

Parallel Processing

Assignment 4

This assignment is individual assignment, every student should submit by himself.

Due: Next Section

1. True or False:

- GPU consists of server streaming multiprocessors.
- Programmers are responsible for allocating blocks to SMs.
- Thread blocks are usually assigned to SMs in a specific order.
- A block may run on more than SM.
- All blocks in the kernel finish before any blocks in another kernel.
- Threads from two different blocks can access the same variable in global memory.
- Accessing global memory takes less time compared to accessing local memory.

2. Write a CUDA program to perform blurring over a given image using the following technique:

Suppose the following box is part of a given image:

1	5	4
6	x=7	6
13	35	9

Then the new value of x after blurring :

new x= (1+5+4+6+7+6+13+35+9)/9 where 9 is the number of summed pixel. Your program should apply this formula for each pixel in the original image.

PS 1: use the following templates to complete task 2 and 3

- [VS2013 template](#)
- [Linux template](#)

PS 2: Refer to the following video to understand how to handle image in a simple way

- [How to simply handle an image with CImg in CUDA](#)