Embedded Systems (AME 3623)
Homework 2

February 4, 2012

This homework assignment is due on Friday, February 10th. Your work may be handed in electronically (use the **Homework 2** digital dropbox on D2L) or in hardcopy form.

This assignment must be done individually: do not share/discuss your answers with others or look at the answers of others.

Question 1

1. (10pts) Assume an 8-bit signed number with a bit value of $0x58$. What is the decimal equivalent of this number?

2. (10pts) Assume an 8-bit signed number with a bit value of $0xE3$. What is the decimal equivalent of this number?

3. (10pts) Assume an 8-bit signed number with a bit value of 0222. What is the decimal equivalent of this number?

4. (10pts) Assume 8-bit signed numbers $a = 0x32$ and $b = 0x41$. Compute $a - b$ by first computing the negative of b (in binary) and then adding the two. Show your work.

Question 2

1. (10pts) Given the following code, what are the final values of variables b and c. Give your answers in hexadecimal.

```
uint8_t a = 0x9C;
uint8_t b = a | 0x07;
uint8_t c = a || 0x2F;
```

2. (10pts) Given the following code, what are the final values of variables b and c. Give your answers in hexadecimal.

```
uint8_t a = 0x3D;
uint8_t b = a | 0x62;
uint8_t c = a + 0x62;
```

3. (10pts) Given the following code, what are the final values of variables b and c. Give your answers in hexadecimal.

```
uint8_t a = 0x5A;
uint8_t b = a & 0x22;
uint8_t c = a && 0x22;
```

4. (10pts) Given the following code, what are the final values of variables b and c. Give your answers in hexadecimal.

```
uint8_t a = 0x8F;
uint8_t b = a & 0x71;
uint8_t c = a - 0x71;
```

5. (10pts) Given the following code, what are the final values of variables b and c. Give your answers in hexadecimal.

```
uint8_t a = 0x5A;
uint8_t b = a ^ 0x5A;
uint8_t c = a ^ 0xA5;
```

6. (10pts) Given the following code, what are the final values of variables b and c. Give your answers in hexadecimal.

```
uint8_t a = 25;
uint8_t b = a << 2;
uint8_t c = a >> 2;
```

Question 3

How much time did you spend on this homework assignment?