EE699 Assignment 3: How Fast Is This?

Implementor's Notes

Rui Yu
Department of Electrical and Computer Engineering
University of Kentucky Lexington, KY USA
rui.yu@uky.edu

ABSTRACT

This assignment involved modifying a .cu program to observe how the execution time will change based on the different parameter input.

1 GENERAL APPROACH

The very first step for this project was to get this program run in the file we want and insert a for loop before the add part. Basicially, cp was all we need to copy the original files to a new direction. Then modify all the reference from vectorAdd to scaling. After it, run the make to make sure it will work, after verify it. Start modify the .cu file, first insert the for loop before the c[i] = a[i] + b[i], then modify the program main(), change void to (int, char) to receive input, use atoi() to convert string to int to use as the parameter, after all this down, it's ready to start the observation.

With the different input combinations, the cudaMalloc time was always around 34.000m. ThreadsPerBlock failed to launch at 2048 but success with 1024. If the blocksPerGrid was MP / 4, threadsPerBlock starts from 16, the execution time will become more and more liner with the threadsPerBlock increase larger and larger, but if it's only change from 16 to 32, although the number of elements increase 2 times, the execution time only multiply by around 1.125. If the blocksPerGrid was MP * 256, the time was change linearly with threadsPerBlock change from 256 to 1024. But also not change linearly from 16 to 32.

Based on the different combinations I try. I feels like no matter which blocksPerGrid I chose, the execution time was not linerly if the threadsPerBlock was a small number, but when the threadsPerBlock became bigger, the execution time looks pretty linearly with threadsPerBlock or numElements.

2 ISSUE

It takes me some time to login to the flint, but after login, the rest of the work was pretty straight forward until the observation, for the observation part,there are so many combinations. I'm not sure how to chose the best combination to make the compare. So I chose to set one parameter doesn't change and only change another one. So at least, the parameter was change linearly.