CS 791a: Topics: Advanced Graphics



Spring 2011

Programming Assignment #4 FIR Filter

Assigned Date

9/27/2011

Due Date

10/4/2011 12:29:59.99PM PST

Overview

For this assignment, you will generate a simple finite impulse response (FIR) filter. The program should behave as follows:

1. Generate an array A of N values, either randomly or from a file.

2. Given a filter kernel size K, generate an output array O of size N - K + 1, where O[i] = (A[i] + A[i+1] + ... + A[i+K-1]) / K.

Project Requirements

- Implement one version on the CPU
- Implement another version in CUDA using global memory only
 - Your code should handle arrays greater than the maximum number of available threads
- A writeup with graphs including time and throughput comparing the CPU and GPU versions in terms of performance.

Deliverables

- Bring code and output to class for discussion.
- Have a pdf of your writeup and a zip of your source code emailed to: Fred Harris and Lee Barford. Don't send binaries.

• Firstname dot Lastname at (Fred is cse, Lee is gmail)