

ComS 425: Homework # 2 (Part I) — 20 points

Due January 29, 2007 at 5pm CST by email

1. Login into the **hpc-class** cluster.
2. Download the "hello world" program from
http://www.llnl.gov/computing/tutorials/openMP/samples/Fortran/omp_hello.f .
3. Use the *script* command to record all your following actions:
 - (a) Compile `omp_hello.f`.
 - (b) Run the executable three times for each number of threads N_t , where $N_t \in \{1, 2, 4\}$.
 - (c) Provide time measurements for each run.
 - (d) Submit the executable as a batch job, such that it uses the total of 16 processors. Do this for two different processor-node configurations.
 - (e) Finish the *script* command.
4. Answer the following questions:
 - (a) Given N_t , why the order of the printed messages is different in each of three cases?
 - (b) Why timing is slower for $N_t = 4$ and for $N_t = 2$?
 - (c) What type of parallelism is exploited in `omp_hello.f`?
 - (d) Why does only master thread print the "Number of threads"?
5. Submit electronically to instructor in a single email with the subject line "ComS425 homework 2 part 1":
 - (a) Output file from *script*;
 - (b) Answers to questions from item 4.