

PHYS-8061 HW1 Discussions

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In this homework, I tried out 5 different block sizes: 2x2, 4x4, 8x8, 16x16, 32x32.

The addition is done by taking the reciprocal of each elements first, then sum the matrix together.

The speed-up for block size 2x2 : 1.675804

The speed-up for block size 4x4 : 2.639117

The speed-up for block size 8x8 : 2.902198

The speed-up for block size 16x16: 2.871609

The speed-up for block size 32x32: 2.830497

The speed-up increases along with the block size from 2x2 to 8x8, but at block size = 16x16, this program no longer improves along with the block size, and instead starts to have a negative impact.

The optimal size for this program is 8x8 and the speed-up for this GPU code is about 2.902198 times faster compared to the corresponding CPU code.