CSC 4310/6310
Assignment 1
Due next Friday 5 pm on D2L

Readings

1. Read (i) Chapters 1 of Gramma's book and (ii) Introductory lectures slides and notes posted on D2L.

2. Scan the sample shared memory Parallel programs on hydra and get familiar with writing small parallel programs on SGI ORIGIN. cd c6310
   cd shared_memory/hello

   Read portions of "SGI Parallel Programming Guide for Students" on the course site: `http://www.cs.gsu.edu/~cscskp/teaching/node2.html`

Algorithms

Design an algorithm for multiplying two square matrices of size nXn which uses $p \leq n^3$ processors and achieves the fastest parallel execution time of $O(\log n)$.
(a) Calculate T_p, S_p, E_p, cost and work of your algorithm. (Work is the total operation count across all processors).
(b) Derive its range of (cost) optimality.

Team Programming (each team consisting of 2-3 people)

Write a shared memory program on Hydra to add two n-by-n matrices using $p \leq n$ processors with $1 \leq p \leq 8$. Fill up the matrices with some constant values so that it would be easier for you to verify the resulting matrix for correctness.
Hint: You may allocate rows of matrix to processors in a round-robin fashion (i.e., row 0 to P_0, row 1 to P_1) or allocate a band of rows to a processor, ensuing that all the rows have been allocated.

Submission: Submit your source code as .txt file. *CHANGED: Each team member submits individually identifying the team members clearly.*