Programming Assignment #6

Prefix Sum for Large Data Sets

Date: __/__/2015	**Due**: __/__/2015
Grade: 100 points	**Hard Deadline**: __/__/2015

Write a CUDA program to perform the All-Prefix-Sums operation on a given array of arbitrary N elements. The given array should be able to store any type of data (i.e. *short*, *int*, *float*, etc.). Your program should invokes two kernels, the first one breaks the large input array into blocks then scans each block i individually and stores their results in an auxiliary array; the second kernel should scan the auxiliary array and adds the block sum i resulted to all values of the scanned block $i + 1$.

Hint: use the efficient-work kernel explained in lecture No.6 and the algorithm described in slide 14

Testing:

- Generate a random number sequence on N elements and allocate memory for both CPU and GPU sides.
- Write a sequential CPU version and test it using the generated data set
- Write the parallel GPU kernels and test the output results with the CPU outputs.

Submission Instructions:

➢ Submit your program to CSE327_CUDA@gmail.com before deadline. Answers submitted due the hard deadline will get only %80 of the grade.
➢ Subject of message must be { **CU_PA6** }
➢ You must use the given templates while writing you programs.
➢ Attach your code files only; don't include any documents or pictures.
➢ Any violations to previous Instructions will cause your assignment to be rejected.