

EE2361 Fall 2014, HW2

Due 10/10/2014 before midnight.

NOTE: Please submit your homework electronically in a file (either pdf, word, open office) through moodle. I expect all code to have been run and tested in the MPLABX IDE environment before submission. INCLUDE SCREEN SHOTS of mplabx showing your code works (multiple screen shots for multiple test cases)

- 1- Write a program (in Assembly) to convert a string to uppercase. For example if the string is at address 0x800 and contains the characters in "ApPle%4", it should be changed to "APPLE%4" (i.e., overwrite the contents of address 0x800).

Paste your code here, including variable definitions:

How did you test your program? Be specific, and list all cases you tested for and what variable values you used for each case. Include a screen shot of mplabx showing that your program works (one test case is enough).

- 2- Write a program (in C) to flip RB2 every 1/9 ms using Timer 1. Use polling. How accurate is your solution?

Show your timer calculations:

Paste your code here, including variable definitions:

How did you test your program? Include a screen shot of mplabx showing that your program works (one test case is enough).

What is the mean and standard deviation of your delay over ten runs?

- 3- The same as above, but use interrupts. How accurate is your solution?

Show your timer calculations:

Paste your code here, including variable definitions:

How did you test your program? Include a screen shot of mplabx showing that your program works (one test case is enough).

What is the mean and standard deviation of your delay over ten runs?

- 4- With a prescalar value of 1:64, what are the minimum and maximum delays that you can make with Timer 2 as a 16-bit timer? How about Timer 2 paired with Timer 3 as a 32-bit timer?
- 5- Write a program to flip RB2 50ms after the user presses a key connected to RA0 (internal pull-up resistor enabled).

Show your timer calculations:
Paste your code here, including variable definitions:
How did you test your program? Include screen shots of mplabx showing that your program works.