

# **16.317: Microprocessor Systems Design I**

Fall 2014

Lecture 3: Key Questions

September 7, 2014

1. Describe the general characteristics of the x86 architecture.

2. Briefly describe the x86 registers.

3. Describe the different memory spaces in the x86 architecture.

4. Explain the basic concept of memory segmentation.

5. Describe the basics of x86 real mode addressing.

7. Describe the specifics of x86 memory addressing within instructions.

8. **Example:** Compute the address for the memory operand in each of the following instructions. The register contents and variables are as follows:

- $(ESI) = 00000100_{16}$
- $(EDI) = 00000200_{16}$
- $(EBX) = 00000300_{16}$

a. Destination operand in: `MOV [EBX+0400h], CX`

b. Destination operand in: `MOV [EDI+2*EBX], AH`

c. Destination operand in `MOV [EBX+EDI+0400h], AL`