Homework-5

03/14/2016

Develop three options for the 1D stencil programming example that was presented in the class

    a) CPU function (name it 1d_stencil_cpu)
    b) Global memory only kernel (name it 1d_stencil_gl)
    c) Shared memory only kernel (name it 1d_stencil_sh)

Time the kernel and functions and fill the following table (exclude time spent copying data to the GPU)

N	GPU (global)	GPU(shared)	CPU
100			
10,000			
100,000			
1,000,000			
100,000,000			

Pick the case for N=100,000,000 and test the effect of block size (i.e. number of threads per block) on performance (i.e. execution time)

# threads/block	Global	Shared
16		
64		
256		
512		

Because you are dealing with large integer numbers use the long type. Also compile your code with -arch=sm_30 option on redhawk. This flag will inform the nvcc compiler about compute capability 3.0 on GeForce 680 card on redhawk.