

PRACTICAL EXAM 2: MESSAGE PASSING BASICS

AMC 140

1. GOALS

The goal of this practical exam is to test the student's proficiency in using basic Message Passing concepts. The exam will also test the students familiarization of the GNU development tools and the AGILA HPCS. The exam is due on the same day it is given. Students have only one and a half hours to complete this exam.

2. SPECIFICATIONS

Write a program in C using LAM-MPI that does the following:

- (1) creates 80x80 matrix filled with rank of the current node
- (2) divide the matrix into 8 pieces in which each nodes generates one eight of the 80x80 matrix
- (3) generate another 80x80 matrix and divide among 8 nodes
- (4) perform matrix addition on both matrices
- (5) display the output on the screen

3. HINTS

- ★ This practical exam is open notes and books
- ★ Name of the source file must be "PRACT2.C"
- ★ The program must be run on eight nodes. It is safe to make this assumption.
- ★ All matrices can be generated in the separate nodes themselves and matrix addition can be performed independently on each node.
- ★ For questions, please approach the instructor and not your fellow test takers

4. GRADING

- 15% Program compiles, links and executes properly
- 40% Generate one eight of both matrices on each of the eight nodes. Each node must have two matrices each that contains the rank of the current node.
- 35% Perform matrix addition on both matrices
- 10% display output on standard output
- 10% BONUS: If program accepts a user defined input for the matrix size

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