Abstract

Clusters have been an area of vast research in the domain of High Performance Computing and a variety of libraries are available for the cluster installation and administration. One such library named MPICH2 was selected and a selected variety of programs were run on the cluster setup and the performance of MPICH2 was tested against the prevalent cluster theories. The performance testing was done from simplest to quite heavy programs and they were tested for the execution time. The results affirmed the predicted pattern of execution time. Results also revealed the criteria for selection of number of compute nodes depending on the complexity of the problem to be solved. The results were encouraging for development of a large scale target application on the MPICH2 library, only held back by the fact that MPICH2 cannot support heterogeneous clusters.

References

- Rajkumar Buyya, "High Performance Cluster Computing"; Vol 1, Pearson
Performance Analysis of Homogeneous Beowulf Cluster Setup on MPI Library

- Amit Jain, “Beowulf Cluster Design and Setup”, Boise State University, April 2006
- Discussion of topics related to Beowulf Clusters -http://www.beowulf.org
- News and software site for the Beowulf community -http://www.beowulf/underground.org
- An overview of Beowulf clusters, from cluster design, to cluster use and maintenance by Mike Perry - http://fscked.org/writings/clusters/cluster-1.html
- MPICH2 User’s Guide
- Using MPICH to Build a Small Private Beowulf Cluster - http://linuxjournal.com/article/5690
- Examples of MPI Programs from Florida State University - http://people.sc.fsu.edu/~jburkardt/c_src/mpi/mpi.html
- Kerry D. Wong, “A Simple Beowulf Cluster”
- Ubuntu Wiki, Setting Up MPICH2 Cluster in Ubuntu
- OpenClusterGroup, OSCAR.

Index Terms

Computer Science
Distributed System
Keywords
Cluster; Beowulf; mpiexec; task distribution; mpiexec; calculation of Pi  MPICH2
OSCAR