

Comparison of MPI benchmark programs on shared memory and distributed memory machines (point-to-point communication)

Abstract

There are several benchmark programs available to measure the performance of MPI on parallel computers. The most common use of MPI benchmarks software are SKaMPI, Pallas MPI Benchmark, MPBench, Mpptest and MPIBench. It is interesting to analyze the differences between different benchmark. Presently, there have been few comparisons done between the different benchmarks. Thus, in this paper we discuss a comparison of the techniques used and the functionality of each benchmark, and also a comparison of the results on a distributed memory machine and shared memory machine for point-to-point communication. All of the MPI benchmarks listed above will be compared in this analysis. It is expected that the results from different benchmarks should be similar, however this analysis found substantial differences in the results for certain MPI communications, particularly for shared memory machines.

Keyword: MPI benchmarks; Parallel computer; Performance comparison