Submitting an OpenMP Job

Submitting an OpenMP job is different from submitting an MPI job since you must request multiple cores from a single node.

### OpenMP example submission

```bash
#!/bin/sh
#SBATCH --ntasks-per-node=16     # 16 cores
#SBATCH --nodes=1                # 1 node
#SBATCH --mem-per-cpu=1024       # Minimum memory required per CPU (in megabytes)
#SBATCH --time=03:15:00          # Run time in hh:mm:ss
#SBATCH --error=/work/[groupname]/[username]/job.%J.err
#SBATCH --output=/work/[groupname]/[username]/job.%J.out

export OMP_NUM_THREADS=16
./openmp-app.exe
```

Notice that we used `ntasks-per-node` to specify the number of cores we want on a single node. Additionally, we specify that we only want 1 node.

`OMP_NUM_THREADS` is required to limit the number of cores that OpenMP will use on the node. It should match the `ntasks-per-node` value.

### Compiling

Directions to compile OpenMP can be found on [Compiling an OpenMP Application](#).

### Further Documentation

Further OpenMP documentation can be found on LLNL's OpenMP website.