HW5,1D Stencil with Shared Memory

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1 Introduction

In this program the effect of using shared memory in a gpu architecture .

2 Compilation and Results

Just make a build directory and run cmake from it: mkdir build;cd build;cmake
../;make; The output of program consists of two tables for part A and B. The
check flag indicates if the output vector has correct values or not. The output of
running the code on Redhawk: PART A: PART B: Num Elements=100000000

Table 1: CpuVsGpu

N	CPU(mS)	GPU(global)(mS)	GPU(shared)(mS)
100	0.000954	0.035424	0.011584
10000	0.061989	0.015744	0.011904
100000	0.617981	0.023328	0.020992
1000000	5.390882	0.172192	0.114112
10000000	60.554028	1.664640	1.041696
100000000	595.370054	16.582272	9.215136

Table 2: Gpu with different number of threads/block

threads/block	GPU(global)(mS)	GPU(shared)(mS)
16	90.372322	64.004959
64	40.306847	15.348064
256	11.405152	6.742432
512	11.100032	7.432704
1024	14.619360	8.975424

3   Conclusion

This examples shows the effect of using shared memory and improving the program by using it.