

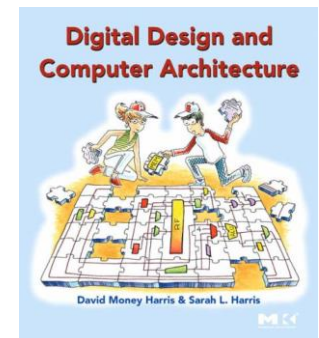
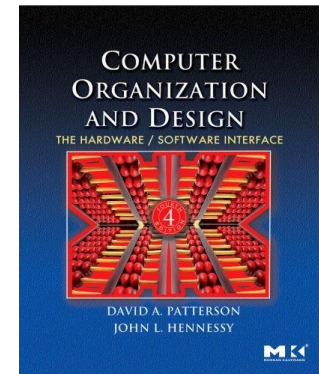
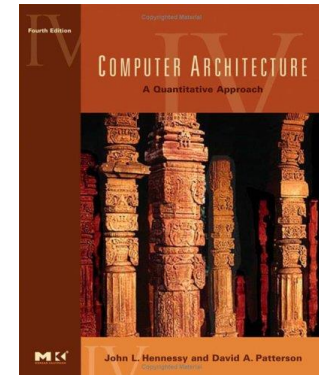
COM515 Advanced Computer Architecture

Lecture 0. Course Introduction

Prof. Taeweon Suh
Computer Science Education
Korea University

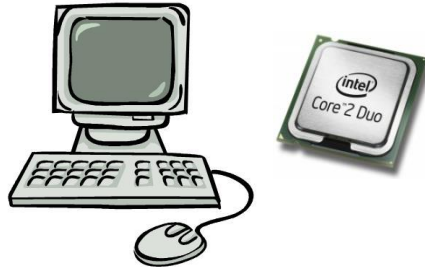
Course Information

- Instructor
 - Prof. Taeweon Suh
- Textbooks
 - **Computer Architecture: A Quantitative Approach** (Fourth Edition) by John L. Hennessy and David A. Patterson, 2007, Morgan Kaufmann
- Reference
 - **Computer Organization and Design** by David Patterson and John Hennessy, 4th Ed., Morgan Kaufmann, 2009 (No Korean-translated version)
 - **Digital Design and Computer Architecture** by David Money Harris and Sarah L. Harris, Morgan Kaufmann, 2007
- **Prerequisites**
 - **COMP212 Computer Architecture**
 - **COMP211 Computer Logic Design**
- Office hours
 - After class as needed
 - By appointment at Lyceum 307
- Contact Information
 - suhtw@korea.ac.kr
 - 02-3290-2397
- Class web page
 - <http://esca.korea.ac.kr/>



Computer Architecture

```
int main()
{
    int a, b, c;
    a = 3;
    b = 9;
    c = a + b;
    return c;
}
```



- **COMP169 C Programming**
- **COMP166 Computer Programming**
- **And Java, C++, C# ...**

- **Computer Architecture course is where software meets hardware**

- **COMP211 Computer Logic Design**

Undergrad-level Computer Architecture

- Topics covered include the followings
 - MIPS ISA (Instruction Set Architecture)
 - In-order microarchitecture
 - Single-cycle MIPS
 - Pipelined (5-stage) MIPS
 - Memory hierarchy
 - Registers, caches, main memory, and HDD
 - Virtual memory
 - TLB (Translation Lookaside Buffer)



<http://www.mips.com/>

Graduate-level Computer Architecture

- Topics include the state-of-art technologies to increase performance in modern computers
 - Out-of-order microarchitecture
 - ILP (Instruction-level Parallelism)
 - Limits on ILP
 - TLP (Thread-level Parallelism)
 - Multi-core and multiprocessors
 - Advanced topics in memory hierarchy



Grading Policy

- Exams: 60%
 - Midterm Exam: 30%
 - Final Exam: 30%
- Assignments: 30%
- Class Presentations: 10%