CSCE 654: Supercomputing (Parallel Computer Systems)

Time and place

Place: HRBB 126
Time: 3:00pm – 3:50pm, MWF

Course personnel

Instructor: Lawrence Rauchwerger
Office HRBB 425E
email: rwerger
Phone 845 - 8872
Hours after class

Text Book


A set of papers about modern parallel computer architecture and software.

Website: https://parasol.tamu.edu/people/rwerger/Courses/654/

Tentative Topics

• Introduction to programming for performance
• Parallel programming in shared and distributed systems (MPI+OpenMP)
• Memory Consistency
• Cache Coherence
• Prefetching
• Thread Level Speculation (Hardware + Software)
• Systolic Architectures
• GPU principles
• Other parallel programming languages and paradigms

Spring 2014
Project

You will be required to deliver a project of your choice at the end of the semester. The topic is the student’s choice but must be discussed with me. Acceptable topics are simulation of hardware for parallel systems, compiler and operating system issues for parallel systems, large scientific applications that are adapted for parallel execution. Note that a simple parallelization of a code is not sufficient for a passing grade. The project has to show an innovative design and a thorough analysis.

Computing Resources

You can use the parallel computer systems at the Supercomputing Facility (EOS) as well as any other resources you may have access to. You must request accounts on these machines if you do not already have them.

NOTICE:

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