

PARALLELIZATION OF 2D STEADY STATE HEAT PLATE EQUATION

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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 2-D steady state heat conduction in a plate using Jacobi iteration. We had calculated the temperature of heat plate at each point of the interior part. The algorithm is parallelized by means of multicore architecture using OpenMP. The experiment is performed using increase number of threads and increasing number of grid points. Speedup is gained by parallelizing the steps of algorithm. Experiment shows that more speedup is gained with threads more than 20.

Keywords: Parallel Computing, 2-D steady heat state, OpenMP