

EE147

Lab 1 Report: Simple Vector Add

Victoria Hall, 861154075

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Questions

1. How many total thread blocks do we use?

With the default case of 1000 threads and each block having 256 threads, the total number of thread blocks used would be 4 thread blocks.

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

Not all thread blocks are full since 4 full thread blocks would require 1024 threads. Therefore, 24 threads operate on nothing.

3. How can this basic vector add program be improved?

This program can be improved by adding a parameter to the function `basicVecAdd` to allow the user to input the size of the thread block without having to change it in the `kernel.cu` code.

Program Output

```
bender /home/eemaj/vhall/ee147_gpu_programming/Lab1 \ $ ./vector_add
```

```
Setting up the problem...0.000033 s
```

```
size Of vector: 1000 x 0
```

```
Allocating device variables...0.508175 s
```

```
Copying data from host to device...0.000037 s
```

```
Launching kernel...0.000042 s
```

```
Copying data from device to host...0.000025 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	1.010000/1.010000
1.300000/1.300000	1.150000/1.150000	0.220000/0.220000	1.780000/1.780000
1.310000/1.310000	1.670000/1.670000	0.980000/0.980000	0.470000/0.470000
1.320000/1.320000	1.740000/1.740000	1.380000/1.380000	0.580000/0.580000
0.800000/0.800000	0.770000/0.770000	0.720000/0.720000	0.970000/0.970000
0.890000/0.890000	1.530000/1.530000	0.760000/0.760000	1.100000/1.100000
1.090000/1.090000	0.930000/0.930000	1.850000/1.850000	0.980000/0.980000
1.150000/1.150000	1.600000/1.600000	0.840000/0.840000	1.660000/1.660000
0.450000/0.450000	0.430000/0.430000	0.680000/0.680000	1.280000/1.280000
1.640000/1.640000	0.940000/0.940000	0.580000/0.580000	0.950000/0.950000
0.660000/0.660000	0.080000/0.080000	0.950000/0.950000	0.510000/0.510000
0.830000/0.830000	0.850000/0.850000	0.610000/0.610000	1.150000/1.150000
0.640000/0.640000	0.850000/0.850000	0.650000/0.650000	1.050000/1.050000
0.920000/0.920000	1.410000/1.410000	1.160000/1.160000	1.530000/1.530000
0.400000/0.400000	1.050000/1.050000	1.510000/1.510000	1.550000/1.550000
1.180000/1.180000	1.390000/1.390000	0.750000/0.750000	1.630000/1.630000
0.830000/0.830000	0.470000/0.470000	0.950000/0.950000	1.510000/1.510000
1.420000/1.420000	0.540000/0.540000	0.470000/0.470000	0.610000/0.610000
0.620000/0.620000	0.420000/0.420000	1.120000/1.120000	0.980000/0.980000
1.330000/1.330000	0.770000/0.770000	1.180000/1.180000	0.970000/0.970000
0.150000/0.150000	1.830000/1.830000	0.540000/0.540000	1.590000/1.590000
1.300000/1.300000	0.230000/0.230000	1.120000/1.120000	1.700000/1.700000
0.320000/0.320000	0.670000/0.670000	0.290000/0.290000	0.500000/0.500000
0.060000/0.060000	0.080000/0.080000	1.180000/1.180000	1.940000/1.940000
1.080000/1.080000	1.130000/1.130000	1.450000/1.450000	1.030000/1.030000
0.670000/0.670000	0.450000/0.450000	1.160000/1.160000	0.830000/0.830000
0.920000/0.920000	1.320000/1.320000	0.850000/0.850000	1.250000/1.250000
0.610000/0.610000	1.030000/1.030000	0.740000/0.740000	0.760000/0.760000
0.920000/0.920000	1.290000/1.290000	0.880000/0.880000	1.220000/1.220000
