Information about the batch system

Ressource allocation

- Start an interactive session for example on one DEEP Cluster Node for 2.5 hours:

  → *qsub -I -X -l nodes=1:ppn=16:cluster,walltime=02:30:00*

- Start an interactive session for example on one DEEP Cluster Node plus one DEEP Booster Node for 2.5 hours:

  → *qsub -I -X -l nodes=1:ppn=16:cluster+1:ppn=244:booster,walltime=02:30:00*

- Leave the interactive session:

  → *exit*

- Submit a batch job:

  → *qsub job_script.sh*

- Specify the nodes you want to use:

  → *-l nodes=x:ppn=y:cluster* will allocate DEEP Cluster Nodes
  → *-l nodes=x:ppn=y:booster* will allocate DEEP Booster Nodes
  → *-l nodes=x:ppn=y:sdv* will allocate SDV Cluster Nodes
  → *-l nodes=x:ppn=y:knl* will allocate (randomly) SDV KNL Nodes
  → *-l nodes=x:ppn=y:knl:extoll* will allocate SDV KNL Nodes with EXTOLL
  → *-l nodes=x:ppn=y:knl:nvme* will allocate SDV KNL Nodes with NVMe

- The following job script can be used as a template for your own jobs:

```
#!/bin/bash
#PBS -S /bin/bash
#PBS -l nodes=[number of nodes]:ppn=[number of processes per node]:[nodetype]
#PBS -l walltime=[hours]:[minutes]:[seconds]
#PBS -e [path to your errorfiles]
#PBS -o [path to your outputfiles]
#PBS -m e
#PBS -M [your mail address]
#PBS -N [name of your program]
#PBS -d [path to your working directory]
#PBS -v LD_LIBRARY_PATH
module load parastation
[load all the modules you need]
mpiexec -np [number of processes] [executable]
```

Some useful commands

- *pbstop* → Shows system load and job overview.
- *pbsnodes -ln* → Shows information on nodes, that are currently not available.
- *showres* → Shows reservations. (Only on deepm)
- *showq* → Lists active, idle and blocked jobs. (Only on deepm)
- *qstat -u USER* → Shows jobs of a certain user.
- *qstat -f JOBID* → Shows detailed information about a certain job (job id can be obtained by qstat -u).
- *showstart JOBID* → Provides an estimated start time for a certain job. (Only on deepm)