

UNCC, Department of Electrical and Computer Engineering

ECGR3/5/6090, Fall 2003, Homework #3, Due: 9/17/03, at the beginning of class (20 points)

1. Examine the following C code. Show a memory map, one byte wide, which contains the correct data in the correct order. Assume that the first memory address is x00400.

```
int goodstuff = 10000;

long int funnystuff = 100000;

unsigned int badstuff = 35000;

float interestingstuff = 1.0;

char messagestuff[14] = "this is good\n";
```

2. We use the M30262 processor for the class. How many of the following does it have?
 - a. Timers
 - b. RAM space
 - c. Flash Space (not including virtual EEPROM)
 - d. I/O lines (total)
3.
 - a. What is the address range (in hex) of RAM usable for the stack and variables?
 - b. What is the address range (in hex) of Flash usable for code and constants?
4. On page 14 of Notes 3 we show a short snippet of C code.
 - a. Rewrite it to be more efficient.
 - b. Convert the new C code into M30 assembly language code.
5. Consider page 28 in Notes 3.
 - a. Write a small C subroutine to convert a character passed into the subroutine from upper to lower case. Ensure it is an upper case character. If it is not upper case, pass the same character back out.
 - b. Convert the C code subroutine into M30 assembly language code.