

Homework 5, due: 03/03

MATH 9830, Spring 2015

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0. Info to get on palmetto:

- (a) Login using `ssh NAME@user.palmetto.clemson.edu` where NAME is your clemson id (without @clemson.edu)
- (b) You can run an interactive session using
`qsub -I -l select=1:ncpus=16:mem=60gb:interconnect=fdr,walltime=1:00:00`
(see <http://citi.clemson.edu/palmetto/pages/userguide.html>)
- (c) I have cmake installed for you under
`/home/heister/bin/cmake-2.8.11.1-Linux-i386/bin`
and deal.II under
`/home/heister/shared-dealii/installed-8.2.1`
Before using being able to compile with deal.II you need to load the modules found in
`/home/heister/shared-dealii/modules`

1. Implement a multithreaded function `double norm(const Vector &v)` that computes the 2-norm using multiple threads. Use `O6_threads_ex2` as a base. Check that your function gives the same result as the already existing serial function.

2. Palmetto Cluster

- (a) Log into palmetto, start an interactive job on one of the newer Xeon nodes, and determine which node you are on (`hostname`) and the number of cores the machine has (copy and print your terminal input/output). Setup your `.bash_profile` that the cmake directory (see above) is in your `PATH` variable, so that you can run `cmake --version`. Also add `DEAL_II_DIR`.
- (b) Verify that you can run deal.II on palmetto by running your modified step 3 from last homework.
- (c) Report the runtime for different number of threads for question 1) (copy the terminal output) and determine the best number of threads.