

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`.