EECE.3170: Microprocessor Systems Design I

Spring 2016

Homework 3

Due **1:00 PM, Tuesday, 2/16/16—NO LATE SUBMISSIONS**

Notes:

- No late submissions will be accepted for this assignment, as the solution will be posted on Friday to allow you time to study it before Exam 1.
- While typed solutions are preferred, handwritten solutions are acceptable.
- Any electronic submission must be in a single file. Archive files will not be accepted.
- Electronic submissions should be e-mailed to Dr. Geiger at Michael_Geiger@uml.edu. Please include your name as part of your filename (for example, mgeiger_hw3.pdf).
- This assignment is worth 100 points.

Assume the initial state of an x86 processor's registers, memory, and carry flag are:

EAX: 00003170h
EBX: 9876DCBAh
ECX: 00001995h
EDX: AC921E14h
ESI: 00008440h
CF: 0

Address	Lo			Hi
8440h	FF	03	99	87
8444h	08	09	F6	BB
8448h	78	15	00	00

What is the result of each of the instructions listed below? Assume that the instructions execute in sequence—in other words, the result of each instruction may depend on the results of earlier instructions. Correctly evaluating each instruction will earn you **10 points**.

Note that you may assume any constant values shown using less than 32 bits are zero-extended to 32 bits if necessary (for example, 000Fh = 0000000Fh).

```
ADD     AX, BX
ADC     EAX, ECX
INC     WORD PTR [ESI]
MUL     BYTE PTR [ESI+4]
SUB     AX, [ESI+8]
DEC     AH
IMUL    AH
IDIV    DL
DIV     DH
NEG     AH
```