CS533: Parallel Computer Architecture
Prof. Josep Torrellas
http://courses.grainger.illinois.edu/cs533/sp2024
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Fact Sheet

- **Instructor:** Prof. Josep Torrellas, email: torrella@illinois.edu, tel: (217)-979-7820, office hours: 4-5pm Thursdays.
- **Teaching Assistant:** Hyoungwook Nam, email: hn5@illinois.edu, Office hours: TBA. To communicate, please post questions in the CS533 newsgroup or send email.
- **Class:** SC 1214, 9:30-10:45 Tu, Thu.
- **Prerequisites:** Good background in computer architecture (CS433/ECE511 or equivalent), reasonable (serial) programming experience, and some familiarity with compilers and operating systems.
- **Text:** We will use papers posted in the web site. I will be posting the notes used in class. As a reference, I recommend "Parallel Computer Organization and Design" by Dubois, Annavaram and Stenstrom, published by Cambridge University Press, 2012. Another book is "Parallel Computer Architecture: A Hardware/Software Approach" by Culler and Singh, published by Morgan Kaufmann, 1997.
- **Credit:** 4 hours.
- **Format:** Most classes will be discussions of papers. I expect that the students will have read the paper before coming to class. I will use slides in class. The slides will be posted in advance. Please participate in the class.
- **Goal of the Course:** This is an advanced course in computer architecture. The goal is to introduce the students to current research issues in parallel computer architecture. We will discuss papers and the students will do a research project. What the students will get out of this course will depend on how much effort they put in reading the papers, thinking about the issues, and working on their project and homeworks.
- **Exams:** There will be no exam.
- **Project:** There will be a major final project that will be in part chosen by the students. The project will involve the study of a research issue in parallel architectures or the development of a large parallel application. I expect the students to work in groups of 3 for the project. The project will have three milestones: a project description, a midterm progress report, and a final report. In addition, students are expected to present their projects at the end of the semester.
- **Assignments:** There will be four homework assignments. See the schedule.
- **Accounts:** Students who need it, will be given an account in a multiprocessor to work on their projects. Example machines are NCSA, CS Departmental Clusters, or multiprocessor servers. Moreover, there are architecture simulators (e.g., gem5) available for use.
- **Grading:** 45% the project (10% midterm progress report, 30% final report, 5% presentation), 50% the 4 homeworks (12.5% each), and 5% class attendance and participation.