CPEG455/655 Course Project

Important Dates:

Project topic choice and plan: Nov. 22, 1:25PM

Project Presentation: Dec. 4 in class

Project Package Submission (including code and documentation): Dec. 11, 11:59 PM

This is the capstone project of this course. You should put everything you have learned into this work. There are 3 milestones. The first is to select a project topic from the following list, or, after consulting with and receiving approval from the instructor, select a topic of own interest. You should submit to CANVAS a one-page document describing the choice of your project topic and a reasonable plan of how to proceed with your project. The due date of this document is Nov. 22 1:25PM. The weight of this planning document is 15%. The second milestone is a 10 minutes presentation in class on Dec. 4. You should have most of the project done by that time. The weight of the presentation is 25%. The third milestone is the final report and the submission of your project package. The weight is 60%.

Topic list:

(1) Matrix multiplication on GPU. See the separate document.

(2) SSE-based Matrix multiplication on CPU: all computation must be carried out in vector form.

(3) Parallel Stencil computation.

(4) Radix Sort on CUDA.

(5) Micro-benchmarking for CUDA or X86 CPUs. Reference: Automatic measurement of memory hierarchy parameters (http://portal.acm.org/citation.cfm?id=1071690.1064233).

(6) Fast Ray Sorting and Breadth-First Packet Traversal for GPU Ray Tracing. Reference: http://research.microsoft.com/en-us/um/people/cloop/garanzhaloop2010.pdf

What to submit:

The package you submit for project should include your source code, performance results and analysis, and brief description that you think might help the instructor understand your code, e.g., about any design choices you make in your program. The instructor will compile, run and measure the performance of your code. Therefore, you should also describe how to compile and run your code in your submitted documentation.

How to Submit:

Copy your lab report, which is a .pdf, a .doc, or a .html file, and all your source code into an empty directory. Assuming the directory is "submission", make a tar ball of the directory using the following command:

tar czvf [your_first_name]_[your_last_name]_project.tar.gz submission.

Replace [your_first_name] and [your_last_name] with your first name and your last name.

The submission time will be used as the time-stamp of your submission.
