

# Undergraduate Summer Research Grant Program 2008

## Research Plan

Due: June 12, 2008

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Work Schedule:	<u>Monday - Friday</u>	Lab Location:	<u>H.R. Bright Building, Rm. 423D</u>
	<u>10:00 am - 6:00 pm</u>		

**Research Topic:** Performance Analysis and Comparison of MPI, OpenMP and NPB - MZ

**Research Goals:** In this research, with increasing the number of processors and problem sizes, we will systematically analyze and compare the performance of MPI, OpenMP and hybrid NAS Parallel Benchmark Multi - Zone (NPB - MZ) on two supercomputers: DataStar p655 at San Diego Supercomputer Center (SDSC) and Hydra at Texas A&M Supercomputing Facilities. We will also upload the performance data of NPB - MZ to Prophecy database and use Prophecy system to model the performance online.

<b>Tasks and Derivables:</b>	<b>Dates:</b>
Read information about Parallel Processing, set the supercomputer accounts.	May 27 - May 30
Read about MPI, OpenMP and NPB - MZ. Practice parallel programs and submitting them to the SDSC p655 .	June 2 - June 6
Application: NAS Parallel Benchmarks with Multi-Zone, practice running these applications on p655 and Hydra.	June 9 - June 13
Hand in the research topic and initial website.	10-Jun
Scalability Analysis on up to 1024 processors (with increasing number of processors and problem sizes) and write document about scalability analysis.	June 16 - June 27
Hand in the research abstract.	18-Jun
Processor Partitioning Impacts (with different number of processors per node) and write document about processor partitioning impacts.	June 30 - July 3
Manually upload performance data to Prophecy Database and online performance modeling using Prophecy system.	July 7 - July 11
Continue to collect performance data, write the research paper and prepare for the presentation.	July 14 - July 18
Continue writing the research paper and prepare the poster.	July 21 - July 25
Practice poster, prepare the final research paper and complete website.	July 28 - July 31
Poster presentation	28-Jul
Website (final)	31-Jul