IN-CORE OPTIMIZATION OF POISSON EQUATION USING PARALLEL COMPUTING

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Abstract

This is an era of high performance computing that is very fast computation for large, complex and dense calculations. There is a major advancement in hardware technology as today very fast, efficient and scalable processors are available in the market and in order to get benefit from these processors there must be some enhancement in the software technology. One of the approaches used to adopt changes in hardware technology is known as shared memory parallel programming which is implemented using OpenMP. In this paper we have studied the possibilities of obtaining the numerical solution for the Poisson's equation with Jacobi iteration in parallel, by means of multicore architecture. The purpose of this case study is to develop an iterative solver for the Poisson equation on cartesian grids in multiple dimensions. Speedup is gained by parallelizing the steps of algorithm. Experiments shows that more speedup is gained with threads multiple of 6.