Course Overview

Hwansoo Han
ICE3003 – Computer Architectures

- Classes & web page
  - Mon 12:00-13:15, Wed 15:00-16:15
  - http://arcs.skku.edu/Courses/ComputerArchitectures

- Instructor: Hwansoo Han
  - hhan@skku.edu
  - Semiconductor building #400624
  - http://arcs.skku.edu/People/HwansooHan

- TA
  - Jeongsik Choi
  - Semiconductor building #400617
Computer System Track

- Multicore Systems
- Embedded Systems
- Mobile Computing

- Microprocessors
- PLs & Compilers
- Operating Systems
- Computer Networks

- Digital Systems
- Software Engineering
- Computer Architectures
- Digital Communications

- Introduction to Computer Systems
- Data Structures & Algorithms

- Logic Circuits
- Problem Solving

- Programming for Engineers
- Programming (교양)

: advanced
: core
: fundamental
: programming
Prerequisites

- **Prerequisite Courses**
  - CSE2003 System Programming (or Intro. to Computer Systems)
  - ICE2001 Logic Circuits

- **You are assume to be familiar with**
  - Basics on digital circuits and systems
  - x86 instruction set architectures
  - x86 assembly programming
  - Shells and basic Linux/UNIX commands
  - C programming
Textbook & References

- **Textbook (구내서점)**
  - Computer Organization and Design – The Hardware/Software Interface (4th edition)

- **References**
  - Computer Architecture – A Quantitative Approach
  - Computer Systems – A Programmer’s Perspective
Grading

- Exams
  - Midterm 35%
  - Final 35%
  - If you do not take any of two exams, you will get an ‘F’

- Programming project 20%
  - Programming assignment

- Participation & quiz 10%
  - Homework & quiz
  - Attendance (no late attendance, 지각 == 결석)
    - You are allowed to be absent three times. If you are absent more times, your score will be affected – this includes absence due to illness, job interview, military service, ...
Syllabus - Read textbook!

- Overview
- Machine-level Instructions
- Arithmetic for Computers
- Processor – datapath & control
- Pipelining the processor
- Cache memory
- Virtual Memory & DRAM
- Storage & I/O
- Multiprocessors
Processor-based Digital Systems

- Processor-based Systems
  - Programmable processors for general-purpose tasks

- Desktop computers are best-known
  - PCs, notebooks, workstations, ...

- Many processors are embedded or used in servers
  - Game consoles, PDAs, cell phones, ...
  - Printers, automobile electronics system, ...
  - Web servers, database servers, ...
Processor Market

[Bar chart showing the growth in processor market for Cell Phones, PCs, and TVs from 1997 to 2007.]
Organization of Computer
Micro-Architectures of Processors

- 125M transistors