

ABSTRACT

Heat is one form of energy that plays a major role in the emergence of life in nature, ranging from the basic processes such as photosynthesis to the industrial production process. There's a study that learning about the behaviour of the heat itself, which summarized in an equation that mainly called as the heat equation. Heat equation is the equation that describes the distribution of heat in a certain area and a certain time span. Each point has an important role for determining the nearby points' value during the process. By using the Finite Difference Method and utilizing Parallel Computing as a tool for finding a solution of Heat Equation. In addition to the results in the form of the value of each area within a specified period, the computing time in the search for a solution by using OpenMP and PThread will be recorded and analyzed to find the best working method that resulting the best speedup from the initial sequentialized program. The experiments are partially done in a different machine which resulting a best speedup of 3,6358 by using OpenMP with the amount of spatial mesh points in the area 10240 and 500 iteration.

Keywords: Heat Equation, Parallel Computing, Finite Difference, Parallel Computing