ABSTRACT

The improvements in computational phenomenons could be seen from many developments of new technology, especially for some problems that require to compute big datas, that if done by serial computation, it will be consuming great amount of time wasted. How computer does the parallel programming will determined their performance. With some effective codes, computating with parallel environment would have decrease usage time from well-developed-algorithm efficiently.

This assignment will somehow examine how different it is when two algorithms are used to compute an example problem, which is Genetic Algorithm and Brute Force Algorithm determined between parallel or serial that wrote in C code compared one another, within CUDA from NVIDIA architecture. Travelling for 101 cities will be used for the main casqe of both algorithms.

The result of this research has the shortest path of Serial Genetic Algorithm at 4801.91 and 0.000208 for fitness using 100 generations, 100 populations, 90% chance of crossover, 10% chance of mutation, with 1,19 seconds execution time, on the other hand, Parallel Genetic Algorithm has the shortest path at 4739,34 and 0,000211 fitness using 100 generation, 150 populations, 90% chance of crossover, 50% chance of mutation with 1,04 seconds of execution time.

Keywords : *Genetic Algorithm , Bruteforce Algorithm, Trevelling Salesman Problem, High Performance Computing, CUDA programming.*