

05_mpi-openmp/01_vcoord

Hands-on: Rank allocation with vcoordfile in Fujitsu MPI

- Choose either C/C++ (**c**) or Fortran (**fortran**) samples. Both of them are fine, as well.

C/C++

How to compile and how to execute

1. Compile program

- The executable file (**run.x**) is generated in **c/**.

```
$ cd c
$ make # make -f Makefile.own # if using own compiler
$ ls
run.x ...
```

2. Run program

- We have two settings of jobs; **results/default** and **results/vcoord**.
 - **default**: Standard rank allocation using the job scheduler. Number of nodes = 2, Process-per-node=4, Number of threads=12
 - **vcoord**: Rank allocation using vcoordfile (**vcoord**). Number of nodes = 2. Other settings are controlled by **vcoord**.
- You can run the program either:

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

- The jobs in the Exercises will be completed within 1 minutes.
 - For safety, we set the elapsed time of the job scripts as 3 minutes.

Exercises A

- E1: Check the rank allocation in **results/default**, using the job statistical information file (***.stats**) and the standard output/error files.

- E2: Check the vcoordfile (**vcoord**) in **results/vcoord**. How many MPI tasks are allocated in each of nodes? What about the number of OpenMP threads per MPI task?
- E3: Check the rank allocation in **results/vcoord**.

Fortran

How to compile and how to execute

1. Compile program

- The executable file (**run.x**) is generated in **fortran/**.

```
$ cd fortran
$ make # make -f Makefile.own # if using own compiler
$ ls
run.x ...
```

2. Run program

- We have two settings of jobs; **results/default** and **results/vcoord**.
 - **default**: Standard rank allocation using the job scheduler. Number of nodes = 2, Process-per-node=4, Number of threads=12
 - **vcoord** : Rank allocation using vcoordfile (**vcoord**). Number of nodes = 2. Other settings are controlled by **vcoord**.
- You can run the program either:

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

- The jobs in the Exercises will be completed within 1 minutes.
 - For safety, we set the elapsed time of the job scripts as 3 minutes.

Exercises A

- E1: Check the rank allocation in **results/default**, using the job statistical information file (***.stats**) and the standard output/error files.
- E2: Check the vcoordfile (**vcoord**) in **results/vcoord**. How many MPI tasks are allocated in each of nodes? What about the number of OpenMP threads per MPI task?
- E3: Check the rank allocation in **results/vcoord**.