Available Partitions on Sandhills

Partitions are used in Sandhills to enforce ownership and priority for owned resources. You can view the partitions with the command `sinfo`.

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<table>
<thead>
<tr>
<th>Partition</th>
<th>Owner</th>
<th>Node total (NODExCPUxMEMxFEATURE)</th>
<th>Description</th>
<th>SLURM Specification</th>
<th>Max Job Run Time</th>
<th>Max CPUs Per User</th>
<th>Max Jobs Per User</th>
</tr>
</thead>
<tbody>
<tr>
<td>batch</td>
<td>shared</td>
<td>91 total (49x64/192GB/lb,2300MHz; 41x32/128GB/lb,2000MHz; 1x48/256GB/none)</td>
<td>(default, no specification)</td>
<td><code>#SBATCH --partition=batch</code></td>
<td>10-00:00:00</td>
<td>2300MHz:2132</td>
<td>1000</td>
</tr>
<tr>
<td>sabirianov</td>
<td>sabirianov</td>
<td>4 total (4x64/192GB/lb,2300MHz)</td>
<td>Dedicated resources with lb or 2300MHz</td>
<td><code>#SBATCH --partition=sabirianov</code></td>
<td>10-00:00:00</td>
<td>2300MHz:256</td>
<td>1000</td>
</tr>
<tr>
<td>starace</td>
<td>starace</td>
<td>1 total (1x48/256GB/none)</td>
<td>Dedicated resources</td>
<td><code>#SBATCH --partition=starace</code></td>
<td>10-00:00:00</td>
<td>48</td>
<td>1000</td>
</tr>
</tbody>
</table>

**Specific CPU Frequency Selection**

Sandhills is a heterogeneous cluster in terms of individual node resources, even when 'owned' by a research group and allocated to a specific partition with limited access. So that researchers can constrain their jobs' deployment to nodes with specific CPU frequencies, HCC has added a 'feature' on each node that can be used to filter as part of submission requests. Currently there are nodes with processors operating at 2300Mhz and 2000Mhz. In order to select only nodes of a specific frequency one must add `--constraint=2000Mhz` to the SLURM specification (for example).

One can see partitions, node names, features, and allocation status by using a command such as `sinfo -N -o "%P %f %t %N"`.

**Limitations of Jobs**

There are no special QoS settings for Sandhills currently. All jobs are subject to the maximum 10 day run time and 1000 jobs per user.

**Guest Partition**

The `guest` partition can be used by users and groups that do not own resources on Sandhills but still want to run parallel applications. Jobs running in the `guest` partition will run on the owned resources with a high performance interconnect optimized for parallel applications. The jobs are preempted when the resources are needed by the resource owners and are restarted on another node.

**Owned Partitions**

Partitions marked as owned by a group means only specific groups are allowed to submit jobs to that partition. Groups are manually added to the list allowed to submit jobs to the partition. If you are unable to submit jobs to a partition, and you feel that you should be, please contact `hcc-support@unl.edu`. 