

EECE.3170: Microprocessor Systems Design I

Key Questions x86 intro (Lectures 4 & 5)

QUESTIONS

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. Describe the specifics of x86 memory addressing within instructions.
5. Describe the basic structure of an assembly language statement.
6. Describe how the x86 registers are accessed as 8-bit, 16-bit, and 32-bit values.
Include the answer to the example provided in the slides (EAX = 0x1A2B3C4D).
7. Describe how to determine the number of bytes being accessed from memory in an x86 instruction.

EXAMPLE

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

- (ESI) = 0x00000100
- (EDI) = 0x00000200
- (EBX) = 0x00000300

a. Destination operand in: MOV [EBX+0x0400], CX

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

c. Destination operand in MOV [EBX+EDI+0x0400], AL