Assignment 3

Task: OpenCL continuation

There are two tasks required to be done for this assignment.

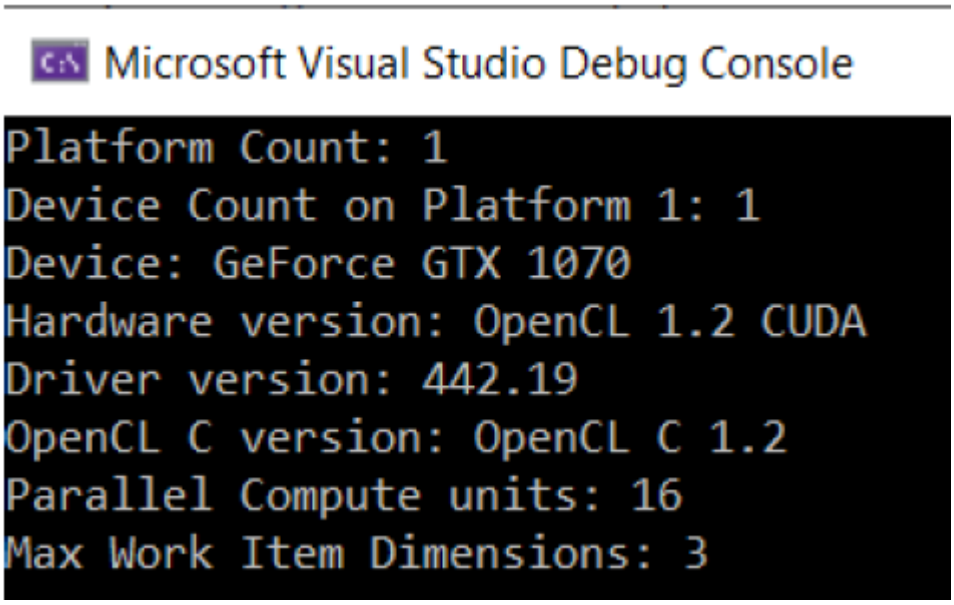
1. Create an OpenCL program that reads an image, convert into gray scale, applies a 5x5 moving filter and saving the final image
2. Profiling the Task-1 OpenCL program

Task-1: Steps

1. Load the image file “im0.png” shared under this assignment. Usage of OpenCV library is **not** allowed for this assignment. Instead “lodepng.cpp”, “lodepng.h” is shared under this assignment that can be used to load, read and write the image files in C/C++
2. Convert the read image into gray scale by writing your custom function
3. Apply a 5x5 moving filter on the gray scaled image matrix. You have to write your custom function for this as well
4. Save the final image. You can use lodepng.h library functions for this part.

Task-2: Steps

1. Display the platform information on the terminal as show in HellowWorld introduction assignment. For example,



2. Run Task-1 steps one after another and display some interim outputs along with saving the final image. For example,

```
Image reading done
Converted into grey scale format
Image filtering done. Saved into output/filt_img.png
```

3. Profiling mainly requires measure atleast the **execution times** of each of the different operations mentioned under Task-1. Loading and Reading Images, Converting to gray scale, Moving Filter operation and Saving Image.
4. Feel free to measure the usage of memory, bus data transfer between host and device and the time etc. as well if you are interested.
5. Finally **display the profiling information** on the terminal

Expected Result:

A working implementation of the OpenCL program, the saved final image and 1-2 page brief report.

The report should contain information about the task (both 1 and 2), a brief description of the implementation of your tasks and the observed profiling information. Include the final screenshot of your terminal containing the outputs as mentioned in Task-2