**Lab 0 Report**

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**Questions**

Q1: How many total thread blocks do we use?

A1:

By default, the vector size is 1000. So we have ceil(1000/256)=4 blocks.

Q2: Are all thread blocks full?

A2:

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

Q3: How can this basic vector add program be improved?

A3:

By utilizing cache and registers on GPU explicitly such as shared memory and constant memory.

**Output**

Setting up the problem...0.000031 s

size Of vector: 1000 x 0

Allocating device variables...0.472968 s

Copying data from host to device...0.000039 s

Launching kernel...0.000044 s

Copying data from device to host...0.000024 s

Verifying results... 0.990000/0.990000 1.160000/1.160000 0.510000/0.510000 1.230000/1.230000 0.610000/0.610000 0.780000/0.780000 1.440000/1.440000 0.840000/0.840000 0.580000/0.580000 0.720000/0.720000 0.670000/0.670000 0.610000/0.610000 1.040000/1.040000 0.690000/0.690000 0.860000/0.860000 0.530000/0.530000 0.330000/0.330000 1.000000/1.000000 0.440000/0.440000 0.930000/0.930000 0.770000/0.770000 1.090000/1.090000 1.240000/1.240000 0.980000/0.980000 0.450000/0.450000 1.040000/1.040000 1.210000/1.210000 0.960000/0.960000 1.120000/1.120000 1.440000/1.440000 0.670000/0.670000 0.630000/0.630000 1.120000/1.120000 1.240000/1.240000 1.390000/1.390000 0.730000/0.730000 1.540000/1.540000 1.350000/1.350000 0.610000/0.610000 0.640000/0.640000 0.600000/0.600000 1.290000/1.290000 1.270000/1.270000 1.680000/1.680000 0.500000/0.500000 0.650000/0.650000 0.740000/0.740000 0.890000/0.890000 1.180000/1.180000 0.710000/0.710000 1.340000/1.340000 0.990000/0.990000 1.320000/1.320000 1.590000/1.590000 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1.260000/1.260000 1.030000/1.030000 0.580000/0.580000 1.790000/1.790000 1.050000/1.050000 1.190000/1.190000 1.000000/1.000000 1.800000/1.800000 1.140000/1.140000 1.760000/1.760000 0.810000/0.810000 1.020000/1.020000 1.540000/1.540000 1.150000/1.150000 0.980000/0.980000 1.180000/1.180000 1.700000/1.700000 0.270000/0.270000 0.600000/0.600000 1.390000/1.390000 1.280000/1.280000 1.260000/1.260000 0.330000/0.330000 0.800000/0.800000 0.920000/0.920000 0.220000/0.220000 0.790000/0.790000 1.220000/1.220000 1.380000/1.380000 1.400000/1.400000 0.300000/0.300000 1.170000/1.170000 1.470000/1.470000 0.900000/0.900000 0.960000/0.960000 1.050000/1.050000 1.610000/1.610000 1.010000/1.010000 1.380000/1.380000 1.800000/1.800000 0.780000/0.780000 0.710000/0.710000 1.350000/1.350000 0.840000/0.840000 0.860000/0.860000 0.860000/0.860000 0.550000/0.550000 0.610000/0.610000 0.650000/0.650000 0.670000/0.670000 1.000000/1.000000 0.990000/0.990000 0.450000/0.450000 1.340000/1.340000 1.310000/1.310000 1.380000/1.380000 0.610000/0.610000 0.630000/0.630000 1.640000/1.640000 1.520000/1.520000 1.560000/1.560000 0.950000/0.950000 1.730000/1.730000 0.550000/0.550000 0.370000/0.370000 0.230000/0.230000 1.130000/1.130000 0.990000/0.990000 0.760000/0.760000 1.030000/1.030000 1.310000/1.310000 1.060000/1.060000 1.260000/1.260000 0.670000/0.670000 1.420000/1.420000 0.640000/0.640000 0.570000/0.570000 1.010000/1.010000 0.770000/0.770000 1.270000/1.270000 1.730000/1.730000 0.820000/0.820000 0.260000/0.260000 1.220000/1.220000 1.690000/1.690000 1.580000/1.580000 0.650000/0.650000 1.820000/1.820000 0.730000/0.730000 1.290000/1.290000 0.380000/0.380000 0.810000/0.810000 0.770000/0.770000 0.130000/0.130000 0.890000/0.890000 0.660000/0.660000 0.880000/0.880000 1.550000/1.550000 1.180000/1.180000 0.160000/0.160000 1.100000/1.100000 1.020000/1.020000 0.750000/0.750000 0.890000/0.890000 0.730000/0.730000 1.210000/1.210000 0.570000/0.570000 0.830000/0.830000 1.280000/1.280000 0.880000/0.880000 1.110000/1.110000 0.530000/0.530000 0.220000/0.220000 1.890000/1.890000 0.760000/0.760000 0.950000/0.950000 0.510000/0.510000 0.940000/0.940000 0.290000/0.290000 0.760000/0.760000 0.230000/0.230000

TEST PASSED