Abstract

Complex scientific problems like weather forecasting, computational fluid and combustion dynamics, computational drug design etc. essentially require large scale computational resources in order to obtain solution to the equations governing them. These solutions can be obtained by developing large legacy codes and then executing them using parallel processing. The parallel processing computers generally demand huge bandwidth as they consist of large number of networked processing elements. One such legacy code VARSHA is a meteorological code used for weather forecasting developed at Flosolver, CSIR-NAL under the joint project from NMITLI (New Millennium Indian Technological Leadership Initiative) and MoES (Ministry of Earth Science). The parallel efficiency of VARSHA code using ethernet connectivity has been anything but satisfactory. This paper discusses the bandwidth utilisation of VARSHA code in its existing and modified forms in order to draw some important conclusions on the bandwidth requirements of the future state-of-art parallel computers used to execute such legacy codes.
Bandwidth Requirements of Large Scale Computing Systems – A Case Study


Index Terms

Computer Science  Communications

Keywords

Bandwidth  computation  communication  speed up.