1.040000/1.040000	1.040000/1.040000	0.440000/0.440000	0.380000/0.380000
0.720000/0.720000	1.770000/1.770000	0.920000/0.920000	0.310000/0.310000
0.870000/0.870000	1.110000/1.110000	0.770000/0.770000	0.950000/0.950000
1.250000/1.250000	1.280000/1.280000	0.500000/0.500000	1.450000/1.450000
0.730000/0.730000	0.700000/0.700000	1.320000/1.320000	0.690000/0.690000
1.540000/1.540000	0.690000/0.690000	0.470000/0.470000	0.670000/0.670000
0.780000/0.780000	0.730000/0.730000	0.970000/0.970000	1.700000/1.700000
1.070000/1.070000	0.890000/0.890000	0.960000/0.960000	0.640000/0.640000
0.940000/0.940000	1.400000/1.400000	0.060000/0.060000	1.180000/1.180000
1.690000/1.690000	0.990000/0.990000	1.020000/1.020000	1.080000/1.080000
1.110000/1.110000	0.840000/0.840000	1.080000/1.080000	0.880000/0.880000
1.120000/1.120000	0.620000/0.620000	0.370000/0.370000	0.900000/0.900000
0.370000/0.370000	0.220000/0.220000	1.110000/1.110000	1.910000/1.910000
0.960000/0.960000	1.110000/1.110000	0.600000/0.600000	1.260000/1.260000
0.850000/0.850000	1.610000/1.610000	0.960000/0.960000	1.440000/1.440000
0.500000/0.500000	0.920000/0.920000	1.090000/1.090000	1.480000/1.480000
1.360000/1.360000	1.190000/1.190000	0.680000/0.680000	1.580000/1.580000
1.190000/1.190000	0.740000/0.740000	0.190000/0.190000	1.340000/1.340000
0.580000/0.580000	0.800000/0.800000	0.750000/0.750000	1.230000/1.230000
0.940000/0.940000	0.160000/0.160000	0.650000/0.650000	1.320000/1.320000
0.910000/0.910000	0.770000/0.770000	1.280000/1.280000	0.880000/0.880000
0.880000/0.880000	0.920000/0.920000	1.140000/1.140000	0.780000/0.780000
1.530000/1.530000	0.630000/0.630000	0.750000/0.750000	1.080000/1.080000
1.070000/1.070000	0.360000/0.360000	0.560000/0.560000	0.960000/0.960000

1.570000/1.570000	1.760000/1.760000	1.540000/1.540000	0.800000/0.800000
0.510000/0.510000	0.770000/0.770000	0.150000/0.150000	1.140000/1.140000
1.090000/1.090000	0.940000/0.940000	1.380000/1.380000	0.090000/0.090000
1.100000/1.100000	1.550000/1.550000	0.450000/0.450000	1.020000/1.020000
0.840000/0.840000	1.250000/1.250000	0.420000/0.420000	0.780000/0.780000
0.180000/0.180000	1.080000/1.080000	1.080000/1.080000	1.230000/1.230000
1.230000/1.230000	1.350000/1.350000	1.830000/1.830000	1.350000/1.350000
0.250000/0.250000	0.930000/0.930000	1.830000/1.830000	0.860000/0.860000
1.210000/1.210000	0.420000/0.420000	0.700000/0.700000	0.770000/0.770000
1.710000/1.710000	1.890000/1.890000	0.920000/0.920000	0.860000/0.860000
1.830000/1.830000	0.820000/0.820000	1.470000/1.470000	0.460000/0.460000
0.890000/0.890000	0.920000/0.920000	0.520000/0.520000	0.780000/0.780000
1.180000/1.180000	0.470000/0.470000	1.560000/1.560000	0.400000/0.400000
1.080000/1.080000	1.160000/1.160000	1.650000/1.650000	0.840000/0.840000
1.050000/1.050000	1.000000/1.000000	1.710000/1.710000	0.340000/0.340000
1.450000/1.450000	1.070000/1.070000	0.720000/0.720000	1.200000/1.200000
1.010000/1.010000	0.940000/0.940000	0.970000/0.970000	0.250000/0.250000
0.840000/0.840000	0.410000/0.410000	1.110000/1.110000	0.190000/0.190000
0.750000/0.750000	0.620000/0.620000	0.650000/0.650000	1.170000/1.170000
0.550000/0.550000	1.190000/1.190000	0.950000/0.950000	0.770000/0.770000
1.180000/1.180000	1.560000/1.560000	0.180000/0.180000	1.780000/1.780000
