16.317: Microprocessor Systems Design I

Spring 2012

Homework 1
Due **Friday, 2/10/12**

All problems in this assignment are based on problems in the textbook, although they have been slightly modified in some cases.

1. *(Chapter 2, #8)* What is the purpose of a processor's software model?

2. *(Chapter 2, #10)* How many of the 80386DX's internal registers are important to the real-mode application programmer? Name and briefly describe each of these registers.

3. *(Chapter 2, #18)* What is the value of the double word stored in memory starting at address 0xB0003 if the contents of memory locations 0xB0003, 0xB0004, 0xB0005, and 0xB0006 are 0x11, 0x22, 0x33, and 0x44, respectively? Is this double word aligned or misaligned?

4. *(Chapter 2, #24)* How would the decimal number -1000 be expressed for processing by the 80386DX? Assume the value is stored as a word of data.

5. *(Chapter 2, #62)* If the current values of the stack segment register and stack pointer are 0xC000 and 0xFF00, respectively, what is the address of the top of the stack?

6. *(Chapter 2, #63)* For the base and offset addresses in the previous question, how many words of data are currently held in the stack?