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COMP 3350

Computer Organization & Assembly Language Programming

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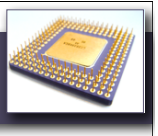
Fall 2014

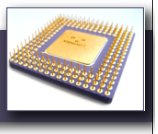
• Activity 1 •

Machine Lang vs. Asm



- *Machine language/machine code*
  - A microprocessor reads bytes from memory and interprets them
  - The byte sequences understood by the microprocessor define its machine language
  - Different microprocessors have different machine languages
- *Assembly language*
  - Represents machine language instructions using mnemonics
  - Each statement corresponds to one machine lang instruction
  - Since assembly language corresponds with machine language, different processors have different assembly languages

Language Translation

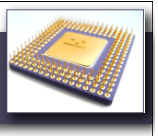


- *Assemblers* and *disassemblers*:

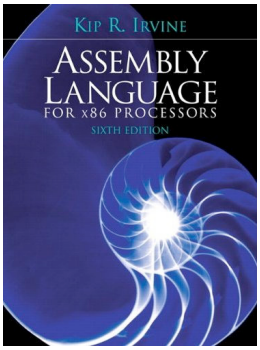
Assembly Language ⇄ (Assembler / Disassembler) Machine Language

- *Compilers* typically translate high-level languages into low-level languages
  - C, C++, and Fortran compilers translate source code into machine language
    (most can output assembly language instead)
  - Java and C# compilers translate source code into *virtual machine* bytecodes, not native machine code
    - Although virtual machines use "just-in-time" (JIT) compilation: translate VM bytecodes into machine language at runtime

This Course



- **Language:** Intel x86 assembly language (32-bit)
- **Assembler:** Microsoft Macro Assembler 10.0
- **Dev Environment:** Microsoft Visual Studio 2010



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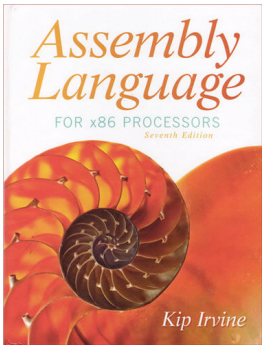
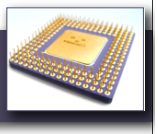


Images: http://kipirvine.com/asm/images/cover6th_large.jpg • http://kipirvine.com/asm/images/cover7th_large.jpg

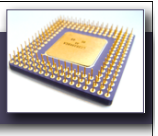
Topics Covered in Monologue/Syllabus



Handout: Syllabus

- Course Objectives
- Textbook
- Lab Facilities
- Point Distribution
- Grading Scale
- Coverage
- Expectations
- Policies

Homework



- Read Section 1.1 (pp. 1–6)
- Be prepared to verbally answer review questions 3, 4, 5, 7, and 11 from Section 1.1.3

- Chapters 1 & 2 of the textbook (6th edition) are available as PDFs
  - Posted in Files section of Canvas under "Readings:" chapt_1.pdf, chapt_2.pdf
  - Or download them from http://kipirvine.com/asm/videos.htm