

Assignment 2

Title : Distributed application using Message Passing Interface (MPI)

Problem Definition : To develop any distributed application using MPI

Objectives : By the end of this assignment, student will be able to implement any distributed applications based on MPI.

S/W & H/W Req. :

OS : Ubuntu 16.04

Tools : Eclipse, Java MPI, MPJ Express

Language : Java

HW : Dual Core, Quad Core with 4GB RAM

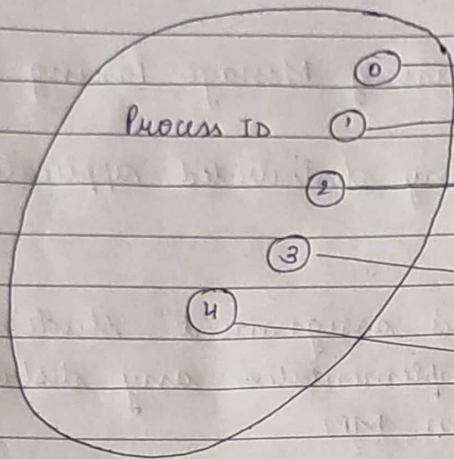
Theory :

- Message Passing is renowned mechanism to implement parallelism in application
- Basic prerequisite for message passing is good communication API
- MPJ is familiar Java API for MPI implementation

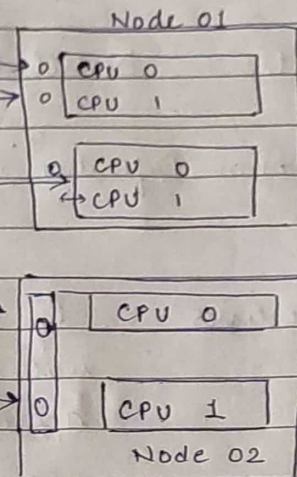
MPI using Java

- Multicore Configuration is meant for users who plan to write & execute parallel Java application using MPJ express on their desktops or laptops

MPI COMM WORLD



MultiCore Structure



- Communication is central object for communication
- MPI comm size reports NO. of processes
- MPI comm rank reports rank a No bet 0 & size - 1
- MPI finalize cleans up all mess put by MPI init
- Scatter-gather: Ability to scatter data items in a message into multiple memory locations and gather data from multiple memory locations into one message
- IN sendby starting address of send buffer
- OUT rucbuf (address of receive buffer)

Conclusion:

Thus we have developed 8 run parallel programs according to MPI.