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# ASC17 Student Supercomputer Challenge

## Instruction Manual of the KNL Remote Log-in Platform

### I. Platform

#### 1.1 Hardware

The platform consists of 5 compiling nodes and 5 computing nodes. The detailed configuration is as follows:

- 5 compiling nodes for compiling application, and submitting single-node jobs to the computing nodes. These nodes will be accessed through ssh from login node, notice that please don't do any other operations on login node.
- 5 compiling nodes for compiling applications.

Item	Name	Configuration
Server	Inspur NF6248 x 5	CPU: Intel Xeon Phi 7210, 1.3Ghz, 64 cores
		Memory: 16G x4, DDR4, 2133Mhz
		Hard disk: 120G SSD x 1

- A cluster with 5 computing nodes.

Item	Name	Configuration
Server	Inspur NF6248 x 5	CPU: Intel Xeon Phi 7210, 1.3Ghz, 64 cores
		Memory: 16G x4, DDR4, 2133Mhz
		Hard disk: 120G SSD x 1

#### 1.2 Software

Classification	Description	Installation path	Version
OS	GNU/Linux		CentOs 7.2
Compiler	Intel Composer XE Suites	/opt/intel/parallel_studio_xe_ 2017.1.043	2017.1.043
MKL	Intel MKL	/opt/intel/compilers_and_librarie s_2017/linux/mkl/	
MPI	Intel MPI	/opt/intel/impi/2017.1.132/	2017 Update 1 Build 20161016
PBS	Torque		

### II. Login

Each user's username and password will be notified by e-mail. User shall change the initial password after first login. The login account will become invalid after contest finish.

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Tips: User could use remote login tool such as Xshell, SecureCRT and SSH Secure Shell Client to login.

### III. Basic operation

User could log into the system by using Xshell4. The whole process will be described below using Xshell4 as an example.

#### 3.1 Login

Login command: `ssh 202.196.76.107:7777`. The system will prompt to input user name and password after the enter key is pressed, and then user shall be able to successfully log in to the system, and then access the compiling node via ssh. The user will be told which compiling node they should use along with their account information by email.

System will allocate 20G space to each user by default. In case the space occupied by the user exceeds 20G, system will automatically clear it 7 days later, so the user shall make data backup and timely clear disk space. If the user needs a larger disk space, please send the application to the system administrator. The contact e-mail is [techsupport@asc-events.org](mailto:techsupport@asc-events.org).

In order to ensure enough storage space and the data security and privacy, please download or delete the relevant data before logging out. The platform is not responsible for long-term preservation of the user data.

To conduct cluster computation, the user needs to submit the job to the cluster. Please refer to the introduction in the next section for the job submission process.

#### 3.2 Job management

##### 1) Common job management commands

- `qsub #` submit a script to create a job

Command format: `qsub [pbs file]`

It will submit a pbs job running on the cpu nodes.

If you want submit a mic job, you should submit a job with “-q” param, like this:

```
qsub mic.pbs -q
```

Other parameter specification: generally, the job submission information is written in a job submission script. User could refer to the pbs script introduction below.

- `qstat #` Check job status, R status means running, Q means queuing and C means completion

Command format: `qstat [-f job_id][-a]`

Parameter specifications:

-f job\_id: list the information of the job specified by the job\_id

-a: list all the jobs in the system

- `qdel`

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Command format: qstat job\_id

Parameter specification: delete the job specified by the job\_id, e.g qdel 156.

## 2) pbs script introduction

Brief description:

###Define the job name as myjob, can be modified when required.

#PBS -N myjob

### Specify both the number of nodes and the number of CPUs that are needed for the workload. This parameter can be changed later. The following example requests 2 nodes and 4 CPUs.

#PBS -l nodes=2:ppn=4

###Set the environment variables needed by the computation job

source /home/opt/intel/bin/compilervars.sh intel64

###Compute the number of CPUs used for the job

NP=`cat \$PBS\_NODEFILE | wc -l`

### The command to run the job; mpi-mpich is the name of the compiled executable file, and needs to be modified.

/home/opt/intel/impi/5.0.1.035/intel64/bin/mpirun -np \$NP -machinefile  
\$PBS\_O\_WORKDIR/hosts mpi-mpich

Note: #PBS line is not the comment. All comment lines start with ###.

Please refer to the Serial.pbs template for serial computing and Parallel.pbs template for parallel computing.



Thank you for participating in the ASC16 Contest. We greatly appreciate your support. Any problem encountered by users in using the Inspur ASC17 remote login platform could be sent by e-mail to [techsupport@asc-events.org](mailto:techsupport@asc-events.org), and the system administrator will try the best give the answer in time.

## 3.3 Monitoring

The remote log-in platform provides the monitoring and scheduling software ClusterEngine.

You can access 202.196.76.107 to see job status and resource utilization as well as the login time.

## IV. Inspur ASC17 Remote Login Platform

- 1) The same account allows at most 2 users to log in within the same period of time.
- 2) It is suggested that the user shall immediately modify the password after log in.

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Password and account name shall be different. In the cases that the user forgets the password, please contact the maintenance personnel for resetting. The contact e-mail is [techsupport@asc-events.org](mailto:techsupport@asc-events.org).

- 3) The user shall keep their own accounts and passwords, and do not disclose to others.
- 4) Make data backup timely to avoid data loss.
- 5) In order to ensure the reasonable usage of resource, the user shall log out after using. Besides, do not perform computation jobs that are irrelevant to the contest.
- 6) It is strictly prohibited to use scan, monitoring or camouflage kit to maliciously attack the system and to interfere with other users' normal jobs.
- 7) Please do not install or try unknown software, modify system configuration or run rogue program to avoid the system failure. In the cases that the user needs to use or install exterior file, please contact the maintenance personnel for approval. The contact e-mail is [techsupport@asc-events.org](mailto:techsupport@asc-events.org).
- 8) For any good suggestions about system maintenance, please send to [techsupport@asc-events.org](mailto:techsupport@asc-events.org).
- 9) The platform will be shut down from Jan 26th to Feb 3rd during the Chinese traditional holiday Spring Festival.

**Warning:**

Behaviors such as deliberate damage of stored, processed or transmitted data and application programs in the system or intentionally making or transmitting destructive programs (computer virus) to affect the normal operation of system, are strictly prohibited.