SGE Tutorial

The Sun Grid Engine (SGE) is a queue and a scheduler that accepts jobs and runs them on the cluster for the user.

You can submit two types of jobs to STEC SGE, batch and interactive.

Batch Jobs:

A batch job is generally used when you need SGE to run your script, that been a simulation, perl, bash or any other type of script that will run on a standard linux system.

Interactive Jobs:

An interactive job is when you are running a program interactively on a node. An example would be simvision, design compiler, Verdi, etc.

Submitting Jobs

In some cases, you may just want to run a very quick job, or otherwise just need to run some commands without packaging them up in a job script. If the footprint of the jobs is light, then they can just be run directly on the login hosts. If the jobs are going to use a lot of memory, a large percentage of available CPU time, or a large percentage of available Input/Output bandwidth, then it is better to run them within SGE. If you run commands or scripts on the login hosts and those have any amount of significant amount of runtime, please monitor their CPU usage. If we let the too many CPU hogs pile up on the login hosts it will quickly become very painful for interactive users trying to move files around, write scripts, and submit them.

SGE Wrappers to submit jobs to SGE:

run_qsub.lp To submit a batch job to the low priority queue

run_qsub.hp To submit a batch job to the high priority queue

run_qrsh.int To submit an interactive job

run_qsub.matlab To submit a Matlab batch job

We have four SGE queues in Santa Ana, San Diego and Malaysia:

1. – Interactive
2. – High Priority
3. – Low Priority
4. - Matlab

Monitoring Queue Status

You can use the "qstat" command. By default this shows a list of jobs running in the queue and their state. The output lists out the job id, priority, name, user, state, submission time, queue, and CPU slots used by the job. You can view individuals jobs using the “-j <job_id> option. The output in this case is much more verbose, and includes information about the state of the job, and queuing considerations. You can also use the -u <user_id> to see only your jobs.

One final option is to use the –f option to see the status of the queues on the systems.

Deleting Job Scripts

It might happen that you realize there is a mistake with a job, or want to move it to another queue. In this case, you can use the "qdel" command to remove the job. This is true whether the job is still in the wait state, or is running. The syntax is

```
qdel <jobid>
```

You can also use -u <user_id> to remove all of the jobs you have on a particular system.