

PHYS405

Advanced Computational Physics Parallel Computing

Assignment No. 5 Due: Monday, December 5, 2016

Purpose: Practice different approaches to writing parallel codes, using CUDA and Intel PHI card.

Ref: Course notes on the web. Google. Class discussion.

Using straightforward C or C++, MPI, GPU or Intel PHI will not yield equally efficient parallel codes or codes equally easy to write.

The problems to solve are on the www notes, They describe the PHI chip section under the headings **base**, **omp** and **tiled** in Chapter 4.

This assignment requests that you adapt the codes for various computing platforms.

1. Understand, run and record the time for the code **base** using the cpu on DRACO
2. Run and record the time for the code **base** using the PHI chip on DRACO
3. Understand, run and record the time for the codes **omp** and **tiled** using many PHI chips on DRACO.
4. Adapt the PHI codes **base**, **omp** and **tiled** to run on the GPU in BORG3
5. Include the required timing functions to allow meaningful time comparisons.