

Abstract

Parallel computing is a technique for performing computations by utilizing multiple computers at the same time. Parallel computing is usually used to run programs that have large capacities in data processing or to run programs many computational processes. With parallel computing we can run the computation process faster than serial computing. In this research, the writer makes a program to find out wheter parallel computation is better than serial computation by comparing the running time of serial computation with parallel computation based on OpenMP. OpenMP is a standard used in parallel multithreads programing in shared memory architectures. For the program, the writer uses a numerical model using the Upwind method to solve the transport equation. Upwind method is a numerical method for solving nonlinear partial differential equations. The final result of this research is comparison data between parallel computing and serial computing execution time. The values of Speedup obtained from this research is between 1,383 to 3,476. And for efficiency, the result are 34,58% to 86,92%.

Keywords: parallel computing, OpenMP, Upwind, Transport