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| --- | --- | --- |
| Property | Value | Description |
| Device | 0 | The index of device which has compute capability greater or equal to 1.0 that are available for execution |
| name | GeForce 830M | ASCII string identifying device |
| Compute capability | 5.0 | Describes the features supported by a CUDA hardware. [Major compute capability] dot [Minor compute capability] |
| total global memory (KB) | 2097152 | Global memory available on device in kilo bytes |
| shared mem per block | 49152 | Shared memory available per block in bytes |
| regs per block | 65536 | 32-bit registers available per block |
| warp size | 32 | Warp size in threads |
| max threads per block | 1024 | Maximum number of threads per block |
| max thread dim | z:1024  y:1024  x:64 | Maximum size of each dimension (x, y, z) of a block |
| max grid size | z:2147483647 y:65535  x:65535 | Maximum size of each dimension (x, y, z) of a grid |
| clock rate (kHz) |  | Clock frequency in kilohertz |
| total constant memory (bytes) | 65536 | Constant memory available on device in bytes |
| multiprocessor count | 2 | Number of multiprocessors on device |
| memory bus width | 64 | Global memory bus width in bits |
| memory clock rate (kHz) | 900000 | Peak memory clock frequency in kilohertz |
| L2 cache size (bytes) | 1048576 | Size of L2 cache in bytes |
| max threads per SM | 2048 | Maximum size of each dimension (x, y, z) of a block |

|  |  |  |
| --- | --- | --- |
| Size of the vector(n) | GPU time/s | CPU time/s |
| 100 | 0.000000 | 0.000100 |
| 10000 | 0.000000 | 0.000000 |
| 1000000 | 0.002000 | 0.007000 |
| 10000000 | 0.001000 | 0.074000 |

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| --- | --- | --- | --- | --- |
| Case configuration | | GPU time/s | CPU time/s | Speedup() |
| Image size | Window size |
| 640640 | 33 | 0.005000 | 0.043000 | 8.6 |
| 640640 | 55 | 0.010000 | 0.088000 | 8.8 |
| 12801280 | 33 | 0.022000 | 0.159000 | 7.2 |
| 12801280 | 55 | 0.040000 | 0.331000 | 8.3 |

* + 1. When is the speedup (i.e. time of CPU version / time of CUDA version) at its lowest? And why?

Image size 12801280 and window size 33.

It should be a case with larger image size.

* + 1. When is the speedup at its highest? And why?

Image size 640640 and window size 55.