a 5-bit ADC with
    V_{in}=3.8V, V_{+ref}=10 V, V_{-ref}=0 V ?

2. (2 points)What is the output code (in decimal) of an 8-bit ADC with
    V_{in}=2.7V, V_{+ref}=5 V, V_{-ref}= -5 V ?

3. (2 points)What is the output code (in decimal) of an 10-bit ADC with
    V_{in}=2.7V, V_{+ref}=5 V, V_{-ref}= -5 V ?

4. (2 points)What is the maximum quantization error for an 8 bit ADC with
    V_{+ref}=3.3 V, V_{-ref}=0 V ?

5. (6 points) Write the code to set up an A/D conversion for the first four channels of P2, 10-bit sample-and-hold, one shot and store the data in four variables (*unsigned int sample0, sample1, sample2, sample3)*. Include all set-up commands needed. If you use any .h files, tell me which ones you use.

6. (5 points) Write the code to take these 10-bit samples and output it on the second DAC, separated by about 500 milliseconds. Include all set-up commands needed.