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Preclass 10/06/2015

0. How much time did you spend on this pre-class exercise, and when?

Morning 10/05/2015

1. What are one or two points that you found least clear in the 10/06 slide decks (including the narration)?

I don't understand what ""bag o' bytes" model is inadequate" means.

2. In the upcoming lecture (10/8), we will discuss how to model latency and bandwidth of MPI sends and receives using the ping-pong benchmark briefly described in the current demo. We would like to understand the difference between different MPI implementations (and make sure we know how to run MPI codes).

a) Make sure the cs5220 module is loaded and type "which mpicc"; if everything is correct, you should see the Intel MPI version (under /usr/local/intel). Using this version of MPI and the default PBS files, run the pingpong examples (demo/pingpong).

It was version 5.0.3.048. Result: (there seems to be some problem in ping-2node as I waited for 10mins and it does not end)

	chip	core
1	7.64E-07	3.04E-07
1001	1.31E-06	4.16E-07
2001	1.63E-06	4.90E-07
3001	2.11E-06	5.62E-07
4001	2.48E-06	6.28E-07
5001	2.84E-06	7.23E-07
6001	3.18E-06	8.17E-07
7001	3.55E-06	9.16E-07
8001	3.95E-06	9.94E-07
9001	4.30E-06	1.10E-06
10001	4.62E-06	1.22E-06
11001	5.00E-06	1.33E-06
12001	5.41E-06	1.41E-06
13001	5.74E-06	1.52E-06
14001	6.10E-06	1.64E-06
15001	6.47E-06	1.74E-06
16001	6.89E-06	1.83E-06

b) Now do "module load openmpi/1.10.0-icc-15.0.3" after loading the CS 5220 module. Check by typing "which mpicc" that you are now using a different version of mpicc. Compile with OpenMPI, and re-run the on-node tests using OpenMPI (note: you will have to add a module load to the start of the PBS scripts). How do the timings differ from the Intel MPI timings?

It becomes openmpi-1.10.0-icc-15.0.3

But the code cannot run, with error:

./ping.x: symbol lookup error: ./ping.x: undefined symbol: ompi_mpi_char

./ping.x: symbol lookup error: ./ping.x: undefined symbol: ompi_mpi_comm_world

c) When running at the peak rate (e.g. 16 double precision flops/cycle), how many (double precision) floating point ops could two totient cores do in the minimal time required for one MPI message exchange?

3.04E-07s*16 FLOPS/clock x 2 cores x 1.053 GHz=3.04E-7* 16.848GFLOPS/s=5121.8FLOPS