PBS Script

Basic PBS script commands

PBS script command	Description
#PBS -S /bin/bash	Sets the shell that the job will be executed on the compute node
#PBS -l nodes=1:ppn=1 #PBS -l procs=1	Requests for 1 processors on 1 node.
#PBS -l walltime=5:00:00	Sets the maximum runtime of 5 hours for your job
#PBS –M <email>	Sets the email address for sending notifications about your job state.
#PBS -m abe	Sets the scedualing system to send you email when a mail is sent when the job is aborted by the batch system. b mail is sent when the job begins execution. e mail is sent when the job terminates.
#PBS –q <quename>	Puts your job into <queuename> queue
#PBS –N myjobName	Gives your job a name

PBS script commands

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#PBS -l nodes=1:ppn=1 #PBS -l procs=1	Requests for 1 processors on 1 node.(Serial)
#PBS -l nodes=1:ppn=X	Requests for X processors on the same node (OpenMP)
#PBS -l nodes=X:ppn=1 #PBS -l procs=X	Requests for X processors which may be running on any nodes (MPI)
#PBS -l nodes=X:ppn=Y	Requests X nodes with Y processes (Hybrid)
#PBS –t 0-4 #PBS –t 0,1-4 #PBS –t 0,1,2,3,4	Requests Job array of 5 jobs
#PBS –t 1-X%Y ex: #PBS –t 1-100%10	Requests Requests Job array of X jobs with only a maximum of Y jobs running at the same time

PBS script commands

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#PBS -l mem=4gb	Requests 4 GB of memory in total
#PBS –l pmem=4gb	Requests 4GB of memory per process
#PBS –l feature=ssd	Requests 1 procesor on node with a feature ssd
#PBS -l partition=QDR	Requests to run in the QDR partition
#PBS –l nodes=2:blue:ppn=2	Request 2 cores on each of 2 nodes with blue feature.
#PBS –l nodes=2:gpus=3:ppn=4	Request 4 cores and 2 gpus on each of 2 nodes
#PBS –l nodes=cl2n002+cl2n003	Requests 2 nodes cl2n002 and cl2n003
#PBS –l host=cl2n002	Requests host or node cl2n002
#PBS -I	Request an interactive Job

PBS script commands

PBS script command	Description
#PBS -l naccesspolicy=singleuser	Requests to only run on nodes with other jobs of same user
#PBS -l naccesspolicy=singlejob #PBS -n	Requests to only run on nodes with no other jobs
#PBS -l naccesspolicy=singletask	Requests that the each part of the job will only run on a separate node without anything else running on that node.
#PBS –A <accounting group>	Requests that a specific accounting group be used for this job
#PBS -W x=GRES:MATLAB=2 #PBS -l other=MATLAB=2	Requests 2 units of a generic resource or software license MATLAB
qsub –W depend=afterok:<job1id> j2.pbs	Job 2 that depends on job1 and will not start until job1 completes successfully.
#PBS -l epilogue=/home/fujinaga/epilogue.script	Runs epilogue script for maximum of 5 minutes after job is complete.
#PBS –l prologue=/home/fujinaga/prologue.script	Runs prologue script for maximum of 5 minutes before job is complete.
#PBS –l nodes=5:ppn=12+nodes=1:ppn=1	Requests 5 nodes with 12 processors each and a single node with 1 core.

PBS Environment Variables

Environment Variable	Description
PBS_JOBNAME	User specified job name
PBS_ARRAYID	Job array index for this job
PBS_GPUFILE	list of GPUs allocated to the job located 1 per line: <host>-gpu<number>
PBS_O_WORKDIR	Job's submission directory
PBS_TASKNUM	Number of tasks requested
PBS_O_HOME	Home directory of submitting user
PBS_JOBID	Unique pbs job id
PBS_NUM_NODES	Number of nodes allocated to the job
PBS_NUM_PPN	Number of procs per node allocated to the job
PBS_O_HOST	Host on which job script is currently running
PBS_QUEUE	Job queue
PBS_NODEFILE	File containing line delimited list on nodes allocated to the job
PBS_O_PATH	Path variable used to locate executables within job script