MMI 713 - APPLIED PARALLEL PROGRAMMING ON GPU

ASSIGNMENT AND REPORT GUIDE

You are required to submit the code and a report.

Please submit codes as plain text files or ".cu" files. Do not submit the whole project. You are free to use any implementation strategy (simple is the best). Codes will be tested on Visual Studio 2015, Windows 10.

Submit the report as text file (doc,pdf etc.). While writing the report, consider the following requirements:

- Problem Definiton (5 pts): Define the problem and requirements, and how the parallelization would effect on the problem domain shortly.
- Algorithm Description (5 pts): Describe your algorithm. Mainly describe your solution steps. Briefly explain the functionalities of the files that will run on GPU and/or CPU. Explain your implementation methodologies briefly, such as the management of the memory operations and the thread operations, the determination of the block numbers (if you use the block-matrix operations), etc.
- Different size matrices (Benchmarking) (10 pts): Try your implementation with different size matrices (not just square matrices). For performance results, run the implementation for 10 times for each matrix and take the average. For benchmarking, show and discuss the results with tables or figures (good with large matrices, bad with square matrices etc.)
- Pros-Cons of Solution (5 pts): Advantages or drawbacks of your solution. Discuss if there are any other solutions. ("Using ... would increase/decrease the performance.")
- Discussion (10 pts): Generally discuss the results and performance by considering memory and time constraints. Describe the reasons of performance gain/loose.
- Environment (5 pts): Specifications of your environment (GPU, CPU, OS, compiler etc.)
- Working Code (55 pts): Your code should work without any error and give the correct results. Codes will be tested with different inputs. Please print the necessary outputs to console screen so testing would be easier. You can work on any OS or compiler but your code should work on test environment. Also you should add comments to your code to describe your functions and variables shortly (5 pts).

If your implementation requires specific configuration settings (such as the configuration of path settings, 3rd party libraries etc.), please indicate them in your document.

Grades and feedbacks will be announced on ODTUCLASS and via e-mail.