

04_pure-mpi/02_mpingpong

Hands-on: IMB: Multiple Pingpong (Send and Recv)

- Both of C/C++ and Fortran users will perform the common benchmarks, although IMB is written by C and C++.

How to execute

1. Edit a job script

- Before trying this hands-on, you need to do `00_imb` to compile Intel MPI benchmark.
- We have two working directories, `cs32c1256_P48Q2` and `cs32c1256_P4Q2`.
- A job script to execute the program is `task.sh` in each of working directories.
- Edit `BINDIR` variable in `task.sh`. You need to write your installed location of IMB binary (e.g., `IMB-MPI1`) there.

2. Run program

- You can run the program either:

```
## To run as a batch job
$ cd cs32c1256_P48Q2
$ pjsub task.sh
## Or, to run in an interactive job
$ cd cs32c1256_P48Q2
$ bash task.sh
```

- The jobs in the Exercises will be completed within 1-2 minutes.
 - For safety, we set the elapsed time of the job scripts as 4 minutes.

Exercises A

- E1: Check the node and MPI settings in `cs32c1256_P48Q2/task.sh` and `cs32c1256_P4Q2/task.sh`. What kinds of differences are there?
 - P48Q2: 2 nodes, 48 processes per node.
 - P4Q2 : 2 nodes, 4 processes per node. Four is equivalent to the number of CMG per node.
- E2: Compare the measured bandwidth between the two settings (i.e., `P48Q2` and `P4Q2`).

Exercises B (advanced)

- E3: Confirm whether MPI communication between non-neighboring nodes occurs or not, using the MPI statistical information.