

OBJECT-BASED MESSAGE PASSING LIBRARY FOR JAVA

SUMMARY

Message passing based softwares which are developed for distributed computer systems are of great importance in parallel programming field. With the MPI specification which is introduced in the middle '90s, it is aimed to standardize this kind of softwares. MPI also provides language bindings for C, C++ and Fortran. Nevertheless, the specification does not provide an official binding for Java which is one of the most popular programming languages today. Thus, Java programmers have been developed their own MPI-like communication libraries. Efforts given by separate developer teams led to emergence of different libraries.

In this thesis, an alternative message passing based parallel programming platform is proposed. The platform, which is developed in and for Java, is named as "PPPJ". PPPJ is short for "Parallel Programming Platform for Java". Actually, PPPJ is a parallel communication library which is based on object passing approach. It provides an MPI-like and easy to use interface for users. Also, it provides users with benefits of Java's object oriented approach and platform independence.

PPPJ library presents a flexible approach in point of server selection for user programs. Users are not only able to select servers manually, but also have the library make selection via performance or occupancy criteria. Moreover, users are able to configure the library and programs that will be run on it easily with special configuration files.