

ABSTRACT

CPU (Central Processing Unit) cluster homogeneous is a computer system that consists of a head node as NFS (Network File System) and several compute nodes interconnected with the architecture and the same operating system, to perform computation in parallel with the same task, so it looks as a whole computer with the ability HPC (High Performance Computing) integrated. CPU speed in the computing cluster is measured in FLOPS (Floating-point Operations Per Second). To run the application in the fields of science, CPU cluster required to meet the minimum requirements FLOPS speed required to run the application. Therefore, the necessary measurements of how much the speed of the CPU FLOPS owned by the cluster. One of them with a benchmark using software HPCC (High Performance Computing Challenge) as a testing tool. CPU overload the HPCC cluster solutions, ranging from multi-CPU computing speed, memory system and network interconnection, so the HPCC benchmark results can be used as a benchmark for how much CPU performance computing cluster tested. After knowing owned computing performance CPU cluster, optimization techniques are required to enable the improved performance without adding hardware that is therein, by using a specific compiler and replacing network devices. As a result, when the CPU cluster using Intel compilers and network devices to be replaced using Infiniband, an increase FLOPS 10 times faster than before

Keywords : *Homogenous CPU Cluster, HPCC (High Performance Computing Challenge), HPC (High Performance Computing), Cluster Optimization.*