CSCD 439

HW3

Michael Peterson

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **n** (array dimension) | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 | 3200 | 3200 |
| threadPerBlock | 32 | 128 | 256 | 384 | 512 | 1024 | 256 | 128 |
| Time cost for Serial (ms) threadPerBlock=0 | 80.95 | 80.95 | 80.95 | 80.95 | 80.95 | 80.95 | 174.27 | 174.27 |
| Time cost for CUDA k0 (ms) | 2.98 | 2.99 | 3.03 | 3.06 | 3.13 | 3.15 | 11.49 | 11.35 |
| Speedup of K0 compared with Serial Code. | 27.16 | 27.07 | 26.72 | 26.45 | 25.86 | 25.70 | 15.17 | 15.35 |
| Time cost for CUDA k1 (ms) | 3.50 | 2.24 | 2.21 | 2.37 | 2.43 | 2.46 | 8.20 | 8.34 |
| Speedup of k1 compared with Serial Code | 23.13 | 36.14 | 36.63 | 34.16 | 33.31 | 32.91 | 21.25 | 20.90 |
| Speedup k1 compared with K0 | 0.85 | 1.33 | 1.37 | 1.29 | 1.29 | 1.28 | 1.40 | 1.36 |

Note: For my implementation I added a feature to Jacobi.cu which allows for a kernel to be specified. This was used along with a bash script to automate the process of running the various configurations and collecting the resulting data.