0.760000/0.760000	0.870000/0.870000	0.150000/0.150000	0.810000/0.810000
0.920000/0.920000	0.390000/0.390000	0.670000/0.670000	0.420000/0.420000
0.990000/0.990000	0.910000/0.910000	0.620000/0.620000	0.520000/0.520000
1.380000/1.380000	1.110000/1.110000	1.290000/1.290000	0.740000/0.740000
1.050000/1.050000	0.930000/0.930000	0.930000/0.930000	1.320000/1.320000
1.070000/1.070000	1.640000/1.640000	1.010000/1.010000	1.140000/1.140000
0.830000/0.830000	0.970000/0.970000	0.960000/0.960000	1.050000/1.050000
1.050000/1.050000	1.190000/1.190000	0.840000/0.840000	0.340000/0.340000
1.580000/1.580000	1.040000/1.040000	0.680000/0.680000	1.020000/1.020000
1.470000/1.470000	0.880000/0.880000	0.970000/0.970000	0.460000/0.460000
1.320000/1.320000	1.590000/1.590000	1.030000/1.030000	1.230000/1.230000
1.240000/1.240000	0.840000/0.840000	1.490000/1.490000	0.810000/0.810000
1.300000/1.300000	0.950000/0.950000	0.660000/0.660000	0.900000/0.900000
1.590000/1.590000	0.680000/0.680000	1.090000/1.090000	0.460000/0.460000
0.690000/0.690000	1.100000/1.100000	1.030000/1.030000	1.270000/1.270000
0.290000/0.290000	0.920000/0.920000	1.140000/1.140000	0.390000/0.390000
1.000000/1.000000	0.820000/0.820000	1.460000/1.460000	0.480000/0.480000
1.740000/1.740000	0.440000/0.440000	0.980000/0.980000	1.070000/1.070000
0.550000/0.550000	0.530000/0.530000	1.820000/1.820000	0.830000/0.830000
0.900000/0.900000	1.830000/1.830000	1.170000/1.170000	0.730000/0.730000
1.310000/1.310000	0.360000/0.360000	0.670000/0.670000	1.420000/1.420000
1.040000/1.040000	1.280000/1.280000	0.410000/0.410000	1.260000/1.260000
0.900000/0.900000	1.490000/1.490000	1.530000/1.530000	1.710000/1.710000
0.410000/0.410000	0.190000/0.190000	1.150000/1.150000	0.940000/0.940000
0.540000/0.540000	1.140000/1.140000	0.940000/0.940000	0.290000/0.290000
1.100000/1.100000	0.440000/0.440000	1.400000/1.400000	1.170000/1.170000
0.980000/0.980000	1.270000/1.270000	0.540000/0.540000	0.890000/0.890000
1.630000/1.630000	1.230000/1.230000	1.660000/1.660000	0.940000/0.940000
1.590000/1.590000	0.850000/0.850000	1.420000/1.420000	0.670000/0.670000
1.660000/1.660000	0.350000/0.350000	0.940000/0.940000	1.570000/1.570000
0.360000/0.360000	0.520000/0.520000	0.810000/0.810000	1.830000/1.830000
1.240000/1.240000	1.480000/1.480000	1.290000/1.290000	0.830000/0.830000
1.140000/1.140000	0.760000/0.760000	0.160000/0.160000	0.760000/0.760000

1.200000/1.200000	1.570000/1.570000	0.470000/0.470000	0.190000/0.190000
0.840000/0.840000	1.530000/1.530000	1.120000/1.120000	1.520000/1.520000
0.760000/0.760000	0.300000/0.300000	0.990000/0.990000	0.880000/0.880000
1.160000/1.160000	1.410000/1.410000	1.070000/1.070000	1.340000/1.340000
0.800000/0.800000	1.540000/1.540000	0.910000/0.910000	1.180000/1.180000
1.590000/1.590000	0.770000/0.770000	0.050000/0.050000	1.350000/1.350000
1.780000/1.780000	1.340000/1.340000	0.180000/0.180000	1.450000/1.450000
0.100000/0.100000	0.860000/0.860000	1.220000/1.220000	1.310000/1.310000
0.960000/0.960000	0.210000/0.210000	0.550000/0.550000	0.330000/0.330000
0.260000/0.260000	1.710000/1.710000	1.850000/1.850000	0.540000/0.540000
1.020000/1.020000	1.370000/1.370000	1.460000/1.460000	0.700000/0.700000
