CEG 820 Computer Architecture II

Winter Quarter, 2009

Description : Continuation of CEG720 with more details on multiprocessor systems, parallel processing, and performance analysis.

Prerequisite : CEG720 or an equivalent course.

Instructor : Dr. Soon M. Chung
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Class : M. W. 6:05-7:20 p.m. at 271 Math

Office hour : M. W. 2:30-3:30 p.m. at 403 Russ Center
or by appointment.
* use e-mail for short questions.

Reference Book : K. Hwang, *Advanced Computer Architecture: Parallelism, Scalability, and Programmability* (McGraw-Hill, 1993), and technical papers.

Topics : Vectorization and vector processing methods
SIMD processing algorithms
Redundant Array of Inexpensive Disks (RAID)
Multiprocessor architecture and interconnects (Sec 7.1)
Multicache coherence algorithms (Sec 7.2)
Message-passing architecture and routing mechanism (Sec 7.3, 7.4)
Systolic array
Reconfigurable processor array
Conditions of parallelism (Sec 2.1)
Performance metrics (Sec 3.1.3)
Data flow computers (Sec 9.5)
Parallel language constructs (Sec 10.2)
Program partitioning and multiprocessor scheduling (Sec 2.2)

Grading : A:[85,100], B:[75,85), C:[65,75), D:[55,65), F:[0,55)

Midterm 25% (Feb. 16, Open book, note, and handouts)
Final 40% (Mar. 18, 8:00-10:00 p.m., Open book, note, and handouts)
Project 35%
{ originality 10%
organization of the report 5%
class presentation 10%
discussion 10% }