

User Support (WP6) Cheat Sheet Core Skills

To apply for an HPC account

To apply for Preparatory/Production Access:

<https://ssl.linkslings.net/applications/linksceem/>

To apply for Educational Access:

<http://www.linksceem.eu/ls2/user-resources/how-to-apply/how-to-apply-educational.html>

To get started

<http://eniac.cyi.ac.cy/display/UserDoc/Welcome+Pack>

<http://eniac.cyi.ac.cy/display/UserDoc/Guide+to+using+LinkSCEEM+HPC+resources>

<http://www.linksceem.eu/ATutor>

To connect to an HPC System

Example to access an HPC system:

```
ssh username@euclid.cyi.ac.cy
```

Modules commands examples

module avail # lists available modules

module list # lists currently loaded modules

module help <name> # help on a specific module

module whatis <name> # brief description of a specific module

module display <name> # displays the changes that loading a specific module makes to the environment without actually loading it

module load <name> # loads a specific module

module unload <name> # unloads a specific module

module clear # unloads all modules

To find cluster status & job summary

qstat -q # Queue summary

pbsnodes # Detailed information per node

qstat # job list; can be very long

qstat -an # job list including nodes allocated to each job

To start an interactive job

```
qsub -I -q gpuq -l nodes=1:ppn=8
```

-I starts an interactive job, -q specifies a queue, -l number of nodes and cores per node needed

Example MPI code: hello.c

```
#include <stdio.h>
#include <mpi.h>
int main(int argc, char ** argv) {
int size,rank;
int length;
char name[80];

MPI_Init(&argc, &argv);
MPI_Comm_rank(MPI_COMM_WORLD,&rank);
MPI_Comm_size(MPI_COMM_WORLD,&size);
MPI_Get_processor_name(name,&length);
printf(
"Hello MPI World! Proc %d out of %d on %s\n", rank,
size, name);
MPI_Finalize();
return 0;
}
```

To compile a parallel job

```
module load openmpi
mpicc -o hello hello.c
```

To create a job script

A job script is a list of instructions that tell PBS how to run your job. You can modify a job script in a text editor such as Vim, nano, joe, pico, emacs etc. You should do such work on the head node.

```
#!/bin/bash

#PBS -N mpi-hello_world
#PBS -j oe
#PBS -q batch
#PBS -l nodes=1:ppn=8

cd $PBS_O_WORKDIR

module load openmpi # without this, mpiexec may not
be in path
mpiexec ./hello # execution depends on Software
Environment
```

To submit a job

```
qsub <name of script> # To submit a job in PBS
```

To contact staff for help

If you have any problems using an HPC system, feel free to contact User Support for assistance.

Email: hpc-support@linksceem.eu

Web: <http://www.linksceem.eu/ls2/user-resources/user-support/basics.html>