

CHAPTER I

INTRODUCTION

1.1. Background

Parallel computing is a technique to solve a problem using more than one CPUs. Parallel computing divides the main task into small parts of the job that can be done separately to executed by multiple CPUs simultaneously. To perform the parallel calculation, it is required parallel computer architecture which is commonly known as supercomputers (multi processors computer). Nowadays a supercomputer is still very expensive and it is rarely to used. Therefore, parallel algorithm is difficult to be applied in general.

To resolve that problem, virtual parallel workstation is being created. Virtual parallel workstation is actually a network of computers controlled by software that is able to regulate the allocation of computational processes to processors across the entire network. One of virtual parallel workstation software is a PVM (Parallel Virtual Machine). PVM is a software, that can create a virtual parallel workstation using multiple of single computer. This project uses PVM to implement the parallel workstation environment to perform bubble sort in parallel approach.

1.2. Scope

Parallel workstation environment in this project is built on linux operating system using PVM (Parallel Virtual Machine) software. The specification of workstation computers are Intel Core 2 Duo 2.93GHz processor and two Giga Bytes of RAM. The network connection used for communication is UTP cables and switches hub devices.

The program is written in C language with PVM library. This project is sorting problem with bubble algorithm using parallel approach.

1.3. Objective

The goals of this project are :

1. To build a parallel workstation environment built from multiple of single computer using PVM.
2. To find out how the PVM (Parallel Virtual Machine) works.
3. To implement bubble sort algorithm using parallel algorithm approach.
4. To find out the effectiveness of parallel computing based on the complexity of iteration.
5. To find out the performance of bubble sort algorithm with parallel algorithm approach.

