

## <Bohr>

1. PCS 1<sup>st</sup> GPU Server (in 2016)

2. IP address: 203.247.189.164

3. Specification

- GPU: Three K80 dual GPU cards

(GK210 GPU, each GPU is 2,496 CUDA cores)

One K80 GPU cards has 4,992 CUDA cores

Thus, we have 14,976 CUDA cores.

- CPU: Intel Xeon E5-2670v3, 30M Cache, 2.30 GHz, 12 Cores \* 2 EA

Total 24 CPU Cores

- Memory: 64 GB DDR4 (16G\*4)

- OS: Ubuntu 20.04

- Disk information: 8TB Storage

4. How to access and use

You can access to bohr by the command as below.

**\$ ssh -XCY -p 4022 [username@bohr.ibs.re.kr](mailto:username@bohr.ibs.re.kr)**

Applications installed by module loading method can be confirmed by '**module avail**' command as below.

```
mylee@bohr:~$ module avail
----- /usr/share/modules/modulefiles -----
dot          matlab/R2020b  module-info  null          nvhpc-nompi/22.2  python/3.6.9  python/3.8.9  use.own
mathematica/12.2  module-git   modules     nvhpc-byo-compiler/22.2  nvhpc/22.2      python/3.7.9  python/3.9.6
mylee@bohr:~$
```

Please refer the use for details as below.

```
=====
In order to connect to the Bohr GPU system :
$ ssh -XCY -p 4022 username@bohr.ibs.re.kr

=====
## Environments module command
$ module list , av , load , purge , unload , swap

=====
### NVIDIA HPC SDK version 22.2 into /opt/nvidia/hpc_sdk ###
$ module list ; default nvhpc/22.2
$ module av
$ module purge && module load nvhpc-byo-compiler/22.2 ## cuda 11.6 + nccl,nvshmem + math libs libcublas,libcufftw,libcutensor
$ module purge && module load nvhpc-nompi/22.2 ## cuda 11.6 + nccl,nvshmem + math libs libcublas,libcufftw,libcutensor + nvc,nvc++,nvfortran,pgcc,pgf90
$ module load nvhpc/22.2 ## cuda 11.6 + nccl,nvshmem + math libs libcublas,libcufftw,libcutensor + nvc,nvfortran pgcc,pgf90 etc + openmpi3.1.5

$ which nvcc && which nvc && which mpirun

=====
### cuDNN libcudnn8,libcudnn8-dev installed /usr/lib/x86_64-linux-gnu/

=====
## python /opt/python/3.6.9 /opt/python/3.7.9 /opt/python/3.8.9 /opt/python/3.9.6
$ module av
$ module load python/3.9.6

=====
## conda /opt/anaconda3 installed , conda env list ##
$ conda env list && conda create -n myenv && conda activate myenv && conda deactivate

=====
### matlab/R2020b mathematica/12.2 installed /usr/local
$ module load matlab/R2020b && module load mathematica/12.2
#####
```