Lab 1 CUDA

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**Questions:**

1. How many total thread blocks do we use?

We have 4 blocks, since the vector size is 1000, 1000/256 = 4 blocks

1. Are all thread blocks full? That is, do all threads in the thread block have data to operate on?

No, the forth block only has 1000 – 256\*3 = 232 threads have data

1. How can this basic vector add program be improved? (What changes do you think can be made to speed up the code?)

I think we can utilize cache and registers on the GPU more explicit. For example, we can utilize constant memory and shared memory to speed up the code.

**Output:**

Setting up the problem...0.000084 s

size Of vector: 1000 x 0

Allocating device variables...3.021823 s

Copying data from host to device...0.000082 s

Launching kernel...0.000087 s

Copying data from device to host...0.000047 s

Verifying results... 0:0.990000/0.990000 1:1.160000/1.160000 2:0.510000/0.510000 3:1.230000/1.230000 4:0.610000/0.610000 5:0.780000/0.780000 6:1.440000/1.440000 7:0.840000/0.840000 8:0.580000/0.580000 9:0.720000/0.720000 10:0.670000/0.670000 11:0.610000/0.610000 12:1.040000/1.040000 13:0.690000/0.690000 14:0.860000/0.860000 15:0.530000/0.530000 16:0.330000/0.330000 17:1.000000/1.000000 18:0.440000/0.440000 19:0.930000/0.930000 20:0.770000/0.77000021:1.090000/1.090000 22:1.240000/1.240000 23:0.980000/0.980000 24:0.450000/0.450000 25:1.040000/1.040000 26:1.210000/1.210000 27:0.960000/0.960000 28:1.120000/1.120000 29:1.440000/1.440000 30:0.670000/0.670000 31:0.630000/0.63000032:1.120000/1.120000 33:1.240000/1.240000 34:1.390000/1.390000 35:0.730000/0.730000 36:1.540000/1.540000 37:1.350000/1.350000 38:0.610000/0.610000 39:0.640000/0.640000 40:0.600000/0.600000 41:1.290000/1.290000 42:1.270000/1.27000043:1.680000/1.680000 44:0.500000/0.500000 45:0.650000/0.650000 46:0.740000/0.740000 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TEST PASSED