

EEC 581 Computer Architecture, Fall 2007

Catalog Data: EEC 581 Computer Architecture (4-0-4). Prerequisite: Graduate standing. The design of high-performance computer systems, with emphasis on cost-performance tradeoff, performance evaluation, instruction set design, hardwired control-unit design, micro- and nano-programming, pipelining, memory hierarchy, and I/O interfaces.

Textbook: Computer Architecture: A Quantitative Approach, by John L. Hennessy and David A. Patterson, 4th Edition, Morgan Kaufmann Publishers, Inc., 2006.

Coordinator: Dr. Chansu Yu, Associate Professor of Electrical and Computer Engineering
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Class: TR 6:00-7:50 PM, SH309

Office Hour: TR 2:00-4:00 PM or by appointment

Course objectives: To provide a comprehensive overview of the modern microprocessor organization with an emphasis on various types of parallelism – instruction level parallelism (ILP), thread-level parallelism such as simultaneous multithreading (SMT), and multiprocessors. Topics include including dynamic scheduling, hardware-based speculation, multithreading, shared-memory multiprocessor, distributed shared memory architecture, cache coherency, memory consistency models, memory hierarchy design and storage systems.

Course Requirements: Course requirements include six homework assignments, many pop quizzes and a term project. Students will form a group of three or four for the term project, which consists of four stages and must involve multi-core architecture. For the project, you need to review about at least fifteen papers to understand what other researchers have already done in the chosen area as well as to appreciate good research in multi-core architectures. Two classes before the midterm exam and another two before the final exams will be used for your project presentation. Each presentation will be based on power point slides and at most 15 minutes long excluding questions and answers. Each member of a team should participate in one of the two presentations.

Grading Policy:	Midterm Exam	20%
	Final Exam	30% (Comprehensive)
	Quiz	10% (Many pop quizzes, review & preview)
	Project	30% (3~4-person project, four sub-parts)
	Homework	10% (5 homework assignments)