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Abstract

This report presents an analysis of a Diffusion-Convection application. This application uses a Finite Volume method to compute the heat diffusion in a fluid spreading through an area of a surface. The optimizations made were: an optimized sequential version and a shared-memory OpenMP version. Speedups were only obtained on the sequential version. Although some structural optimizations were made in the sequential version, locality issues remained, with achieved results turning worse than the best optimized sequential version. Later in this report the results are compared joined with some speculation for on-going work.

1 Introduction

2 Case Study