

CS 570: Advanced Computer Architecture

Objectives

- To learn the science and art of selecting and interconnecting hardware components to create a computer that meets functional, performance and cost goals.
- To learn qualitative and quantitative examination of computer design tradeoffs.

Prerequisites

- CS 470.

Course Materials

- Text
 - John L. Hennessy, David A. Patterson. *Computer Architecture: A Quantitative Approach* (3rd ed). Morgan Kaufmann, 2002, ISBN: 1-558-60596-7.
- Recommended
 - William Stallings. *Computer Organization and Architecture: Designing for Performance* (7th ed). Prentice-Hall, 2006, ISBN: 0-13-185644-8.
- Online Resources
 - **Computer Architecture Web site.**

Syllabus

- Introduction
- Computer platforms and models
- Performance metrics and benchmarks
- Microprocessors
- Arithmetic
- Datapath design
- Pipelining
- Superscalar
- Memory technology
- System interconnects and gigabit networks
- I/O
- Parallel architecture
- Clusters of servers and workstations

Evaluation

- 35% — Homework, Programming Assignment
- 35% — Exam
- 30% — Term Project

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