16.317: Microprocessor Systems Design I

Fall 2014

Lecture 2: Key Questions
September 5, 2014

1. Briefly describe data types: what they specify, and what the different possibilities are for each aspect of a data type.

2. Explain the difference between how data can be interpreted as a signed or unsigned integer. Show the difference by interpreting the 8-bit value $1001\ 1111_2$ as both a signed and unsigned value.

3. What characteristics do we want storage media to have?

4. Describe the basic characteristics of processor registers.

5. Describe the basic characteristics of processor memory.

6. What does it mean for data to be aligned? What is the impact of mis-aligned data?

7. What is “little endian” data?

8. **Example:** Given the memory contents shown below:

	Lo			Hi
0x200C	40	96	2C	00
0x2010	55	12	CD	AB
0x2014	01	23	88	99

What is the value of:

- The word at address 0x200D?
- The double word at address 0x2012?

Are these data aligned?