1.820000/1.820000	1.070000/1.070000	1.040000/1.040000	1.160000/1.160000
1.650000/1.650000	1.480000/1.480000	1.380000/1.380000	1.240000/1.240000
0.260000/0.260000	1.430000/1.430000	1.110000/1.110000	1.080000/1.080000
1.290000/1.290000	0.820000/0.820000	0.530000/0.530000	1.400000/1.400000
1.210000/1.210000	0.280000/0.280000	1.750000/1.750000	0.690000/0.690000
1.010000/1.010000	1.340000/1.340000	1.070000/1.070000	1.800000/1.800000
1.060000/1.060000	0.970000/0.970000	1.390000/1.390000	1.600000/1.600000
1.340000/1.340000	0.900000/0.900000	1.340000/1.340000	1.220000/1.220000
1.490000/1.490000	0.380000/0.380000	0.420000/0.420000	0.670000/0.670000
0.900000/0.900000	0.800000/0.800000	0.430000/0.430000	0.200000/0.200000
1.270000/1.270000	1.590000/1.590000	0.810000/0.810000	1.560000/1.560000
0.930000/0.930000	1.350000/1.350000	1.000000/1.000000	0.670000/0.670000
1.150000/1.150000	0.750000/0.750000	0.370000/0.370000	0.220000/0.220000
1.620000/1.620000	1.480000/1.480000	1.020000/1.020000	1.200000/1.200000
1.460000/1.460000	0.450000/0.450000	1.320000/1.320000	1.330000/1.330000
1.360000/1.360000	1.180000/1.180000	1.070000/1.070000	0.370000/0.370000
0.610000/0.610000	0.530000/0.530000	1.560000/1.560000	1.030000/1.030000
1.330000/1.330000	0.520000/0.520000	1.250000/1.250000	1.120000/1.120000
0.640000/0.640000	1.580000/1.580000	1.210000/1.210000	0.570000/0.570000
1.450000/1.450000	1.210000/1.210000	1.290000/1.290000	0.660000/0.660000
1.010000/1.010000	1.190000/1.190000	0.880000/0.880000	0.150000/0.150000
0.670000/0.670000	0.940000/0.940000	1.880000/1.880000	0.660000/0.660000
1.400000/1.400000	1.720000/1.720000	0.520000/0.520000	0.810000/0.810000
0.430000/0.430000	1.110000/1.110000	0.700000/0.700000	0.560000/0.560000
0.650000/0.650000	0.800000/0.800000	0.600000/0.600000	1.500000/1.500000
1.840000/1.840000	0.890000/0.890000	1.150000/1.150000	0.480000/0.480000
0.990000/0.990000	0.400000/0.400000	1.580000/1.580000	0.980000/0.980000
1.610000/1.610000	0.870000/0.870000	0.640000/0.640000	1.140000/1.140000
0.580000/0.580000	1.040000/1.040000	0.830000/0.830000	0.790000/0.790000
0.500000/0.500000	1.230000/1.230000	0.970000/0.970000	0.420000/0.420000
1.480000/1.480000	1.010000/1.010000	0.230000/0.230000	1.430000/1.430000
1.650000/1.650000	1.470000/1.470000	0.520000/0.520000	0.300000/0.300000
0.790000/0.790000	1.170000/1.170000	0.840000/0.840000	0.630000/0.630000
0.580000/0.580000	1.030000/1.030000	0.640000/0.640000	0.100000/0.100000
1.430000/1.430000	0.740000/0.740000	1.120000/1.120000	1.090000/1.090000
1.140000/1.140000	1.280000/1.280000	1.750000/1.750000	1.770000/1.770000
0.840000/0.840000	0.580000/0.580000	1.080000/1.080000	0.870000/0.870000
0.860000/0.860000	1.090000/1.090000	0.330000/0.330000	0.870000/0.870000
1.110000/1.110000	1.100000/1.100000	0.820000/0.820000	1.280000/1.280000
1.090000/1.090000	1.390000/1.390000	0.620000/0.620000	0.400000/0.400000
1.080000/1.080000	0.980000/0.980000	0.550000/0.550000	1.180000/1.180000
0.540000/0.540000	0.710000/0.710000	1.810000/1.810000	0.970000/0.970000
0.970000/0.970000	1.450000/1.450000	1.100000/1.100000	1.160000/1.160000

1.260000/1.260000	0.870000/0.870000	0.460000/0.460000	1.620000/1.620000
1.490000/1.490000	0.580000/0.580000	0.530000/0.530000	0.880000/0.880000
