

Introduction to OpenMP

In this activity, we will look at some simple example OpenMP codes to understand the basics of how OpenMP works. Then we will look at a more complicated OpenMP code and consider some performance issues.

First copy the examples from the instructor's directory on Stampede:

```
cp -r ~/tg457571/cs5334/openmp .
```

1. Compile and run the `omp_hello.c` example. Try running with different numbers of threads. (Remember to run on a compute node using either `idev` or a batch script). What do you observe?
2. Compile and run the `workshare1` and `workshare2` examples. What two ways of sharing work using OpenMP are illustrated?
3. Explain how reduction is used in the `omp_reduction.c` code. Now look at the `prime_openmp.c` code and explain how reduction is used.
4. Observe how the `schedule` clause is used in the `mm_omp.c` code. Try using different numbers of threads. Try changing the `schedule` clause. What do you observe?
5. Compile and run the `poisson_openmp` code with different numbers of threads. This code has two performance problems – try to fix them.