

1. Quick start

1.1 Compilation environment

You should use the intel compiler as well as the intelmpi library:

```
user@login0:~$ module load intel intelmpi
load module mkl/compilers_and_libraries_2017.0.098/linux
load module idb/compilers_and_libraries_2017.0.098/linux
load module intel/17.0
load module impi/2017.0.098
```

Compiler option for using Intel KNL's AVX512 is: `-xMIC-AVX512`

Note that the login node is a Broadwell node, you will have to cross-compile using this option.

You can also use all the modules available using the module command.

1.2 Job submission

Here is an example of job you can submit on the machine:

Job.sh

```
#!/bin/bash
#SBATCH -t 01:00:00
#SBATCH -N 2
#SBATCH -n 136
#SBATCH --mem=190GB

##IF I WANT A QUAD,CACHE NODE:
#SBATCH -C quad,cache
TYPE=cache

##IF I WANT A QUAD,FLAT NODE (remove the extras # on the next lines):
##SBATCH -C quad,flat
#TYPE=flat

module load intel intelmpi
export I_MPI_DOMAIN=auto
export I_MPI_PIN_RESPECT_CPUSET=0

if [ "$TYPE" == "flat" ] ; then
MPIRUN="mpirun -print-rank-map -prepend-rank numactl --membind=1 "
else
MPIRUN="mpirun -print-rank-map -prepend-rank "
fi
```



```
$MPIRUN myprogram myarg1 myarg2
```

You can submit this job using the command: **sbatch Job.sh**

#SBATCH lines represent attributes for the job.

Here are the main options you should use:

Option	Argument	Purpose
-t	hh:mm:ss	Time you book your resources
-N	integer	Number of nodes you need
-n	integer	Total number of tasks you use
--ntasks-per-node	integer	Number of tasks per node you use
--mem	xxxGB	Amount of memory per node that you need
-C	string	Constraint: determine the KNL mode (quad,cache or quad,flat)

Way more options are available in the SLURM documentation available here:

<https://slurm.schedmd.com/sbatch.html>

Examples of script are also available on the machine at this location:

/opt/software/frioul/job_examples/

For any other question, please contact svp@cines.fr