0.680000/0.680000	0.880000/0.880000	0.270000/0.270000	1.310000/1.310000
1.020000/1.020000	1.620000/1.620000	0.600000/0.600000	0.630000/0.630000
1.010000/1.010000	1.260000/1.260000	0.550000/0.550000	1.140000/1.140000
0.260000/0.260000	0.620000/0.620000	0.330000/0.330000	0.800000/0.800000
0.380000/0.380000	0.660000/0.660000	0.820000/0.820000	0.870000/0.870000
0.650000/0.650000	0.450000/0.450000	1.040000/1.040000	0.430000/0.430000
0.840000/0.840000	0.540000/0.540000	0.060000/0.060000	1.860000/1.860000
1.120000/1.120000	1.120000/1.120000	1.260000/1.260000	0.810000/0.810000
1.040000/1.040000	0.540000/0.540000	1.170000/1.170000	1.060000/1.060000
0.690000/0.690000	0.300000/0.300000	1.690000/1.690000	0.220000/0.220000
0.560000/0.560000	0.760000/0.760000	1.410000/1.410000	0.340000/0.340000
1.430000/1.430000	0.790000/0.790000	1.670000/1.670000	0.810000/0.810000
0.490000/0.490000	0.540000/0.540000	0.200000/0.200000	1.140000/1.140000
0.510000/0.510000	1.290000/1.290000	1.580000/1.580000	0.880000/0.880000
0.830000/0.830000	0.690000/0.690000	1.260000/1.260000	1.490000/1.490000
0.850000/0.850000	1.050000/1.050000	0.340000/0.340000	0.900000/0.900000
0.590000/0.590000	0.510000/0.510000	0.960000/0.960000	1.800000/1.800000
1.330000/1.330000	1.700000/1.700000	1.080000/1.080000	1.430000/1.430000
0.980000/0.980000	0.010000/0.010000	0.770000/0.770000	0.410000/0.410000
0.800000/0.800000	0.490000/0.490000	1.260000/1.260000	1.820000/1.820000
1.550000/1.550000	0.990000/0.990000	0.490000/0.490000	0.590000/0.590000
1.290000/1.290000	1.120000/1.120000	0.990000/0.990000	0.640000/0.640000
0.810000/0.810000	0.770000/0.770000	0.650000/0.650000	1.180000/1.180000
0.820000/0.820000	1.000000/1.000000	1.600000/1.600000	0.470000/0.470000
1.040000/1.040000	1.090000/1.090000	0.790000/0.790000	1.380000/1.380000
0.790000/0.790000	0.390000/0.390000	0.850000/0.850000	0.810000/0.810000
1.450000/1.450000	1.150000/1.150000	0.750000/0.750000	1.250000/1.250000
0.170000/0.170000	0.530000/0.530000	0.600000/0.600000	0.760000/0.760000
1.040000/1.040000	1.100000/1.100000	1.870000/1.870000	0.850000/0.850000
0.740000/0.740000	0.860000/0.860000	0.550000/0.550000	1.590000/1.590000
0.670000/0.670000	0.200000/0.200000	1.290000/1.290000	1.030000/1.030000
0.730000/0.730000	0.420000/0.420000	1.500000/1.500000	1.300000/1.300000
1.030000/1.030000	1.330000/1.330000	0.720000/0.720000	0.860000/0.860000
1.260000/1.260000	1.580000/1.580000	1.670000/1.670000	1.710000/1.710000
1.250000/1.250000	1.460000/1.460000	0.490000/0.490000	0.940000/0.940000
0.520000/0.520000	0.620000/0.620000	1.230000/1.230000	0.560000/0.560000
0.240000/0.240000	1.100000/1.100000	0.430000/0.430000	1.500000/1.500000
1.010000/1.010000	0.980000/0.980000	0.610000/0.610000	0.200000/0.200000
1.220000/1.220000	1.420000/1.420000	1.230000/1.230000	1.480000/1.480000
0.880000/0.880000	0.770000/0.770000	1.300000/1.300000	0.910000/0.910000
1.120000/1.120000	1.550000/1.550000	1.290000/1.290000	1.380000/1.380000
0.650000/0.650000	1.010000/1.010000	1.130000/1.130000	0.900000/0.900000
1.470000/1.470000	0.620000/0.620000	0.890000/0.890000	0.990000/0.990000
1.280000/1.280000	1.120000/1.120000	1.080000/1.080000	1.040000/1.040000
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			