

**MIPS Instruction Set**

**DUE:** Wednesday, January 15, Start of class

**Objective**

Gain an understanding of the MIPS architecture through homework exercises.

**To Do****Chapter 2 problems from your textbook (note both problems have three parts)**

- 2.18 (MIPS architecture)
- 2.19 (MIPS instructions)

**Chapter 2-like Problems**

- 1) Convert the hexadecimal value 0xabcd1234 into decimal and binary.
- 2) Show how the hexadecimal value 0xabcd1234 would be arranged in memory of a little-endian and big-endian machine. Assume the data is stored starting at address 0.

**Booth's Multiplication Algorithm**

As described in class, Booth's algorithm is a method for computing a product of two binary numbers that are represented in two's complement form.

- 1) Find a description of the algorithm on the web and record the address. Read the description and do your best to make sense of it. Team explorations are encouraged.
- 2) Using Booth's radix-2 method, show the step-by-step result of multiplying the 8-bit two's complement hexadecimal numbers 0x1A and 0x38.
- 3) Repeat part 2 for Booth's radix-4 method.

**To Turn In**

**This page** stapled to your handwritten solutions, which are to be done in accordance with the School of Engineering homework guidelines found on the course web page. Use minimal, but sufficient, problem statements.