GPU Programming Contest

Announcement

- The information on contest will be on this site. Please check it periodically.

Update Information

8th August (Tue)

- contest open

9th August(Thu)

- Deadline

Target subject

- **Implementation of kmeans cluster on the GPU and its optimization.** Write the program and run it on the GPU

- Please check the following files:

Toolkits and Documents

- kmeans_gpu.tar.gz: Toolkit ver.1.0
- gpu_contest.pptx : Toolkit ver1.0 Document
- NVIDIA GPU Computing Document: NVIDIA GPU Computing Document
- NVIDIA CUDA Information Site: Fixstars's site for CUDA introduction

The GPU system to be used

- The toolkit code involves OpenCV, which is available only on Forge.

Usage

- Uncompress the tool kit and sample codes. Add the paths for compilers and others.
  % tar zxvf kmeans_gpu.tar.gz
  % cd kmeans_gpu

- The execution of K-means is done as follows:
  % cd kmeans_gpu/toolkit1.0

```
% make
% make gpu (or cpu)
```

- The output file is generated on toolkit1.0/result/ with defaults parameters. Please check the correctness of the results with the following programs.
  ```
  % make cpu
  % make gpu
  % cd result
  % diff cpu_output gpu_output
  ```

- If you want to try other input patterns, please set some arbitrary number to SEED. Note that the default value of SEED is 0.
  ```
  % make gen
  % ./gen SEED
  ```

Evaluation

- Several input data prepared by the will be used.
- The number of samples in every input file is 1024 * 8 = multiple of 8192
- The number of clusters should be 8
- We need to be able to run the code to check the performance, hence maintain it well.
- A group with fastest code will be awarded a prize.

About report

A simple (very crisp and elegant) report including design concept, utilized optimization, discussion and/or proposals for target subject. (about A4 1〜2 pages).

Any communication (as far as possible) is only through Piazza.

Note: We are not responsible for the long queue times on Forge system, These supercomputer schedulers are configured to be used by 100's users, this ensures better utilization of system. So, you are required to submit batch jobs if required.

********** Happy coding and Optimization ********** All the Very Best ****************